

**THE DEVELOPMENT AND EVALUATION OF RISK-BASED
AUDIT APPROACHES**



**THE DEVELOPMENT AND EVALUATION OF RISK-BASED
AUDIT APPROACHES**

BY

JEFFRINA PRINSLOO

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BLOEMFONTEIN

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DECLARATION

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I declare that the dissertation hereby submitted by me for the Magister in Accounting degree at the University of the Free State is my own independent work and has not previously been submitted by me at another university/ faculty.

J Prinsloo

ABSTRACT

The purpose of the study is to trace the development of risk-based audit approaches, in order to understand the complexities and difficulties of these approaches, as well as to evaluate these risk-based audit approaches, with the objective of assisting in the process of improving the risk-based audit approach followed by the audit profession. The only defence auditors have against the anger (or frustration) of stakeholders in instances of corporate failures is sufficient, appropriate audit evidence that proves their innocence. This audit evidence will be the result of a well-planned and performed audit. An audit approach, currently a risk-based audit approach, is therefore a crucial component in the performance of an audit.

Changing the risk-based audit approach is a normal consequence of the striving for the improvement and development of the services that the auditing profession provides. In developing the risk-based audit approach, there are certain complexities surrounding an audit that should be considered. The major complexities in the performance of an audit are: first, the expectation gap; second, the uncertainties surrounding the responsibilities of the auditor; third, the provision of reasonable assurance, and fourth, the practical implementation of audit standards.

The auditing profession should, during this continuous process of changing the auditing standards and guidance, consider and evaluate changes against the theoretical foundations of auditing to support the credibility of the audit process.

The theoretical framework that formed the background of this study is discussed in the second chapter, including the meaning of "risk-based audit approaches". Audit approaches are discussed that developed before the acceptance of the risk-based audit approach, together with audit approaches that were never followed or accepted by practitioners, and which influenced the development of risk-based audit approaches.

The development of the first risk-based audit approach, the statistical audit risk approach (audit risk model) that originated from the Elliott and Rogers model is discussed in the

third chapter. The critique on the statistical audit risk approach is summarised and consists mainly of the following: that the audit risk model's event structure is ill-defined and that the risk components lack independence, which is a basic assumption for the use of the multiplicative formula. The risk components are complex and interdependent and are difficult to assess therefore, practitioners prefer to assess these risk components in linguistic terms e.g. low, medium and high. The multiplicative rule does not provide protection against an understatement of audit risk if the audit outcome space is not completely specified and when a revision of the audit plan is needed. The aggregation of the individual risks is problematic and therefore the audit risk model should be used only for planning purposes.

The development of the inherent risk audit approach (audit risk model from a conceptual perspective) is discussed in the fourth chapter. The critique against the inherent risk audit approach includes the unsuccessful decomposition structure of audit risk, due to the interdependency of inherent risk and control risk. The concept of "inherent risk" is also too broad and vague.

The business risk audit approach is also discussed in the fourth chapter. This approach was developed by audit firms as an intended improvement on the inherent risk audit approach and is still widely used. The main critique against the business risk audit approach is the lack of a clear link between business risks and possible risks of material misstatement.

The "risk-process audit approach" is addressed in the fifth chapter. For the purposes of this study, the name of the current risk-based audit approach is the risk-process audit approach. The reason for this formulation is the emphasis in the audit risk standards on the risk management tasks.

The concept of "risk" in the performance of the task of identification of risks is, in essence, a choice in which the auditor has the freedom to choose an approach, and is referred to as "risk of material misstatement". The concept of "risk of material misstatement" is much broader and different from the suggested definition in the auditing standards, and includes

the consideration of potential misstatements according to the assertions on the assertion level (assertion-focus), and lacks conceptual clarity.

The criteria for the task of "assessment of identified risks" are as follows: the different types of assertions are used as the criteria for assessing risks of material misstatements through the identification of possible misstatements. The concept of "misstatements" is the criterion used to consider the likelihood of misstatement(s), and the concept of "planning materiality" is used to consider the magnitude of misstatement(s).

In the sixth and final chapter of this study, the development of risk-based audit approaches is summarised through a comparison of the risk-based audit approaches. In the future development of the current risk-process audit approach it is suggested that a fourth aspect, the significance of audit procedures, additional to the current nature, timing and extent of audit procedures maybe considered in respect of aspects that influence the response to risks of material misstatement included in the audit plan. Furthermore, the definition of the concept of "risk of material misstatement" could include the assertion-focus. The importance and possibilities of the division of audit planning in the financial statement level and the assertion level is also not yet fully considered.

In conclusion, the author believes that the history of risk-based audit approaches has repeated itself and that the development of the risk-based audit approach and changes thereto were not considered against, and based on a sound foundation of auditing theory.

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ABBREVIATIONS

AICPA	: American Institute of Certified Public Accountants
AR	: Audit risk
CICA	: Canadian Institute of Chartered Accountants
CR	: Control risk
DR	: Detection risk
GPS	: Global positioning system
IR	: Inherent risk
ISA	: International Standard on Auditing
IAASB	: International Audit and Assurance Standards Board
IRBA	: Independent Regulatory Board of Auditors (in RSA)
OR	: Occurrence risk
PCAOB	: Public Company Accounting Oversight Board
SAP	: Statement of Audit Procedure
SAS	: Statement on Auditing Standards

DEFINITIONS

Assertions

Assertions are representations, by management, explicit or otherwise, that are embodied in the financial statements, as used by the auditor to consider the different types of potential misstatement that may occur (IAASB/IRBA ISA 315R, 2006: para. 4(a)).

Analytical review risk

The auditor's assessment of the risk that analytical review procedures and other relevant substantive tests would fail to detect errors equal to tolerable error (AICPA SAS 39 Appendix, 1981: para. 4 in Cushing & Loebbecke, 1983: 25).

Assurance engagement

An engagement in which a practitioner expresses a conclusion designed to enhance the degree of confidence of the intended users other than the responsible party about the outcome of the evaluation or measurement of a subject matter against criteria. The outcome of the evaluation of measurement of a subject matter is the information that results from applying the criteria (IAASB/IRBA Glossary of terms, 2006: 2).

Audit risk

Audit risk is the risk that the auditor expresses an inappropriate audit opinion when the financial statements are materially misstated. Audit risk is a function of the risk of material misstatement (i.e. the risk that the financial statements are materially misstated prior to audit) and the risk that the auditor will not detect such misstatement ("detection risk") (IAASB/IRBA Glossary of terms, 2006: 3).

Auditor's business risk

Auditor's business risk is the risk that the auditor or audit firm will suffer harm because of a client relationship, even though the audit report rendered for the client was correct (Arens & Loebbecke, 2000: 262).

Business risk

A risk resulting from significant conditions, events, circumstances, actions or inactions that could adversely affect an entity's ability to achieve its objectives and execute its strategies, or from the setting of inappropriate objectives and strategies. (IAASB/IRBA ISA 315R, 2006: para. 4(b)).

Control risk

Control risk is the risk that a misstatement could occur in an assertion and that could be material, individually or when aggregated with other misstatements, will not be prevented or detected and corrected on a timely basis by the entity's internal control (IAASB/IRBA Glossary of terms, 2006: 3).

Detection risk

Detection risk is the risk that the auditor's procedures will not detect a misstatement that exists in an assertion that could be material or when aggregated with other misstatements (IAASB/IRBA Glossary of terms, 2006: 3).

Engagement risk

Engagement risk represents the overall risk associated with an audit engagement. Engagement risk consists of three components: client's business risk (also referred to as entity's business risk), audit risk and auditor's business risk (Colbert, Luehlhing & Alderman, 1996: 54).

Expectation gap

The expectation gap is the difference between the levels of expected performance as envisioned by the independent accountant and by the user of financial statements (Liggio, 1974: 27 in Porter, 1993: 50).

Hypothesis testing

Hypothesis testing is a process of testing how "close" a sample statistic lies to a hypothesised value of its population parameter (Wegner, 2007: 256).

Internal control risk

The auditor's assessment of the risk that, given that errors equal to tolerable error occur, the system of internal accounting control fails to detect them (AICPA SAS 39 Appendix (1981: para. 4) in Cushing & Loebbecke (1983: 25)).

Inherent risk

Inherent risk is the susceptibility of an assertion to a misstatement that could be material, individually or when aggregated with other misstatements, assuming that there were no related internal controls (IAASB/IRBA Glossary of terms, 2006: 3).

Materiality

Information is material if its omission or misstatement could influence the economic decisions of users taken on the basis of the financial statements. Materiality depends on the size of the item or error judged in the particular circumstances of its omission or misstatement. Thus, materiality provides a threshold or cutoff point rather than being a primary qualitative characteristic which information must have if it is to be useful (IAASB/IRBA Glossary of terms, 2006: 11).

Misstatement

A misstatement of the financial statements that can arise from fraud or error (IAASB/IRBA Glossary of terms, 2007: 11).

Occurrence risk

Occurrence risk is the risk that the assertion contains a misstatement prior to the audit (Waller, 1993: 787).

Population parameter

A population parameter is the actual value of a random variable in a population (Wegner, 2007: 6).

Pre-engagement risk

Pre-engagement risk is engagement risk assessed during the engagement acceptance phase of the audit (Huss & Jacobs, 1991: 22).

Risk-based audit approach

An risk-based audit approach is the method the auditor follows to determine the audit procedures to be performed; that is, based on risk; or the indication that there is a greater likelihood that the transactions or classes of transactions, accounts or balances, and/or disclosures is misstated, to enable the auditor to achieve the audit objective.

Role of the external auditor

The role of the external auditor comprises the attitudes, values and behaviour ascribed to the social position occupied by auditors, by individuals and groups in society who have an identifiable relationship with that social position. The auditor's social position is that of a professional acting as an instrument of social control within the accountability process required of economic entities. Accountability is imposed on these organisations as a check on the power accorded them by society through the provision of financial, human and other non-financial resources. It is the function of external auditors to monitor the accountability reports provided by the managers of these economic enterprises (Porter, 1988:92 in Pratt & Van Peurse, 1993: 13).

Test of details risk

The sampling risk of incorrect acceptance after substantive tests of details (AICPA SAS 39 Appendix, 1981: para. 4 in Cushing & Loebbecke, 1983: 25).

Type I error

This is the probability of rejecting a true null hypothesis. A Type I error is called the level of significance, and is represented by the symbol α (alpha) (Wegner, 2007: 263).

Type II error

This is the probability of accepting a false null hypothesis. A Type II error is represented by the symbol β (beta) (Wegner, 2007: 263).

Ultimate risk

The allowable ultimate risk that the auditor will fail to detect a monetary error equal or more to the maximum tolerable amount (AICPA SAS 39 Appendix, 1981: para. 4 in Cushing & Loebbecke, 1983: 25).

CHAPTER 1: BACKGROUND AND INTRODUCTION

1.1. Introduction

Auditors are travelers on a road to a destination. This destination can be viewed as the point where auditors adhere to the general accepted auditing standards and their responsibilities in the performance of the audit. The audit approach can be seen as the map (GPS/compass) auditors' use in their journey to get to this destination. The objective of the audit approach is to assist the auditor to obtain sufficient and appropriate audit evidence in order to justify the auditor's opinion, thereby reaching this destination. At times, the auditor's map (audit approach) seems to be an old, indecipherable pirate map, making it tricky and challenging to reach this destination.

An early example of the perception that the auditor's approach or map is old and inaccurate originated from a number of professional accountants employed in various industrial undertakings in England who published four articles with the title "Future of Auditing" in 1942 in *The Accountant*. A group of accountants in industry (1942: 20, 25) mention:

Apart from economic science, however, there is little or no evidence during the last twenty or twenty-five years to show that the professional accountant ... has produced a single idea of value to industry or the State. He has merely ticked and cast and trusted in God. ...The auditor does not only discharge his duty but also wastes a considerable amount of time and effort by sending in to his clients a bunch of clerks to tick and cast and vouch, without really knowing what they are supposed to be doing.

They believed that the audit approach used at that point in time was imprecise, even non-existent. This was also supported by the results from a study by St. Pierre and Anderson (1984: 242-243) in which 129 cases that were filed against public accountants during the 1960s and 1970s were examined, revealing that 28 per cent of the errors analysed and classified concerned errors in procedure, while 72 per cent of the errors concerned interpretations of generally accepted accounting principles and auditing standards, or allegations of fraud. This indicated that twenty years after the publication of the group of accountants in 1942, the profession still struggled to understand the map, or interpret the auditing standards to get to the "destination of responsibility".

Sale (1981: 82) supported and possibly explains this stating that:

Considering that practitioners had earned maybe 85 per cent of their income from auditing since the turn of the century, it is rather curious that it provided so little intellectual challenge for practitioners up to quite recently. Between 1880 and 1965 only 5 statements on auditing were issued in England (Up to 1960 in the United States the figure was 30 with 5 issued during the fifties). The official history (published in 1966) of one major United Kingdom Institute explains that the Institute had been reluctant to issue views on technical subjects lest they should be resented by members and lest standards should come to be set which might, on occasion, be embarrassing to members.

Mautz and Sharaf (1961: 1) finally recognised the real dilemma with great accuracy in 1961 and suggested that the first steps the auditor should take on this road, are to understand the theory and concepts underlying auditing. They stated: "*An understanding of auditing theory can lead us to reasonable solutions of some of the most vexing problems facing auditors today.*"

Mautz and Sharaf (1961: 1) also warn the profession against the belief that:

Many think of auditing as a completely practical, as opposed to theoretical subject. To them, auditing is a series of practices and procedures, methods and techniques, a way of doing with little need for the explanations, descriptions, reconciliations, and arguments so frequently lumped together as theory.

These problems in the performance of audits persisted, contends Groveman (1995: 83) who specifically mentions: "*The overall reality check appears to be a missing test in some of the recent audit failures.*"

Furthermore, in respect of the identification of audit risks that form a crucial part of the risk-based audit approach Groveman (1995: 83) commented: "*One cannot develop guidelines for a 'smell test'.*"

The auditing profession had not reached a position where the further development of

effective and efficient audit approaches might cease. The auditing profession is still vulnerable, especially in the instance of a corporate failure.

In brief, the purpose of this study is to investigate the development and evaluation of risk-based audit approaches and is explained in more detail in par 1.5 - *Purpose of the study*.

In the rest of this chapter, the importance of an audit approach is discussed and the complexities surrounding the audit are also discussed. The complexities surrounding the audit are the limitations that are set for the development of a risk-based audit approach. The last part of the chapter discusses the problem statement, purpose of the study, research design, methodology and the outline of the study.

1.2. The importance of an audit approach

1.2.1. Introduction

The consequences of Enron and Parmalat, the most prominent corporate failures in the United States and Europe, underline the importance and role that an audit approach can play in ensuring adherence to the responsibilities of auditors in the performance of the audit. The consequences of Enron and Parmalat illustrate that corporate failures cause an increasing focus on, and consequent change in audit standards, specifically in terms of the audit approach that is generally followed. Furthermore, these corporate failures emphasised the vulnerability of the auditing profession when it is perceived that auditors do not fulfil their role of 'social control' through effective and efficient audit approaches.

Corporate failures are a reality of business, as explained by Terry (2007: 40), because business is about risk taking and there will always be companies that fail, as they are unable to respond to risks and a changing world. One of the consequences of a corporate failure is normally an intense scrutiny of the performance of the auditors, because auditors should provide independent, objective and reasonable assurance about the information in the financial statements. Investors depend on this timely and reliable financial information to determine the allocation of resources in the capital market (Walker, 2002: 4). When there is evidence that it was not communicated to the

stakeholders, that these audited financial statements did not fairly represent the position of the company, it is inevitable, according to Cullinan and Sutton (2002: 298) that the question will be asked: "*Where were the auditors?*"

1.2.2. The impact of Enron in the United States

In the Enron saga, the answer to the above question illustrates the auditing profession's vulnerable position in the performing of audits. The approach followed in performing an audit could have unforeseen and major consequences for the whole profession in the case of a corporate failure. According to the World Almanac & Book of Facts (2003: 25), the auditors of Enron, Arthur Andersen, were indicted for obstruction of justice for shredding audit-related Enron documents in 4 cities. This resulted in Arthur Andersen surrendering its license to audit in August 2002, which led to the audit firm's collapse. It was reported that Joe Berardino, Arthur Andersen's, Chief Executive Officer, publicly admitted that Arthur Andersen had made errors in the audit of Enron (Terry, 2007: 37). In May 2005, Hanney (2005: 8) reported that the Supreme Court ruled that the jury that found Arthur Andersen guilty had been wrongly instructed on the standard of evidence to be applied for reaching that verdict. Although the verdict was unanimously overturned, the consequences were severe for both Arthur Andersen and the auditing profession. The impact of Enron on the auditing profession is explained by Walker (2002: 13):

The Enron failure has raised questions concerning whether auditors are living up to the expectations of the investing public; however, similar questions have been repeatedly raised over the past three decades by significant restatements of financial statements and unexpected costly business failures. Issues debated over the years continue to focus on auditor independence concerns and the auditor's role and responsibilities.

These events discredited the value of financial statement audits and created a credibility crisis for the accounting and auditing profession (Whittington & Pany, 2004: 10). Acevedo (2005: 23) confirmed this, stating that: "*The audit profession suffered a shameful and shocking fall from grace as it found itself in the middle of a financial scandal whose wake rippled through the American economy.*"

This impacted directly on the profession, and according to Acevedo (2005: 23): *"The auditor's report has become the source of dashed expectations, confusion, and misplaced reliance by the public."*

These events subsequently resulted in the adoption of the Sarbanes-Oxley Act, in the US Congress during 2002, creating the Public Company Accounting Oversight Board (PCOAB) to oversee the accounting profession, which eliminated a significant part of the self-regulation of the profession (Goldwasser, 2005: 28; Deakin & Konzelmann, 2004: 134). Enron had a catalytic effect on the self-regulation of auditors and on the content of auditing and accounting standards worldwide. Kirk (2005: 30) confirmed this stating:

The crowning blow was the loss of the profession's responsibility for establishing generally accepted auditing standards for publicly owned companies (in the United States of America). Based on the author's observations, there is accounting professionals convincing themselves that doing anything other than was specifically prohibited was fair game because the professional objectivity and integrity were enough to protect the public accountant and prevent jeopardizing the professional reputation.

In the aftermath of a corporate failure, auditors usually explain their innocence, which is in contrast to the deceit of the directors, stating that the audit is not a guarantee; that auditing requires professional judgment and that sometimes judgment can be incorrectly exercised (Gray & Manson, 2000: 568). The previously acceptable explanations were rejected and the auditing profession was forced to seriously reconsider its practices. Enron emphasised the importance and necessity of an increased focus on, and consideration of, the risk-based audit approach, the "auditor's map". An efficient, effective audit approach can assist the profession in exercising its professional judgment and in gaining sufficient, appropriate audit evidence to support a correct audit opinion and as a defense against possible allegations by the public.

1.2.3. The impact of Parmalat in Europe

Parmalat is a large and complex group of companies in Europe, operating worldwide, controlled by a Milanese family (Accountancy - Editorial, 2004: 27). Parmalat employs 36 356 people in 139 production sites worldwide and lists no fewer than 214 subsidiaries in 48 different countries (Accountancy - Editorial, 2004: 27). This scale of operation

provided a challenge to the auditors in the performance of the audit. In 2004 it became known that the financial statements of a subsidiary of Parmalat were misstated, resulting in great losses to the relevant stakeholders (Accountancy - Editorial, 2004:27). These stakeholders blamed the auditors, as reported by Evans (2004:36): *"If the audit profession is supposed to be the sentinel then it is easy for people to rush to the conclusion that it wasn't keeping watch in the night."*

When the stakeholders criticise the auditing profession regarding Parmalat, part of this criticism was a call to change audit standards (Evans, 2004: 36). Keenan (2005: 43) supports this, mentioning that the events of the past years did not only damage the public's confidence in the effectiveness of audits, but also led to an intense scrutiny of the work of auditors. He mentions that these corporate failures and loss of credibility directly influenced the issuance of the revised audit standards (Keenan, 2005: 43). Some of the changes related to the standards and requirements in terms of the identification and assessment of risks of material misstatement (IAASB/IRBA ISA 315R & ISA 330R, 2006) and risks of material misstatement due to fraud and error (IAASB/IRBA ISA 240, 2006), or as they are currently referred to: "the risk-standards". These risk-standards form the heart of the risk-based audit approach.

1.2.4. Conclusion on the importance of the audit approach

The only defense auditors have against the anger (or frustration) of stakeholders in instances of corporate failures is sufficient, appropriate audit evidence that can prove their innocence. This audit evidence should be the result of a well-planned and well-performed audit. The audit approach, currently the risk-based audit approach, is therefore a crucial component in the performance of an audit. The improvement of the risk-based audit approach, the map that leads the way to responsibility, is therefore important. This contention is supported by Acevedo (2005: 18) when he says:

If the objective of protecting investors and furthering the public interest (through) audit reports is to acquire a meaning beyond the inner sanctum of auditors, chief financial officers and professional investors, then the auditor's report needs to be rewritten so that concepts such as GAAS (general accepted auditing standards), GAAP (general accepted accounting practice), materiality, and audit risk acquire a concrete meaning for the average investor.

Furthermore, the importance of the careful development of audit approaches is emphasised by Cullinan and Sutton (2002: 297) who quote Arthur Levitt (Former Chair, Securities and Exchange Commission): "*We cannot permit thorough audits to be sacrificed for re-engineered approaches that are efficient but less effective.*"

Consequently, the audit profession should take the opportunity of improving the current risk-based audit approach.

The next part of this chapter will briefly discuss, as background to the current risk-based audit approach, the complexities surrounding an audit that may also influence an audit approach.

1.3. Complexities surrounding an audit

1.3.1. Introduction

The evaluation and consideration of the risk-based audit approach is a normal consequence of the striving for improvement and the development of the services that the auditing profession provides. In developing the risk-based audit approach there are certain complexities surrounding an audit that should be considered. The major complexities in performing the audit are: firstly, the expectation gap; secondly, the uncertainties surrounding the responsibilities of the auditor; thirdly, the provision of reasonable assurance; and fourthly, the practical implementation of the standards. These aspects will affect and complicate the auditor's journey and will be discussed briefly in the next part of this chapter.

1.3.2. The expectation gap

The expectation gap explains the gap between the auditors' understanding of their responsibilities in the performance of the audit and the expectations of the users of the financial statements. The expectation gap emphasises the complexity surrounding the destination the auditor intends to reach after completion of the audit; a destination that seems to be a moving target.

Liggio (1974: 27) in Porter (1993: 50) defined the expectation gap for the first time; he mentioned that the expectation gap is: *"the difference between the levels of expected performance as envisioned by the independent accountant and by the user of financial statements."*

Lubbe (1990: 8) in Van Staden (1997: 41) explains the expectation gap as:

The core of the expectation gap between the profession and client lies between the risk that the auditing profession is prepared to accept in respect of annual financial statements and the confidence which clients ('client' especially refers to outside shareholders) search for in the statements.

Porter (1993: 50) separated the expectation gap into the following components: (emphasis added):

*1. a gap between what society expects auditors to achieve and what they can reasonably be expected to accomplish (designated the '**reasonableness gap**');*

*2. a gap between what society can reasonably expect auditors to accomplish and what they are perceived to achieve (designated the '**performance gap**'). This may be subdivided into:*

*2.1 a gap between the duties which can reasonably be expected of auditors and auditors' existing duties as defined by the law and professional promulgations ('**deficient standards**'); and*

*2.2 a gap between the expected standard of performance of auditors' existing duties and auditors' perceived performance, as expected and perceived by society ('**deficient performance**').*

This study will focus on the "deficient standards" expectation gap, because if the audit approach that is included in the auditing standards is vague and unclear, the resultant audit approach will prevent auditors from performing their duties, as can reasonably be expected of them. The profession's struggle to close this gap is emphasised by Hayes (2006:69), who opines that: *"Each wave of new auditing standards has sought to close the expectation gap by providing more clues of indicators of fraud and by increasing the amount of minimal work required of the auditor."*

Although the auditing profession has tried over the decades to narrow this gap, the question remains: Are current approaches in auditing standards sufficient to close the gap?

1.3.3. The responsibility of the auditor

The auditing profession has two main alternatives to ensure that auditors fulfill their role of social control: firstly, improvements in the audit approach; and secondly, a limiting of responsibility by changing the objectives of the audit. In limiting too much of the responsibility of the auditor by changing the objectives of the audit, specifically the objective in respect of the detection of fraud, the essence of the role that the auditing profession plays in the economy may be harmed. The Enron failure has proved that the profession will be forced to amend the limitations set in respect of their responsibility, and to accept a certain amount of responsibility for the detection of fraudulent financial reporting. To describe exactly the auditor's responsibility for detecting fraud is difficult and it is one of the ambiguous and unresolved aspects of the auditor's role that remains the focus of many who study the subject (Walker, 2002: 18).

The auditor's responsibility for the detection of fraudulent financial reporting was addressed by the Panel on Audit Effectiveness Report and Recommendations (31 August 2002) that concluded that the auditing profession should improve its auditing standards to assist auditors in the detection of fraudulent financial reporting, specifically illegitimate earnings by management (Walker, 2002: 18). The responsibility of the auditor was subsequently changed to reflect the Panel on Audit Effectiveness's recommendations (Walker, 2002: 18).

To limit the responsibility of the auditor, especially in respect of the detection of fraud, is not the solution. The auditing profession should focus on the improvement of the risk-based audit approach as the preferred, if not the only, route to address the difficulties the auditing profession faces.

1.3.4. Reasonable assurance

An audit approach, including a risk-based audit approach, should be designed to provide reasonable assurance that the financial statements, taken as a whole, are free from material misstatements.

The concept of reasonable assurance relates to the accumulation of the audit evidence necessary for the auditor to conclude that there are no material misstatements in the financial statements taken as a whole, as stated in IAASB/IRBA ISA 200 (2006: para. 08). The term "reasonable" indicates that less than 100% assurance is given and therefore only sufficient, appropriate audit evidence needs to be obtained. The inherent limitations according to IAASB/IRBA ISA 200 (2006: para. 09) that affect the auditor's ability to detect material misstatement in an audit namely the use of testing, the inherent limitations of any accounting and internal control system, and the fact that audit evidence is persuasive rather than conclusive, limit the gaining of audit evidence (IAASB/IRBA ISA 200 (2006: para. 09)). A further problem according to Gray and Manson (2000: 584) is that the actual level of assurance an auditor provides is unclear and problematic, maybe even impossible to measure.

The external auditor's contribution is to provide credibility to information, and although auditors make use of sampling, this investigation of a relatively few selected transactions, could give a cost-effective, reliable indication of the accuracy of other transactions (Whittington & Pany, 2004: 5 & 8). Reasonable assurance indicates that a certain amount of risk is taken in obtaining only sufficient appropriate evidence, and the auditor cannot certify the correctness of the presentation of the financial statements (Knechel, 2001: 55).

Mautz and Sharaf (1961: 87) explain the audit process:

First the auditor must turn his efforts to obtaining as much evidence as he feels he will need to judge satisfactorily the proposition before him. Having the evidence in hand, he must then examine it critically before he permits it to work on his mind and compel or persuade him to accept the truthfulness or falsity of the proposition.

The auditor needs to find a balance, in the acceptance of risk, between providing a cost-

effective service and providing a service that speaks of quality. Providing a service of quality entails, according to IAASB/IRBA ISA 220 (2003: para. 07), that the audit complies with professional standards, regulatory and legal requirements and results in the issuance of an auditor's report that is appropriate for the circumstances. Quality and cost-effectiveness are two very important factors in the performing of an audit. Mautz and Sharaf (1961: 30) support this, stating that auditors should live with the hard reality of a limited budget in the performance of the audit.

The risk the auditor takes in obtaining sufficient, appropriate audit evidence in performing an audit is increased by the occurrence and nature of material irregularities. In a report on the experience of 277 audit partners of the US audit firm KPMG Peat Marwick's in respect of material irregularities, only about 50% of all respondents had ever encountered a material irregularity of any kind, and of these, only a small proportion had encountered more than five such events during their careers (Loebbecke, Eining & Willingham, 1989: 1). The dilemma Whittington and Pany (2004: 188) explain is that when such material misstatements of financial statements do exist, although very seldom, they can imply huge potential liability for the auditors. In this regard, Groveman (1995: 84) states:

Business realities and human nature being what they are, it is unlikely unintentional or deliberate financial statement misstatements can be eliminated entirely. However, skepticism, coupled with a thorough understanding of the indicators, will improve the likelihood of detection, for the auditor.

In conclusion, cost-efficiency, the intentional nature of fraud, and the exercise of professional judgment all cause difficulties in the performance of an audit. These difficulties become the challenges to consider in the development of the risk-based audit approach.

1.3.5. Practical implementation of the risk-based audit approach

The implementation of the risk-based audit approach to assist the auditor in performing the audit is a challenge in itself. This is confirmed by the difficulties practitioners experience in the implementation of the audit risk-standards or the risk-based audit approach, briefly discussed hereafter (O'Leary, 2005: 56).

As a result of recent corporate failures, the Auditing Standard Boards (GAAS Update Service, 2006: 1) released the new risk audit standards, hoping that these new standards would enhance the auditor's application of the risk-process audit approach (the new risk-based audit approach) in practice and that it would result in better quality and more effective audits. The guidance that the risk audit standards provide is briefly discussed in the following paragraphs.

The auditor forms an opinion on the financial statements according to IAASB/IRBA ISA 200 (2006: para. 23) by obtaining and evaluating audit evidence to obtain reasonable assurance about whether the financial statements give a true and fair view in all material respects, in accordance with the applicable financial reporting framework. To gain sufficient appropriate audit evidence to formulate an opinion, the auditor shall perform risk assessment procedures according to IAASB/IRBA ISA 315R (2006: para. 05), to provide a basis for the identification and assessment of risks of material misstatement at the financial statement and assertion level.

Furthermore, according to IAASB/IRBA ISA 315R (2006: para. 04(d)), risk assessment procedures are audit procedures performed to obtain an understanding of the entity and its environment, including the entity's internal control; to identify and assess the risks of material misstatement, whether due to fraud or error, at the financial statement level and assertion levels. In terms of IAASB/IRBA ISA 315R (2006: para. 24), this also provide a basis for designing and performing further audit procedures; or in terms of IAASB/IRBA ISA 315R (2006: para. A107) to determine the nature, timing and extent of further audit procedures to be performed.

The nature, timing and extent of the planned risk assessment procedures and any other audit procedures performed as a result of the audit planning process, forms, according to IAASB/IRBA ISA 300R (2006: para. 08), the audit plan, which, together with the overall audit strategy, forms the plan (IAASB/IRBA ISA 300R (2006: para. 03)) to ensure that the audit is performed in an effective manner. According to the Collins dictionary (1995: 614), a "plan" is "a method thought out for doing or achieving something". The identification and assessment of the risks of material misstatement and the response to these risks of material statement that determine the nature, timing and extent of audit

procedures, is therefore the "method" or plan to reach the objective of the audit. This method or plan is called the risk-based audit approach.

O'Leary (2005: 56) commented on the release of these new standards:

That the standard does not prescribe a specific framework is laudable. It allows different firms to adopt their differing methodologies. ... Auditing standards and pronouncements may come and go. However, practicing auditors always have, and always will have, to grapple with the great problem of trying to identify the risks of a client's accounts being misstated and assessing the strength of internal controls to mitigate these risks. While standards and terminologies may change, has anything really changed in regard to practical auditing implementation?

Although reaction to these standards is positive, it seems that the implementation of these revised risk standards present practitioners with some practical problems. Keenan (2005: 44) confirmed this in reporting on the results of the Canadian AASB's extensive consultation process which they followed in developing the Canadian standards. These standards were harmonised with the audit risk standards of the International Auditing and Assurance Standards Board. Keenan (2005: 44) supported the fact that the implementation of these standards could be a huge task, especially for smaller practitioners, and suggested that the profession should provide more guidance on their implementation (Keenan, 2005: 44).

Consequently, the implementation of the revised audit standards in Australia was a major challenge for auditors and the profession and firms in struggled to implement these standards, requesting training in respect of their practical application (Gobin & Mifsud, 2005: 72). This is confirmed in a study by Specht and Sandlin (2004: 25) in respect of auditor perceptions of the pronouncements on risk standards that reveal that the second expectation gap, namely the gap between the standard setters and the practitioners continues to exist.

The practical problems that auditors face in the implementation of the risk-process audit approach, and the need for assistance and training from their profession, are an indication

of the complexity of the task at hand. This raises the question: did these changes to the risk-audit standards resolve the issues at hand?

1.3.6. Conclusion

The risk-based audit approach is not an exact, clearly understood and unambiguous process. Goldwasser (2005: 30) states that: *"Risk-based auditing, although a useful concept is far from an exact science. It is doubtful that auditors can actually quantify audit risks, much less eliminate them."*

The risk-based audit approach is an essential component in the performance of an audit and part of the audit profession's defense against legal liability. To understand the theory and concepts, as well as the development of risk-based audit approaches, it is necessary to investigate risk-based audit approaches; the auditor's map.

1.4. Problem statement

The events of Enron and Parmalat, the most prominent corporate failures in the United States and Europe, indicated the importance of an efficient and effective audit approach. The credibility crisis that followed these events shows that the auditing profession should continue to develop and evaluate its methods and approaches. This is emphasised by Goldwasser (2005: 31) who contends that: *"The profession may be deluding itself (and the public) that it can deliver audit reports with a high level of assurance without greatly enhancing the scope and sophistication of its audit procedures."*

The challenge of developing an effective audit approach that assists the profession in the prevention of audit failures is complicated by aspects, such as:

- Difficulty in narrowing the expectation gap; the gap that explains the discrepancy between the expectations of the users of the financial statements regarding the role of the auditor and the auditing profession's belief of what the auditor reasonably can and should be expected to achieve;
- Uncertainty about the exact role and responsibility of the auditor;
- Only reasonable, not absolute, assurance is provided when expressing an opinion on the financial statements;

- The audit should be of a high quality on the one hand, and on the other, affordable;
- The fact that it is necessary to exercise professional judgment in the performance of the audit; and
- Practitioners have developed different methodologies, with differing levels of success, to deal with the implementation of the risk-based audit approach.

The aim of the auditor's journey or audit process is to obtain sufficient, appropriate audit evidence; this is according to Elliott and Rogers (1972: 47), when not too much or too little audit evidence is obtained. In undertaking this journey or performance of the audit, the auditor in search of the "truth", in seeking the "true answer", the words of Mautz and Sharaf (1961: 85) should be remembered:

Truth was defined as 'conformity with reality'. Truth in auditing may be defined as conformity with reality as the auditor can determine reality at the time of his examination with the evidence available. Actually this is no real modification of the basic notion of truth at all. No mortal man in any field of professional endeavor attains absolute knowledge.

Although it is a problem to implement the risk-based audit approach in practice, and despite difficulties surrounding this approach, it has evolved gradually over time to assist the auditor in the performance of an audit. Nevertheless, this task is not complete (Cushing & Loebbecke, 1983: 23). Colbert (1987: 56) supports this observation, stating that the profession has built on the understanding and application of audit risk in an engagement, but that difficulties with the concept and its components still exist; this needs to be addressed for this approach to be even more beneficial in practice. The auditing profession should continue to develop more effective audit approaches or methods. In this regard, Eilifsen *et al.* (2001: 204) have also cautioned that changes in audit approaches should be evaluated and researched during and after implementation; for example, the changes to guidance in the risk standards.

The audit profession needs an accurate map (or approach), and perhaps Mautz and Sharaf's (1961: 17) words from the past have become relevant again in the continuous process of improving the risk-based audit approach:

Auditing is also an 'applied' discipline, and because an applied discipline draws its 'principles' or basic theory from many other fields, some of them pure and some of them also applied, there is always the possibility that it will lose sight of its connection with and dependence on the more basic or abstract fields of learning. Thus it may neglect its theory and give a disproportionate part of its attention to applications and to immediate day-to-day problems. This is always unfortunate because the strength of any discipline lies in its foundations.

The auditing profession should, during this continuous process of changing the auditing standards and guidance, consider changes against, and base changes on a sound foundation of theory. Consequently, the development of the risk-based audit approach should be considered and evaluated against its theoretical foundations to support the credibility of the audit process in the case of a corporate failure.

1.5. Purpose of the study

The purpose of the study is to trace the development of risk-based audit approaches, in order to understand the complexities and difficulties of these approaches, as well as to evaluate risk-based audit approaches, with the objective of assisting in the process of improving the risk-based audit approach followed by practitioners. In the words of Sale (1981: 76), *"Sometimes it is only by looking back that we can begin to plan for the future – and even survives in the present."*

In the study the following risk-based audit approaches are evaluated and their development investigated:

- Firstly, the study commences with an overview of early audit approaches, e.g. the balance sheet audit approach and the systems-based approach that developed before the acceptance of risk-based audit approaches. Certain aspects of these audit approaches still form part of the current risk-based audit approach. The context in which the audit approaches developed will be highlighted and will broaden the understanding of the current approaches followed. This study will also discuss audit approaches that never gained acceptance in the profession, but influenced the development of risk-based audit approaches (refer to Table 1 on page 18).

- Secondly, a critical investigation of the development of the audit risk model will be conducted in the study. The audit risk model evolved out of the Elliott and Roger's model into the audit risk formula (Cushing & Loebbecke, 1983: 25). A more conceptual approach to the audit risk model, namely the inherent risk-audit approach gained later acceptance among practitioners (Graham (II), 1985: 34). As an alternative approach to the inherent risk-audit approach, audit firms started to use the business risk audit approach in the late 1990s to respond to the rapid technological changes that characterised that time period (Lemon, Tatum & Turley, 2000: 1) (refer to Table 1).
- Thirdly, a critical investigation of the development of the risk-process audit approach is conducted. The changes, resulting in the risk-process audit approach, were accepted as a matter of urgency after the huge corporate failures during 2001 and 2002 that caused a credibility crisis in the audit profession (Swinson, 2002: 85). Some of these changes were based on risk management in the related fields of study of corporate governance and business risk management. In this part of the study, risk management, in the related fields of study of corporate governance and business risk management, will be investigated with the aim of firstly, obtaining an understanding of the nature of the concepts and approaches in risk management that were adopted in Auditing; and secondly, to obtain an understanding of the difficulties surrounding these adopted concepts in risk management.

The risk-process audit approach will then be addressed. The last part will consist of a critical discussion of the risk-process audit approach including an evaluation of the selection of concepts in risk management that had an influence on auditing (refer to Table 1 on page 18).

Table 1: Audit approaches

Audit approaches	
Name of audit approach	Approximate time of development
Balance sheet approach	Before 1890
Systems-based approach	1960
Risk-based audit approaches	
Elliott & Rogers model	1972
Statistical audit risk approach (audit risk model/formula)	1972
Inherent risk audit approach (conceptual audit risk model)	1981
Business risk audit approach	1992
Risk-process audit approach	2003

Next, the development of risk-based audit approaches will be summarised by making use of a comparison of the above-mentioned risk-based audit approaches. The main critique of the different risk-based audit approaches will be summarised. A suggestion for the improvement of the current risk-based audit approach will be presented. Finally, the study will conclude with recommendations and indicate directions for future research.

The study will not consider the impact of the Professional Code of Conduct and Ethics, and the maintenance of performance standards or quality control as required by the International Standards on Quality Control (2003) in the implementation of the risk-based audit approach. The study will be limited to a financial statement audit, a specific assurance engagement, as described by the International Framework for Assurance Engagements (2003). The guidance on financial statement audits is given in the International Standards on Auditing (ISA 100 – 999).

The study will mainly consider the planning phase of the audit process. This will exclude the phase of obtaining audit evidence, and the evaluating and concluding phase of the audit process.

1.6. Research design and methodology

In this study the development and evaluation of risk-based audit approaches will be investigated by way of a literature study with the objective of assisting in the process of improving the current audit approach. The literature study will create a theoretical framework to form the foundation, from where the theory will be explored. Henning (2004: 12) explained this stating that research should be conducted from a position of knowledge so that this knowledge can frame the inquiry and form the basis to further consider the theory. This study can therefore be categorised according to Lategan, Vermeulen and Truscott (2004: 1) as: *"Basic research: Original investigation with the primary aim of developing more complete knowledge or understanding of the subject under study."*

This study will follow an interpretivist research theoretical framework which according to Henning (2004: 20) is the following: *"Interpretivists believe the goal of science is to hold steadfastly to the goal of getting it right about reality or multiple realities even if we can never achieve that goal."*

Although it is possible to confirm and support the results of the literature study with data obtained through empirical research methods, it was not done due to the extent of the literature study.

1.7. Outline of the study

The content of the study consists of the following:

Chapter 1 – In the first chapter, the background and motivation for this study that investigates the development and evaluation of risk-based audit approaches are discussed. The last part of the chapter discusses the problem statement, purpose and outline of the study, the research design and methodology.

Chapter 2 – In the second chapter, the theoretical framework that formed the background of the study is discussed, including the meaning of “risk-based audit approaches”. Audit approaches that developed before the acceptance of the risk-based audit approach and audit approaches that were never followed or accepted by practitioners or influenced the development of risk-based audit approaches are discussed.

Chapter 3 – In the third chapter, the development of the audit risk model from a statistical perspective is discussed. The study further examines the Elliott & Rogers’ model that signaled the start of the statistical audit risk approach (audit risk model/formula), and summarises the critique on the audit risk model.

Chapter 4 – In the fourth chapter, the development of the audit risk model from a conceptual perspective is addressed. The inherent risk audit approach that was widely followed in practice is discussed. Further, in this chapter the business risk audit approach which was developed by audit firms as an intended improvement on the inherent risk audit approach, and which is still widely used, is analysed.

Chapter 5 – In the fifth chapter, risk management, the risk-process audit approach and critique against the risk-process audit approach are discussed.

Chapter 6 – In the sixth chapter, the development of risk-based audit approaches will be summarised by making use of a comparison of the above-mentioned risk-based audit approaches. The main critique of the different risk-based audit approaches will be summarised. In this chapter, the study will present the conclusions and indicate directions for future research.

1.8. Conclusion

The first chapter has set out the background and motivation for this study. In this chapter, the problem statement, purpose of the study, research design and methodologies and outline of the study were indicated.

Einstein (in Mautz & Sharaf, 1961:5) answers the question: Why perform an investigation into the underlying theory of auditing?

What then, impels us to devise theory after theory? Why do we devise theories at all? The answer to the latter question is simple: Because we enjoy 'comprehension' ... There is another subtler motive ... This is the striving toward unification and simplification of the premises of the theory as a whole.

In the next chapter, the audit approaches that were developed before the acceptance of the risk-based audit approach and audit approaches which were developed but not accepted, yet that influenced the development of risk-based audit approaches, are discussed.

CHAPTER 2 – AN OVERVIEW OF EARLY AUDIT APPROACHES

2.1. Introduction

Auditing, like any other discipline, requires an approach, method or map to follow in the performance of the audit, as explained by Nicolle (1932) in Chambers (2005: 614): *"All method is imperfect. Errors are all around it, and at the least opportunity, invades it ... But what can we do? There is no other way."*

In this chapter, audit approaches that were developed and followed by the auditing profession before the development and implementation of risk-based audit approaches are addressed. Firstly, the position of an audit approach in the encompassing auditing theory will be discussed. This will create a theoretical framework to form the foundation from where the theory will be explored. Secondly, the meaning of "audit approach" will be discussed and the main earlier audit approaches will be mentioned. Thirdly, the historical background to the different audit approaches will be discussed. Fourthly, a comparison of the different audit approaches will indicate areas of change and development. The next part of the chapter discusses audit approaches that were developed before risk-based audit approaches and which influenced the development of the risk-based audit approaches, but were never used or implemented by practitioners. Lastly, conclusions on the overview of the early audit approaches will be presented.

2.1.1. An overview of the theory of Auditing

The audit approach or audit methodology followed by an auditor is a component of the theory of auditing or the axiomatic method of auditing. This is explained by Mautz and Sharaf (1961: 246) as follows:

This scheme of auditing knowledge might be pictured in the form of a pie-shaped chart. The entire chart represents knowledge, all knowledge. At the center is a hard core of the most fundamental types of knowledge, metaphysics, logic, and mathematics. Touching this core and drawing strength from it is the groundwork level of auditing knowledge, its philosophical foundation. Included in this level of knowledge is the definition or purpose of the field and the fundamental nature of its knowledge and methodology. Its postulates, the basics for inferring concepts, must relate to and be harmonious with this purpose and recognise the possibilities and limitations of its

methodology. Every field must have just such a foundation and it must never permit itself to become separated from the elemental disciplines from which it draws strength ...The field of auditing grows outwards from its philosophical foundations, it enters the area of conceptual structure ... Then come the precepts (concepts) and the area of practice and practical applications ... and then showing the adjacent fields of knowledge.

Krogstad (1975: 106) commented on the above, indicating an alternative view on the formalistic view suggested by Mautz and Sharaf:

In conjunction with the nature of postulates endorsed, these interpretations lead to a search for postulates that satisfy the strict deductive rigor of a formal scientific system. The resulting 'postulates' are called upon to provide a foundation which supports a classically deductive systematization of the field of auditing. Yet, the nature of auditing, its environment, and the relationships between the two (that is, the domain from which the postulates are expected to be inductively derivable by Mautz and Sharaf) do not lend themselves to such formalistic treatment.

Finally, Flint (1988) suggested a conceptual framework that was widely accepted. Flint's (1988) conceptual framework was based on Porter's (1988: 92) in Pratt and Van Peurse's (1993: 13) explanation of the role of the auditor:

The role of the external auditor comprises the attitudes, values and behaviour ascribed to the social position occupied by auditors, by individuals and groups in society who have an identifiable relationship with that social position. The auditor's social position is that of a professional acting as an instrument of social control within the accountability process required of economic entities. Accountability is imposed on these organisations as a check on the power accorded them by society through the provision of financial, human and other non-financial resources. It is the function of external auditors to monitor the accountability reports provided by the managers of these economic enterprises.

The role of the external auditor was previously defined by the Committee on Basic Auditing Concepts (1973: 24) as: *"a systematic process of objectively obtaining and evaluating evidence regarding assertions about economic actions and events to ascertain*

the degree of correspondence between those assertions and established criteria and communicating the results to interested users.”

The Committee based their definition on the link between the objectives of auditing and the satisfaction of those objectives by purposeful human activity (Committee on Basic Auditing Concepts, 1973: 24). This definition of the role of auditing later formed the basis of the definition of an assurance engagement as stated in IAASB/IRBA Framework (2003: para. 07). These elements are also viewed as basic concepts, because they describe the audit process which is categorised in two groups, namely accountability and the audit process (Committee on Basic Auditing Concepts, 1973: 27; and Gray & Manson, 2000: 28). These elements formed part of the Report of the Committee on Basic Auditing Concepts (1973) and the IAASB/IRBA Framework (2003) (refer to Table 2) and are incorporated into the conceptual framework that forms the basis of this study (refer to Table 2).

Flint (1988, in Pratt & Van Peurse, 1993: 14) developed a conceptual framework that is consistent with the view of the auditor as an instrument of social control. The seven postulates suggested by Flint (1988: 21-23, in Pratt & Van Peurse, 1993: 15) were a major improvement on the postulates suggested by Mautz and Sharaf (1961). Flint (1988) used these postulates to develop a comprehensive conceptual framework of auditing. The conceptual framework suggested by Flint (1988) as summarised by Pratt and Van Peurse (1993: 18), and adapted to incorporate the current Framework of International Standards on Auditing, is used as the conceptual framework of auditing to form the basis for this study.

In the conceptual framework of Flint (1988), the conceptual basis for the audit approach is not mentioned. Pratt and Van Peurse (1993: 21) identify this deficiency in the conceptual framework and address it by stating that perceptions of the credibility of the process (the term “Process” was used by Flint (1988), (refer to Table 2 on page 25)) will ultimately be undermined if the audit process itself is not conducted effectively. They suggested a concept of audit risk additional to evidence and materiality (Pratt & Van Peurse, 1993:21). The concept of “audit risk” was added to the audit concept identified by Mautz and Sharaf (1961), namely “evidence” and by Flint (1988) that included

“evidence” and “materiality” (Pratt & Van Peurse, 1993: 21). Pratt and Van Peurse (1993: 21) further motivate this by stating: *“Risk therefore provides the conceptual starting point for planning the audit process, and is therefore considered to be an essential element of our conceptual framework for auditing.”*

Furthermore, Gray and Manson (2000: 28) added the concept of audit judgment or professional judgment as it is referred to in IAASB/IRBA ISA 200 (2003: para. 19) to the category of “process” suggested by Flint (1988). The next concept that should be added to the category of “process”, as suggested by Flint (1988), is the concept of professional skepticism. This concept is defined in IAASB/IRBA ISA 200 (2003: para. 16) as:

An attitude of professional skepticism means the auditor makes a critical assessment, with a questioning mind, of the validity of audit evidence obtained and is alert to audit evidence that contradicts or brings into question the reliability of documents and responses to inquiries and other information obtained from management and those charged with governance.

The concepts of professional skepticism and professional judgment are categorised under human methods/processes that influence the audit process. The other three concepts, evidence, materiality and risk are categorised in the category of concepts used in the process. Audit methodology or audit approaches have a specific place or position in auditing theory and consist of an “attitude” and “method of attack” or methodological procedure (Mautz & Sharaf, 1961: 18). The “attitude” of the auditor refers to the category of human factors in the conceptual framework in Table 2. The “methodological procedure” refers to the category of methods in the conceptual framework in Table 2.

Table 2: Conceptual framework

Conceptual framework (continued)
Role of the auditor (Flint, 1988)
An instrument of social control within the process of accountability
Postulates: Flint (1988) in Gray and Manson (2000: 26-27), and Pratt and Van Peurse (1993: 18)
1. A relationship of accountability exists. (<i>“The primary condition for an audit is that there is a relationship of accountability or a situation of public accountability.”</i>)

Conceptual framework (continued)								
2. Subject matter remote, complex and significant. (<i>"The subject matter of accountability is too remote, too complex and/or too great a significance for the discharge of duty to be demonstrated without the process of audit."</i>)								
3. Independence (<i>"Essential distinguishing characteristic of an audit are the independence of its status and its freedom from investigatory and reporting constraints."</i>)								
4. Verifiable by evidence. (<i>"The subject matter of audit for example, conduct, performance or achievement or record of events or state of affairs or a statement of fact relating to any of these, is susceptible to verification by evidence."</i>)								
5. Standards of accountability can be set, measured and communicated to the auditor. (<i>"Standards of accountability, for example, conduct, performance, achievement, and quality of information, be set for those who are accountable: actual conduct, etc. can be measured and compared with these standards by reference to known criteria and the process of measurement and comparison requires special skill and judgment."</i>)								
6. Clear expression from profession to society. (<i>"The meaning, significance and intention of financial and other statements and data which are audited, are sufficiently clear that the credibility given thereto as a result of audit can be clearly expressed and communicated."</i>)								
7. Economic or social benefit. (<i>"An audit produces an economic or social benefit."</i>)								
Concepts: Flint (1988)								
Authority (Flint,1988)			Process (Flint, 1988) (Committee on Basic Auditing Concepts AAA, 1973: 24 – Investigative process)		Communi- cation (Gray & Manson, 2000: 28)	Performance (Pratt & Van Peurse, 1993: 18: & Flint, 1988)		
Com- pe- tence	Inde- pen- dence	Inte- grity, Confiden- tiality & ethics.	Concepts used in the process	Human processes	Fair presen- tation	Due care & negli- gence	Stan- dards (Con- cept)	Qua- lity con- trol
			Evidence	Professional				
			Materiality	scepticism				
			Audit risk	Professional judgment	Reporting			

Conceptual framework (continued)			
Concepts (continued from previous page)			
Authority	Process	Communication	Performance
Standards			
Professional promulgations which identify and formalise the details of a given concept			
International Code of Conduct	International Standards on Auditing		International Standards on Quality Control
Relation to the elements of the assurance engagement or basic concepts as stated in IAASB/IRBA Framework (2003: para. 07)			
(IAASB/IRBA Framework, 2003: para. 07), Gray & Manson, 2000: 28) and Committee on Basic Auditing Concepts American Accounting Association Figure 2 (1973: 27))			
Accountability	Audit (Gray & Manson, 2000: 28)		
Committee on Basic Auditing Concepts American Accounting Association, Figure 2 (1973: 27)			
<ul style="list-style-type: none"> ▪ A three-party relationship involving a practitioner, a responsible party and intended users. ▪ Appropriate subject matter (and subject matter information). ▪ Suitable criteria. 	<ul style="list-style-type: none"> ▪ Evaluation & measurement. ▪ Outcome: Sufficient appropriate audit evidence and degree of confidence. 		

2.1.2. The meaning of “risk-based audit approach” – an overview

“Approach” is defined by Corsini (2002: 62) as “a technique or method”. Van den Bos (2006: 67) defines “approach” as: *“a particular method or strategy used to achieve a goal or purpose.”*

The audit approach is therefore the acceptable method to perform an audit, and should not be confused with the audit strategy as described in IAASB/IRBA ISA 300R (2006: para. 06). Fogarty, Graham and Schubert (2006: 45) explain that the International Auditing Assurance and Standards board started to use the term "audit strategy" to ease the confusion surrounding the multiple meanings of "audit approach", mentioning that audit strategy was previously called the audit approach.

In auditing, an audit approach represents both audit methodology and the audit method. Blackburn (1994: 242) explains "methodology" as the "general study of method" in a particular field such as auditing. The Collins dictionary (1995: 500) describes methodology as (emphasis added): *"The **system** of methods and principles used in a particular discipline."*

An audit approach represents both the combination of methods applied or audit methodology and is, in essence, the method used to perform the audit. Mautz and Sharaf (1961: 18) define "the method of auditing" as follows:

The study of the method of auditing is subdivided into attitude and methodological procedure. That is, we are interested in the attitude of those who practice in the field, as well as with their method of attack, the intellectual approach they use in the performance of their work.

This "method of attack" or "intellectual approach" is explained by Arens and Loebbecke (1984: xi) as the **reason** for the decisions auditors make, based on important concepts of auditing and certain practical aspects.

The meaning of "risk-based audit approach" is explained by Rittenberg, Schwieger and Johnstone (2008: 108), stating that (emphasis added): *"**Risk-based** implies that the auditor is applying more direct testing to account balances that have a higher likelihood of being misstated."*

The current risk-based audit approach is explained as follows by IAASB/IRBA ISA 200 (2006: para. 25) (emphasis added): *The audit process involves the exercise of professional judgment in designing the **audit approach**, through **focusing on what***

can go wrong (i.e. what are the potential misstatements that may arise) at the assertion level and performing audit procedures in response to the assessed risks in order to obtain sufficient appropriate audit evidence.

The conceptual starting point of the above audit approach is therefore the assertions: stated simplistically, it is the question: What can go wrong at the assertion level? The answer to the afore-mentioned question determines the audit procedures to be performed and guides the auditor in performing the audit. A sound internal control system, for example, will alter the answer to the question: What can go wrong at the assertion level? consequently changing the auditor's approach and choice of audit procedures. The reference in IAASB/IRBA ISA 330R (2008: para. A3) to a **general** (risk-based) **audit approach**, is an implementation of this example and represents only a part of the risk-based audit approach in a specific audit engagement. The reference is as follows: *"the auditor's general approach, for example, an emphasis on substantive procedures (substantive approach), or an approach that uses tests of controls as well as substantive procedures (combined approach)."*

A suggested definition for a risk-based audit approach is: the method the auditor follows to determine the audit procedures to be performed; that is, based on risk; or the indication that there is a greater likelihood that the transactions or classes of transactions, accounts or balances, and/or disclosures is misstated, to enable the auditor to achieve the audit objective.

2.1.3. Conclusion

When different audit approaches are considered, the words of Blackburn (1994: 242) are worth noting: *"Obviously any field can be approached more or less successfully and more or less intelligently."*

The next part of the study will discuss the development of audit approaches; as Blackburn (1994: 242) explains:

The more modest task of (research in) methodology is to investigate the methods that are actually adopted at various historical stages of investigation into different areas, with the aim not so much of criticizing but more of systematizing the presuppositions of

a particular field at a particular time.

2.2. Historical aspects that have influenced the development of audit approaches

2.2.1. Introduction

In this study, the development of the risk-based audit approach is discussed. It therefore makes sense to start at the point when testing, and consequently risk were introduced to the audit process. Although the starting point is in the early 1900s an overview of the history of auditing is given to serve as background to the historical events and developments that have influenced the audit approaches selected.

2.2.2. Early audit approaches

The development of audit approaches will be discussed according to the early audit approaches that were followed, before the adoption of a risk-based audit approach. The events that shaped these audit approaches, and the reasons why these approaches were followed, will be discussed. It should be noted that during a specific period in the history of auditing, usually only one audit approach was generally adopted and followed. The reason for this is that an auditor should comply with the guidelines in the auditing standards and the **generally accepted** audit practice to prevent the possibility of legal liability (Taylor & Glezen, 1979: 107). This allowed for limited experimentation with different audit approaches.

The first audit approach that is discussed is Dicksee's (1904). Brown (1962: 697) reported that the sixth edition (1904) of Lawrence Dicksee's Auditing Manual was the first auditing textbook that referred to the fact that testing started to become practice in both Britain and the United States. The audit approach described in Dicksee's Auditing Manual (1904) was referred to as the "balance sheet approach".

The second audit approach that is discussed is the balance sheet audit approach. Although Dicksee's audit approach was referred to as the balance sheet approach, it is not representative of what finally constitutes a balance sheet audit approach, although it was the starting point of this type of audit approach.

The third audit approach that is discussed is the systems-based audit approach. Arens and Loebbecke (1976: 3) also called this approach, the integrated approach.

These three audit approaches discussed each represent an approximate period in time. Consequently, Dicksee's initial audit approach describes one such, in approximately 1904; the balance sheet audit approach in the period 1904 until 1940; and the systems-based audit approach from 1940 until 1972. It should be noted that it was not possible to determine these periods exactly.

Next, the historical background and the major events that influenced the development of these audit approaches will be discussed. These approaches will then be compared to indicate the aspects that developed and changed between these approaches. Finally, other audit approaches that were not accepted and implemented by the audit profession, but possibly influenced the development of risk-based audit approaches, will be discussed.

2.2.3. Auditing until Dicksee's initial audit approach

The exact origins of auditing are unknown. Defliese, Jaenicke, Sullivan and Gnospelius (1984: 8) reported that historians estimate that recordkeeping originated in about 4000 B.C. Defliese, *et al.* (1984: 8) reported that the Bible covers the period 1800 B.C to 95 C.E. The Bible discusses, amongst others, dual custody of assets, the need for competent and honest employees, restricted access and segregation of duties; for example in Matthew 18:23, 24 (1428) it is stated: *"Therefore is the kingdom of heaven likened unto a certain king, which would take account of his servants. And when he had begun to reckon, one was brought unto him, which owed him ten thousand talents."*

Auditing here served the function of holding servants accountable, and of keeping records of money paid out, received and owed to the king, or any other business person of the time.

The occupation of auditor has existed for a long time; for example, in 1299 reference was made to the *"Auditor of the Accounts of the Corporation of the City of London"* (Binnie & Manning, 1938: 1). Reference has also been made to auditing in a manuscript of the

thirteenth century, which has been printed by the Royal Historical Society, namely Sir Walter of Henley's *Tretyce of Housbandry* (Binnie & Manning, 1938: 2). The following sentence appears in the chapter "The Office of Seneschal":

The Auditors ought to be faithful and prudent, knowing their business, and all the points and articles of the account in rents, in outlays, and in returns of the garage and stock and other things belonging thereto. And the accounts ought to be heard at each manor, and then one can know the profit and loss ...

Defliese, *et al.* (1984: 9) commented that the practice of "*accounts ought to be heard at each manor*" which originated in the days when few people were literate, continued until the seventeenth century. The above practice formed the foundation of the term "audit", and is explained by Defliese, *et al.* (1984: 9) as follows: "*The word 'audit', in fact, derives from the Latin word for a 'hearing'.*"

At the end of the eighteenth century the word "Public Accountants" referred to Government officials who were responsible for the managing of public money (Binnie & Manning, 1938: 5). As time passed and business practices became more complex, companies started to engage public accountants on a part-time basis for their expertise and specialist skills (Binnie & Manning, 1938: 5). Consequently, the provision of specialist services developed and grew to form the accountancy profession, but the designation or title of these professionals remained "Public Accountants" in some countries (Binnie & Manning, 1938: 5).

As reported by a Group of Accountants in Industry (1942: 2) and De Paula (1939: 1,2), the nineteenth century included the Industrial Revolution that increased the amount of capital required considerably. Up to the first half of the nineteenth century sole proprietors and partnerships ran businesses with the ensuing limitations of limited capital and high risks due to the lack of limitation on the liability of the investor. The need for additional capital and a form of limitation on liability for investors was met by the invention of the joint stock company that limited the liability of subscribers or shareholders to the amount they had agreed to contribute. Besides the normal business risk, the split between ownership and management resulted in shareholders facing the risk of misappropriation of funds by those who were actually engaged in running the

business. These circumstances, according to De Paula (1939: 1-2) necessitated: "*The need (arose) for some means by which the shareholders as a body might be satisfied that the accounts presented to them by their Board of Directors did in fact show a true and correct view of the financial position of the company.*"

It became practice for shareholders to appoint an auditor to verify the "accounts of the directors" (De Paula, 1939: 1-2). This practice was legislated in England in 1862 by the British Registered Companies Act that required that (Stettler, 1970: 19): "*The financial statement of stock companies be audited by a person independent of management.*"

This improved the standing of the audit profession, as the audit was legalised (Stettler, 1970:19). It took until 1900 for annual audits to become mandatory for all limited companies (Defliese, *et al.* 1984: 8). In contrast to this, audits were voluntary in the United States and the profession developed with relative freedom (Stettler, 1970: 19). Borth and Winakor (1935: 174) reported that the auditor's procedures were restricted to the "checking and verifying of debits and credits".

The auditing literature of the time reflected the methods that these auditors used. Flesher, Previts and Samson (2005: 23,36) reported that Pixley's book and Lawrence Dicksee's 'Auditing: A Practical Manual for Auditors', published in Britain in 1892 were influential in early United States' auditing practice, but the Auditor's Guide published by H.J Mettenheimer in 1869, represents the first known auditing text published in the United States, and perhaps the world.

The sixth edition (1904) of Lawrence Dicksee's Auditing Manual was the first auditing textbook that referred to the fact that testing started to become practice in both Britain and the United States (Brown, 1962: 697). The practice of testing can be traced to the last ten years of the nineteenth century, and evidence of sampling has been found in Great Britain since 1895 (Brown, 1962: 698). Brown (1962: 700) reported further that the first true recognition of internal control as a foundation for deciding on the amount of detailed verification to be done, appeared in Dicksee's Auditing (Sixth edition - 1904). He stated that despite this statement in a leading auditing book of that period, detailed testing was still the rule (Brown, 1962: 700). Dicksee (1904: B) commented on the audit

approaches that were used, as follows: *"The first point that claims attention is the method, or system, upon which an audit should be conducted; and here on the outset, one is brought face to face with some very considerable differences of opinion and practice among members of the profession."*

Brown (1962: 698) concluded that: *"The primary objective of the audit was still the detection of fraud, the reason that the auditor switched from detailed verification to testing was simply because he could no longer check every transaction of the ever-growing corporate entities."*

Even if the auditors followed different methods and techniques, the impact of different approaches on the verification of transactions and the checking of the accounting records were hardly visible because of the fact that detailed verification was the rule.

At the end of this period two significant court cases addressed the aspect of the auditor's responsibilities. This forms part of the debate about what the auditor's responsibilities were, and consequently, the scope and approach of the audit. This is reported by Dicksee (1904: 352):

*The failure of the London and General Bank (1895) resulted in the celebrated case in connection of this failure. Lord Justice Lindley established the following in his judgment: 'His (the auditor) business is to ascertain and state the true financial position of the company at the time of the audit, and his duty is confined to that. But then comes the question: How is he to ascertain such position? The answer is: By examining the books of the company. But he does not discharge his duty by doing this without inquiry and without taking any trouble to see that the books of the company itself show the company's true position. He must take **reasonable care** to ascertain that they do. Unless he does this, his duty will be worse than a farce.'*

Cutforth (1931: 197) reported on the case of *Kingston Cotton Mills Company (1896)*, referring to the judgment that stated as follows:

What is reasonable skill, care, and caution must depend on the particular circumstances of each case. An Auditor is not bound to be a detective, or, as was said, to approach his work with suspicion, or with a foregone conclusion that there is something wrong.

He is a watchdog, but not a bloodhound. ... If there is anything calculated to excite suspicion he should probe it to the bottom, but in the absence of anything of that kind, he is only bound to be reasonably cautious and careful. Auditors must not be made liable for not tracking out ingenious and carefully laid schemes of fraud... So to hold would make the position of an Auditor intolerable.

These cases were indications of the difficulty of determining the responsibilities of the auditor. The auditing profession perceived these favourable judgments as approval of their methods and procedures.

Refer to Appendix A (page 331), Table A for a summary of Dicksee's initial audit approach as explained in the sixth edition of L. R. Dicksee's Auditing Manual published in 1904.

2.2.4. Balance sheet audit approach

As the world continued to change, at the same time organisations grew larger and became more complex with expanding absentee ownership and vertical and horizontal integration of companies (Bell, O'Marrs, Solomon & Thomas, 1997: 11). Auditors adapted to these changing circumstances by converting from exhaustive testing of reported assets and liabilities to selective testing of accounting transactions, conducted on a judgment basis (Bell *et al.*, 1997: 11-12).

The impact of a continuously changing world on the development of audit approaches was also reflected in the history of the codification of statements on auditing procedure that were issued by the American Institute of Accountants (AIA). Auditors followed the balance sheet-audit as reported by the AIA (1951: 5) stating that in 1917 the American Institute of Accountants at the request of the Federal Trade Commission prepared a "memorandum on balance-sheet audits" that was published in the Federal Reserve Bulletin, under the name: *Uniform Accounting; a Tentative Proposal Submitted by the Federal Reserve Board*. It was reissued in 1918 under a new title: *Approved Methods for the Preparation of Balance-Sheet Statements*. The title indicates the major importance of the balance sheet, a statement that reflects a summary of assets, liabilities and equity that represented the income statement. This balance sheet audit approach is described by Hanson (1942: 7) as follows:

As generally understood the balance sheet audit comprehends verification of all balance sheet items as of a given date, together with sufficient review and tests of profit and loss items to permit certification of an income statement and a statement of changes in surplus for the period ending on the date of the balance sheet. As its name implies, its emphasis is on the balance sheet and, therefore, on conditions as of the date of the balance sheet.

The provisions of the Companies Act in the United Kingdom in 1929 as reported by Cutforth (1931: 162) namely section 134(1), also recognised the wide acceptance of the balance sheet audit approach at the time, stating:

The auditor shall make a report to the members on the accounts examined by them, and on every balance sheet laid before the company in general meeting during their tenure of office, and the report shall state –

(b) Whether, in their opinion, the balance sheet referred to in the report is properly drawn up so as to exhibit a true and correct view of the state of the company's affairs according to the best of their information and the explanations given to them, and as shown by the books of the company.

The objective of the balance sheet audit approach was, according to the first three editions of Montgomery's book on Auditing Theory and Practice (1912, 1923, 1927) "to ascertain the actual financial condition and earnings of an enterprise and the detection of fraud and errors" (Borth & Winakor, 1935: 174; and Bell, *et al.* 1997: 11).

The main focus of the balance sheet audit approach was on the balance sheet and therefore on the misappropriation of assets, or the misstatement of assets and liabilities. As time moved on, the main emphasis in entities and businesses was shifting to inefficiencies in these entities, including proper financial management and financial reporting. Thus, there was a shift in emphasis from the balance sheet that reflected assets and liabilities to the profit and loss statement.

A Group of Accountants in Industry (1942: 3-4) explained that previously, there was less emphasis on efficiency of management, because mechanised industry was much more

efficient, with resulting profits. Therefore, shareholders were mainly concerned with the misappropriation of assets rather than with the mismanagement of assets.

Auditors were slow to change or adapt the balance sheet audit approach, as reported by Borth and Winakor (1935: 174): "*The premises upon which most audits are predicated, however, are still largely those of the checker-verifier (of assets and liabilities).*"

Although practitioners checked and verified the assets and liabilities in the balance sheet, the auditing literature began to emphasise the importance of the auditor's decisions made during the audit and the interpretations of these audit results (Borth & Winakor, 1935:174). This new focus on company performance caused the performance indicators, the return on investment and profitability to gain acceptance and the consequent impact on the auditing profession was as follows (Bell, *et al.* 1997: 11):

As a result of these changing user needs and the new accounting conventions developed to serve these needs, the role of the external audit expanded from a check for unauthorised expenditures by management, or a check for dishonesty of subordinates, to a check on the representational faithfulness of a company's reported profit and financial position.

Borth and Winakor (1935: 183) further reported that the profit and loss statement was steadily becoming universally recognised as a necessary part of financial reporting. This was reflected in the revision of the pamphlets of the AIA (1951:5) in 1929. The titles of these documents initially referred to the balance sheet approach, which was changed in 1929 to the "Verification of Financial Statements". This revision was due to a (AIA, 1951: 5): "growing *consciousness of the importance of the earnings statement*".

Practitioners still followed the balance sheet approach, with the guideline from the AIA stating that (AIA, 1951: 5): "*The responsibility for the extent of the work required must be assumed by the auditor.*"

A Group of Accountants in Industry (1942: 25) criticised the balance sheet audit approach, as well as the overall lack of change by contending that:

Much time on an audit is still being spent looking for arithmetical and clerical errors, in spite of the fact that in many cases the risk of arithmetical errors has been almost entirely eliminated by the development of office machinery. Moreover, the time spent on looking for errors betrays a false sense of proportion. Then again, the watch for fraud is often accompanied by much unthinking routine vouching, when it is possible that a far more effective and in point of time, more economical check could be made by thoughtful study of the routines through which the documents are passed and the relationships between the individuals concerned. We realise that the auditor is already supposed to do this in theory, but in our experience what he does in practice is different.

The criticism was well-deserved as auditors were continually decreasing the extent of their procedures, sometimes without the necessary appraisal of internal controls (Brown, 1962: 700). Practitioners were slow to change and implement the techniques and approaches suggested in the academic literature (Brown, 1962: 700). Only in the late thirties, perhaps as a result of the *Ultramares* court case, did auditors attach less importance to the balance sheet and more to the statement of profit and loss, extending the scope of the "general checks upon income" (Hanson, 1942: 7), and thereby changing the audit approach.

The first indication of significant changes that awaited the auditor was the case of *Ultramares Corporation v Touché* (255 N.Y. 170, 174 N.E. 441, 1931). Hanson (1942: 166-168) published excerpts of the decision of Judge Cardozo of the Court of Appeals in this case (Hanson's emphasis): *"We conclude, to sum up the situation, that in **certifying** to the correspondence between balance sheet and accounts the defendants made a statement as true to their own knowledge, when they had, as a jury might find, no knowledge on the subject."*

This caused, as reported by Taylor and Glezen (1979: 103) that shortly after the decision was handed down, the words "certify", "true" and "correct" were taken out of the general audit report format. The dilemma remained as to what exactly were the limits of the auditor's responsibility, as this determined the nature and extent of procedures, as well as

the methods and approaches needed. Willingham and Carmichael (1971: 4) stated the reasoning of the court in the *Ultramares Corporation* case as:

If liability for negligence exists, a thoughtless slip or blunder, the failure to detect a theft or forgery beneath the cover of deceptive entries, may expose accountants to a liability in an indeterminate amount for an indeterminate time to an indeterminate class. The hazards of a business conducted on these terms are so extreme as to enkindle doubt whether a flaw may not exist in the implication of a duty that exposes to these consequences.

They commented on the reasoning in the court case as follows (Willingham & Carmichael, 1971: 4): *"This argument is still valid. If the abandonment of the privity doctrine were to drastically reduce the number of auditors willing to assume the risks of rendering an opinion on financial statements, then surely, the investing public would be damaged."*

In 1936 the American Institute of Accountants (1951: 5), as spokesperson for a profession which had by that time become well established, revised the previous pamphlets and issued a pamphlet entitled: *Examination of Financial Statements by Independent Public Accountants*. The American Institute of Accountants (1951: 5) reported two developments during this time; firstly, the word "verification" was substituted with "examination", the latter word explaining that the auditor provides reasonable assurance that an amount in the financial statements is fairly stated; and secondly, the accounting profession assumed the responsibility for the determination and pronouncing of accounting and auditing procedures.

Refer to Appendix A, Table B for a summary of the balance sheet audit approach.

2.2.5. Systems-based audit approach

The year 1940 brought significant changes to the audit profession. The McKesson and Robbins court case was mainly responsible for this change. Taylor and Glezen (1979: 107) mentioned that although the Securities Act of 1933 and 1934 increased the auditor's responsibility to third parties, the prominent fraud case of *McKesson & Robbins*: *"served to remind the profession that their evidence-gathering techniques were somewhat obsolete"*.

Taylor and Glezen (1979: 107) reported that the fraud perpetrated in McKesson & Robbins, a wholesale drug firm, became known in 1939. Willingham and Carmichael (1971: 17-18) described the McKesson & Robbins' court case as a "gigantic" case of fraud. They mentioned that a prominent public accounting firm had certified McKesson's financial statements, but millions of dollars' worth of assets shown on the consolidated balance sheet was discovered to be attributable to a wholly fictitious subsidiary (Willingham & Carmichael, 1971: 17-18).

In 1940, two questions were asked by the Securities and Exchange Commission that conducted an investigation in the corporate failure of McKesson & Robbins that are still relevant to the auditing profession (Taylor & Glezen, 1979: 107). These questions were:

During the series of hearings, two questions were raised that had direct relevance both to Price Waterhouse & Co., McKesson & Robbins' auditors, and to the profession in general.

- 1. To what extent were contemporary acceptable auditing standards and procedures followed?*
- 2. To what extent did the contemporary auditing standards and procedures provide necessary safeguards and insure reliability of the statements?*

Taylor and Glezen (1979: 107) interpreted the Securities and Exchange Commission's findings, as follows:

Concerning the first question, the Securities and Exchange Commission believed that the auditors were negligent and that gross discrepancies of this type should have been caught. In general, however, it was conceded that the auditors had followed procedures that were acceptable at that time. On the second question the Securities and Exchange Commission was very critical of the scope of the audit procedures followed by the entire profession. In their reply to the SEC, the McKesson & Robbins auditors maintained that their examination was not designed to detect fraud, particularly if collusion of this type existed.

The impact of McKesson & Roberts was widespread, that is:

- The American Institute of Accountants issued, in 1941, the first compulsory official statements in auditing procedures that became the statement of auditing standards eight years later.
- The responsibilities of the auditor changed and the detection of fraud did not form part of the objective of the audit.

Firstly, Willingham and Carmichael (1971: 17-18) reported that the Committee established to investigate the impact of the McKesson & Robbins case, suggested changes to the audit report. The audit report thereafter included "*the audit was performed in accordance with generally accepted auditing standards*" as a result of amended Security Exchange Commissions regulations (Willingham & Carmichael, 1971: 18).

The first pronouncement of the Committee on Auditing Procedures was also issued. It specifically covered the two aspects of observation of physical inventory: the taking and confirmation of accounts receivable that were problematic in the McKesson's audit (Willingham & Carmichael, 1971: 18). The American Institute for Accountants' (1951: 5) executive committee issued to members the official *Statements in Auditing Procedure* in 1941. By 1948 it was superseded by the statement of auditing standards, the series of case studies in auditing procedure and other publications.

Secondly, the responsibilities of the auditor changed as construed by Brown (1962: 702):

At the end of 1940 there was a fair degree of agreement that the auditor could not and should not, be primarily be concerned with the detection of fraud. This attitude was undoubtedly influenced by the McKesson Robbins' case.

This transition is well demonstrated in successive editions of Montgomery's Auditing text during the period after 1940 that stated (Montgomery's Auditing - Fifth edition; 1934: 26) in Brown (1962: 702)): "*An incidental but nevertheless important, object of an audit is detection of fraud*". Contrary to this, Montgomery's Auditing - Sixth edition (1940: 13) in Brown (1962: 702) stated that the: "*primary responsibility ... for the control and discovery of irregularities lies with management*".

Although the change in responsibilities was widely welcomed, as explained by Lenhart and Defliese (1957: 31), the: *"Extension of audit procedures in an effort to disclose defalcations would not serve the best interests of either the public accountant or his client."*

The possible negative implication of the change in the responsibilities of the auditing profession was viewed as avoidance by the auditing profession of their responsibilities and highlighted by a Group of Accountants in Industry (1942: 19). They referred to the words of the judge in the London & General Bank court case (1895:2,173 CH :166, 673) stating that the responsibilities of the auditor should be as follows: *"His (the auditor's) business is to state the true financial position of the company at the time of the audit, and his duty is confined to that."*

The expectation gap, specifically in respect of the auditor's responsibilities became a reality, especially after the *McKesson & Robins'* case in the United States and the *Royal Mail* case in Britain (Group of Accountants in Industry, 1942: 19). The Group of Accountants in Industry (1942: 21) further stated:

With the development of industry, what is more natural than that society should find it necessary to build up a special kind of financial police force to prevent anti-social behaviour and misuse of the power which the financial control of industry gives to some socially irresponsible individuals? To what extent can the accounting profession tackle the job, and how far can it provide the personnel for such a force? That is the principal question which is being put to the profession in this series of articles.

Mautz and Sharaf (1961: 111) supported their arguments stating that the auditing profession was avoiding the acceptance of responsibility. They further argued that this lack of positive statement of responsibility and the tendency not to accept any responsibility could have serious negative implications for the profession (Mautz & Sharaf, 1961: 129). Auditors do not want to accept responsibility to provide services with consequences that appear to be unjust or unfair, but when they do not accept responsibility, there are also several disadvantages (Mautz & Sharaf, 1961: 129). Firstly, a profession must be prepared to accept responsibility for the specialist services they provide, because the acceptance of responsibility is an indication of quality (Mautz &

Sharaf, 1961: 129). Secondly, if the auditing profession is not prepared to accept responsibility, it means that they are not prepared to provide an effective service to the users of financial statements and therefore, the investing public (Mautz & Sharaf, 1961: 129). Thirdly, if the auditing profession cannot provide this challenging but essential service, then who will be able to provide the credibility necessary for the financial markets to operate? (Mautz & Sharaf, 1961: 129).

The change in responsibilities and the further lack of clear definition of the auditor's role and responsibilities, led to the expectation gap; the gap between the expectations of the investors and the public and the realistic, attainable responsibilities of the auditor. The objective of the audit was to express an opinion if the financial statements were fairly represented, and this excluded the detection of fraud and similar irregularities. Nevertheless, as Brown (1962: 701) pointed out, the auditing profession performed many audit procedures aimed at the detection of fraud during the period of 1940 – 1960.

This broader view on the audit objective reflected on both the objective of the audit, and the audit approach followed. This is because the objective of an audit and the audit approach is interrelated, as the audit approach is the method to achieve the audit objective (Brown, 1962: 698). Willingham and Carmichael (1971: 66) confirmed this interrelationship and mentioned that this relationship is difficult to observe.

Porter and Burton (1971: 153) explained the impact of the above-mentioned changes in the responsibilities of the auditor, on the traditional audit approach, stating that:

The focus had shifted to the information system of the entity (systems-based approach) and there was less emphasis on the balances (balance sheet audit approach).

- The focus had shifted to the entity's systems, away from the reliability and reporting of the financial-statement data.
- This focus on the entity's systems emphasised the evaluative aspects of an audit and created opportunities for consulting for auditing firms.

The first two major changes in this period that brought about the development of the systems-based audit approach were caused by the court case of McKesson & Robbins. Other aspects that influenced the development of the systems-based audit approach and

other approaches were the beginning of an era of academic research (Mautz & Sharaf, 1961: 1) and the beginning of change brought about by information technology.

Thirdly, Mautz and Sharaf published their acclaimed research monograph in 1961: *The Philosophy of Auditing*. The impact of this is described in the words of Mautz and Sharaf (1961: 16) as follows:

We have a strong tendency in auditing to adopt a pragmatic approach. Whatever works well is adopted and strongly advocated; what has not yet been found applicable has little appeal. We must continually test our practices and procedures, not only in actual practice, but against the theory which underlies auditing. If we forget the theoretical foundation of auditing and let it dwindle to a mere collection of rote procedures and practices reminiscent of its early history, it will not only lose stature in the eyes of the world but will forfeit the best method of solving its most perplexing problems.

They successfully set out to document the theoretical foundations of the subject of auditing that developed at that time to a stage of “procedures of detailed checking” (Mautz & Sharaf, 1961: 1). The profession was coming of age, as described by Willingham and Carmichael (1971: 10):

One significant difference between a professional and a nonprofessional occupation is the underlying body of theory which supports the work of the professional. ... The underlying theory of the public accounting profession consists of accounting theory – generally accepted accounting principles and practices – and auditing theory – a science of validation.

The audit function was renamed the “attest function” as stated by Porter and Burton (1971: 10): “*The attest function – the root of which means 'to bear witness.'*”

Willingham and Carmichael (1971: 4) describe that the attest function is the primary function of the auditing profession; this function is, to be exact, the expression of an opinion on the fairness of the financial statements. This function fulfils the role of giving credibility to financial statements and, thus, increases the reliance that can be placed on these financial statements. The concept of “to attest” is described by Willingham and

Carmichael (1971: 4), as follows: *"To attest, then means to assume responsibility for the credibility of representations."*

Finally, Porter and Burton (1971: 166) described the implications of the attest function and summarised the perception of an audit, at the time:

Today's auditor, employing the systems approach must therefore, still accept the role of informed and experienced judgment. He can be trained in procedures, but he cannot assume that there is only a single set of procedures that will produce the adequate information for the management of a business. The outsider using this opinion of the auditor as an expert's judgment must accept it within this limitation.

Continuous change in the business world still continued to influence the development of audit approaches and these factors are listed by Porter and Burton (1971: 10) as:

- Widespread ownership of enterprises.
- Highly industrialised society.
- Industry mostly privately owned, and mostly regulated by competition, but government participation greater through regulation.
- Accounting standards for reporting to stockholders and creditors fairly well developed and applied.

The 1970s were also the starting point for the implementation of information technology systems. Information technology brought with it change at an incredible pace.

Refer to Appendix A (page 341), Table C for a summary of the systems-based audit approach.

2.2.6. Conclusion

Audit approaches developed until 1972 due to various reasons. Furthermore, this development was enhanced by concepts borrowed from adjacent or related fields of knowledge and limited by the practical realities that the auditor faces. Bell, *et al.* (1997: 9) further stated in this regard: *"Throughout its history, the practice of auditing has been tied to the needs of the day and to the system of accounting that served those needs."*

Changes to and development in audit approaches were, as stated by Bell, *et al.* (1997: 9) caused by “*the needs of the day*” or, stated differently, were influenced by the requirements and expectations of the business world. Another reason for the changes to audit approaches, were probably the result of the auditing profession’s reaction to events that impacted on the profession itself; for example, the findings of court cases. Examples of such court cases were: London and General Bank (1895), Royal Mail (1931) and McKesson & Robbins (1940).

It seems that some changes in the audit profession, came firstly after events that created immense pressure for change and secondly, because of continuous pressure from an ever-changing, performance-driven business world. If major causes for change in the development of audit approach were pressure by clients and legal-liability pressure, it could be viewed as a restriction to the development process of the audit approach. The development of audit approaches may have been influenced by secondary or hidden reasons; for example, a focus on the short-term alleviation of critique against the profession.

Furthermore, the pragmatic approach of the audit profession in the development of audit approaches, limited the growth and refinement the discipline needed, as was reflected in the study of Pratt and Van Peurseem (1993: 11):

It is suggested that the standards and guidelines may not have been derived from any philosophical analysis and that the inconsistencies between the concepts and the standards appear to have resulted from a lack of clear theory as to what constitutes a standard and what constitutes a guideline; higher and lower order ideas would appear to fall somewhat indiscriminately in both.

Complexities surrounding the audit as discussed previously in Chapter 1 of this study, namely the expectation gap, the responsibilities of the auditor, cost-efficiency requirements, the fact that only reasonable assurance is required and the problems involved in the practical implementation of standards, further complicated the development of a risk-based audit approach.

Another cause for the development in audit approaches was the influence of adjacent or related fields of knowledge. Concepts that were borrowed made a major contribution to the development of audit approaches. Mautz and Sharaf (1961:18) have stated in this regard that:

Any method has a limited ability to be transferred to another field. Its success in one discipline is no guarantee at all that it will be successful elsewhere. In some cases there are similarities among fields that permit an established method to be largely taken over, but even so there must be modification and adaptation to the new subject. Methodology grows with the field of inquiry, and, in its growth and degree of refinement, represents to some extent the stages of intellectual development in the subject itself.

Audit approaches have developed due to the needs of clients and the business environment, the occurrence of specific events, practical adaptations, trends in adjacent fields of knowledge and academic research, but have always been limited by the complexities and difficulties that the auditor faces. The ideal is to find an efficient, effective audit approach that follows a clear and logical method as stated by Cushing and Loebbecke (1983: 38):

There is a strong trend toward more systematic and structured approaches to auditing. These approaches generally involve a precise ordered specification of the steps to be followed in the auditing process, and an explicit description of the auditor's logic process at each step.

2.3. Summary of the development of the early audit approaches

2.3.1. Introduction

The aim of an audit approach is to assist the auditor in achieving the predetermined objective of the audit. The development of an audit approach is described by Mautz and Sharaf (1961: 18) as follows:

As each discipline develops into maturity, it continually experiments and modifies its procedures and attitude until it finally devises a method appropriate to its particular needs and essential to its activities. The method of inquiry thus becomes as much an integral part of the discipline as does the subject matter itself.

The evolution of and development in the audit approaches will be summarised through a comparison of the three early audit approaches. The early audit approaches included in the comparison are Dicksee's initial audit approach, the balance sheet audit approach and the systems-based audit approach. Dicksee's initial audit approach describes an audit approach in approximately 1904, the balance sheet audit approach, the period, 1904 until 1940; and the systems-based audit approach in the period of 1940 until 1972.

Extractions from various auditing literature were included in Appendix A: Table A (page 331) which describes Dicksee's initial audit approach; in Appendix A: Table B (page 344), extractions of the balance sheet audit approach; and in Appendix A: Table C (page 341), extractions of the systems-based audit approach. These extractions aim to provide a description of the above-mentioned audit approach.

2.3.2. Summary and comparison of audit approaches

The development of audit approaches followed before the acceptance of the risk-based audit approach, namely Dicksee's initial audit approach, the balance sheet audit approach and the systems-based audit approach are summarised in Table 3 (page 53).

The objective of the comparison of Dicksee's initial audit approach, the balance sheet audit approach and the systems-based audit approach was to identify the aspects that changed and developed. These aspects are as follows:

- **Objective of the audit**

The objective of the audit is predetermined and the result of various factors that influenced the profession to agree on its responsibilities. The changes in the objective of the audit were fully discussed as part of the historical aspects that influenced the audit approaches.

- **Obtaining of an understanding of the entity and its environment**

The scope of the audit was initially limited to the accounting records, but the audit approach evolved until an understanding was required; what Arens and Loebbecke

(1976: 19) called a "*general understanding*" and Willingham and Carmichael (1971: 83) describe as a: "*Diagnostic analysis of the business.*"

Maybe the best description of the understanding of the information that is needed to plan the audit is by Taylor and Glezen (1979: 141), stating that:

It is important that an auditor maintain an overall perspective of the financial statements he is examining. It is easy to become involved in the details and forget to ask: 'Does this answer or presentation make good sense in light of present industry and economic conditions?'

- **Conceptual starting point for planning the audit**

The audit approach evolved from detailed testing to circumstances where the use of testing became normal practice and the auditor was forced to have a conceptual starting point to plan the audit and justify the selection process of testing. The balance sheet audit approach was characterised by the finding of errors as the main focus. The focus was the conceptual starting point of the process of obtaining of evidence. The question of what the opposite of "finding of errors" constitutes possibly led to the next turn-around in focus. The systems based audit approach conceptual starting point consisted of the audit objective-focus. Nevertheless, the academic literature in respect of the systems-based audit approach was also characterised by a second focus. The pioneering work of Mautz and Sharaf (1961) *The Philosophy of Auditing* was an enormous influence at the time. This resulted in the main focus being on the newly found perspective of the theory of auditing, with the emphasis on factors that influence evidence acquisition; therefore, these factors were viewed as the conceptual starting point. Arens and Loebbecke's (1976: xi) explanation indicates this emphasis on the factors that influence evidence acquisition: "*We believe the most fundamental concepts in auditing relate to determining the nature and amount of evidence the auditor should accumulate after considering the unique circumstances of each engagement.*"

Although evidence acquisition was discussed as part of the planning process, all the academic literature's standard audit programmes were compiled with the audit objectives as the conceptual starting point. Taylor and Glezen (1979: 767) recognised this, stating:

"The essential ingredient of the Systems Evaluation Approach is that it is objective-oriented auditing. The auditor establishes objectives to be attained and then develops auditing procedures which enable him to achieve these objectives in an efficient and economical manner."

The answer to this confusion, or use of multiple focuses, is that although the primary focuses of the planning of audit procedures were according to the audit objectives, other factors determined the selection of audit procedures under these objectives. These other concepts were materiality, relative risk and the factors that determine the reliability of evidence; therefore the determining factors of evidence acquisition. Thus, in the study it is suggested that the audit objectives were first and foremost used in the decision to determine audit procedures, and secondly it is related to the factors associated with evidence acquisition. The difference between an understanding of evidence acquisition and a methodology for auditing were also recognised by Mautz and Sharaf (1961) (refer to Part 2.4, *Audit approaches that were not generally accepted and followed*, for a complete discussion). They suggested a "methodological approach in science" as audit methodology or the "method of attack". A set hypothesis fulfilled the purpose of the conceptual starting point in the audit. Mautz and Sharaf (1961) recommended this methodology, contrary to the fact that they discussed the factors affecting evidence in detail.

Excluding the above, one other difficulty remained: Where does the evaluation of the system of internal control fit into all of this? The audit objectives did not clearly indicate the role that the system of internal control played.

- **Evidence acquisition**

Evidence acquisition evolved from 100% detailed testing to a realisation that detailed testing was impossible and cost-inefficient. This led to, as described by Arens and Loebbecke (1976: 12):

The major judgment problem facing every auditor is determining the appropriate amount of evidence to accumulate. Auditors must make a decision about the appropriate amount of evidence mainly because of the prohibitive cost of examining and evaluating all available evidence.

Arens and Loebbecke (1976: 12) divided this problem as follows (emphasis and comments in brackets added):

The auditor's evidence accumulation process can be broken into four interrelated decisions:

1. *The audit procedures to use (**nature** of audit procedures).*
2. *The sample size to select for a given procedure (**extent** of audit procedures).*
3. *The particular items to select from the population.* This decision could also include the decision to select or not to select items, and is decided in considering the **significance** of the audit procedure.
4. *The appropriate time to perform the procedures (**timing** of audit procedures).*

In this study it is suggested that the aspect "significance of the audit procedure" should also be considered as a decision to be made in the auditor's evidence accumulation process. Willingham and Carmichael (1971), the fathers of the concepts of "nature, timing and extent of audit procedures" also addressed this aspect. It is clear from the following extract from these authors (1971: 140) that materiality, relative risk, and reliability of evidence also influence programme planning. Possibly the aspect to consider in the modification of an audit programme refers to the significance of the audit procedure. Willingham and Carmichael (1971: 140) write as follows:

Programme Planning:

(a) There are three general possibilities for the modification of an audit programme:

- i) Variation in the **nature** of the procedures selected;*
- ii) Alteration in the **timing** of audit procedures; and*
- iii) Expansion or reduction of the **extent** of application of the procedures selected.*

(b) Materiality: The selection of accounts to be confirmed and the determination of the permissible amount of error in the receivable are both influenced by materiality considerations.

(c) Relative risk: The programme planning criterion for relative risk influences confirmation of accounts receivable in at least four ways: (1) emphasis on direction of error, (2) selection of accounts, (3) combination with non-receivable procedures, and (4) importance of other receivables procedures.

(d) Reliability of evidence.

It is clear from the above that factors (b), (c) and (d) also influence programme planning. The characteristic significance of an audit procedure addresses the quality of evidence provided through the performance of the audit procedure. The significance of the audit procedure represents a difference in the quality evidence (more material, addresses larger risk areas, providing more relevant and reliable audit evidence) that is provided by different audit procedures.

The decision as to what constitutes sufficient, appropriate audit evidence was left to the professional judgment of the auditor. Nevertheless, the dilemma lay in the exercising of this professional judgement.

The summary and comparison of Dicksee's initial audit approach, the balance sheet audit approach and the systems-based audit approach are given in Table 3.

Table 3: Comparison of early audit approaches

Comparison of early audit approaches		
Initial audit approach (Dicksee's approach)	Balance sheet audit approach	Systems-based audit approach
1904	1904 – 1940	1940 – 1972
The objective of the audit		
<p>* The objective of the audit was the detection of:</p> <ul style="list-style-type: none"> • Fraud • Technical errors • Errors of principle <p>(Dicksee, 1904: 7).</p>	<p>* The objective of an audit was to certify that the financial statements were a true and correct view (fair presentation) of the state of the affairs of the undertaking (Binnie & Manning, 1938: 19).</p>	<p>* The objective of the auditor's examination is the expression of an opinion on the fairness of presentation of the entity's financial statements. Primary responsibility for the control and discovery of irregularities lies with management (Willingham & Carmichael, 1971: 107).</p>
Obtaining an understanding of the entity and its environment, including internal control		
<p>* An understanding of the entity was obtained by the principal auditor, to provide a more thorough understanding of the accounting system, in order to detect any weaknesses that could create an opportunity for fraud, and any</p>	<p>* The understanding of the entity comprises the "<i>whole system of internal check</i>" (Lancaster, 1935: 70).</p>	<p>The understanding of the entity and its environment consisted of:</p> <ul style="list-style-type: none"> * Obtaining a general understanding of the client and its circumstances; and * Defining the system of internal control that is supposed to be in existence (Arens & Loebbecke, 1976: 19).

Comparison of early audit approaches		
Initial audit approach (Dicksee's approach)	Balance sheet audit approach	Systems-based audit approach
special circumstances in the recording of transactions (Dicksee (1904: 3)).		
Approach used to obtain an understanding of the entity and its environment		
* The understanding of the entity was obtained according to an "intelligent" approach (Dicksee, 1904: 10).	* The understanding of the entity was obtained according to a " <i>series of intelligent tests</i> " (Lancaster, 1935: 70). * The extent to which an auditor must carry out his investigations depends largely upon " <i>the circumstances of each case</i> " (De Paula, 1939: 9).	The understanding of the entity was not obtained according to a specific approach and limited to: * A general understanding of the client: <ul style="list-style-type: none"> • Background information for audit; • Analytical tests; • Client's legal obligations; • Information for evaluation of the possibility of management's involvement in fraud. (Arens & Loebbecke, 1976: 18,19). * A general understanding of the client's circumstances: <ul style="list-style-type: none"> • "Does this answer or presentation make good sense in light of present industry and

Comparison of early audit approaches		
Initial audit approach (Dicksee's approach)	Balance sheet audit approach	Systems-based audit approach
		<p>economic conditions?" (Taylor & Glezen, 1979: 41).</p> <p>* A summary of the system of internal control supposed to be in existence.</p> <ul style="list-style-type: none"> • Internal control; • Objectives used to evaluate the system. <p>(Arens & Loebbecke, 1976: 18,19).</p>
Conceptual starting point for planning the audit		
<p>* Planning of the audit was limited to detailed testing of transactions, assets and liabilities. (Brown, 1962: 700).</p>	<p>* The planning of the audit was done according to the finding of errors. To facilitate the auditor's search for errors, consideration was given to various types of errors that may have been made by the entity.</p> <p>* Knowledge of:</p> <ul style="list-style-type: none"> • Errors of omission • Errors of commission • Errors of principle • Errors in original entry (Lancaster, 	<p>* The planning of the audit was determined by the application of the concepts of materiality, relative risk, reliability of evidence and the audit objectives.</p> <p>* Audit objectives (e.g accuracy, existence, ownership, valuation, classification, cut-off, adequate disclosure, reasonableness). (Arens & Loebbecke, 1976: 317-335).</p> <p>* Materiality: Determine the permissible amount of error in the accounts. (Willingham & Carmichael, 1971: 140).</p>

Comparison of early audit approaches		
Initial audit approach (Dicksee's approach)	Balance sheet audit approach	Systems-based audit approach
	1935: 64)	<p>* Relative risk: Relative risk affect accounts/items as follows:</p> <ul style="list-style-type: none"> • Determine emphasis on direction of error (over/understatement). • Determine the items/transactions that will be selected. • Determine the combination of procedures. • Determine the importance of the different procedures that were followed. <p>* Reliability of evidence. (Willingham & Carmichael, 1971: 140).</p>
Financial statement level and assertion level		
<p>* The audit was approached at account level; for example the accounts or balances specifically of assets, liabilities and revenue in the trial balance (Dicksee, 1904: 207).</p>	<p>* The audit was still mainly approached on an account level (Hanson, 1942: 7).</p> <p>* The entity's internal control systems were also considered to determine the extent of testing (Egglestone, 1946:48).</p>	<p>* The audit was approached at a component (cycles) or accounts/ balances level. The internal controls of the cycles were also considered (Taylor & Glezen, 1979: 363).</p> <p>* The financial statement level was addressed theoretically through the consideration of relative risk (Lenhardt &</p>

Comparison of early audit approaches		
Initial audit approach (Dicksee's approach)	Balance sheet audit approach	Systems-based audit approach
<p>Audit evidence consisted of:</p> <ul style="list-style-type: none"> * Transactions in respect of assets, liabilities and revenue were checked and verified in detail (Brown, 1962: 699). * Very large samples or 100% verification (Brown, 1962: 699). 	<p>Audit evidence consisted of:</p> <ul style="list-style-type: none"> * The examination of the "<i>system of internal check</i>" to prevent errors and fraud. * Used "<i>reasonable care, skill and precaution</i>" in order to ensure that the "<i>books are correct</i>", and include all the transactions that should be recorded therein (Lancaster, 1935: 60). 	<p>Defliese, 1957: 12,50).</p> <p>Audit evidence consisted of:</p> <ul style="list-style-type: none"> * Detail testing of financial balances per audit objectives (Arens & Loebbecke, 1976: 317-335). * Materiality, relative risk and reliability of audit evidence were only added to standard audit programmes.
The nature and timing of audit procedures		
<p>The nature of the audit procedures was limited to substantive procedures.</p>	<p>The nature of the audit procedures consisted of:</p> <ul style="list-style-type: none"> * Substantive and tests of controls. * Test of controls was done to enable the auditor to ascertain the state of the records, and the efficiency of the "<i>system of internal check</i>" (Lancaster, 1935: 400). 	<p>The nature of the audit procedures consisted of:</p> <ul style="list-style-type: none"> * Substantive detail procedures. * Substantive analytical procedures ("<i>diagnostic analysis of the business</i>") (Willingham & Carmichael, 1971: 83). * Tests of controls.

Comparison of early audit approaches		
Initial audit approach (Dicksee's approach)	Balance sheet audit approach	Systems-based audit approach
<p>The timing of audit procedures varied between a continuous audit (before year-end); or a completed audit (timing of procedures after year-end) (Dicksee, 1904: 10).</p>	<p>Timing of audit procedures was after year-end or if necessary the procedures were performed before year-end (Hanson, 1942: 7).</p>	<p>Timing of audit procedures was after year-end or if necessary the procedures were performed before year-end.</p>
The extent of audit procedures		
<p>The extent of audit procedures was limited to:</p> <ul style="list-style-type: none"> * A proper "<i>system of internal check</i>" (this refers to accounting principles and a very narrow view on internal control) (Dicksee, 1904: 40). * Testing was allowed, "<i>if the intelligent auditor grasped the system thoroughly</i>" and was prepared to take the associated risk (Dicksee, 1904: 10). 	<p>The extent of audit procedures was limited to:</p> <ul style="list-style-type: none"> * Check only a fractional proportion of the entries (testing). These tests should be intelligently chosen so that they will prove as effective as possible (Hanson, 1942: 41). 	<p>* The decision about how much evidence to accumulate comprises two basic steps (Arens & Loebbecke, 1976: 90):</p> <ul style="list-style-type: none"> • The overall level of assurance the auditor "<i>feels he needs in the existing circumstances</i>". • "<i>The evidence necessary to achieve that overall level of assurance, considering the existing circumstances.</i>"

This was a discussion of the development of audit approaches followed before the acceptance of the risk-based audit approach. In the last part of this chapter theoretical audit approaches that influenced the development of the risk-based audit approach, which were not accepted and followed in practice, are discussed.

2.4. Audit approaches that were not generally accepted and followed

Mautz and Sharaf (1961: 23) in their pioneering work *The Philosophy of Auditing*, attempted for the first time to formulate "a systematic procedure of thinking" or audit approach. They explained it as follows: "That is, we are interested in ... their (the auditors) *method of attack, the intellectual approach they use in the performance of their work*".

Mautz and Sharaf (1961: 23/4) used the methodological approach in science as a basis for their auditing methodology. They described the methodological approach in science as: "a *systematic procedure of thinking*".

The focus of this approach is to formulate problems and hypotheses, with the consequent testing and confirming of these hypotheses. Mautz and Sharaf's (1961: 27) resultant audit methodology was as follows:

The auditing methodology for dealing with problems or issues of fact may be outlined in these steps:

- 1. Recognition (acceptance) of the composite problem (the audit assignment)*
- 2. Observation of facts relevant to the problem*
- 3. Subdivision of the composite problem into individual problems*
- 4. Determination of available evidence pertinent to each individual problem*
- 5. Selection of applicable audit techniques and development of appropriate procedures*
- 6. Performance of procedures to obtain evidence*
- 7. Evaluation of evidence*
 - a. With respect to pertinence and validity*
 - b. For indications of any additional problems*
 - c. With respect to adequacy for judgment formation*

8. *Formulation of judgment*

a. *On individual propositions*

b. *On the composite problem.*

Mautz and Sharaf (1961: 30) also discussed the differences between the scientific method and the auditing method suggested. These differences were mainly the time and cost restraints on the audit that impacted on the quality of evidence and the fact that it is not possible to repeat an audit (as in the case of controlled experiments). Their auditing methodology was unsuccessful and never gained acceptance in practice. Certain aspects of Mautz and Sharaf's (1961: 28) proposal could probably have influenced the next development in the audit approach, namely the audit risk model. The audit risk model was based on the formulation and testing of hypotheses, as suggested by Elliott and Rogers' (1972: 47) pioneering article. The hypotheses that were set by Elliott and Rogers (1972: 48) were as follows:

H₀: The financial statement amount is correct,

H₁: The financial statement amount is materially in error.

Porter and Burton (1971: 166) also reported on an audit approach developed by Gene Brown in 1961:

In what he called 'a scientific approach to auditing', ... he assigned relative control value to the various questions on an internal-control questionnaire and suggested that these values, although subjectively developed, could serve as the basis for determining the extent of audit samples necessary in reviewing various areas. A few public accounting firms have attempted this and other systems to quantify control evaluations but with little success to date. Most of such efforts have been subsequently abandoned.

In discussion of their audit methodology, Mautz and Sharaf (1961: 33) highlighted a future research area that may have influenced the future development of audit approaches: *"But it must be admitted that as yet auditing has not found ways of improving its use of probability theory through statistical applications to the same extent that other fields have. Thus this remains one of the areas in auditing in which additional experiment is necessary."*

The audit approaches discussed did not include all the audit approaches that were suggested or used by practitioners during the period until 1972; only the major audit approaches followed were discussed, and the approaches that influenced the development of risk-based audit approaches.

2.5. Conclusion

In the second chapter an overview of the theory of auditing is provided and the historical background to risk-based audit approaches is provided, including historical highlights since 1904. Firstly, a summary of an overview of auditing theory is provided in Table 2 – *Conceptual framework* and this table includes: the role of the auditor, the postulates, concepts, standards and the relation to the elements of the assurance engagement or the basic concepts as stated in the IAASB/IRBA Framework (2003). The role of the auditor is seen as an instrument of social control within the process of accountability. The postulates, according to Flint (1988), are the second level in this framework. On the third level the focus was on the concepts that were categorised under the term “process”, specifically the concepts that relate to the conceptual starting of the audit; this varies as the audit approaches developed over the years and encompassed concepts such as evidence, materiality and risk.

Secondly, the chapter discusses the historical background to the different audit approaches. These audit approaches developed as a result of continuous pressure from an ever-changing, performance-driven business world and by events that created immense pressure to change.

Thirdly, a comparison was made between the different audit approaches over time before the adoption of the risk-based audit approach. The audit approaches evolved from detailed testing in Dicksee’s initial audit approach, where planning was limited, to circumstances where the use of testing became normal practice and the auditor was forced to have a conceptual starting point to justify the selection process of testing and to determine planning. In the balance sheet audit approach, finding errors was the main focus and therefore, the conceptual starting point of the process of obtaining evidence. This study suggested that in following the systems-based audit approach, audit objectives were first and foremost used in the decision to select audit procedures, and therefore the

conceptual starting point of the process of obtaining of evidence. In the present study a further decision for audit planning is suggested; the significance of the audit procedure. The significance of the audit procedure represents a difference in the quality evidence (more material, addresses larger risk areas, more relevant) that different audit procedures provide, and should be considered in respect of aspects that influence changes to the audit plan, additional to the current nature, timing and extent of audit procedures.

Fourthly, audit approaches are discussed that were not generally accepted by practitioners and that influenced the development of the risk-based audit approach.

The objective of this chapter was to discuss the background to the risk-based audit approach, to put the history of auditing in perspective. In the third chapter of this study the development of the audit risk model will be discussed; this includes the Elliott and Rogers' model that signalled the start of the audit risk model. Following from this, critique from a statistical perspective on the audit risk model will be summarised.

CHAPTER 3 - THE DEVELOPMENT AND EVALUATION OF THE AUDIT RISK MODEL FROM A STATISTICAL PERSPECTIVE

3.1. Introduction

The risk-based audit approach forms the foundation of the planning and performance of audits today; this is confirmed in IAASB/IRBA ISA 200 (2006: para. 24) stating that: "*The auditor should plan and perform the audit to reduce audit risk to an acceptably low level that is consistent with the objective of an audit.*"

In Chapter 3 the origins and development of this concept of "audit risk" will be discussed. The concept or idea of "audit risk" evolved from the application of concepts and methods in the field of statistics, specifically statistical sampling applications (Colbert, 1987:52). The audit risk model evolved from auditing sampling techniques, with the Elliott and Rogers' model that signalled the start of the audit risk model. This risk-based audit approach, the audit risk model from a statistical perspective, consists of two distinct parts. Firstly, the translation of audit objectives into an understandable mathematical format (the audit risk model) and secondly, the application of these variables into a statistical sampling technique.

Audit sampling or the application of statistical sampling techniques in auditing is the origin of the concept of audit risk and will be investigated with a consideration of the critique against the application of statistical sampling techniques and methods as part of an audit approach. The historical development of the audit risk model, with specific mentioning of the Elliott and Rogers' (1972) audit sampling approach, will then be discussed from its early statistical origins. Thereafter, the critique against the audit risk model from a statistical perspective will be discussed. This critique should be considered against the background of the warning by Mautz and Sharaf (1961: 64) that was ignored by the auditing profession:

We believe that a conceptual approach is more likely to lead to progress in the construction of a sound theory of auditing than any other. We take this position because auditing is at the stage where a rigorous examination of its concepts is needed and because we feel the most widely recognised alternative approach, a mathematical one, is not applicable. The development of mathematical models and their

manipulation to reveal relationships and tendencies have been found very useful. We do not believe that this approach will have a similar usefulness in auditing.

3.2. Audit sampling – the audit risk model's origin

3.2.1. Introduction

The origins of "audit risk" and the risk-based audit approach are in the application of statistical sampling techniques in auditing or audit sampling. The auditing profession recognised that the field of statistics could provide the profession with methods; for example statistical sampling methods, that could measure the uncertainties in the audit (Stringer, 1961: 64). Stringer (1961: 63) further stated that: *"Statistical sampling is a rational and understandable method for recognising the probabilities associated with audit tests in a given situation."*

This method according to Stringer (1961: 64) is: *"By being able to measure the extent of uncertainty the auditor may determine the sample sizes necessary to confine it to the limits that he considers acceptable in any particular situation."*

Guy (1981: 7) confirmed this, stating that with the aid of statistical sampling, auditors are able to determine sample reliability and the risk of reliance on the sample. Some auditors who have used statistical sampling report the following benefits: better working papers, the perception that audit work is of a higher quality and a greater confidence about the audit opinion because statistical sampling methods are more objective and defensible (Bedingfield, 1975: 53 in Guy, 1981: 7). In contrast, Loebbecke and Neter (1975: 47) in discussing the aspect of bias in the selection of audit procedures stated that measurement procedures are seldom perfect and may become stumbling blocks in themselves.

There was a definite interest in the audit profession to transform the possible advantages of statistical sampling, specifically the benefits of objectivity and defensibility into a statistical sampling application that could form the basis of an audit methodology. As Stringer observes (in Tucker, 1989: 31): *The first stage, as I saw it, was to establish a reliability level from the viewpoint of firm policy (Deloitte, Haskins & Sells) with which we would feel comfortable in stating to clients, the public, in litigation*

or wherever it is questioned, that we have achieved this specific level of reliability on which we based our conclusions.

Stringer determined an overall reliability level of 95 per cent as a reasonable basis for statistical sampling plans in auditing, according to his practical experience (Tucker, 1989: 31). The next step in the development of a statistical audit risk approach was explained by Stringer (Tucker, 1989: 31): "*How does one put together what is essentially a subjective evaluation of internal control and analytical review with the objective statistical measurements of the results of substantive procedures. ... How do you quantify subjective judgments?*"

In 1972 the first attempt to combine objective statistical measurements and subjective judgments was made by Elliott and Rogers.

3.2.2. Elliott and Rogers' audit sampling approach

Elliott and Rogers (1972: 46) pointed out that testing in auditing will always link auditing to statistical techniques and the concept of uncertainty; yet, statistical techniques were not widely used by the auditing profession. They attempted to resolve audit practitioners' reluctance to use statistical techniques by relating statistical techniques to audit objectives (Elliott & Rogers, 1972: 46).

Elliott and Rogers (1972: 49) suggested an auditing model, based on hypothesis testing, that assisted auditors in determining the variables needed in a statistical method; for example β (audit risk), precision and materiality (tolerable error). The motivation for this approach is as follows (Elliott & Rogers, 1972: 55): "*All the statistical plan does is to organise the available (auditing) information into a quantifiable form for decision making.*"

In other words, Elliott and Rogers (1972: 49) formulated an audit approach that uses the statistical technique of hypothesis testing. The variables used in the statistical technique of hypothesis testing were audit related and based on judgment decisions made by auditors. The statistical plan for hypothesis testing assisted the auditors in deciding on some of these judgment decisions. Wegner (2007: 256) defined hypothesis testing as: "a

process of testing how 'close' a sample statistic lies to a hypothesised value of its population parameter."

Hypothesis testing starts when a value is assumed or assigned to the particular population parameter being investigated those results in two statistical hypotheses (Wegner, 2007: 6). The two statistical hypotheses are as follows (Wegner, 2007: 258):

H₀ (Null hypothesis): Population parameter = hypothesised value

H₁ (Alternative hypothesis): Population parameter ≠ hypothesised value

A population parameter is described by Wegner (2007: 6) as follows: "*A population parameter is the actual value of a random variable in a population.*"

In the Elliott and Rogers' model (1972: 47) the hypothesised value of the population parameter is the financial statement amount of the account. For Elliot and Rogers (1972: 48) the hypotheses are as follows:

H₀: The financial statement amount is correct ($E \leq TE$ or $E = 0$)

H₁: The financial statement amount is materially in error ($E > TE$)

Wegner (2007: 263) explains this further (emphasis added):

*The critical limits that define the regions of acceptance and rejection of the null hypothesised population parameter are determined by the **level of risk** acceptable to the decision-maker in drawing an incorrect conclusion.*

There are two basic risks involved in testing any hypothesis. They are called the Type I error and the Type II error.

Type I error: *This is the probability of rejecting a true null hypothesis. A Type I error is called the level of significance, and is represented by the symbol α (alpha).*

Type II error: *This is the probability of accepting a false null hypothesis. A Type II error is represented by the symbol β (beta).*

In the Elliott and Rogers' (1972: 47) model this is described as follows: "*The risk of rejecting perfectly correct financial statements will be referred to as the alpha risk and the risk of accepting financial statements in error by exactly a material amount will be referred to as the beta risk.*"

Elliot and Rogers' (1972) definition of beta risk, as explained above, parallels the SAS 47 (AICPA 1972) definition of overall audit risk (Colbert, 1987: 56). The two risks (α and β risks) are always present, even when an auditor uses judgmental sampling procedures which can only be quantified through judgment (Elliott & Rogers, 1972: 47). They stated that after the auditor determined through judgment the three parameters M (the amount considered material), α risk and β risk (audit risk), the auditor can design a suitable hypothesis test for auditing a financial statement amount (Elliott & Rogers, 1972: 48). In respect of the calculation of "materiality" that was generally accepted as a percentage (five or ten per cent of net income) at the time, Kaplan (1973: 239) warns:

The auditor faces much tighter bounds on the allowable degree of uncertainty in statistical sampling than is typically considered in survey sampling. This stringent precision requirement implies that simple mean per unit estimates, the most commonly recommended and taught technique, is not appropriate for auditing applications. Auditing populations will typically have highly dispersed distributions so that enormous sample sizes would be required if mean per unit estimates are to achieve a standard error of the estimate of 1 per cent or less of the magnitude of the estimate.

The major benefit from their approach according to Elliott and Rogers (1972: 47) is that less judgment is needed because of the statistical ability to measure and that this will ensure more credibility and control. As stated by Elliott and Rogers (1972: 49): "*The advantage of the hypothesis test approach is that it permits the auditor to recognise and control the α and β risk levels. It is also a correct decision rule for using the statistical results. And, finally, it is stated in the most relevant audit terms.*"

In their article Elliott and Rogers (1972: 48) explain how the above benefit should be realised. They stated that the more logical objective of the auditor would be to adjust his/her β risk (audit risk) for different internal control conditions, and not his/her α risk. At that point in time, it was the norm to estimate the α risk because auditors in the determining of sample size estimated confidence and precision levels. To understand this, Wegner (2007: 265) explains: "*If α defines the significance level, then $(1 - \alpha)$ describes the corresponding confidence level.*"

The α risk is of lesser importance because there is a smaller likelihood that the auditor will reject correct financial statement balances (Elliott & Rogers, 1972: 49). Elliott and Rogers (1972: 49) stated that the β risk is of critical importance to the auditor; in fact, minimisation of the overall β risk is the reason for the existence of the public accounting profession. In setting the β risk, Elliott and Rogers (1972:48) explain that: "*If the auditor could justifiably accept a higher value for β (than 0.025), he could be satisfied with smaller sample sizes.*"

Therefore, they suggested that β risk should be adapted for two of the most critical factors in the typical audit namely:

- Internal control (the better the internal controls of an entity, the higher β selected);
and
- Other audit procedures (Elliott & Rogers, 1972: 48).

First, in estimating the β risk, the auditor should consider the quality of the control environment and the internal controls that would prevent or detect the occurrence of material errors, because it is inversely related to the level of risk that a material error could occur in a class of transactions or the balance of an account (Elliott & Rogers, 1972: 49). Therefore, if there are no "*good internal controls*", the auditor should use a lower β level for the auditor's statistical test, or more accurately, he/she should not increase his/her β level in reliance upon internal control (Elliott & Rogers, 1972: 50).

Second, the impact of other audit procedures on the β risk is explained as follows by Elliott and Rogers (1972: 50): "*If he is performing an analytical review of the ratios and trends and/or additional detailed audit procedures his reliance on the statistical test is obviously less than it would be in the absence of these other procedures. He can therefore use a higher β level.*"

There are two types of "other procedures" according to Elliott and Rogers (1972: 50); firstly, detailed substantive procedures and secondly, substantive analytical procedures, of which the first is much more effective than the latter.

The selected β level will then be converted in a confidence level and a precision level to determine the sample size (Elliott & Rogers, 1972: 50). Elliott and Rogers (1972: 55) did foresee the following problems with the use of their approach:

The use of the hypothesis test approach will normally require greater precision than the typical audit approach; this means larger sample sizes. ... Furthermore, many of the required calculations, if done manually, are so onerous as to discourage the use of statistical techniques.

Elliott and Rogers (1972: 47) also showed the way for the next step of the audit risk model, through explaining that these judgments (the impact of internal control, the impact of other audit procedures, materiality, β (audit risk)) may be used in planning the "type, extent and timing" of other audit procedures. The Elliott and Rogers (1972) model is a knowledge structure with a mathematical base that explains the risks; namely overall audit risk, internal control risk, substantive testing risk and substantive analytical review risk surrounding an audit (Colbert, 1987: 56).

The model determines a β risk that is used to calculate the confidence level and precision level needed in a statistical sampling plan to provide the auditor with the sample sizes needed for testing (Colbert, 1987: 56). The article of Elliott and Rogers (1972) changed the audit profession irrevocably; but, the problems and risks of applying statistical sampling techniques did not cease to exist, neither did the words of Mautz and Sharaf (1961: 64) as stated in the introduction.

3.2.3. The risks in audit sampling

The application of sampling in auditing was a challenge and Elliott and Rogers (1972) did not address the entire issue at hand, mentioning only two factors that contributed to the delay in the implementation of statistical techniques. These two factors were: firstly, that the application of statistical techniques was complex and difficult and secondly, that statistical techniques were not related to the objective and goals of the audit (Elliott & Rogers, 1972: 46).

Loebbecke and Neter (1975: 38) stated that the choice of statistical sampling procedures in auditing encompasses selecting (1) a method of sampling (2) one or more statistics to

be calculated from the sample, and (3) a methodology for assessing the sample results (a sampling plan). Moreover, the assumptions underlying sampling plans for audits could increase the risks in audit sampling; for example, the assumptions in respect of the nature of the population (Teitlebaum & Robinson, 1975: 71) are:

The population under examination is a set of reported non-negative book values, some of which have been overstated, but the amount of any error is assumed in no circumstances to exceed the reported book value of the item containing the error. ... It is recognised that the assumption that overstatements cannot exceed book values is not always absolutely safe.

Another assumption, in terms of the population that underlies auditing sampling plans, is according to Teitlebaum and Robinson (1975: 71): “*The population is assumed to be large enough to make the effect of correction for a finite population size trivial.*”

This is not necessarily true in respect of all the populations. The acquisition of assets, for example, that are normally material transactions, does not necessarily represent a large population.

Variables in sampling plans, in contrast to attribute sampling plans, were mainly used by auditors and Teitlebaum and Robinson (1975: 77) concluded that two important assumptions implicit in variables sampling plans were questionable in many audit situations, namely that:

- (a) The sample means are normally distributed; and*
- (b) The sample standard deviation closely approximates the population standard deviation.*

Roberts (1975: 92) agrees that actual sampling risks might be larger than nominal sampling risks when the sampling distribution is not close to its assumed form; usually there is an expectation that a sampling distribution is normal. In choosing methods of variables estimation, Teitlebaum and Robinson (1975: 83) warned that a sample containing no errors would be the most favorable situation the auditor expects to encounter; yet paradoxically, the difference and ratio methods of variables estimation are invalid when no sample errors are found.

The empirical simulation study, *Behaviour of Major Statistical Estimators in Sampling Accounting Populations*, conducted by Neter and Loebbecke (AICPA, 1975 in Roberts, 1975: 92) further demonstrates the seriousness of the problem. Leslie, Teitlebaum and Anderson (1980:i) reported on this matter, mentioning that:

The recent publication in the United States of an auditing research monograph by Neter and Loebbecke (1975) highlighted some of the risks to which classical sampling plans unless modified, can be exposed when applied to the low error frequency but highly skewed population values of the typical audit situation.

Loebbecke and Neter (1975: 38) reported that the nature of the audit procedures and the environment in which the audit occurs result in not simply one statistical sampling procedure likely to be appropriate for all circumstances. They stated for example, that the nature of the audit procedure has a significant influence on which statistic is of greatest interest and therefore, on whether the sampling procedure concerns an attribute or a variable (Loebbecke & Neter, 1975: 39). Loebbecke and Neter (1975: 41) suggest that:

There are at least four important environmental characteristics which affect the choice of a sampling procedure for variables or combined attributes-variables: (1) skewness of population, (2) error rate, (3) magnitude of errors, and (4) direction of errors. ... The four environmental factors affect: (1) the precision of the estimator and (2) the reliability with which the nominal confidence coefficient (usually based on the assumption of a normal distribution) indicates the actual probability that the procedure provides correct confidence intervals.

Felix (1975: 66) suggests further: *"As characteristic (environmental factor) five in their list, they should include the pattern of the errors ... for example errors are concentrated in small or large book balance subsidiary accounts."*

The application of statistical sampling in auditing is difficult and complex, because of the above-mentioned factors, and the auditor is frequently unsure about how one or more of these environmental factors impacts on the specific audit (Loebbecke & Neter, 1975: 42). They further stated that: *"The statistical estimator tended to be quite imprecise, and the*

nominal confidence coefficient was quite unreliable for highly skewed populations and only fairly reliable for the larger sample size for the less highly skewed populations."

This is supported by Kaplan (1973: 238), who emphasised the special nature of audited populations. For example, zero and low error rates and the fact that the true audited dollar values for all or most items in the population is the same as the recorded dollar values. Kaplan (1973: 257) stated in this regard: *"It is ironic that it is easier to make statistically valid statements about the mean of high error rate populations than about very good populations."*

Teitlebaum and Robinson (1975: 84) confirm this: *"The auditor is required to deal with three simultaneous difficulties - highly skewed populations, rare occurrences of error, and limited sample sizes, necessitated by time and cost constraints."*

Finally, Roberts (1975: 94) states that Loebbecke and Neter rightly point out the dangers of the classical estimation methods, and Teitlebaum and Robinson (1975: 83) remark: *"Although there are no certain surface similarities, the task of the audit sampler is markedly different from the task of a classical sampler."*

In the evaluation of results, Willingham and Carmichael (1979: 155) stated that an auditor could not only restrict his assessment to a mathematical analysis of the result. Loebbecke and Neter (1975: 46), for example, mention that for some audit procedures such as a debtors-circularisation and the attending of the inventory count, it is not possible to enlarge a sample if necessary. The complexity of the dilemma is increased when the results of audit procedures should be considered simultaneously to evaluate and conclude on the fair representation of one assertion and therefore, a final decision is not made at the end of an individual audit procedure (Loebbecke & Neter, 1975: 49).

Felix (1975: 65) emphasised this point further, by stating: *"The issues raised by Loebbecke and Neter are important and extend far beyond the choice problem an auditor faces in choosing among alternative statistical sampling procedures. Auditing literature is not very clear on the choice problem for any set of auditing procedures."*

The nature and characteristics of the data auditors obtain as audit evidence have proved to be the most important aspect to consider in applying the theory of statistics in auditing, because as mentioned by Mautz and Sharaf (1961: 16): *"Unless this principle (in order to successfully adopt sampling techniques in audit verification), is kept under continuous study in theory, and observed in practice, more harm than benefit may result."*

This can be illustrated through Kaplan's (1973: 39) criticism of the Elliot and Rogers' (1972) model stating, firstly: *"Attribute estimation is only a peripheral technique. It can be used in conjunction with other auditing procedures but cannot be used by itself for direct audit conclusions. It is neither necessary nor sufficient for the proper execution of an audit."*

Secondly, Kaplan (1973: 239) states: *"One immediate problem for both interval estimation and hypothesis testing is to determine k , the degrees of freedom associated with the variance estimates."*

Thirdly, Kaplan (1973: 248) states:

A more fundamental issue is whether the t -distribution is even appropriate for statistical inference in this situation. The t -distribution is derived under an assumption that the variables being sampled are normally distributed. We know that this will not be true in general for audited populations whose skewness and kurtosis will likely be quite different from a normal distribution. For mean per unit estimation, however, the central limit theorem suggests that for large enough samples, sample means will be normally distributed.

Finally, Kaplan (1973: 256) states: *"Statistical sampling for auditing now appears to be a more difficult problem than was heretofore believed."*

In conclusion, Teitlebaum and Robinson (1975: 70), contend that: *"Risk in audit sampling plans and in concept is considerably more complex than may often have been recognised."*

3.2.4. Conclusion

The Elliott and Rogers' (1972) audit sampling approach put the auditing profession on a new road. Only one question remained: Was this new road the highway or a detour?

3.3. The historical development of the audit risk model

The Elliot and Rogers' approach was the starting point of the audit risk model, transforming audit objectives into a mathematical format that could be used in a statistical sampling plan. In terms of the Elliott and Rogers' (1972: 50) approach, it is necessary to select a β -level to be applied in a statistical sampling plan. This β level that is estimated by the auditor is the risk of accepting financial statements in error by an exact material amount and is linked to the reliability level (or confidence level).

In 1972 the Elliot and Rogers' model was incorporated by AICPA into the Statement of Audit Procedure (SAP) 54 - *The Auditor's Study and Evaluation of Internal Control Appendix B – Precision and Reliability for Statistical Sampling in Auditing* (AICPA (1972) in Colbert (1987: 52)). Roberts (1974: 47) explains as follows:

Precision is a measure of the closeness between the sample result and the corresponding unknown population value. Reliability measures the frequency with which the difference between the sample estimate and the population value does not exceed the precision.

In terms of test of controls, Roberts (1974: 49) translated the above statistical terms into accounting terms to be used in the statistical sampling plan:

The risk of placing unwarranted reliance on these accounting controls is measured by the complement of the reliability. The complement of the reliability measures the maximum risk of deciding the occurrence rate that warrants the planned reliance, when in fact it does not.

In terms of substantive procedures, Roberts (1974: 50) explains that SAP 54, Appendix B, para. 25 states:

The feature of audit interest in performing substantive tests of details is the monetary amount of errors that would affect the financial statements being audited. ... This

means that from a statistical sample, the auditor calculates an estimate of the monetary error together with the precision of the estimate at a desired reliability.

Auditors were assisted in determining the appropriate substantive test reliability level, having first determined the desired overall reliability level for the audit, and the reliance to be assigned to internal control, based on the study and evaluation thereof, including the precision level for the statistical sampling plan according to para. 35 of SAP 54, Appendix B by applying the following formula (Cushing & Loebbecke, 1983: 25):

$$S = 1 - \frac{(1 - R)}{(1 - C)}$$

Where:

S = reliability level for substantive tests,

R = combined reliability level desired, and

C = reliance assigned to internal accounting control and other relevant factors.

SAP 54, Appendix B was renamed SAS No. 1 Section 320A & B. In para. 10 of SAS No 1. Section 320A the interpretation of the statistical terms "precision" and "reliability" is explained as follows (in Willingham & Carmichael, 1979: 157):

Although 'precision' and 'reliability' are statistically inseparable, the committee believes that one of the ways in which these measurements can be usefully adapted to the auditor's purposes is by relating precision to materiality and reliability to the reasonableness of the basis for his opinion.

The next development in the audit risk model originated from the description given in paragraph 73 of Section 320, SAS 1 that states the following: (Stringer, 1975: 3):

Regardless of the extent of reliance on internal accounting control, the auditor's reliance on substantive tests may be derived from tests of details, from analytical review procedures, or from any combination of both that he considers appropriate in the circumstances.

Stringer (1975: 3) interprets the above statement mathematically, as follows:

The concept of reliability from substantive tests set forth in the text quoted above can be expressed more concisely in the following formula:

$$S = 1 - (1 - D)(1 - A)$$

Where:

S = Reliability level desired for substantive tests,

D = Reliance assigned to tests of details, and

A = Reliance assigned to analytical review.

If the above expression is substituted in the formula mentioned in SAS 1 (AICPA, 1972), an expression can be derived for the combined reliability level desired; this expression is as follows (Cushing & Loebbecke, 1983: 25):

$$R = 1 - (1 - C)(1 - A)(1 - D)$$

Where:

R = Combined reliability level desired,

C = Reliance assigned to internal control,

A = Reliance assigned to analytical review, and

D = Reliance assigned to tests of details.

In order to understand the next step in the historical development of the audit risk model, it is necessary to refer to Wegner's (2007: 161) explanation in respect of probabilities, with regard to the multiplication rule for statistical independent events:

If two events, A and B, are statistically independent (i.e. there is no influence of one event on the other event) then the multiplication rule reduces to: $P(AB) = P(A) \times P(B)$ i.e. it reduces to the product of the two marginal probabilities only.

Leslie, *et al.* (1980: 297) introduced the term risk, replacing reliability and precision, stating:

As with probabilities, if there were a 10% risk of material error not being caught by internal control and overlapping audit procedures and a 50% sampling risk of failing to catch a material error as a result of these substantive tests, it seems logical to conclude that the combined risk of undetected error would be multiplicative. We have used joint risks in this manner. It is somewhat oversimplified and could, in some cases lead to erroneous decisions, but it provides a simple-to-understand starting point.

In 1977 Anderson (1977: 86) mentioned how "inherent risk" might be incorporated into the audit risk model (Anderson, 1977: 86, in Cushing & Loebbecke, 1983: 25):

The concept of an appropriate degree of assurance from the audit opinion can be examined in terms of the complement of such assurance: the risk of undetected misstatements remaining in the audited financial statements. This risk is in turn a product of three factors:

- 1. inherent risk (the risk of an error occurring in the first place),*
- 2. control risk (the risk of the control system failing to prevent or detect such error, which is the complement of the relative strength of internal control), and*
- 3. audit risk (the risk of the audit procedures failing to detect such errors).*

The AICPA statement (SAS 1, Section 320 A & B) mentions inherent risk as follows (Leslie, *et al.* 1980: 296): "It has been treated implicitly and conservatively at 100 per cent (or one)."

It is suggested by Leslie, *et al.* (1980: 296) that the "pre-control risk of a material error occurring in the first place" was ignored, and that "In our view, it is preferable to segregate this inherent risk factor, for not only will it be less than 100% but it will vary from item to item."

D.A. Leslie, A.D Teitelbaum and R.J. Anderson were Canadians and their ideas were incorporated in the research monograph: "Extent of Audit Testing" published by the Canadian Institute of Chartered Accountants (CICA) in 1980. The CICA model included inherent risk and the risk associated with analytical review procedures ("risk from other audit procedures"). The extended formula of CICA is expressed in the following formula (Cushing & Loebbecke, 1983: 26):

*Joint risk = inherent risk x control risk x risk from other audit procedures
x substantive test risk.*

Furthermore, the CICA (1980) model viewed inherent risk as a prior probability, and the posterior probability of the ultimate risk, after the performance, is calculated as follows (Leslie, 1984, in Daniel, SJ, 1988: 176):

$$UR = \frac{IH \times IC \times AR \times TD}{(IH \times IC \times AR \times TD) + (1 - IH)}$$

This model reflects the reasoning that the auditor's final assessment of audit risk is always conditional on his initial assessment of inherent risk.

Where:

UR = Ultimate risk, IH = Inherent risk, IC = Internal control risk, AR = Analytical review risk, TD = Tests of detail risk.

The incorporation of Bayesian principles in the Canadian model ensured that the treatment of inherent risk were fundamentally different from that of the United States model. The Canadian, Leslie (1984) advocated the use of this risk model as suggested by the CICA (1980) research monograph "Extent of Audit Testing", as it was statistically more sound (Daniel, SJ, 1988: 176).

In 1981 the AICPA issued SAS 39 "Audit Sampling, Materiality and Risk" a year after the Canadian model. This statement provides the following model (AICPA SAS 39 Appendix, 1981: para. 4) in Cushing and Loebbecke (1983: 25):

$$\begin{aligned} \textit{Ultimate risk} &= \textit{Internal control risk} \times \textit{Analytical review risk} \times \textit{Test of details risk} \\ UR &= IC \times AR \times TD \end{aligned}$$

Where:

UR = The allowable ultimate risk that the auditor will fail to detect a monetary error equal to the maximum tolerable amount,

IC = The auditor's assessment of the risk that, given that errors equal to tolerable error occur, the system of internal accounting control fails to detect them,

AR = The auditor's assessment of the risk that analytical review procedures and other relevant substantive tests would fail to detect errors equal to tolerable error, and

TD = The sampling risk of incorrect acceptance for substantive tests of details.

Inherent risk was not incorporated into the model but a footnote in the Appendix to SAS 39 recognises the existence of inherent risk (refer to the bold section) and this was

included in the simplifying assumptions of the model (Para. 4 in Appendix SAS 39 AICPA: 1981) in Cushing and Loebbecke (1983: 25,28):

- 1. The individual risk components are assumed to be independent of each other.*
- 2. The non-sampling risk component of the model is assumed to be negligible, based on the level of quality control in effect.*
- 3. **Inherent risk, because it is difficult and potentially costly to quantify, is set conservatively at one; since audit experience indicates clearly that it is substantially lower, the actual risk will ordinarily be less than ultimate risk.***

Inherent risk was set at one, according to the assumptions in the audit risk model. One indicated that inherent risk was set at the most risky level (100%) and mathematically indicates that it is not included in the audit risk model, as the values are multiplied with one. The AICPA mentioned that this was a conservative approach and therefore audit risk will ordinarily be less than the auditor's planned level of audit risk.

In 1983 the AICPA issued SAS No. 47 that formed part of AU Section 312. The key changes were the inclusion of inherent risk that was formerly set at one and the combination of the two components of analytical review risk and tests-of-details risk to form detection risk. The 1983 audit risk model was (para. 20 AICPA SAS 47, 1983: 61):

Audit risk = Inherent risk x Control risk x Detection risk

AR = IR x CR x DR

Where:

Inherent risk is the susceptibility of an assertion to a material misstatement assuming that there are no related internal control structure policies or procedures.

Control risk is the risk that a material error that could occur in an assertion will not be prevented or detected on a timely basis by the entity's internal control structure policies or procedures.

Detection risk is the risk that the auditor will not detect a material misstatement that exists in an assertion.

There were no further adaptations to the 1983 audit risk model, and the above formula is still the accepted audit risk model (IAASB/IRBA ISA 200, 2006: para. 25 & 29). After

1983 a conceptual understanding of the audit risk model was used and this will be discussed in Chapter 4.

In this part of Chapter 3 the historical development of the audit risk model from a statistical perspective, the risk-based audit approach from 1972 until approximately 1984 was discussed. The audit risk model evolved from auditing sampling techniques, with the Elliott and Rogers' article that signalled the start of the audit risk model. The statistical approach in applying the audit risk model was discussed and consists mainly of two distinct parts. Firstly, the translation of audit objectives into an understandable mathematical format (the audit risk model) and secondly, the application of these variables into a statistical sampling technique.

The second part of the third chapter will summarise the major research addressing the audit risk model from a statistical perspective and the critique on the audit risk model from a statistical perspective.

3.4. Evaluation of the audit risk model from a statistical perspective

3.4.1. Introduction

The approach followed by the audit risk model is to limit the uncertainty about misstatements in the assertions, or the risk of material misstatement through decomposing this risk into inherent risk, control risk and detection risk (Waller, 1993: 783).

The justification for the audit risk model, as described by Leslie, *et al.* (1980: 297) was: *"We have used joint risks in this manner ... It is somewhat oversimplified and could, in some cases, lead to erroneous decisions, but it provides a simple-to-understand starting-point."*

Cushing and Loebbecke (1983: 27) discussed the use of models as a "simple-to-understand starting-point", providing a "rule" to evaluate such a model, stating:

Models such as these are abstractions of reality. They are used to gain a better understanding of reality and to make reasonably reliable and useful predictions. However, they are always simplified; i.e. all aspects of reality can rarely, if ever be

accurately incorporated into a model. This simplification is appropriate as long as it is not overdone or done improperly. The measure of this would be whether the model caused the user to misunderstand the reality being represented, or to use the model unwittingly to make unreliable predictions.

The measurement for the success of the audit risk model as an audit approach is therefore the success of the audit risk model's explanation of reality.

3.4.2. A summary of research of the audit risk model from a statistical perspective

The application of the audit risk model during the planning and performance of the audit was required by auditing standards and therefore, the preferred audit approach for approximately 30 years. The importance of an audit approach in the audit process cannot be underestimated and thus, the audit risk model received the necessary consideration from researchers over a period of time.

Twenty-three Articles were selected, according to their relevance, to be included in a summary of research of the audit risk model from a statistical perspective. The relevance of articles was established according to the following two articles that covered the period of 1980 until 2000:

- Smith, G & Krogstad, J.L. 1988. *A Taxonomy of Content and Citations in Auditing: A Journal of Practice & Theory*. Auditing: A Journal of Practice & Theory. 8(1): 108-117.
- Krogstad, J.L. & Smith, G. 2003. *Assessing the Influence of Auditing: A Journal of Practice & Theory: 1985 - 2000*. Auditing: A Journal of Practice & Theory. 22(1): 195-204.

Both these articles included tables (Table 6: First authors cited twelve or more times, Smith & Krogstad, 1988: 116; and Table 5: Authors of AJPT Articles cited 35 or more times, 1985 – 2000; Krogstad & Smith, 2003: 203) that are used as an indication of authoritative authors. These two articles further include Table 3: Journals cited ten or more times in AJPT (1988: 112) and Table 3: Journals citing AJPT ten or more times (1985-2000). Only articles that were published in journals mentioned in these tables were used.

Research was selected if they addressed the audit risk model from a statistical perspective, or from a "rigorous foundation, such as probability theory" (Waller, 1993: 785). This statistical perspective of the audit risk model changed 10 years after the first pronouncement on the audit risk model, to a different conceptual approach of the audit risk model that is described as follows: (AICPA 1992, AU 350.48, in Waller, 1993: 785): *"It is not intended to be a mathematical formula including all factors that may influence the determination of individual risk components"*.

Researchers adopted two approaches when considering the audit risk model: firstly, the conceptual approach to the audit risk model that will be discussed in Chapter 4; and secondly, a purely statistical approach. The statistical approach to applying the audit risk model or the multiplicative audit risk model is indicated by the multiplicative signs. It is called a statistical approach, because it is part of a statistical sampling plan as originally intended and based on the rigorous foundation of probability theory in the field of statistics. Waller (1993: 785) queried if the conceptual approach was acceptable at all and suggested that only the statistical approach should be allowed, stating that: *"Thus, it is debatable whether logical exactness should be attributed to the model. In conformance with past research, the view adopted in this study is that policy regarding audit risk should be based on a rigorous foundation, such as probability theory."*

Waller (1993: 783) further reported that the literature on the audit risk model, from a statistical perspective, has focused on an analysis of the audit risk model's assumptions and implications (15 articles included in the summary), auditor's risk assessments in experimental settings (6 articles included), empirical studies that examine applications of the model in field settings (1 article included) and an empirical study that examined the use of the audit risk model by practitioners (1 article included). A chronological summary of the research literature on the audit risk model is made in Appendix B (page 351). The summary is chronological because of the mutual influence between the audit standards (specifically the AICPA standards) and the research literature. The summary in Appendix B covers the following: year of publication, authors, research methodology, the objective of the study, any problematic aspects that were indicated in the research and the results of the research. A summary of Appendix B, Table D is presented in Table 4 and

comprises the year of publication, authors, research methodology and aspects of the audit risk model discussed.

Table 4: Research from a statistical perspective on the audit risk model

Research from a statistical perspective on the audit risk model			
Year	Authors	Research Methodology	Aspects of the audit risk model discussed
1972	Elliott & Rogers	Discussion	Creation of audit risk model
1974	Roberts	Discussion	Reliability of substantive procedures
1975	Stringer	Discussion	Extension of the formula, includes analytical review
1977	Anderson	Discussion	Refer to Leslie, <i>et al.</i> (1980)
1979	Warren	Discussion	Extension of the formula: ME = Likelihood of material errors as subjectively assessed
1980	Leslie, Teitlebaum & Anderson	Discussion	<ul style="list-style-type: none"> ▪ Change notation from reliability to risk. ▪ Extension of the joint risk model to include inherent risk. ▪ Suggest the assessment of inherent risk (less than 1). ▪ Explain the limitations of the multiplicative formula in terms of the Bayesian framework. ▪ Explain the impact of prior probabilities in terms of the Bayesian framework.
1983	Cushing & Loebbecke	Literature survey and discussion	<ul style="list-style-type: none"> ▪ Aggregation problem ▪ Independence of components ▪ Differences between real and assessed risks ▪ Complexity of system components

Research from a statistical perspective on the audit risk model			
Year	Authors	Research Methodology	Aspects of the audit risk model discussed
			<ul style="list-style-type: none"> ▪ Auditor errors in parameter assessment ▪ Establishment of ultimate risk ▪ Evaluation of audit results
1983	Kinney	Discussion	Compounding probabilities
1984	Jiambalvo & Waller	Empirical study (Experimental)	Assessment of risks
1984	Leslie	Discussion	<ul style="list-style-type: none"> ▪ Explain the limitations of the multiplicative formula in terms of the Bayesian framework. ▪ Explain the impact of prior probabilities in terms of the Bayesian framework.
1985	Beck & Solomon	Discussion	Selection of a statistical decision rule with differing accounting errors (over- and understatements).
1986	Smieliauskas	Discussion	Selection of a statistical decision rule under extreme risk levels.
1987	Boritz, Gaber & Lemon	Empirical study (Surveys)	Assessment of risks
1988	Daniel	Empirical study (Experimental)	<ul style="list-style-type: none"> ▪ Assessment of risks ▪ Determine audit risk ▪ Evaluation or audit results ▪ Aggregation of audit risks
1989	Kinney	Discussion	Audit outcome space
1989	Aldersley	Discussion	Audit outcome space
1990	Senetti	Discussion	Audit outcome space
1991	Morton & Felix	Discussion	Assessment of control risk
1993	Waller	Empirical study	<ul style="list-style-type: none"> ▪ Independence of risk components

Research from a statistical perspective on the audit risk model			
Year	Authors	Research Methodology	Aspects of the audit risk model discussed
		(Archival)	▪ Assessment of risks at the assertion level
1996	Dusenbury, Reimers & Wheeler	Empirical study (Experimental)	Calculation of achieved audit risk
1996	Quadackers, Mock & Maijoor	Empirical study (Experimental)	Independence of risk components
2000	Messier & Austen	Empirical study (Experimental)	Independence of risk components
2000	Dusenbury, Reimers & Wheeler	Empirical study (Experimental)	Independence of risk components

The statistical perspective of the audit risk model or the audit risk model with a rigorous foundation of probability theory or the quantitative approach of the audit risk model was advocated by Boritz, *et al.* (1987: 36) that mentioned the following benefits of this approach:

- This was a statistically sound and therefore a logical method that made training easier.
- Sampling decisions were based on a statistical sampling plan that could increase defensibility in court.
- Practitioners believed that the audit risk model increased the credibility of the evaluation of audit evidence in the conclusion phase of the audit.
- The audit could be perceived as a more integrated process, because of the direct link between the audit report and sample-size decisions.
- It could decrease the risk of over- or under-auditing.

The critique from a statistical perspective on the audit risk model will be discussed further in detail. Firstly, the audit risk components will be discussed; secondly, the assessment of the risks; and lastly, the use of the audit risk model at the evaluation phase of the audit.

3.4.3. Audit risk components

3.4.3.1. Introduction

The audit risk (AR) components are inherent risk (IR), control risk (CR) and detection risk (DR). Detection risk consists of analytical review risk and substantive test of details risk. These components are statistical events and are described by Graham (1985) in Waller (1993: 784) as follows:

The audit risk model seems to rely on the following event sequence:

<i>Occurrence of misstatement?</i>		<i>Detection & correction by controls?</i>		<i>Detection by auditor?</i>		<i>Misstatement in audited financial statements?</i>
<i>Yes</i>	➔	<i>No</i>	➔	<i>No</i>	➔	<i>Yes</i>
<i>IR</i>	<i>X</i>	<i>CR</i>	<i>X</i>	<i>DR</i>	<i>=</i>	<i>AR</i>

The critique on the audit risk components that is discussed, will address the following aspects; namely, the event sequence of the audit risk model, the lack of independence of the risk components and the complexity of the risk components or events.

3.4.3.2. Decomposition strategy and events sequence of the audit risk model

The application of the multiplication rule for statistical independent **events** requires the probability of occurrence of an event or sequence of events. The event sequence of the audit risk model is described above by Graham (1985). The events sequence decomposes the possibility of the event of non-detection of the misstatement of the financial statements in the occurrence of separate events that cause the final event of non-detection of the misstatement of the financial statements. This is referred to as a decomposition strategy of the audit risk model (Jiambalvo & Waller, 1984: 81). Jiambalvo and Waller (1984: 81) suggest that the success of the events sequence of the audit risk model should be judged as follows:

The alleged effectiveness of decomposition strategies stems from at least three factors: (1) decomposition reduces the probability of errors due to omitting relevant information; (2) decomposition reduces the probability of errors due to combining

needed information incorrectly; and (3) decomposition reduces the cognitive strain for the problem-solver.

In their study, they set out to determine the effectiveness of the decomposition of the audit risk model (Jiambalvo & Waller, 1984: 87). They consider the difference of the auditor's assessments in an experimental test, when audit risk was decomposed in its components and when audit risk was assessed using a direct, holistic approach (Jiambalvo & Waller, 1984: 87). The experimental test's results showed that there was no difference between the two assessments.

In discussing this result, Jiambalvo and Waller (1984: 87) considered different viewpoints that are mentioned below. The concepts of UR (ultimate risk), CR (internal control risk) and ARR (analytical review risk) are not relevant to assessments of TD (tests of details) at least for the auditors who were subjects in the experiment (Jiambalvo & Waller, 1984: 87). This finding was explained by the researchers that auditors possibly take into account the concepts of UR (ultimate risk), CR (internal control risk) and ARR (analytical review risk) when making intuitive assessments of TDR (tests of details risk) (Jiambalvo & Waller, 1984: 87). They further argue that assuming there are no errors in obtaining the auditor's assessments of UR, CR, ARR, and TDR, it is clear that: *"The auditor's intuitive combination of the risk components did not correspond closely with the kind of combination dictated by the audit risk model."*

Jiambalvo and Waller (1984: 87) have two explanations for this result:

First, assuming for the moment the appropriateness of the model in SAS No. 39 as a framework for decomposing and articulating audit risks, the auditor's assessments of the various risk components were internally inconsistent. Second, assuming the auditor's assessments of the risk components were internally consistent and correct, there are fundamental problems with the way in which the model in SAS No. 39 decomposes and articulates audit risks.

The above results were confirmed in two other studies. In the first study, Quadackers, *et al.* (1996: 220) explained that current research suggested a weak relationship between audit risk and audit programmes over time. They obtained assessments of audit risk and

audit programme details from eight clients of four Dutch audit firms, for two risk categories: audit risk factors on the overall level, such as the quality of the client's internal audit department; and audit risk factors on the assertion level, such as factors related to the transactions and balances (Quadackers, *et al.* 1996: 217). In the results of the study they reported as follows:

- Audit risk factors varied substantially between clients and for a client between the different year's risk assessments.
- Audit programmes varied substantially between clients and to a lesser extent, between the different year's risk assessments.
- The variability of risk factor assessments over time was higher than the variability of risk model variable assessments over time (Quadackers, *et al.* (1996: 217).

In a second study Peters (1990: 84) reported that there was a surprising result: "*The observation that auditors in this study did not treat inherent, control and detection risk independently, is not consistent with the definition of these concepts presented in SAS No. 47 (AICPA, 1983).*"

Audit risk models, although widely accepted by the auditing profession, were not implemented and used by audit practitioners as the model suggested; perhaps because they were too narrowly focused, lacking sufficient variables or possibly, because the auditing profession needed to go back to the drawing board (Boritz, *et al.* 1987: 41).

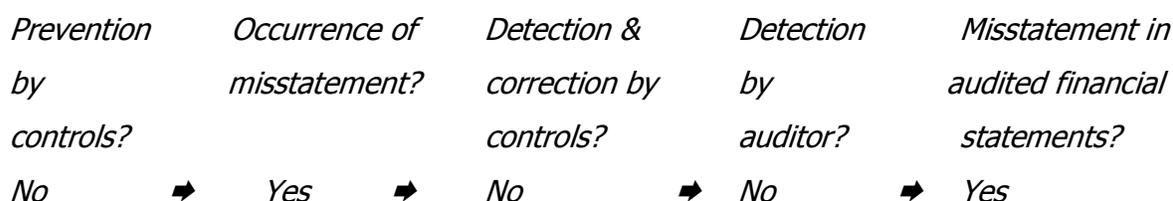
In another study, Libby, Artman and Willingham (1985: 213) tested the characteristics of internal control design and strength at the level of individual information processing streams. They used the audit risk model's suggestion of the impact of internal control evaluation on audit programme planning decisions as an initial basis for developing predictions of certain decisions during audit planning (Libby, *et al.* 1985: 213). They reported that the audit risk model's representation of the impact of internal control evaluation on audit programme planning, closely matched the auditor's decision-making in the experiment (Libby, *et al.* 1985: 225). Nevertheless the results of the study must be seen in the light of the limitations set by Libby, *et al.* (1985: 213) that the audit risk model's appropriateness was not considered.

Waller (1993: 784) discussed the audit risk model's appropriateness, focusing on the event sequence/structure and the lack of independence in the audit risk model that were closely related. He concluded as follows (Waller, 1993: 784):

The analysis in this study concludes that the dependence problem arises because (1) its event structure is ill-defined and (2) it fails to recognise that an auditor's assessments are conditional on his or her knowledge. A knowledge-based independence may produce a statistical association between inherent risk and control risk.

Waller (1993: 786) corrected the event sequence described in the introduction as follows:

Figure 2 – Event sequence with prevention by controls



He criticised the audit risk model's event sequence indicating that the preventative effect of controls should be included (Waller, 1993: 786). This indicates by means of the event sequence that inherent risk is dependent on the quality of controls, contrary to the professional standards' definition of inherent risk. As explained by Waller (1993: 787):

In contrast, the audit risk model fails to adopt a clear sequence for prevention and detection by controls vis-à-vis the occurrence of a misstatement. The definition of CR, by encompassing both the preventative and detective effect of controls precedes the (non) occurrence of misstatements. Because of its ill-defined event structure, the audit risk model's decomposition of occurrence risk into IR and CR is inconsistent with theory-based decompositions. Indeed, when auditors assess IR and CR in accord with the professional standards, there is no logical basis for concluding that occurrence risk = IR x CR or AR = DR / (IR x CR), and auditors may inadvertently fail to plan audits in line with their target audit risk (AR).

Waller (1993: 787) further explained the behavioural decision requirements for probability assessment (the audit risk model) with reference to Von Winterfeldt and Edwards (1986) in Waller (1993: 787)), as follows:

Regarding probability assessment, decision analysts stress the following points. ... First, the event structure must be clearly specified for the assessor. Second, uncertainty is a property of the assessor's knowledge about an event, rather than of the event itself, which supports the subjective interpretation of probability. Third, all subjective probabilities are conditional, whether or not the conditioning events or information are explicit.

He then used the above requirements to evaluate the audit risk model's decomposition strategy and found that it was not theory-based, concluding that there is doubt whether the auditor could integrate the components, as intended (e.g. IR x CR may not equal occurrence risk) (Waller, 1993: 786). He also argues that firstly, the event structure of the audit risk model is ill-defined as illustrated; secondly, the event in itself is uncertain; and thirdly, the multiplicative audit risk model is based on the independence of the risk components (Waller, 1993: 786). Finally, he stated that the probabilistic view of the audit risk model when evaluated did not incorporate any of the three behavioural decision requirements.

Shibano (1990: 111) highlighted another aspect, contending that the formal theory that forms the basis of the audit risk model is decision-theoretic testing (statistical theory) and does not incorporate: "*the possibility that the auditee may attempt to deceive the auditor, that is, the auditee may behave strategically*".

The audit risk model therefore assists auditors in detecting errors, but not in detecting irregularities (Shibano, 1990: 111). He suggested that a comprehensive audit risk model that incorporates intentional misstatements should be developed, because audit procedures that are effective for the detection of errors are not necessarily effective for the detection of irregularities (Shibano, 1990: 111). Daniel (1988: 179) supported Shibano's argument adding that there are possibly other factors or components in the audit risk model that have not been properly identified and addressed in the audit risk model. ISA 315R Appendix 2 (2006: 55) further acknowledges that conditions and events result in audit risks (risks of material misstatement).

In conclusion, the audit risk model should have a logical foundation; the event structure should be clear, specifically in regard to the sequence of the events that determine the decomposition of occurrence risk into inherent risk and control risk (Waller, 1993: 801). He further explained (1993: 786) that: *"The practical value of the model's decomposition is lost when a strong dependence exists between internal risk and control risk assessments for an assertion, or among assessments over assertions, such that the separate assessments are informationally redundant."*

The chapter will next address the lack of independence of the risk components; one of the major criticisms of the audit risk model.

3.4.3.3. Independence of risk components

In respect of probabilities, such as the risk components, Wegner (2007: 161) explains the multiplication rule for statistical independent events, as follows: *"If two events, A and B, are statistically independent (i.e. there is no influence of one event on the other event) then the multiplication rule reduces to: $P(AB) = P(A) \times P(B)$ i.e. it reduces to the product of the two marginal probabilities only."*

He additionally opines that if two events are statistically independent, the following relationship can be shown to be true (Wegner, 2007: 161):

$$P(A/B) = P(A) \text{ or } P(B/A) = P(B)$$

This means that if the marginal probability of, say, event A equals the conditional probability of event A given that event B has occurred, then the two events are statistically independent. This relationship implies that the prior occurrence of event B – i.e. (A/B) – in no way influences the outcome of the single (marginal) event A.

Cushing and Loebbecke (1983: 29) mentioned that the audit risk model is a "joint probability model". For the multiplication rule for statistical independent events to apply, the assumption is made that the risk factors are independent of each other. Stated differently by Cushing and Loebbecke (1983: 29) there should be no significant causal relationship between an error that occurred and an error of non-detection by the internal controls, or an error of non-detection by the auditor. However, they did identify a number of significant dependencies between the risk components. Firstly, inherent risk

depends on internal control risk; secondly, analytical review risk depends on internal control risk; and thirdly, substantive tests of details risk depends on internal control risk (Cushing & Loebbecke, 1983: 29).

First, the dependency between inherent risk and control risk will be discussed. Inherent risk is the risk that errors will occur prior to the implementation of control (Cushing & Loebbecke, 1983: 29). The event sequence of the audit risk model does not take into consideration the preventative effect of a control environment and a culture of honesty (Cushing & Loebbecke, 1983: 29). Their recommendation was to define inherent risk as conditional upon the quality of the internal control system. In respect of this recommendation, Cushing and Loebbecke (1983: 29) also stated: *"Mathematically speaking, this is the correct way to formulate the model. It is also consistent with the frequent audit practice of identifying 'special risks' or 'sensitive areas' during audit planning."*

Libby, Artman & Willingham (1985: 214) stated that the common criticism of the audit risk model relates to the lack of independence of inherent risk and control risk; and which brings into question the multiplicative combination of the components that were addressed by the changes in the audit standards during 1984. They stated that:

"This problem was dealt with in the most recent version of the model by including detection and prevention effects in the definition of control risk and conditioning inherent risk on the existence of no related controls. Thus they are independent by definition. However, this does not eliminate all related assessment problems."

The conditioning of inherent risk on the existence of no related controls did not resolve the independency problem because inherent risk is dependent on the quality of the internal control system (Cushing & Loebbecke, 1983: 29).

Graham (III) (1985: 38) confirmed the continued dependency between inherent risk and control risk, stating: *"As a practical matter, it is often impossible to evaluate (internal) control risk completely independently of inherent risk because of the interrelationship of inherent risk characteristics and internal controls."*

Haskins and Dirsmith (1985) in Messier and Austen (2000: 129) then determined through an experimental study, that many of the factors used to assess the control environment influenced control risk and could also be considered inherent risk factors. The acceptance in the research literature of the existence of the independency problem is well illustrated by Boritz, *et al.* (1987: 41) who contends that: *"Formal risk models are still open for debate; they are too narrowly focused, lacking sufficient variables; and may even be ill-conceived, relying as they do on a multiplicative approach requiring that component risks be independent, when, in fact, they maybe correlated."*

Daniel (1988: 176) confirmed that Leslie (1984, in Daniel, 1988: 176) also questioned the assumption that the risk factors are independent of each other, and that they were concerned that the audit risk model may result in an unjustifiable reduction of substantive tests of details.

The changes that were made to audit standards in 1988 in an attempt to address the expectation gap, also impacted on the audit risk model as explained by Morton and Felix (1991: 10):

SAS 55's discussion of the audit risk elements – inherent risk, control risk, and detection risk – fails to address the fact that interdependencies exist among these risk components which have become more pronounced due to the broadening of the definition of internal control. For example, the integrity of management has an effect on all three risk components. Failure to consider such interdependencies may well result in an underestimate of audit risk.

Furthermore, the AICPA's attempt to resolve the problem by defining audit risk as conditional upon the occurrence of an error that is not detected by the controls, did not address the further dependency between analytical review risk and the quality of the internal control system (Cushing & Loebbecke, 1983: 29). This dependency is explained by them as follows:

A common analytical review procedure involves identifying unusual fluctuations for more detailed investigation based on trend data. There would appear to be an assumption that (1) the base period data is correct, and that (2) the current period data cannot be fraudulently adjusted (normalised) in order to make these comparisons

appear to be valid. Both of these assumptions are appropriate only if (internal) control risk is low.

The last example of the interdependency of the risk components that were explained by Cushing and Loebbecke (1983: 30) is substantive tests of details risk that depends on control risk. A good system of internal control produces reliable information and performance measurement that increases the effectiveness of the analytical procedures, with the opposite also being true.

In conclusion, Cushing and Loebbecke (1983: 30) stated that the auditor should be cautious about applying the audit risk model because of the likelihood that these interdependencies may be present in practice. The risk factors used in the audit risk model will be understated if the interdependency between the risk factors is not considered; with the implication that the audit risk model could expose the auditor to a significantly higher level of ultimate risk than is acceptable (Cushing & Loebbecke, 1983: 30).

Waller (1993) conducted the next significant study in respect of a possible statistical association between the auditor's inherent risk and control risk assessments (Waller, 1993: 784). The study of Waller (1993) consists of two parts: first, he proved mathematically that the risk components were dependent; yet, the findings of the second part, an archival study, did not provide conclusive empirical evidence that the components were dependent. The mathematical explanation of the dependency of the components was accepted in other studies thereafter (Waller, 1993: 784).

Waller's (1993:784) explanation reveals that the dependence between the risk factors arises because firstly, the event sequence does not describe the complete reality (refer to the discussion under par 3.4.3.2 - *Decomposition strategy and event sequence of the audit risk model*) and secondly, it does not address the fact that an auditor's assessments are conditional on his or her knowledge. This knowledge-based dependence may cause a statistical association between inherent risk and control risk (Waller, 1993: 784).

The knowledge-based dependence between the audit risk model's components is explained when Waller (1993) illustrates mathematically, that occurrence risk is not equal to inherent risk times control risk (Waller, 1993: 787). This is because the subjective probability of the event of detection (and correction) of a misstatement by controls (control risk), given the assumption of a misstatement that occurred, as conditioned (or influenced) by her or his knowledge at the time of assessment, reflects the detective effect of control, but not its preventative effect (Waller, 1993: 787). Waller also explains that the subjective probability of the event of misstatement (inherent risk) as conditioned by his or her knowledge at the time of assessment, fails to reflect the assumption that there are no related controls. Moreover, since the auditor normally knows something about the client's controls, the subjective probability of the event of misstatement is conditioned by his or her knowledge at the time of assessment and may entail the rejection of the assumption underlying the inherent risk (Waller, 1993: 787). He also emphasised two other aspects as result of the above (Waller, 1993: 788). Firstly, he tried to determine the impact of the knowledge-based dependence: "*Whether a knowledge-based dependence would result in a positive or negative association between auditor's inherent risk (IR) and control risk (CR) assessments in field settings is not clear a priori (when the outcomes are known in advance).*"

Secondly, Waller (1993: 788) identifies additional reasons that indicate the dependence between inherent risk and control risk, namely:

Another possible source of dependence is overlap in the observed specific or general risk factors used to assess inherent risk and control risk. Specific factors include an assets susceptibility to theft (relevant to IR) and the separation of duties for the assets handling and recordkeeping (relevant to CR). General factors include management's philosophy, operating style, and personnel policies (relevant to both IR and CR). If auditors weight general factors more heavily than specific factors, then a positive association between IR and CR is likely.

The implications of the knowledge-based dependence between inherent risk and control risk resulted in confusion about the objective of the audit risk model: Is the purpose of the audit risk model to guide, or to confirm the choice of audit procedures? (Waller, 1993: 801). He further suggested that: "*As a practical matter, it is possible that auditors do not*

adhere strictly to professional standards when assessing inherent risk and control risk; they may find it natural to employ an intuitive version of the equation."

In conclusion, Waller (1993: 784) reported that the empirical evidence did not agree with the above findings and he explains this as follows: *"Contrary to expectation, the empirical evidence supports the conclusion of an insignificant association between inherent risk and control risk; however, in a predominance of cases, control risk is assessed at the maximum probably for reasons of efficiency."*

Waller's (1993) research directed other researchers to investigate the knowledge-based conditional dependencies between inherent risk, control risk and detection risk. In line with Waller's (1993) discussions, the study done by Messier and Austen (2000: 119) reported that pervasive and specific risk factors in the experiment were considered and included in both the auditors inherent risk assessments and control risk assessments. They stated (Messier & Austen, 2000: 119) that: *"Taken together, these findings are consistent with Waller's (1993) notion of a knowledge-based dependency between internal and control risk assessments."*

Haskins and Dirsmith (1995: 78) performed a study on the knowledge-based dependency of inherent risk and detection risk, and finally reported that their empirical results suggested that the assessment of inherent risk and control risk are interrelated in practice for an array of client attributes. The 48 attributes they referred to were gathered through interviews and a content analysis of the Big Eight (at that time) audit manuals. Examples of these attributes are listed here as they were judged by the auditors to have very great or great relevance to inherent risk or control risk: control environment (internal audit staff's assigned duties, responsibilities and lines of reporting; proper segregation of duties of client employees; general controls); and control activities (appropriate policy for the authorisation of transactions; physical safeguards over records and assets) (Haskins and Dirsmith, 1995: 69). Furthermore, they mentioned that the revised guidance in SAS No. 55 (AICPA, 1988) that has widened the interpretation of the client's control environment may have increased the interdependence between inherent risk and control risk (Haskins and Dirsmith, 1995: 69).

This knowledge-based dependency is also confirmed by Dusenbury, *et al.* (2000) in Messier and Austen (2000: 121): "*They find that when tests of control results are held constant, control risk assessments were affected by the prior assessments of inherent risk. Again this supports the notion that auditors are likely to be aware of the conditional nature of inherent and control risk assessments.*"

In the study performed by Dusenbury, *et al.* (2000: 105) their results also showed that previously assessed risks caused a variation in the subsequently assessed components (inherent risk, control risk or detection risk), and this substantially increased the explanatory power of the audit risk model. The results support the notion that audit risk components are assessed conditionally. They further suggested that the multiplicative audit risk model should be changed to represent probabilities that are statistically dependent.

The research literature agrees that the risk components of inherent risk, control risk and detection risk are not statistically independent.

3.4.3.4. Complexity of risk components

To grasp the scope of aspects that the risk components represent is a difficult task; specifically, inherent risk includes a great variety of aspects that should be considered. A summary of possible aspects that could influence the risk components will be discussed in Chapter 4.

Researchers usually describe the risk components with reference to examples, specifically inherent risk and control risk. Inherent risk is usually described according to different environments that form the sources of inherent risks, starting with external environments, such as the economic environment and other external factors. Next are environments of business and industry that incorporate matters; for example, the characteristics of the industry (Cushing & Loebbecke, 1983: 32). Then follow the internal environments, namely the "nature of the entity". Aspects that should be considered are for example, the size of the entity, market position, financial circumstances and organisations and structures. Finally, there are the internal characteristics of the firm, such as the

competence and integrity of the entity's management and employees, as well as the financial reporting process (Cushing & Loebbecke, 1983: 32).

In describing and understanding the risk components, misinterpretation of the risk components have occurred, as explained by Sennetti (1990: 104), who opines that: *"Inherent risk and control risk measure the risk of error in the financial statements, not the risk that the auditor will fail to modify his opinion should material error exist."*

Detection risk is explained by Cushing & Loebbecke (1983: 32-33) as the risk that substantive procedures will not detect errors or irregularities. Detection risk consists of two elements, namely sampling risk and non-sampling risk and comprises the nature, timing and extent of audit procedures.

Furthermore, Dusenbury, *et al.* (1996: 13) emphasises the qualitative aspects that complicate the understanding and assessment of the risk components in a statistical audit risk approach, stating that:

Probability-based models fail to incorporate certain qualitative aspects (e.g. sufficiency and competence) of evidence. The advocates of probability-based inference argue that parameters capturing qualities of evidence can theoretically be elaborated within a Bayesian structure. However, the priors necessary for implementing the additional parameters have not been shown practical to assess in an audit context.

The scope of aspects that should be considered, the fact that inherent risk and control risk measures the risk of error in the financial statements and the impact of qualitative factors on the understanding of the statistical variables of inherent risk, control risk and detection risk, illustrate the complexity surrounding the risk components.

3.4.3.5. Conclusion

This part of the study discussed the critique on the audit risk components and concluded that firstly, the event sequence of the audit risk model is ill-defined. Secondly, there is a lack of independence between the risk components that is a basic assumption for the use of the statistical multiplication rule. Thirdly, to understand the risk components or events fully, can be difficult to grasp and can lead to misinterpretations.

In the following part of the study consider the assessment of risks, or, stated differently, the complexity surrounding the determining of values for the risk variables to be used in the statistical audit sampling plan will be considered.

3.4.4. Assessment of risks

As explained by Elliott and Rogers (1972: 49), the starting point of the audit risk model was to assist auditors in making judgment decisions to determine the variables for e.g. β risk or audit risk, internal control and materiality for use in a statistical method. Although the intention of the audit risk model was to make these judgments or assessments easier, it did not resolve all difficulties and questions relating to these assessments. Difficulties in the assessment of risk components are caused, among others, by professional judgment that will always form an integral part of the auditing profession. The dilemma of assessing the risk components are a major part of the difficulty of applying the audit risk model. Initially, the assessment of inherent risk was considered to be so difficult that the variable of inherent risk was considered to be one, as explained in the AICPA statement (SAS1, Section 320A & 320B) that this risk factor "has been treated implicitly and conservatively at 100 per cent (or one)". The fathers of the concept of inherent risk, Leslie, *et al.* (1980: 303), reconsidered this decision of setting inherent risk one, stating:

Inherent assurance or risk can only be assessed judgmentally. Though it cannot be quantified, it is worth considering separately, in our view, because cases of low inherent risk but poor control may be less dangerous than some cases of great inherent risk but good control.

Furthermore, Kinney (1984, in Daniel, 1988: 176) warned against the audit risk model as a basis for an audit approach, because practitioners ignored the possibility that the auditor might miss assess inherent risk or have the reliance placed on internal control.

Although the assessment of the risk components is difficult, it is nevertheless an important aspect of the audit risk model. The difficulty surrounding the assessment of the risk components or the variables in the audit risk model is that these variables require greater precision when incorporated into a sampling plan, causing larger sample sizes and therefore, an inefficient audit (Elliott & Rogers, 1972: 55).

The complexity of the assessment of risk components, called assessed risks, is further evident from the fact that the audit risk model is just as sensitive to non-sampling errors as sampling errors (Cushing & Loebbecke, 1983: 36)). When the auditor estimates the value of the risk component, the following non-sampling risks, namely ineffective procedures, incorrect implementation of the procedure or misevaluation of the results could cause the estimate to differ from the real value (Cushing & Loebbecke, 1983: 30). Non-sampling errors or human error in the assessment of risks is difficult to identify, yet critical for the efficient use of the audit risk model (Cushing & Loebbecke, 1983: 36).

Another important aspect of the assessment of the risk components in the audit risk model is that each of the risk components, or variables, has a real value that could differ from the estimate of the variable (Cushing & Loebbecke, 1983: 30). Differences between the real values of the three risk components and their estimates could result in a value for audit risk that is not acceptable (Cushing & Loebbecke, 1983: 30). The difficulty of assessing the risk components is caused by the inherent difficulty of assessing the components and non-sampling risk; or a failing of the auditor's assessment procedures (Cushing & Loebbecke, 1983: 32).

During the auditor's assessment process, the auditor performs procedures and makes decisions that if done incorrectly, increases non-sampling risk. Non-sampling risks therefore, comprise the risk of incorrectly performing each of these procedures and include risks that relate to the auditor's choice and execution of the audit procedure, and the interpretation of the results of the audit procedures (Cushing & Loebbecke, 1983: 33). Mistakes made during the auditor's assessment process could influence and cause error in the assessment of the risk components (Cushing & Loebbecke, 1983: 33). In conclusion, they suggest the following to resolve the dilemma (Cushing & Loebbecke, 1983: 31): "*The implication is that conservatism on the part of the auditor in estimating inherent risk (IR), control risk (IC) and analytical review risk (ARR) can go a long way toward avoiding the problem of underestimating ultimate risk.*"

The dilemma of assessing the risk components is often reflected in the research literature. For example, Daniel (1988: 179) stated that in research experiments, auditors have

difficulty in estimating a quantitative risk assessment in the format of probabilities. As described by Chesley (1978: 225):

A subjective probability has been defined as a number between zero and one which represents an individual's degree of belief in a particular proposition (Horowitz, 1970: 78). Because a degree of belief is a state of mind, an elicitation technique is required to extract the belief in a usable form. The type of elicitation technique used to extract the opinion can affect how the subject views the problem, the accuracy of these responses, and the consistency of those responses (Chesley, 1975 & Winkler 1976)."

Boritz, *et al.* (1987: 41) reported on the findings of a survey done in 1976 in respect of the use of quantitative approaches to risk assessment and audit assurance. Only 29% of the practitioners made any attempt to quantify the risk of not detecting a material error in financial statements. By 1984, the percentage of auditors quantifying risk hadn't increased, though they found that most practitioners seemed quite familiar with the concept (Boritz, *et al.* 1987: 41). This was confirmed by Dusenbury, *et al.* (1996: 13) reporting that during the past decade, audit firms have formulated applications of the audit risk model mostly based on categorical evaluations (i.e. high, moderate, low).

In a study done by Reimers, Wheeler and Dusenbury (1993: 62), the investigation focused on whether control risk assessments made using linguistic expressions of uncertainty, such as *low*, *medium* and *high*, differ from assessments made, using numerical probabilities. They reported that the auditor's numerical risk assessments differed from linguistic risk assessments, in the following ways (Reimers, *et al.* 1993: 62):

- Auditor's numerical risk assessments were significantly lower than the corresponding linguistic risk assessments; and
- Auditor's consensus was consistently higher in linguistic risk assessments than in numerical risk assessments.

In conclusion, their results do not support the auditing standards assumption that these two response modes are equivalent and a matter of auditor preference (Reimers, *et al.* 1993: 62).

In the assessment of the risk components, it is difficult to establish objective rules or criteria to describe "maximum", "below maximum" (medium) and a "low" level of risk

(Hwang, Shin & Han, 2004: 22). The auditor's professional judgment and experience determines the level of risk, and therefore it is difficult for inexperienced auditors to make this decision effectively (Hwang, *et al.* 2004: 22).

In conclusion, auditors prefer to make linguistic assessments and that these linguistic assessments differ from numerical assessments. It is also difficult for inexperienced auditors to make these judgments. This has implications for the application of the audit risk model.

Furthermore, Cushing and Loebbecke (1983: 36) commented that to determine audit risk (ultimate risk) for every engagement is basically sound. Yet, Daniel (1988: 179) reported that the results from his study showed the following:

It seems more likely that a 5 per cent risk level represents either the auditor's desired risk level, or a maximum acceptable risk suggested by the firm, or is the result of a heuristic decision anchored to an ultimate risk level often used in examples in literature. Whatever the explanation, it is clear that, as a group, the auditors in the study did not follow a well-defined model to assess audit risk.

Daniel (1988: 180) made the following far-reaching findings in his study:

- The audit risk model requires auditors to make refined assessments of the four risk components, therefore four probabilities. These assessments reflect a difference between calculated audit risk of .01 and an intuitive risk of .05. The practicality and feasibility of such assessments and therefore the audit approach of which it forms part must be questioned.
- Furthermore, it is probable that the audit risk model did not address all the possible factors or components that should be included in such a decision-theoretic model.

Kinney (1989: 69) complemented the findings of Daniel (1988). He stated that separately, inherent risk and control risk are difficult to assess; added to this, it should also be taken into consideration that when inherent risk is assessed, a component of inherent risk cannot be reduced by controls, and this should also be assessed (Kinney, (1989: 69). According to Kinney (1989: 69), there are inherent limitations on the reliance that can be placed on internal controls (control risk); for example the implications of

management override of controls, collusion and accidental human failure. Therefore, internal controls can reduce audit risk but not for all types of errors and irregularities in the financial reporting process (Kinney, 1989: 69).

Messier and Austen (2000: 120) further illustrate in their study that when auditors assess inherent and control risk, they should also consider that pervasive and specific risk factors included in Messier and Austen's (2000: 120) experiment were significant to both the auditors' inherent and control risk assessments. They report that there was a significant positive association between auditors inherent risk and control risk assessments that represent a lack of independence, and therefore are against the basic assumption of independence underlying the audit risk model (Messier & Austen, 2000: 120).

Dusenbury, *et al.* (2000: 105) performed a study with the purpose: "*to assess empirically whether component audit risks are assessed independently or are assessed interdependently and conditionally (i.e. configurally).*"

He further reported that assessed risk components are influenced by the risk component assessed previously, and therefore concluded that the audit risk components are assessed conditionally. This conditional assessment of the risk components is in contradiction to the theoretical base of the audit risk model or multiplicative formula.

In conclusion, the assessment of the risk components is a very difficult task. The initial decision not to assess inherent risk illustrates the great precision needed for use in an auditing sampling plan (Reimers, *et al.* 1993: 62). Although precision is needed, the assessment is made by application of professional judgment. Furthermore, this assessment of the risk components increases non-sampling risk and practitioners preferred linguistic expressions that do not equal quantitative assessments (Reimers, *et al.* 1993: 62). These factors simultaneously create a practical dilemma for assessing precise risk components for a statistical audit sampling plan (Daniel, 1988: 180). Finally, the assessments of inherent risk and controls risk are dependant on each other (Messier & Austen, 2000: 120 & Dusenbury, *et al.* 2000: 105).

The next part of the study, that discusses the critique against the audit risk model from a statistical perspective, will consider the problems in evaluating audit risk or the achieved audit risk.

3.4.5. Achieved audit risk

3.4.5.1. Introduction

The audit process consists of three phases: the planning of the audit, the obtaining of audit evidence and the evaluation and reporting phase. Audit risk is considered in all three phases as follows (Senetti, 1990: 104):

- During the planning phase the auditor make a preliminary assessment of materiality and audit risk. Audit risk in the planning phase is the auditor's planned level of acceptable risk, and not the risk achieved during the audit.
- When the auditor obtains audit evidence, the auditor may reassess audit risk due to evidence against expectations.
- In the evaluation and reporting phase, the auditor evaluates the evidence obtained to give an opinion. The auditor therefore makes a determination that estimates that audit risk has been reduced to an acceptably low ex-post level; or stated differently, the auditor determines the achieved audit risk. The actual risk of material misstatement is still unknown.

The dilemma surrounding achieved audit risk at the evaluation phase is explained by Leslie, *et al.* (1980: 304): "*The joint risk model is an oversimplification because it assumes that there is only one discrete risk, namely, the risk of a material error. In fact, there should be a continuous distribution of probabilities of occurrence (and detection) of errors aggregating various amounts.*"

Kinney (1983: 21) warns that auditors should take extra care when they use the audit risk model for evaluation. The achieved audit risk could be understated by the omission or misspecification of the audit outcome space, when the audit plan is revised, and when the individual audit risks are aggregated. This will be discussed in the next part of this chapter.

3.4.5.2. Audit outcome space

The audit outcome space is the space or area that represents the total number of all possible outcomes of an event of a specific type or with specific properties. Wegner (2007: 165) explains that the term probability is a measure of uncertainty associated with the outcome of a specific event. The relationship between probability and the audit outcome space is explained by Wegner (2007: 147), as follows:

Mathematically, a probability is defined as the ratio of two numbers, i.e.

$P(A)$ = Probability of event A occurring

$P(A) = r/n$

A = event of a specific type (or with specific properties)

r = number of outcomes of event A

n = total number of all possible outcomes (called the sample space) or (audit outcome space).

Kinney (1989: 67) reported in his article that the audit risk model has properties that may significantly understate achieved audit risk. He said that the understatement of achieved risk is the result of omission or misspecification of elements of the audit outcome space. The reason for the omission or misspecification is, according to Kinney (1989: 68), due to the failure to completely define the audit outcome space; or equivalently, the omission of some branches of the auditor's decision tree. He describes that the impact of the above problem is wider than it appears to be initially (Kinney, 1989: 81):

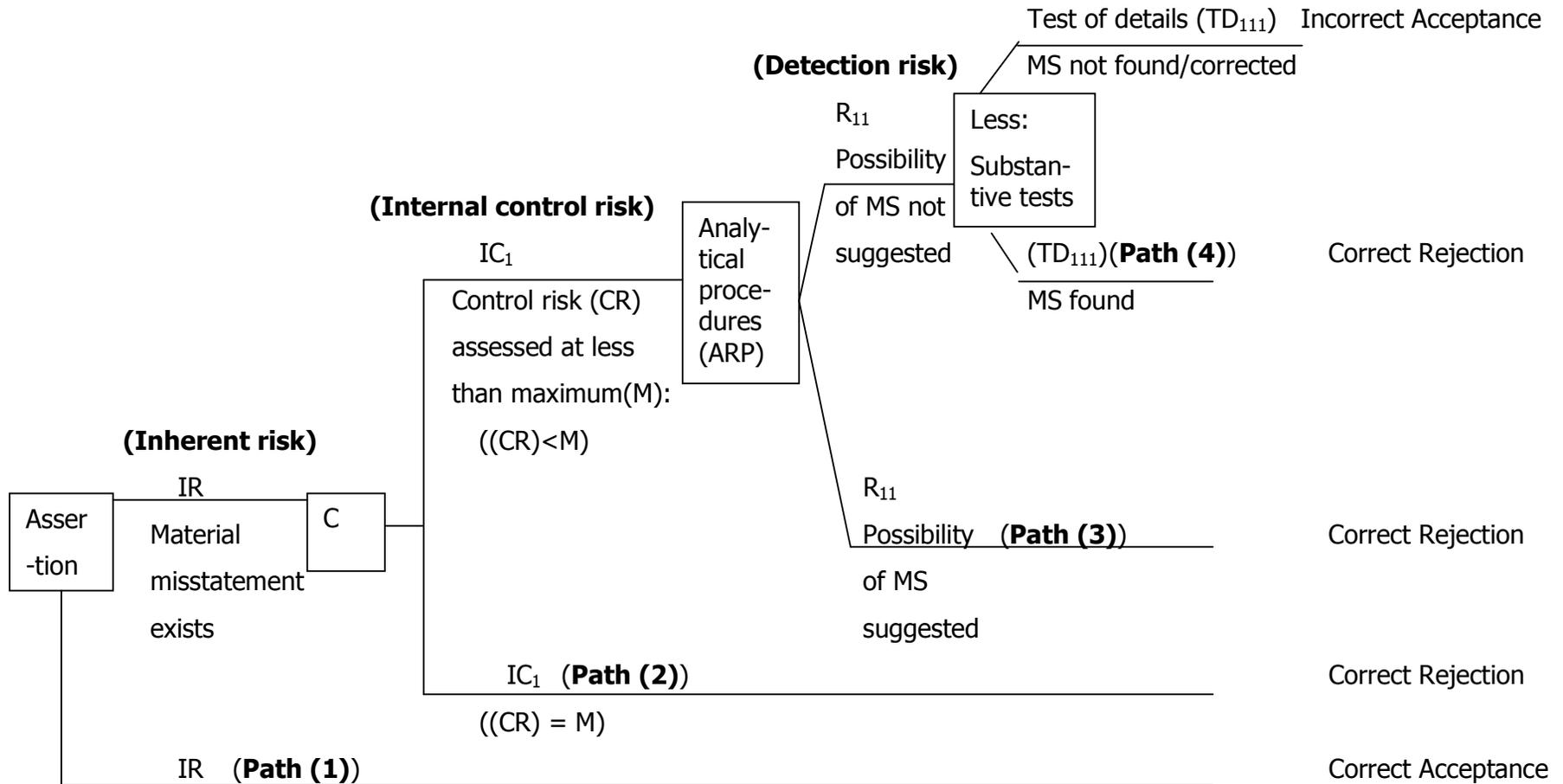
The nature, timing and extent of audit work and risk assessment determine achieved audit risk. The risk increasing tendencies (of not completely specifying the audit outcome space) discussed apply equally to those auditors who choose to apply SAS No. 55 in terms of 'maximum', 'minimum' or an intermediate level of control risk. They also apply to auditors who use non-statistical sampling and to those who do not use audit sampling. That is auditing until you 'feel good' about a particular client's balances may not be good enough. (You may need to feel 'very good').

Kinney's (1989) article indicates that certain incorrect rejection paths were ignored, causing a different audit outcome space and consequently, a different achieved audit risk. Aldersley (1989: 85) pointed out that these incorrect rejection paths are not relevant to practitioners and therefore do not influence the achieved audit risk. Senetti (1990)

examined the discussion between Kinney (1989) and Aldersley (1989) in respect of the differences in the audit outcome space. Figure 1 is a representation of the audit outcome space of Aldersley (in Senetti, 1990: 110) and is used to explain the differences between Kinney (1989) and Aldersley's (1989) decision trees which form a graphical representation of the audit outcome space.

Figure 1: Decision tree explaining the audit outcome space

Senetti (1990: 110) Figure 2: Aldersley's "Ladder" for the Audit outcome space



C = Consideration of the internal control structure

MS = Misstatement

The following are the differences between the decision trees of Kinney (1989) and Aldersley, as noted by Senetti (1990: 109):

- The first difference is the incorrect rejection decisions mentioned by Kinney (1989), that Aldersley (1989) calls the "superfluous paths" of Kinney's (1989) tree (the incorrect rejection decisions in Figure 1.b of Kinney's (1989) decision tree). Stated differently, Path (1) in Figure 1, of this study, represents a correct acceptance, yet the possibility of incorrect rejection also exists, according to Kinney (1989).
- The second difference is that Paths (2),(3) & (4) in Figure 1, represent a correct rejection, and the possibility of an incorrect acceptance is not included in Aldersley's (1989) decision tree (or Figure 1.a. of Aldersley's (1989) decision tree).

Senetti (1990: 109) explains that, for example Path (2) in Figure 1, of this study, assumes: *"Once control risk is assessed at maximum, a misstatement, if it exists, is assumed to be found."*

Similarly, Senetti (1990: 109) explains that given evidence of the possibility of misstatement, Figure 1 of this study, Path (3) assumes that *"it (the misstatement) does exist and that it will be found."*

Senetti (1990: 109) also explains that all tests of details that suggest the possibility of a misstatement (Figure 1 of this study, Path (4)) do find and correct it, if it exists (otherwise this possibility is presumed not to be suggested). Finally Senetti (1990: 109) comments:

Therefore to Aldersley a misstatement found and corrected is sufficient evidence that no other misstatement exists, since (as commented by Aldersley in his article) 'the client's view of materiality (accounting materiality) is substantially less than audit materiality.'

Senetti (1990: 109) commented on Figure 1 Path (2) that: *"In Aldersley's defence the auditor's risk (chance) of failing to modify his report cannot be truly separated from his loss of failing to do so, since any risk combined with a loss of zero is zero."*

Kinney (1989: 68) supported Senetti (1990) explains: "*The audit risk model yields actual achieved audit risk only if all initial 'reject' decisions by the auditor lead to error-free financial statements accompanied by unqualified opinions.*"

Kinney (1989: 81) described the dilemma surrounding the audit outcome space as follows:

*The analysis does imply that if auditors **alter** a successful audit strategy and use the single branch audit risk formula to maintain audit risk at the same level, they may not achieve their purpose, since the constant product rule does not yield constant risk over all possible outcomes. That is, the formula does not provide protection against increasing audit risk.*

Kinney (1989: 68) therefore suggests that in application of the audit risk model "*disconfirming evidence*" should be incorporated so as to increase the obtaining of audit evidence rather than being treated as non-informative, but as stated by him (Kinney, 1989: 81-82): "*It is important, however, that the contribution of evidence toward achieved audit risk be properly integrated. ... If all possible outcomes are not considered, excessive risk may result.*"

Aldersley (1989: 88) corroborates this, stating: "*If the decision process for extending the audit work is dependent upon previous stage results, a proper definition of the sample outcome space should take this into account. Otherwise the achieved audit risk will almost certainly be understated.*"

In conclusion, Aldersley (1989: 85) stated:

For the auditor to correctly determine the achieved audit risk, it is essential for him to properly understand the possible audit outcome space. If the auditor were to blindly take the AICPA joint risk audit model, or even the Leslie/CICA Bayesian model, he obviously is going to make the kind of mistakes that Kinney identifies in his paper. Rather it means that the models have been applied in a context in which they are no longer valid.

Senetti (1990: 108), Kinney (1989) and Aldersley (1989) showed that the use of the audit risk model can result in an unreasonably low level of *ex-post* evaluated audit risk. Kinney (1989: 82) also suggested a possible solution: *"However, if standard setters continue to carve away the 'cushion' implicit in the formula, the formula itself should be revised or the target lowered if a given (low) level achieved audit risk is to be maintained across the economy-wide portfolio of audits."*

3.4.5.3. Revision of the audit plan

Kinney (1983: 13) warns auditors against the use of the audit risk model when conditionally revising an audit plan or when evaluating audit results. He states that the audit risk model: *"may subject the auditor to more risk than would seem to be indicated by such use of the formula."*

He also states that the auditor is interested in the compound probability that:

- (1) The book value fails to be "out of line" with respect to other financial and production variables within and without the firm (analytical review risk) (Kinney, 1983: 14); and/or
- (2) Some of the details comprising the book value of the account fails to be in error (tests of details risk) and therefore fails to indicate the error (Kinney, 1983: 14).

In the compounding of probabilities, Kinney (1983: 13) warned that the calculation of risks from a statistical point of view becomes very complex when the results of audit procedures are worse than the auditor estimated during the planning phase. Kinney (1983: 13) supports this argument, mentioning that: *"In attributes sampling it is well known that following what some consider to be 'intuition', can understate achieved risk."*

When the auditor extends the initial sample after the obtaining of "worse than expected" results, Kinney (1983: 15) stated that the: *"Repeated application of the combination of procedures over numerous audits of accounts containing intolerable error would yield a combined risk of incorrect acceptance."*

Therefore, he suggests (Kinney, 1983: 21):

"Thus, an auditor who wishes to control ultimate risk and yet use a multiplicative risk formula to evaluate audit results or conditionally revise the audit plan must take precautions in its application. The auditor can set target levels for each risk and accept the book balance, only if all three risk levels are achieved."

He also suggested that the acceptance-outcome space must be restricted to the ultimate risk, because the actual ultimate risk is measured by measuring the area of the accept region (Kinney, 1983: 17-18). Finally, Kinney (1983: 21) states that *"The understatement of ultimate risk is unlikely even using the formula without adaptation. This is because the assessment or determination of internal accounting controls risk or analytical review risk is an inexact endeavour."*

The audit risk model has limited application in the evaluation phase, specifically when the auditor discovers errors that could have a larger impact on the risk components (Cushing & Loebbecke, 1983: 37). The appropriate response is to investigate these items or the areas to consider and extend the sample size, to determine if a material misstatement occurred (Cushing & Loebbecke, 1983: 37). The audit risk model is irrelevant during such an investigation and Cushing and Loebbecke (1983: 37) suggests that the audit risk model is used only at the planning phase of the audit.

3.4.5.4. The aggregation of the individual audit risks

The meaning of aggregation of the individual risks is explained by Cushing and Loebbecke (1983: 28), to be *"When the auditor is persuaded that sufficient competent evidence has been gathered in support of each individual objective, he then aggregates and extends his conclusions to formulate an opinion about the statements taken as a whole."*

Audit risk differs for each individual risk component (Cushing & Loebbecke, 1983: 28). These individual risk components are, according to them, the smallest audit element. Audit elements may be categorised according to different types of transactions, types of errors and irregularities, audit objectives or audit tests and they suggest that the audit risk model should therefore be applied to these audit elements, to derive a separate

assessment for each element on a "disaggregate level", and then on a combined or "aggregate" for a final conclusion. This indicates that tolerable error and acceptable ultimate risk should be determined in such detail that at each level of aggregation, a different acceptable risk and material error is determined (Cushing & Loebbecke, 1983: 28).

In conclusion, Cushing and Loebbecke (1983: 28) state: "*This composite model clearly is not developed at this level of detail... The aggregation problem clearly is part of the reality of every audit engagement.*"

Conversely, intolerable error should be combined over the complete transaction cycle, and should be less than or equal to the tolerable error for the transaction cycle. Thus, Libby, *et al.* (1985: 214) supports the above conclusion, stating that: "*Interactions between individual accounting processes/internal controls create aggregation problems that are an important limitation to applying the model at higher levels of aggregation.*"

Waller (1993: 784) interpreted the above and suggested that the assumption or guideline in the standards in respect of risk assessments on an assertion level required that:

- The rate of misstatements (errors or irregularities) differs according to the assertions.
- The auditor's risk assessments vary over the assertions.
- The auditor's risk assessments are accurate (there is a correlation between the misstatements and the auditor's risk assessments) on an assertion level.

In Waller's (1993) study the firm he investigates assessed the risk components at the accounts and transactions level, but the study indicated that only the "most important" assertions for the three accounts investigated were assessed. He investigated the above assumptions and reported the following results in his study (Waller, 1993: 784):

- The rate of detected misstatements varies significantly according to the assertions of the accounts selected.
- Auditor's risk assessment of inherent risk and control risk is similar for the different assertions.

- On the financial statement level (all the assertions) there is a positive but low correlation between inherent risk and the rate of detected misstatements.

The modest support that Waller (1993: 784) found in his study for the association between inherent risk on a financial statement level, and the rate of detected misstatements are an indication that certain aspects in inherent risk are important to consider for the detection of misstatements, even if these risks were aggregated on the financial statement level. His study further indicates that auditors do not assess the risk components on the individual audit element level even if it were the policy of the firm investigated (Waller, 1993: 784).

Dusenbury, *et al.* (1996: 13) concluded that a probability model necessitates that the risk components are combined and aggregated from the assertion level or another audit element level (e.g. account or audit objective level) to determine the risk at the financial statement level. When these risk components are aggregated, Bayes' rule must be used to combine such probabilities (Von Winterfeld & Edwards, 1986 in Dusenbury, *et al.* 1996: 13). The dilemma surrounding the application of Bayesian rules is supported by Cushing and Loebbecke (1983: 28) and Kinney (1989: 82) and explained by Dusenbury, *et al.* (1996: 13), as follows: *"However, while theoretically possible, it appears that information requirements for Bayesian conditioning are not met in the context of audits."*

The audit risk model, as a probability model, can, in terms of a Bayesian structure, be adapted to incorporate the qualitative aspects surrounding evidence, but the implementing of these models in practical situations was unsuccessful (Dusenbury, *et al.* 1996: 13)). Leslie, *et al.* (1980: 303) had already mentioned this in the early stages of the development of the audit risk model *"Obviously, it is not possible to quantify all prior probabilities in a way to permit Bayesian inference to be used as an actual working tool by the auditor."*

In conclusion, Smieliauskas (1989: 730) stated: *"Prior research on audit risk models recommended that such risk models could only be properly used in the initial planning stage."*

3.4.5.5. Conclusion

The audit risk model is not useful for the auditor in the final evaluation phase of the audit. This has already been made clear in the early stages of the development of the audit risk model, as explained by Leslie, Teitlebaum & Anderson (1980: 298) (emphasis added):

*Although the joint risk model is intuitive, it can be misinterpreted. It correctly (subject to certain limitations discussed later) computes the joint confidence in advance that the combination of underlying conditions, internal control, other audit work, and sampling will lead to a final condition of no undetected material error. This joint confidence, as viewed from the planning stage, is **not**, however, the same as the overall audit assurance the auditor has when, having encountered favourable sample results and he or she concludes that the financial statements are not materially misstated.*

The above contention was supported by Graham (V) (1985: 29), stating: "*The multiplicative risk model from SAS 39 is useful only for planning at the beginning of an audit. We must make computational adjustments because we must re-evaluate the subjective prior assessments in light of objective findings.*"

Finally, Smieliauskas (1989: 729) states that the audit risk model should not be used for audit evaluation purposes. The value of a risk-based audit approach that cannot be used for evaluation purposes should be questioned.

3.4.6. Non-sampling risk

Audit risk, or the probability that the auditor will not detect a material misstatement, includes the elements of sampling risk and non-sampling risk (Warren, 1979: 70).

Sampling risk can be defined as the risk that a sample shows of characteristics that are not representative of the actual or true characteristics of the population (Guy, 1981: 9). Sampling risk is the difference of the outcome of a sample and the testing of all the population items and is a result of the sample process (Guy, 1981: 9). The impact of sampling risk on the audit risk model is applicable when samples are selected during the performance of substantive procedures. Sampling risk is the risk of incorrect acceptance of a class of transactions, because the characteristics of the transactions selected do not match the population's characteristics or the over-reliance on a control, because of the

controls tested. Conversely, sampling risk is the risk of incorrect rejection of a class of transactions, because of the transactions selected or under reliance on a control, because of the control tested (Cushing & Loebbecke, 1983: 27).

Non-sampling risks are human errors that the auditor could prevent or detect through good quality control (Guy, 1981: 9). Guy provides examples of non-sampling risk in order to explain it: such as a misunderstanding of the definitions of the characteristics of the population; audit exceptions and the incorrect execution of the search for errors; the selection of the sample; and lastly, the evaluation of the audit results. Non-sampling risk is not incorporated into the audit risk model because it is based on the assumption of good quality control policies and procedures that should be in place (Cushing & Loebbecke, 1983: 27).

Non-sampling risk need not be considered as an additional variable to the audit risk model if sufficient quality control procedures and policies are in place. The influence of quality control procedures and policies on the performance of the audit is outside the scope of this study.

3.4.7. Conclusion

Cushing and Loebbecke (1983: 32) commented on the impact of the results of their discussion on the audit risk model that: *"The most significant implication of this analysis for the audit risk model is really much more complex than has previously been recognised."*

Daniel (1988: 180) mentions, in respect of the implications of the weaknesses of the audit risk model, that: *"New approaches to audit risk may be needed to deal with these factors so that theoretically sounder models can be developed."*

Kinney (1989: 82) supports this conclusion, stating: *"There is a need for a more complete model of audit risk."*

Cushing and Loebbecke (1983: 27-28) stated that the AICPA recognises the limitations of the audit risk model and therefore: *"cautions that the model is not intended to be a*

mathematical formula including all factors that may influence the determination of individual risk components.” They also add: “We agree that such a caveat is appropriate, but we fear that it may not be sufficient to deter unwarranted use of the model in practice. Thus, a primary purpose of our critique here is to lend substance to the AICPA’s general precautionary warning.”

They finally conclude on the implications of the weaknesses of the audit risk model by contending that (Cushing & Loebbecke, 1983: 38): *“Although we believe that careful application of the audit risk analysis model can be helpful, we also feel that his model fails to provide a solid foundation for the long-term development of models of the auditing process.”*

In contrast, Aldersley (1989: 85) and other practitioners believe that *“Despite these conclusions, the audit risk models in current use are not yet ready for the scrap heap. For example, one could apply the model as a strategic basis for the audit.”*

Boritz, *et al.* (1987:41) report that practitioners will seldom accept and follow a new audit approach, because of:

- Stagnation – a new audit approach will only be accepted when auditors are forced to do so.
- Fear of the unknown – a new audit approach requires “retooling” and it is difficult to determine beforehand what the implications of a new approach encompasses.
- Auditors are sceptical of academic research.
- The acceptance of the audit approach in the case of litigation against the auditor.

In Chapter 4 of this study the audit risk model from a conceptual perspective will be discussed. In the next part of this chapter a brief discussion will be given of attempts by various authors to formulate a more complete statistical audit model.

3.5. Audit modelling

Cushing and Loebbecke (1983: 24) suggested an alternative to the joint risk model, which they called the risk-analysis model. This alternative envisions a more comprehensive

mathematical model and is referred to as audit modelling (Cushing & Loebbecke, (1983: 24).

They recommended a more comprehensive mathematical model should be included in the second paper by Kinney (1975) as representative of an alternative for further development, believing that the audit modelling approach was the direction to follow in the search for a better audit approach and for the development of audit methodology.

Other variables which may be integrated into such a framework, in the form of probability functions, are for example: (1) the amount of financial error; (2) materiality; (3) the cost of auditing procedures; (4) the loss from incorrect auditing decisions; and (5) an assessment of the auditor's prior beliefs (Cushing & Loebbecke, 1983: 24). Felix (1975: 66) also recommends the model suggested by Kinney (1975), although he had reservations that this model would be too difficult to use.

Kinney's (1975: 28) study also mentions the difficulty and complexity of adopting such a decision theory model, and therefore limits his model to one essential internal control procedure and two alternative tests for a single account, while ignoring the effect of analytical review, management override and collusion. He recognises that these simplifications in his model do not reflect reality and that a more complete model may not be cost-effective (Kinney, 1975: 28).

He furthermore predicted that it could be impossible to develop a complete and operational decision theory model of the entire audit planning phase, because of the complexities of parameter specification and the computational effort required (Kinney, 1975: 28). Taylor (1975: 37) confirmed these comments in his discussion of Kinney's paper: *"No auditor should be this mechanical. The type of compliance (test of control) error found is much more important than the absolute number detected."*

Kinney (1975: 117) published a second paper in respect of the application of the audit risk model in sampling plans with an emphasis on dollar-value sampling in tests of balances. He suggested that dollar-value sampling made it possible for the audit risk model or the

decision-theory approach of the audit risk model to set an optimal α (precision) or β (audit risk) (Kinney, 1975: 132).

Bailey and Jensen (1977, in Smieliauskas, 1989: 722) proposed a Bayesian refinement of Kinney's (1975) decision theoretic model (the second paper) in the further development of a decision-theoretic audit risk model. Smieliauskas (1989: 722) further developed an audit model that was an extension of the Bailey and Jensen model, including in it materiality and distinguishing between single and multiple revision versions. Smieliauskas (1989: 731) explained the advantages of the Bayesian approaches as follows:

They (these approaches) can also be used in conditionally revising an audit procedure if achieved risks associated with other audit procedures are different than planned. Since Bayesian risk models when used properly are not subject to the same critique as the joint risk model, they may be considered more appropriate for evaluation purposes.

Other Bayesian audit models and decision-theoretic audit models were evaluated by Krishnamoorthy, Mock & Washington (1999: 105), in a study where a realistic audit case was completed by 101 experienced auditors. The models based on the following theories were evaluated: a version of Bayesian inference, labelled Cascaded Inference Theory (Schum, 1987), two versions of the Belief Adjustment Model (Hogarth & Einhorn, 1992), and a version of the Dempster-Shafer Theory of Belief Functions (Srivastava & Shafer, 1992; Krishnamoorthy, *et al.* 1999: 105).

The results of the study were as follows (Krishnamoorthy, *et al.* 1999: 105):

All four models correctly predict the direction of auditor belief revision in an experimental task that involves belief revision after combining evidence about the reliability of a client's internal control system with substantive evidence relating to inventory pricing. Further, the version of Hogarth and Einhorn (1992) is the only model that captures both the direction and magnitude of an auditor's belief revision. In addition, auditor's belief revision was lower than that predicted by the other models to an average of 37, 31 and 40 per cent.

The impact of this audit models and the results are best described by Kottelman and Davis (1991, in Krishnamoorthy, Mock & Washington, 1990: 115): *"Primarily due to their high cognitive effort, encouraging the use of decision theoretic models has been an elusive goal across a variety of decision settings."*

Srivastava and Mock (2005: 1) confirmed this, stating:

Although early audit research and standard setting explored more rigorous guidance concerning statistical sampling, more recently audit practice has moved away from these approaches in favor of judgment sampling and relegating precise formulations of audit risk to providing 'general guidance' for audit planning.

The continuous search by researchers for a mathematical (or statistical) solution that could provide the auditing profession with an audit approach that could measure the uncertainties surrounding an audit, concluded in the realisation that the enormity of uncertainties in an audit could only be partly addressed by an auditor's professional judgment.

3.6. Conclusion

Firstly, the third chapter of this study discussed the Elliott and Rogers' model that signalled the start of the audit risk model. The risks that are posed by audit sampling were discussed as audit sampling forms the basis of the audit risk model. Then the further development of the audit risk model was addressed.

Secondly, the critique from a statistical perspective on the audit risk model was summarised. The audit risk model's event structure is ill-defined; the risk components lack independence that is a basic assumption for the use of the multiplicative formula. The risk components are complex, interdependent and difficult to assess; therefore, practitioners prefer to assess these risk components in linguistic terms e.g. low, medium and high. The multiplicative rule does not provide protection against an understatement of audit risk if the audit outcome space is not completely specified and a revision of the audit plan is needed. The aggregation of the individual risks is problematic and therefore, the audit risk model should be used only for planning purposes. These limitations negate the value of the audit risk model as an audit approach.

In conclusion, the pertinence of the words of R Buckminster Fuller, (in Leslie, Teitlebaum & Anderson, 1980: 309) summarise the state of affairs:

I am enthusiastic over humanity's extraordinary and sometimes very timely ingenuities. If you are in a shipwreck and all the boats are gone, a piano top buoyant enough to keep you afloat may come along and make a fortuitous life preserver. This is not to say, though, that the best way to design a life preserver is in the form of a piano top. I think that we are clinging to a great many piano tops in accepting yesterday's fortuitous contrivings as constituting the only means for solving a given problem.

In the fourth chapter the development of the audit risk model from a conceptual perspective will be the focus. Mautz and Sharaf (1961: 73) describe the concept of "rationality"; the road the audit profession considered in the development of the risk-based audit approach:

Most of us had some experience with statistical measures of probability, and we may tend to think of probability only in this respect. But it is important that we see the possibility of 'rational probability' as well, because it is with rational probability that we deal most commonly in auditing. Given two lines of argument starting with the same accepted facts and reaching opposed conclusions, one will have more appeal, will seem more reasonable, more rational than the other. The quality of rationality cannot be reduced to a mathematical formula, at least not at our present state of development, but certainly some reasoning is more probably correct than others.

CHAPTER 4 - THE DEVELOPMENT AND EVALUATION OF THE AUDIT RISK MODEL FROM A CONCEPTUAL PERSPECTIVE

4.1. Introduction

The AICPA 1983 audit risk model that guided auditors in the performing of the audit and that formed the foundation of generally accepted audit standards, suggested that auditors should use their professional judgment to determine the appropriate low level of audit risk, inherent risk and control risk to determine detection risk (Paragraph 12 of SAS 47; AICPA,1983: 58). The level of detection risk will assist auditors within the inherent limitations of the auditing process to decide if sufficient, appropriate audit evidence is obtained to support their audit opinions (Paragraph 12 of SAS 47; AICPA, 1983: 58). The following multiplicative formula, a statistical model, formed the foundation of the risk-based audit approach described above (para. 20, AICPA SAS 47, 1983: 61):

$$\text{Audit risk} = \text{Inherent risk} \times \text{Control risk} \times \text{Detection risk}$$

Kinney and Uecker (1982: 55) reported that auditors drew inferences from information or samples and then ignored the rules of statistics and used only their professional judgment. The implementation of the audit risk model on a professional judgment basis only, led to the conceptual audit approach, as were foreseen by Libby, *et al.* (1985: 213): *"Eventually we may modify or replace the audit risk model (statistical) as a model of audit judgment."*

Practitioners preferred the conceptual audit risk model or audit judgment model to a statistical or combined approach. Practitioners experienced difficulties with the application of the statistical audit risk model and therefore shifted to the development of an audit approach on a conceptual level which is explained by the following words of Mautz and Sharaf (1961: 15): *"In fact, any discipline which relies heavily on evidence is based on logic. ... Thus auditing has its principal roots ... in logic on which it leans heavily for ideas and methods."*

The conceptual audit risk model assisted the auditor in the risk assessment process, to determine the reasonableness of the audit plan and therefore detection risk and the sufficiency and appropriateness of the audit evidence needed (Shibano, 1990: 112).

The conceptual audit risk model had continuous support from the standard setters. Quadackers, *et al.* (1996: 217) report that the audit risk model became a significant concept in audit practice. They explained that this concept expresses that changes in risks should affect the scope of the procedures the auditor performed.

In order to comply with generally accepted auditing standards, any audit approach was required to incorporate the audit risk model as the conceptual starting point. Nevertheless, the questions asked by Graham (IV) (1985: 42) remained: *"How can we be sure we have designed an audit that will detect the material error in financial statements? What procedures are effective in detecting material error? Those questions are of concern in planning an audit."*

The importance of an audit approach should not be underestimated. In the words of Alderman and Tabor (1989: 55): *"The approach the (audit) CPA firm takes in an audit engagement is a key factor in determining the efficiency and effectiveness of the audit. In short, they (the auditors) seek improved efficiency while maintaining the necessary effectiveness for each particular audit."*

The clarity, applicability, efficiency and effectiveness of the conceptual audit risk model as audit approach would impact on the efficiency and effectiveness of the audit and would ultimately determine the conceptual audit risk model's success as an audit approach.

In this fourth chapter the development of the audit risk model from a conceptual perspective will be discussed. Two variations or approaches of this conceptual audit risk model were used in practice. Firstly, the fourth chapter will discuss the inherent risk-audit risk model and secondly, this chapter will discuss the business risk audit approach.

4.2. The start of the conceptual audit risk model

4.2.1. Introduction

The well-known Elliott and Rogers (1972) article introduced a statistical audit risk approach to the auditing profession that was based on statistical reliability levels. An

adapted version of this approach was included in generally accepted auditing standards in 1972, immediately changing the auditing landscape. Anderson (1977) reformulated the concept of reliability into risk, calling this audit approach the joint risk model. In 1981 the AICPA followed suit and the new SAS 47 presented the audit risk model. This concept of audit risk in the new SAS 47, a concept that was purely statistical, was conceptually very closely related to the term of relative risk that was part of previous audit standards. The term of relative risk, as explained in the Statement of Auditing Standards, published by the American Institute of Accounting (Committee on Auditing Procedure) (1954: 26) reads as follows:

Relative Risk – the degree of risk involved also has an important bearing on the nature of the examination. In the light of possible irregularities, cash transactions are more vulnerable than inventories and the work undertaken on cash may require it to be carried out in a more conclusive manner, without, however, necessarily implying a greater expenditure of time. ... The effect of internal control on the scope of an examination is the outstanding example of the influence on auditing procedures of a greater or lesser degree of risk of error. The primary purpose of internal control is to minimise the risks of errors and irregularities, and the more adequate and effective the system, the smaller the risk and the less extensive the detailed examination and testing required.

What happened after the introduction of the 1981 AICPA SAS 47 standard is best described by the word 'fusion'. Fusion is the joining of the two concepts of statistical risk and relative risk to form a single concept of audit risk. This was the birth of the conceptual audit risk model. The transformation by practitioners of the statistical audit risk model into the conceptual audit risk model was signalled by the article of Graham(II) (1985: 34) in the United States, stating:

At first glance SAS 47 appears to some of us to suggest drastic changes, but a closer examination reveals that it merely suggests explicit recognition and documentation of factors we have considered implicit for years. Understanding the concepts in the standard and adopting common terminology and more structured thinking processes not only may help us to implement the standard, but also may help us find more effective and efficient ways to audit. ... A discussion of these concepts and how they

interrelate is important because it will reinforce the acceptability of many current practices, despite their subjective nature.

Previously, Lubbe (1984: 4) in South Africa, also identified that the identification of factors that are an indication of potential risk, is not something new in the audit process. He also interpreted that this new standard was addressing audit risk in a more formalised and systemised manner. At this point in time, the academic literature, for example Cushing and Loebbecke (1983), indicated that the statistical audit risk model had severe defects. This conceptual view on the audit risk model, based on logic, was adopted and implemented by the auditing profession. The statistical approach and application of the audit risk model was ignored in favour of the conceptual view. Further examples of the linking of audit risk with relative risk are to be found in Alderman and Tabor (1989: 57): *"The understanding of the importance of risk evaluation and consideration first shown in 1963 has continued."*

Relative risk, that suggested a process of evaluating the degree of risk or possibility that an irregularity is included in a class of transactions, was incorporated in the merged term of audit risk, as explained by Alderman and Tabor (1989: 56):

The concept of risk is not new to the auditing profession or to auditors who are responsible for deciding on the appropriate combination of audit procedures that make up the audit program. General statements about risk consideration have evolved into detailed guidance on risk components for specific audit applications.

The problems auditors experienced with the application of the statistical concept of audit risk in practice, for example, the determining of the degree of reliability of individual propositions, combining individual reliability levels, and establishing the credibility of the audit opinion, contributed to the acceptance of the conceptual audit risk model (Colbert, 1987: 53).

Bell, *et al.* (1997: 12) described this conceptual audit risk model as follows:

They invented what sometimes is called a risk-based audit approach whereby the auditor would look to the nature of individual transactions, e.g. transactions whose dollar value exceed a size threshold, the nature of account balances and whole classes

of transactions, and to qualities of the client's accounting system to form preliminary judgments about the risk of material misstatements for the purpose of planning the focus and scope of tests of details work.

4.2.2. Decomposition into components

The major benefit of the conceptual audit risk model was the formal recognition of two aspects that influenced audit planning decisions; namely, inherent factors relevant to the specific audit and the system of internal control. The audit planning process was decomposed in firstly, the identification of aspects inherent to the specific audit that increases or decreases inherent risk; and secondly, in an evaluation of the design and implementation of the system of internal controls that impacts on control risk. Thirdly, the combined impact of the above risks influenced detection risk that consists of a choice of analytical procedures and substantive procedures.

The benefit gained from decomposition is explained by Jiambalvo and Waller (1984: 82): *"Decomposition is said to improve the problem-solving by forcing the problem-solver to consider explicit information or problem elements that might be overlooked when using a holistic approach."*

Furthermore, Raiffa (1968: 271) in Jiambalvo and Waller (1984: 80), explained that: *"The essence of the decomposition principle is to 'divide and conquer': Decompose a complex problem into simpler problems, get one's thinking straight on these simpler problems, paste these analyses together with logical glue and come out with a program for action."*

Jiambalvo and Waller (1984: 81) describe the benefits of decomposition as follows:

- The alleged effectiveness of decomposition strategies stems from at least three factors:*
- (1) decomposition reduces the probability of errors due to omitting relevant information;*
 - (2) decomposition reduces the probability of errors due to combining heeded information incorrectly; and*
 - (3) decomposition reduces the cognitive strain for the problem-solver.*

Finally, Burns and Pearl (1981: 391) in Jiambalvo and Waller (1984: 80) warns that: *"the issue of how a task is to be decomposed should be considered carefully – an apparently simple form of decomposition does not necessarily lead to greater judgment accuracy."*

Waller (1993: 785) suggests that it may be useful to consider behavioural decision analysis as a frame of reference, because it applies utility theory to decompose a decision problem into tasks of utility and probability assessment that includes component events and conditioning information (Von Winterfeldt & Edwards, 1986 in Waller, 1993: 785). Utility theory provides a benchmark to evaluate the decomposition incorporated in the conceptual audit risk model and is guided by two principles which Waller explains thus:

First, decomposition relies on a theory-based link between components, which permits a coherent integration of the separate assessment (e.g. the expectation operator for combining assessments of component events).

Second, the practical value of decomposition depends on the overall gain in effectiveness from performing two or more assessment tasks, each with a relatively narrow focus, versus a holistic approach. Without such gain, a decomposition that merely creates more tasks is costly.

Decomposition in the audit risk model was done chronologically and time was used as the criterion to segregate the audit risk model into its components. First, is the event of the misstatement, second, the event of detection and correction of the misstatement by the system of internal control and third, is the event of detection by the independent auditors. The questions are: Is it a successful decomposition and are there any other criteria that could be used?

Waller (1993: 786) concluded that the audit risk model's decomposition is not theory-based. His explanation of a knowledge-based dependency between inherent risk and control risk was discussed in Chapter 3. The implications of this knowledge-based dependency, according to Waller (1993: 786) are that it is doubtful if the components can be integrated. Furthermore, the audit risk model's decomposition is also not practical because of the strong dependency between inherent risk and control risk assessments on an assertion level and it appears that these separate assessments are "informationally redundant" (Waller, 1993: 786). This was previously recognised by Graham (V) (1985:

29): *"The simple multiplicative model by which SAS 39 illustrates a relationship between the audit risk components, it is in itself embroiled in controversy."*

Houston, Peters and Pratt (1999: 282) stated that an important purpose of an audit approach, like the audit risk model, is to promote consistency across audit engagements that will enhance the credibility of the audit process. They found that in certain cases auditors appear to depart from the audit risk model, with no apparent reason, thereby questioning the credibility of the audit risk model as an audit approach.

It seems that the suggested benefits to gain from the application of the conceptual audit risk model could be uncertain, and that the underlying theory of the conceptual audit risk model is unsuccessful.

4.2.3. Conclusion

The audit risk model was the prescribed audit approach of the AICPA from 1981 until 2003. During this period, practitioners were allowed to apply the audit risk model on a conceptual basis.

The audit risk model's decomposition structure was unsuccessful as explained in Chapter 3, because internal controls' prevention of misstatements was not included, indicating that the underlying theory-based link of the decomposition was incomplete. An incomplete decomposition suggests that the individual assessments may not be combined. Furthermore, except for the decomposition on the financial statement level that provided limited assistance to auditors, the further decomposition of the audit risk model on the assertion level was not implemented in practice.

The next part of this chapter will describe the inherent risk audit approach; discuss the components of inherent risk, control risk and detection risk; and finally discuss research that considers the impact of the inherent risk audit approach on audit planning. The last part of this chapter will focus on the business risk audit approach.

4.3. Inherent risk audit approach

4.3.1. Introduction

An audit approach purpose is to guide the auditor through the audit process. The inherent risk audit approach was applied exclusively to the audit planning phase of the audit process, and served as only a guide during the planning phase of the audit. The audit planning phase according to Whittington and Pany (2004: 173) includes investigating a prospective client before deciding whether to accept the engagement; obtaining an understanding of the entity and its environment; assessing audit risk and materiality; developing an overall strategy to coordinate the audit activities and linking risk to audit procedures.

The next part of this chapter will indicate how the inherent risk audit approach intended to guide the auditor through the audit planning phase. Problematic aspects that indicate the limitations of this audit approach will be highlighted. This could be of assistance in the finding of better alternatives as an audit approach.

4.3.2. A description of the inherent risk audit approach

The 1983 inherent risk audit approach was (para. 20 AICPA SAS 47, 1983: 61) as follows:

Audit risk = Inherent risk x Control risk x Detection risk

AR = IR x CR x DR

Where:

Inherent risk is the susceptibility of an assertion to a material misstatement assuming that there are no related internal control structure policies or procedures.

Control risk is the risk that a material error that could occur in an assertion would not be prevented or detected on a timely basis by the entity's internal control structure policies or procedures.

Detection risk is the risk that the auditor will not detect a material misstatement that exists in an assertion.

Audit risk was defined as the risk that the auditor might unknowingly fail to appropriately modify his opinion on financial statements that are materially misstated (para. 2 of SAS 47, AICPA, 1983: 57). In paragraph 9 of SAS 47 (AICPA, 1983: 58) it is explained that

the auditor should plan the audit in such a way that audit risk will be limited to an acceptably low level. This level of audit risk should, in his professional judgment, be appropriate for issuing an opinion on the financial statements, within the inherent limitations of the auditing process with sufficient, appropriate audit evidence to support this audit opinion (paragraph 12 of SAS 47, AICPA, 1983: 58). In other words, the level of audit assurance should be sufficiently high to allow the auditor to express an opinion on the financial statements taken as a whole. Conversely, the accepted low level of audit risk represents the risk an auditor accepts that the financial statements may be materially misstated after the audit is completed (Arens & Loebbecke, 2000: 218).

Simultaneously, the objective of an audit is to assess and control audit risk in such a way that the desired level of assurance is achieved as efficiently as possible (Graham (V) 1985: 26). In support of this, Alderman and Tabor (1989: 61) state that the proper application of the inherent risk audit approach was essential to perform an effective and efficient audit.

The three components of the inherent risk audit approach that were defined above are: inherent risk, control risk and detection risk. These components will be discussed in the next part of this chapter.

4.3.3. Inherent risk

4.3.3.1. Introduction

Inherent risk relates to the "susceptibility of an assertion to a material misstatement assuming that there are no related controls" (AU 312.20 in Konrath, 1999: 148). This concept of inherent risk is, according to Arens and Loebbecke (2000: 264), one of the most important concepts in auditing. Graham (III) (1985: 36) confirms this, stating: *"By itself, inherent risk assessments often provide limited audit comfort, but it is an important aspect of the design of an effective and efficient audit."*

Arens and Loebbecke (2000: 264) further explained the concept of inherent risk as follows: *"It implies that auditors should attempt to predict where misstatements are most and least likely to occur in the financial statement segments."*

In an attempt to predict the above-mentioned, it should be kept in mind that inherent risk refers to all misstatements, including misstatements that are prevented, detected and corrected by the system of internal control. Inherent risk encompasses, therefore, the risk that all possible forms of errors and fraud could occur. To compile a list of risks of all possible forms of errors and fraud for every client is clearly an inefficient approach. Furthermore, as explained by Graham (II) (1985: 34), this concept of inherent risk is: *"more conceptual than practical because it is difficult to assess what errors would be introduced into the system in a hypothetical situation where controls are not present."*

The implication of ignoring the system of internal control presented a concept of which the ambit was broader than initially anticipated. To resolve the problem, standard setters allowed, according to Graham (II) (1985: 35), that: *"If however the process of thinking about and documenting the inherent risk factors is just too taxing or uneconomical, SAS 47 advises us simply to audit as though inherent risk were at the maximum."*

The assessment of inherent risk, in contrast to setting inherent risk at the maximum level across all audit assertions or balances, presented the opportunity to perform a more efficient audit; an opportunity that auditors took because of the competitive advantage presented by cost-effectivity (Graham (II), 1985: 35). Although many audit firms initially chose to ignore the assessment of inherent risk, others decided to interpret and implement the evaluation of inherent risk. During assessment of inherent risk, auditors realised that inherent risk is a broad concept, even broader than the initial understanding of it.

In the next part of this study the different facets of inherent risk will be discussed, illustrating the understanding of the concept of inherent risk that was prevalent at the time. This also includes a discussion of examples from the academic and professional literature.

4.3.3.2. The different facets of inherent risk

Descriptions of inherent risk in the academic and professional literature varied considerably and addressed different aspects and perspectives simultaneously. In order

to describe the concept of inherent risk the three facets of inherent risk that were commonly addressed in the literature were identified. These three facets of inherent risk are considered hereafter.

Firstly, inherent risks in the literature are sorted, organised or classified in different **categories** that will be discussed in this part of the study. Secondly, the process of identification of inherent risks was an essential part of the planning phase of the auditor, and this resulted in specific **processes** that were developed to identify these risks. Thirdly, **risk indicators** were listed in the literature to assist auditors in the identification of inherent risks. The different categories of inherent risks, processes used for identification of inherent risk, and risk indicators formed the foundation of the different facets of inherent risk. In the study, the three facets of inherent risk are investigated in more depth.

The first facet of the concept of inherent risk is explained by Graham (II) (1985: 36) by categorising inherent risk; firstly into inherent risk characteristics; and secondly, in inherent risk conditions. Graham (II) (1985: 36) described inherent risk characteristics as follows: *"Some aspects of inherent risk are peculiar to the specific transaction or account, that is, they are characteristic of the transaction or account."*

He described inherent risk conditions as:

Other aspects of inherent risk that affect the likelihood of error in a specific transaction or account may be related to situations that arise externally to the entity. Those factors may be said to relate to conditions that can be described as existing at one of three levels - at the (a) macro-economic, (b) industry, and (c) company levels.

The classification of inherent risk was done to assist the auditor in the identification and assessment of inherent risk and was done as a practical solution to identify inherent risks; it did not form part of the auditing standard of AICPA SAS 47 (1983) (Graham, (II) 1985: 36). The classification enhanced the cost efficiency of the audit, because these characteristics were present from year to year and they eased the identification and assessment of internal controls.

The inherent risk conditions and characteristics were also an indication of a split between risks at the overall or financial statement level and risks at the assertion level.

The second perspective or facet of inherent risk requires an understanding of the process that was developed to identify inherent risks. The process of identifying inherent risks is explained by IAASB/IRBA ISA 315R (2006: para. 02) and consists of:

- Identify **areas**, or environments that are **sources** for inherent risks. Consider these sources of inherent risks when obtaining an understanding of the entity and its environment.
- In the above areas of the entity and its environment, identify **risk indicators** that indicate the possibility of inherent risks.
- In respect of the identified risk indicators, identify and assess **inherent risks**.

Reference to this process of identification of inherent risks is to be found in the articles of Graham (II) (1985: 36) referring to the three levels or areas of understanding; namely macroeconomic-, industry- and business- levels. These three levels represent the areas where an understanding should be gained, leaving it to the auditor's professional judgment to identify risk indicators and inherent risks. Graham (II) (1985: 38) recognised the difficulty of identifying inherent risks and therefore suggests the following practical approach (emphasis added): *"The checklist approach has the advantage of being easier for staff to apply and serves as a reminder of **common sources** of inherent risk ... Of course, no checklist of this nature can be complete, so a search for other possible sources of inherent risk is necessary."*

The current auditing standards added to the process of obtaining an understanding of the entity and its environment and the consequent identification of risks of material misstatement, additional assistance in IAASB/IRBA ISA 315R (2006: Appendix I) in the format of a list of possible **areas** and **risk indicators**:

This appendix provides additional guidance on matters the auditor may consider when obtaining an understanding of the industry; regulatory and other external factors that affect the entity, including the applicable financial reporting framework; the nature of the entity; objectives and strategies and related business risks; and measurement and review of the entity's financial performance.

IAASB/IRBA ISA 315R (2006: Appendix I) does not include a list of risks of material misstatement, the combination of inherent risks and control risks; consequently indicating the difficulty of providing such a list. Moreover, in preferring a checklist-approach, auditors further indicated the difficulty of using a process of identifying areas, risk indicators and inherent risks. The process of identification of inherent risks emphasised the complexity of the inherent risk concept, as well as the process of identification and assessment.

The third facet of inherent risk was recognised by Graham (II) (1985: 36) in an attempt to explain why auditors should identify and address certain inherent risks. He mentioned (emphasis added):

*To identify inherent risks related to the characteristics of specific types of transactions and accounts, knowledge of the business and an understanding of its transactions, their flow through the system, and the accounts that they generate is fundamental. Client knowledge is the key. **Factors** we should consider in identifying those risks include the following:*

- *The susceptibility of an asset to misappropriation or misevaluation*
- *The complexity and volume of transactions to be processed*
- *The extent to which judgments or factual data were used to create the balance*
- *The control environment (which may provide clues to inherent risk characteristics addressed, in part, by management).*

Risk indicators/factors listed by different authors of the academic and professional literature were available to identify inherent risks for auditors. These risk factors or indicators are part of the third facet on inherent risk. General factors that indicate possible inherent risks are “generic rules of thumb” that are used to assist the auditor in the identification of inherent risks. The general rules of thumb, when applied to areas or segments of the entity, will indicate the risk indicators that direct the auditor to the identification of inherent risks. The “generic rules of thumb” consist of three different categories, namely: general factors that indicate inherent risk, fraud risk factors that indicate inherent risks and previous or existing errors that could indicate inherent risks.

Finally, an auditor's assessment in respect of inherent risk should take into consideration every possibility of error and fraud without the mitigating effect of the system of internal control. Therefore, inherent risk is a very broad concept incorporating many facets and different perspectives. In the next part of the chapter, the academic and the professional literature are compared with the above explanation of inherent risk.

4.3.3.3. Audit firms and academics' viewpoints on inherent risk

4.3.3.3.1. Introduction

At the heart of the inherent risk audit approach is the concept of "inherent risk" and the consequent identification and assessment of inherent risks. Elliott (1983: 1) explains that audit firms adopt a risk-based audit approach with the aim of performing an audit that adheres to guidance in the auditing standards, and provides an efficient, professional service to the client. In performing an efficient audit, the different audit firms' view on inherent risk is vital.

The different audit firms' descriptions of inherent risk were investigated as reflected in the professional literature and in articles published (refer to Table 5 for a list of firms). These descriptions of inherent risk were compared to the three facets in the inherent risk concept. Different descriptions of inherent risk also appeared in the academic literature and are also discussed in this part of the study.

Table 5: Summary of the descriptions of inherent risk considered

Summary of the audit firms' viewpoints on inherent risk		
Author	Date	Audit Firm
Elliott	1983	Peat Marwick International
Grobstein & Craig	1984	Ernst & Whinney
Graham	1985	Coopers & Lybrand
Grant Thornton International	1986	Grant Thornton International
KMG Aiken & Carter	1986	KMG Aiken & Carter
Walker & Pierce	1988	Price Waterhouse
Houghton & Fogarty	1991	Deloitte, Haskins & Sells

4.3.3.3.2. Peat Marwick International

Elliott's (1983) article represents the understanding of audit firm, Peat Marwick International, of inherent risk.

He describes inherent risk as the risk of a material error occurring in a specific assertion in the financial statements, without the operation of any internal controls (Elliott, 1983: 4). Therefore, the inherent risk is addressed only at the assertion level. The main reason for this is that the statistical audit risk model may not be used on the overall level (refer to par 3.4.5.4. *The aggregation of individual risks*). Elliott (1983: 4) explains this as follows: "*The consideration of inherent risk is not so much an overall risk assessment for the client as it is a specific risk assessment related to specific assertions in the financial statements.*"

Additionally, the appraisal of risk falls under the planning step of "obtaining knowledge of the business" (Elliott, 1983: 2). He describes the identification and assessment of inherent risk as follows (emphasis added) (Elliott, 1983: 4):

*The auditor considers various **factors** in evaluating inherent risk. These include, for each assertion, the monetary amount, the susceptibility of related assets to theft or misappropriation, the complexity of determining amounts to be entered in the accounting records, the degree of management judgment required, the degree to which external conditions or events affect the value, the past history of errors, the degree to which client financial conditions may motivate management to misstate the assertion, and the experience level of personnel involved in related accounting functions.*

Therefore, generic factors or 'rules of thumb' in evaluating inherent risk, in contrast to risk indicators and inherent risks are emphasised. Elliott (1983: 4) summarises his explanation as follows: "*Currently, the assessment of inherent risk and the use of the assessment is a matter of auditor judgment.*"

4.3.3.3.3. Ernst & Whinney

Grobstein and Craig (1984: 2) describe the Ernst & Whinney Audit Approach as a risk analysis methodology. Their (Grobstein & Craig, 1984: 2) approach is as follows: "*Our*

disciplined approach to risk analysis focuses on the likelihood of error in specific accounts and transactions."

Different aspects are mentioned but not how and why they should interrelate. They integrate all three perspectives on inherent risk, not fully addressing any of these perspectives (Grobstein & Craig, 1984: 2):

(Inherent risk) focuses on the combined impact of the environment in which a client operates, the client's financial and operating results, and effectiveness of the client's internal controls.

(a) What is the potential effect of external and internal factors on the client?

i) What is the possibility of errors or irregularities in the accounting system?

ii) Do the numbers generated by the accounting system make sense?

(b) What is likely to go wrong in specific transactions and accounts?

(c) What is the most effective and efficient combination of tests responsive to these risks?

It should be noted that obtaining an understanding of the business and its systems is done from an operating perspective that would categorise this approach as a business risk audit approach. This approach is linked to inherent risk as follows (Grobstein & Craig, 1984: 8): *"Based on our understanding of the client's business and current developments, we assess the potential for audit problems, i.e., the overall inherent risk."*

4.3.3.3.4. Coopers & Lybrand

The articles published by Graham (I – V) (1985), a partner in the firm Coopers & Lybrand, are used to represent the audit firm Coopers & Lybrand's understanding of inherent risk. The aspects that influenced the concept of inherent risk, as described by Graham (II) (1985), were discussed in par 4.3.3.2 *Different facets of inherent risk* and are the classification of inherent risks in inherent risk conditions on the overall level and inherent risk characteristics on the assertion level.

According to Graham (II) (1985: 40) inherent risk is a decisive component in audit risk. He describes the audit procedures that an auditor should perform in obtaining an understanding of the entity and its environment. Firstly, obtain an understanding of the

nature of the client's business that includes competitors, customers and suppliers; and secondly, to ensure the continuous communication with client personnel (Graham, II, 1985: 40). The understanding obtained should be related to business risk and audit risk, and finally, provide a frame of reference for the audit findings. The factors that Graham suggests that could be considered, illustrate that inherent risk is a very broad concept, especially if the hypothetical aspect of "*before taking the effect of internal controls into consideration*" is also included.

The concept of inherent risk is described only in broad terms, a complete understanding of what the concept entails, the scope of what inherent risk constitutes, could not be found in the five widely recognised articles by Graham (1985) on the conceptual audit risk model. Because of the complexity, or perhaps the vagueness of the concept, practitioners relied on a checklist (the completeness of which no-one attempted to verify) to assist them and their staff in the identification of inherent risk (Graham, II, 1985: 38).

4.3.3.3.5. Grant Thornton International

Grant Thornton International (1986: 55) explains inherent risk from another perspective: the factors, called environmental factors, that form part of the different environments of clients are the indications of inherent risk. Their explanation of the identification and assessment of inherent risk is as follows:

We call our assessment of inherent risk the environmental assessment. Inherent risk may vary from account area to account area, and so it is necessary to consider environmental factors relating to particular balance sheet areas as well as those relating to the financial statements as a whole.

Grant Thornton International (1986: 56) further stated that in assessing the environmental factors, the application of the auditor's knowledge of the client's business is essential. Their major areas of assessment of environmental factors are (Grant Thornton International, 1986: 57):

- (a) Assessment of the environment including the management, accounting and business environments;*
 - i. General environmental assessment*
 - ii. Specific assessment of individual accounts.*

(b) Assurance from prior period audits.

The area of assessment, mentioned in (a) namely "*the environment*" was consistent with Graham's (1985) explanation of inherent risk characteristics and inherent risk conditions. The area of assessment mentioned in (b), namely "*Assurance from prior period audits*", was explained by Grant Thornton International (1986: 57) as the strength of reliance that could be put on accounting information, based on the results of the system of internal control in the previous year. This area of assessment provided a totally new dimension and included the previous year's audit findings on the system of internal control, as part of the explanation of inherent risk.

4.3.3.3.6. KMG Aiken & Carter

KMG Aiken & Carter's (1986: 42) description of inherent risk revolved around a limited list of general factors. The third perspective on inherent risk, the identification of risk indicators according to general rules of thumb, was adopted by KMG Aiken & Carter (refer to par 4.3.3.2 *The facets of inherent risk*). Their suggested process for the identification of inherent risk depended on "*many things*"; for example:

- Nature of the entity.
- Competency and integrity of management and staff; for example, performance measures that set targets that are achievable.
- Complexity of the entity could increase risk.
- Subjectivity; for example, the degree and impact of estimates required.

4.3.3.3.7. Price Waterhouse

Walker and Pierce (1988: 3) published an article to explain the audit approach followed by Price Waterhouse. In this audit approach "warning signals" that could indicate possible material irregularities were identified (Walker & Pierce, 1988: 3). Examples of these warning signals were provided in the article and are as follows:

- Authoritarian senior executives.
- Going concern problems such as net losses and inadequate liquidity.
- Deficient accounting or control systems.
- High personnel turnover in key financial positions.

- A complex corporate structure.
- Possibility of earnings management.

The questions to ask are: What is a warning signal? What are the reasons for these warning signals? What encompasses a complete set of warning signals? What warning signals are more, or less, important? These questions were left unanswered. Walker and Pierce (1988: 3) based this assessment of inherent risk only on the cumulative knowledge and an updated understanding of the entity's business. Inherent and control risks were identified and assessed simultaneously.

4.3.3.3.8. Deloitte Haskins & Sells

Deloitte Haskins & Sells International conducted a study, or error survey, covering 480 audit engagements in the United States, the United Kingdom and South Africa (Houghton & Fogarty, 1991: 1). The objective of the study was to understand the attributes of auditor-detected errors and whether areas in which errors occur could be recognised in the audit planning phase. For the purposes of the study they mentioned that (Houghton and Fogarty, 1991: 4):

"Audit errors are defined as all adjustments or reclassification errors detected during the course of an audit engagement by Deloitte, Haskins & Sells personnel. These personnel define reclassifications as entries not affecting net income, because they involve balance-sheet-only or income statement-only types of accounts. Proposed adjustments and reclassifications excluded normal year-end closing entries such as entries that clients might regularly rely upon the firm for assistance in computing (e.g. year-end tax accruals)."

The primary focus of the study was on audit errors that were categorised as audit adjustments, because Houghton and Fogarty (1991: 5) perceived these errors to be decisive for an audit, even though audit errors categorised as reclassifications were two to three times larger. They reported that the results of the study of audit adjustments caused significant change to the audit approach of Deloitte Haskins & Sells International. This includes a revised application of the audit risk model (Houghton & Fogarty, 1991: 5). The major findings of the study were: firstly, non-systematically processed transactions have a disproportionately higher possibility of error than systematically processed

transactions, and secondly, the obtaining of an understanding of the entity and its environment eased the identification of audit areas than would indicate "risks of error" (Houghton & Fogarty, 1991: 5).

Firstly, Houghton and Fogarty (1991: 5) reported that non-systematic processing of transactions represented the highest proportion of weighted adjustment errors of all the environmental characteristics. In the U.S. such entries accounted for 57 per cent of all adjustments; and in the U.K. and S.A., they accounted for 47 per cent and 48 per cent, respectively. They described the non-systematically processed transactions as follows (Houghton & Fogarty, 1991: 6):

Some non-systematically processed transactions represent normal, recurring transactions, such as year-end accruals. Others are unusual transactions... Unusual transactions would be expected to have a relatively high probability of error because routine processing procedures do not exist. Such transactions also tend to be somewhat more complex, requiring an accounting knowledge beyond that expected of many client accountants.

Additionally, Houghton and Fogarty (1991: 6) warn against non-systematically processed transactions, stating that: "*Non-systematically processed transactions either occur outside most accounting control systems or they are inherently more prone to error, irrespective of internal controls.*"

The implications of the occurrence of a non-systematically processed transactions is that a system of internal control seldom exists in respect of these transactions and could therefore not prevent or detect any material misstatements. Furthermore, non-systematically processed transactions require complex accounting knowledge (Houghton & Fogarty, 1991: 8).

Inherent risk does not differentiate between non-systematically processed transactions and systematically processed transactions. It ignores the interrelationship between inherent risk and a system of internal control, because the consideration of inherent risk occurs before the impact of a system of internal control may be recognised.

The findings reported by Houghton and Fogarty (1991: 3) were very important, illustrating that a specific part of inherent risk, those aspects or transactions that are not normally addressed by the system of control, are an indication of areas that are more likely to predict the existence of a material irregularity. Furthermore, according to the study, the policy of Deloitte Haskins & Sells, at that point in time, was to set inherent risk at a maximum of 1 or 100 per cent. Houghton and Fogarty (1991: 3) reported that the results suggest that the assessment of inherent risk is a significant and effective component of the relative risk of errors in financial statements, and that it is possible to do this assessment on the basis of a good understanding of the entity and its environment.

Secondly, Houghton and Fogarty (1991: 6) considered the following question: *"One of the questions of the study was whether auditors could identify high-risk audit areas during the planning process; can they know where the risks are on a particular engagement based on an analysis of certain characteristics of the client and its industry?"*

The findings of the survey indicated that auditors could identify high-risk audit areas during the planning process, because seventy-three per cent of the weighted errors included in the study in the United States, occurred in areas that either were, or could have been, recognised during the audit planning phase (Houghton & Fogarty, 1991: 6). The survey results indicated that the largest contributing factor to errors was "knowledge of a history of similar errors in prior years" (Houghton & Fogarty, 1991: 6). Additional to the identification of the significant factor of "history of errors", Houghton and Fogarty (1991: 3) also considered what they called "attention-directing procedures". In the consideration of what constitute effective "attention-directing procedures", the results indicate that the performance of audit procedures was much more effective than obtaining an understanding of the entity and its environment, with the subsequent identification of high audit risk areas in the planning phase (Houghton & Fogarty, 1991: 3).

These authors reported further that the task force of Deloitte Haskins & Sells recognises that certain inherent risk conditions might be equally or more important than internal control considerations in assessing the risk of errors in financial statements and that it is therefore not sensible to ignore inherent risk.

They recognised in respect of the identification of inherent risks, that (Houghton & Fogarty, 1991: 6): *"As in the case of non-systematically processed transactions, the auditor's ability to identify areas having the greatest risk of error during the planning process greatly contributes to the development of a cost-effective audit approach."*

The study of Houghton and Fogarty (1991) recognised the importance of inherent risk for the efficient performing of an audit. The question that was never asked is: Are the advantages obtained in the study gleaned from the concept of "inherent risk" or only from certain risk indicators; for example, non-systematically processed transactions lead to risk - are they categorised under inherent risk? Is the concept of "inherent risk" the answer, or is the concept of "inherent risk" conceptually too broad and vague to really assist auditors in planning an efficient audit?

The complexities that should be considered when obtaining an understanding of the concept of "inherent risk" are illustrated by other findings reported by Houghton and Fogarty (1991: 9):

Considerable additional information was gathered about the characteristics of audit errors. Some of the observations derived from the underlying data, are that ... specific accounts affected by the errors, correspond to expectations based on the client's industry (e.g. inventories for manufacturing companies, receivables for credit granting institutions, and liability reserves for insurance companies.)

Kreutzfeldt and Wallace (1990: 2) supported the above finding when considering the correlations between control structure characteristics and errors:

Evidence ... is provided that context matters, when evaluating controls. Specifically, the size of the company is related to error rates in all accounts other than cash and receivables. Similarly, the type of industry in which a company operates influences error rates in all accounts other than payables.

The extensive study performed by Houghton and Fogarty (1991: 9) resulted in the obtaining of a considerable amount of information in respect of the characteristics of audit errors. The aim of the study was to use this information to indicate the areas where

these errors originate and therefore indicate significant inherent risk factors or indicators. The following characteristics were identified by Houghton and Fogarty (1991: 9):

- Two-thirds of the weighted errors detected were represented by an overstatement of net profit, therefore earnings management.
- Estimates and errors in respect of the incorrect application of the financial reporting framework were fewer, but significantly larger in size than routine year-end accounting adjustments.
- More than double the errors were detected through substantive procedures performed on the balance sheet than through substantive procedures in respect of income statement accounts, including any other forms of testing.
- The larger errors were detected by analytical review and through communication with management and those charged with governance.
- The largest number of errors was detected by detailed substantive procedures; however, the average size of such errors was relatively small.
- In the United States analytical review was the most effective in testing the income statement accounts, but relatively less effective in testing the balance sheet accounts.
- Account analysis that consists of the break-down of data in categories that are included in a particular account balance, appeared to be a very effective audit technique.

4.3.3.3.9. Academics

The different interpretations of inherent risk also appear in the academic literature; for example, there are a wide variety of general rules of thumb that could assist practitioners with the identification and assessment of inherent risk. Nevertheless, few factors overlap between the different lists of factors. The reasons for the selection of inherent risk indicators are not explained by the hereafter mentioned academics and it is difficult to determine what a complete list of inherent risk indicators and/or inherent risks should look like.

Konrath (1999: 148) emphasises two aspects, stating that inherent risk is a function of:

- Management's integrity and attitude. He suggests that the likelihood of fraudulent financial reporting is greatly reduced if reliable financial reporting is a concern for management.

- The complexity of the entity and its environment. The uniqueness of the business and industry could contribute to audit complexity and uncertainty.

Konrath (1999: 148) mentions that an increase in inherent risk could increase the risk of undetected material misstatements in the financial statements.

Arens and Loebbecke (2000: 264) suggest that the auditor should assess the factors “that make up” inherent risk and “modify audit evidence”, and should consider these key factors when assessing inherent risk. These factors are as follows (Arens & Loebbecke, 2000: 264):

- Nature of the entity
- Fraud risk factors
 - Management’s characteristics
 - Control environment
 - Industry conditions
 - Inconsistent earnings and liquidity
- Findings and audit results from previous audits
- Initial engagement
- Related parties
- Non-routine transactions
- The application of the financial reporting framework and the subjectivity included in estimates
- Susceptibility of assets to misappropriation
- Characteristics of the population

Whittington and Pany (2004: 128) explained that factors that affect inherent risk relate to either the nature of the client and its industry, or to the nature of the particular financial statement account. Consequently, the emphasis is on the difference between the overall level and the assertion level. The following factors are, according to Whittington and Pany (2004: 128-129) indicative of high inherent risk on the overall level:

- Erratic profitability, in relation to other businesses in the industry.
- Earnings that is highly sensitive to economic factors.
- Going concern problems.

- Large misstatements or irregularities detected in prior audits.
- Management's incompetence or their reputation is questionable.

Whittington and Pany (2004: 129) mentioned, in respect of the assertion level that the complexity of the recognition and measurement of the transactions in the account or balance, especially if the measurement of the transactions are subjective, led to inherent risks.

Although it was not possible to detect these lists of factors, certain inherent risk indicators do stand out; for example, the impact of management, earnings management and going concern on the overall level; and complex accounting and subjective measurements on the assertion level.

4.3.3.4. Conclusion

Inherent risk is a very broad concept consisting of different facets. Firstly, inherent risk consists of inherent risk characteristics applicable to the assertion level, while inherent risk conditions are applicable to all assertions and accounts; therefore the overall level. Secondly, the process of obtaining an understanding of the entity and its environment and the identification of risks of material misstatement should be recognised. Thirdly, there are general factors that could be described as 'generic rules of thumb' that usually indicate inherent risks. Finally, inherent risks are identified before the implementation of an internal control system and therefore, include risks that are mitigated by the system of internal control.

In their explanation of inherent risk, both practitioners and academics addressed parts of the different facets of inherent risk in such a way that no clear explanation or understanding could be formed. If the general rules of thumb aspects of inherent risk were employed, none of the descriptions of inherent risk gave reasons for selecting these factors and how they relate to one another, nor was a conceptual reason given that explained these rules of thumb. Generally, incomplete lists of factors or lists of areas of understanding or incomplete lists of inherent risks were provided as examples in the explanation of inherent risk.

The findings of the study by Houghton and Fogarty (1991: 3) emphasised that aspects or transactions that are not normally addressed by the system of control, are an indication of areas that are more likely to predict the existence of a material irregularity. Therefore, inherent risk is important; but begs the question of whether the concept of inherent risk is the answer or whether inherent risk is perhaps conceptually too broad and vague to assist auditors in planning an efficient audit. This is supported in the study of Haskins and Dirsmith (1995: 78) that is discussed in more detail under par 4.3.5. *Interdependency of Inherent risk and Control risk* with the following conclusion:

Overshadowing this conclusion, however, is the implication that, in practice, inherent risk may be underspecified along a number of dimensions which should be subjected to close scrutiny by the Auditing Standards Board, audit practitioners, and researchers. That is to say, the results here suggest that practitioners may not be evaluating inherent risk, per se; they may be merely assessing familiar internal accounting controls and labelling this practice inherent risk assessment, thereby generating unsubstantiated audit comfort.

In conclusion, a suggestion made by Haskins and Dirsmith (1995: 79) may be the answer:

If the Auditing Standards Board (USA) is able to more robustly develop and articulate the inherent risk concept, then it may be possible for practitioners to place reliance on it under favourable conditions, thereby facilitating the performance of more efficient audits without impairing audit quality.

In the development of a more defined concept that incorporates practical realities, the study of Houghton and Fogarty (1991: 9) presents a possible suggestion:

Inclusion of inherent risk analysis into audit planning is relatively straightforward. It can be accomplished by answering the following questions with respect to each general-ledger account balance:

- *Does the account contain entries that are non-systematically processed (cut-offs of systematically processed transactions may not necessarily be determined systematically)?*
- *Does the account contain any unusual transactions?*
- *Does the account have a history of audit error, whether or not such errors have been recorded by the client in the past?*

- *Does the account represent a particular industry risk for this client?*
- *Does the account contain amounts that, based on existing knowledge of the client's business or other knowledge, represent a greater than normal risk of error?*

If the answer is 'yes', an inherent risk has been identified in the account. The individual transactions or class of transactions to which the risk applies can then be individually addressed in the design and execution of specific audit procedures.

In this part of the chapter, inherent risk, the first component of audit risk was discussed. The next component of audit risk, control risk, will be discussed in the following part of the chapter.

4.3.4. Control risk

The assessment of control risk consists of two elements. Firstly, a consideration of the control design strength of the system of internal control, that consists of an evaluation of the systems design; and secondly, an assessment of the functioning of the system of internal control that is described as the "risk of over reliance on internal control" or test strength (Libby, *et al.* 1985: 215).

Control risk could easily be misunderstood as Senetti (1990: 108) describes in the following example that focuses on the misunderstanding of the concept of control risk:

In addition, the SAS 39/47 model and others for example Aldersley (1989) used the term control risk in place of internal control reliance risk, thus confusing the risk of the financial system with the auditor's risk of correctly assessing and testing that system.

The above confusion was addressed in the changes that were made to audit standards, called the expectation standards, in 1988. The changes made to SAS 55 (AICPA, 1988) are explained by Morton and Felix (1991: 2) as follows:

First it requires the auditor to assess control risk in relation to financial statement assertions. Second it eliminates a concept that has been viewed by some as a source of misinterpretation by auditors, that of 'reliance'. In essence the shift from reliance to risk is a shift from how reliable a control might be to how great the risk that a control will not work is.

Furthermore, as explained by Morton and Felix (1991: 3):

It would seem, then, that if confusion and misinterpretation of concepts provided at least some of the motivation for change, great care would be taken to define and illustrate new concepts in as precise and consistent a manner as possible. Unfortunately, this does not appear to be the case. Rather, it appears that possibly confusing concepts are being replaced with concepts which may be even more confusing, contradictory and ill-defined.

Haskins and Dirsmith (1995: 80) explained that:

Given the public pressure brought to bear at the time, and the fact that there were some serious questions as to whether or not the existing internal control standards were appropriately includable in the 'Expectations Gap' project, it may be that SAS No. 55 represented more of a symbolic statement of service ideal rather than as an actual aid for audit practice. If this is true, the question arises as to what sorts of untenable or tenable positions practitioners are being placed in when they seek conceptual and practical guidance from this standard and find it lacking.

Morton and Felix (1991: 3) then explained these "possibly confusing concepts" starting with the "first and most critical problem" they identified; namely, the inconsistent use of the term "control risk assessment". Morton and Felix (1991: 4) for example, referred to SAS 55 para. 29 (AICPA, 1988: para. 29) that states that control risk may be assessed at the maximum level in the case of an inefficient control environment or system of internal control, mentioning that:

Does this mean that the auditor believes that the risk of material misstatement getting through the entity's internal control structure is 100 per cent? We think not. An assigned value based on cost efficiency criteria may have little to do with the auditor's belief.

Morton and Felix (1991: 5) stated that the above dilemma occurred because of the following:

The interpretational difficulties described above arise largely from an attempt to combine both auditor belief about control risk, in the SAS 47 sense, and an assessment

of evidence sufficiency into one 'control risk assessment', where the relative weights of each component may vary widely across audits.

Morton and Felix (1991: 4) emphasise that if an audit standard explicitly discusses and mandates the use of the audit risk model, the theoretical basis for the audit risk model should be sound and reasonably specific, which seems not to be the case. Therefore, they suggest considering the following aspects when applying the audit risk model: (Morton & Felix, 1991: 8)

It follows from this discussion that evidence provided by tests of controls does not ordinarily change the auditor's assessment of control risk unless such evidence is less favourable than expected. It should also be clear from the above discussion that SAS 55 contains no logical basis for reducing the auditor's assessment of control risk based on test of controls evidence. The auditor may feel that an upward adjustment is warranted based on contradictory or unexpected findings, but to reduce the control risk assessment in any case, is illogical.

The interpretation of the concept of "control risk" should be undertaken with care to correctly reflect the risk that the design of internal controls is weak, or that they are not operating effectively, in contrast to the misinterpretation of an auditor's reliance on the system of internal control. The task is further complicated by conceptual misinterpretations that are reflected in audit guidance. Although the concept of control risk assessment could be confusing as explained by Morton and Felix (1991), the basic assumption that a good system of control could reduce substantive procedures, were proven by the following studies that will be discussed hereafter.

Kreutzfeldt and Wallace (1990: 3) performed a study that investigated the validity of the asserted relationship between internal control and the occurrence of misstatements or errors. They selected a total of 260 engagements randomly from the client base of Arthur Andersen & Co.'s 13 largest United States' offices (Kreutzfeldt & Wallace, 1990: 3). A stratified sampling plan was used to ensure representation of different sized clients, key industry groups of interest to the audit firm and Security Exchange Commission registrants. They tested a total of 75 operational variables for control structure elements by correlating these variables to total error rates and errors at the account level

(Kreutzfeldt & Wallace, 1990: 1). Bédard (1990: 28), in discussing the Kreutzfeldt and Wallace (1990) study, commented that only errors discovered above the engagement adjusting journal entries level were included, and that no information is provided as to the way in which the engagement adjusting journal entries level was determined. The results of the Kreutzfeldt and Wallace (1990: 1) study indicated that, with respect to total error interrelationships, over 50% of the measures tied to the control environment were significantly related to the incidence of error. Moreover, there was in seventy per cent of the cases a strong association between errors and control procedures that were classified as accounting control system measures (Kreutzfeldt & Wallace, 1990: 2).

Their findings suggest that each major control factor mentioned in the auditing standard has a valid claim to influence the audit procedures performed (Kreutzfeldt & Wallace, 1990: 20). The implication is that there is empirical support for the varying of detection risk based on an assessment of control risk (Bédard, 1990: 32). Bédard (1990: 28) warns that fewer detected errors might not be the result of a strong system of internal control, but may be because fewer tests are performed by the auditor. In support of Kreutzfeldt and Wallace (1990), it could be stated that if the errors discovered at assertion level tests do not adhere to expectations, further tests would probably have been done to discover the undetected errors.

Kreutzfeldt and Wallace's (1990: 20) study indicated that aspects such as timeliness in correcting weaknesses, processing of routine transactions and previous errors are important indicators to evaluate the control environment, and therefore to assess control risk. They also emphasised the control environment factor of an appropriate organisational structure that usually reflects effective delegation of authority and responsibility in the assessment of control risk (Kreutzfeldt & Wallace, 1990: 21). Consequently, the control environment factor of personnel management by a client was a strong indicator of error, particularly as this reveals the competency of personnel (Kreutzfeldt & Wallace, 1990: 22). On the other hand, Bédard (1990: 29) suggests that this could also indicate that the client could request accounting services from the auditor when the client's accounting personnel are less competent. Finally, Bédard (1990: 30) also commented that the possible interrelationship between the client's control structure characteristics was not taken into consideration when the impact of the control

environment on the assessment of control risk was considered.

In conclusion, the control risk concept is ill-defined and contradictory, but the quality of the system of internal control has a valid impact on the planning of audit procedures. The next part of the chapter discusses the interdependency of inherent risk and control risk as this interdependency also influences the understanding of the concepts of inherent risk and control risk.

4.3.5. Interdependency of inherent risk and control risk

The interdependency of inherent risk and control risk was recognised by Graham (III)(1985: 38), stating that:

As a practical matter, it is often impossible to evaluate internal control risk completely independently of inherent risk because of the interrelationship of inherent risk characteristics and internal controls; however, these two risks can be distinguished conceptually, and, in fact, inherent risk is often first considered separately in the planning stage of the audit.

Graham, *et al.* (1991: 73) in Haskins and Dirsmith (1995: 66) further stated that control risk and inherent risk are interdependent by reasoning that the control environment component of control risk is closely related to inherent risk. Consequently, the control environment component should be carefully considered when exploring the inherent risk/control risk interdependency. Kreutzfeld and Wallace (1990b: 33) confirmed this, stating that they believe that inherent risk is implicitly linked to the control structure variables investigated in their study and: *"We recognize that a portion of the descriptive variables correlated to error could well be a proxy for relationships with inherent risk characteristics. We acknowledge the integral role of inherent risk in control structure design and performance."*

Waller (1993: 785) explained mathematically that occurrence risk, the risk that the assertion contains a misstatement prior to the audit, is not equal to inherent risk times control risk, which suggests further that inherent risk and control risk are interdependent (this was discussed in Chapter 3, para. 3.4.3.3. *Independence of components*).

Haskins and Dirsmith (1995: 63) conducted a study to investigate the interdependency between inherent risk and control risk and the purpose of the study was: *"to posit that the Auditing Standards Board's control environment construct in fact may contribute to the interdependence of the control risk and inherent risk constructs in practice."*

Firstly, Haskins and Dirsmith (1995: 64) considered the auditing standards. They reported the following contradictions that were included in the auditing standards (Haskins & Dirsmith, 1995: 64):

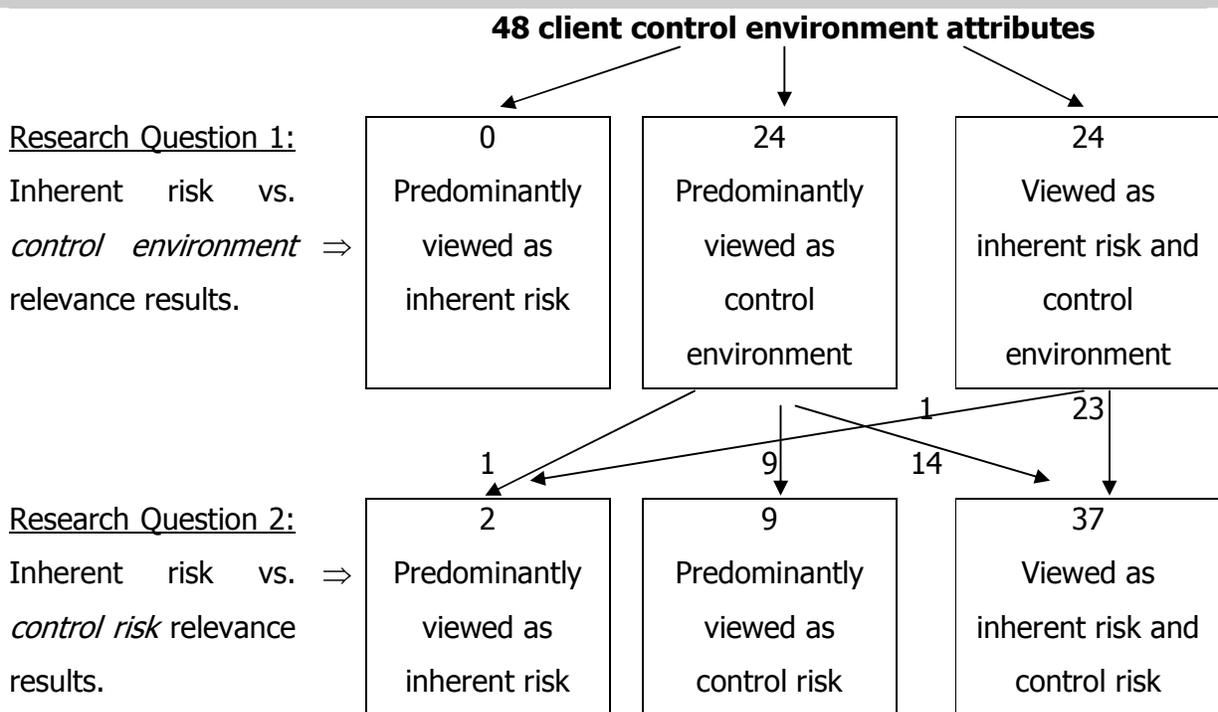
- The combined assessment of inherent risk and control risk is allowed (AICPA (1983: para. 24)), but the two components of audit risk are independent (AICPA (1981: Appendix));
- It is difficult to assess inherent risk and AICPA suggested that inherent risk is set at the maximum (AICPA (1981: Appendix)), but the auditor's assessment of inherent risk would probably impact on the understanding of the control environment and consequently, the auditor's assessment of control risk (AICPA, 1988: para. 19).

Haskins and Dirsmith (1995: 64) suggested that because of these contradictory interpretations, there is no detail guidance in the audit standards. No guidance is provided in the audit standards to clarify the concepts surrounding the interrelationship between inherent risk and control risk, except that inherent risk and control risk may be combined (AICPA (1983: para. 24)) in Haskins & Dirsmith (1995: 64). Haskins and Dirsmith (1995: 66) concluded that SAS No. 55 (AICPA (1988)) describes inherent risk in such a way that it includes the influence of the control environment in the assessment of inherent risk.

Secondly, Haskins and Dirsmith (1995: 68 Note 2) developed a large database of factors that influenced both inherent risk and control risk. This involved developing a list of client-based factors relevant to assessing a client's control environment. A questionnaire that included the 48 attributes was developed, pilot-tested, and administered to the audit teams of the selected clients: 146 usable questionnaires were received, which was a 64% response. The results of Haskins and Dirsmith (1995: 76) are summarised in Table 6.

Table 6: The effect of the control environment on inherent risk and control risk

Figure 1 in Haskins & Dirsmith (1995:76)



Haskins and Dirsmith (1995: 76) explain the results as follows (explanation added):

The results reveal that for 37 (approximately 77%) of the 48 attributes, no statistically significant difference exists between an attribute's inherent risk and control risk relevance rating. For the other 11 attributes, 9 were viewed as more relevant to control risk assessment than an inherent risk assessment. (Two attributes (11-9=2) were viewed as more relevant to inherent risk assessment than a control risk assessment.)

In conclusion Haskins and Dirsmith (1995: 76), stated:

It appears that the answers to the research questions are:

- *(Research Question 1) Independent auditors ascribe similar relevance to a relatively large number of specific client attributes in assessing the control environment and inherent risk; and*
- *(Research Question 2) for those client attributes viewed as equally relevant to assessing control environment and inherent risk, auditors tend to ascribe similar relevance to them for inherent risk and control risk assessments.*

Finally, Haskins and Dirsmith (1995: 77) stated that the results provide evidence that an array of specific client attributes are indeed perceived as interdependent regarding control risk and inherent risk assessment.

The above results were confirmed by a study performed by Messier and Austen (2000: 119) that investigated pervasive and specific risk factors' impact on assessments of inherent and control risk. The study encompasses risk assessments in respect of eight cases made by 124 senior auditors and managers (Messier & Austen, 2000: 119). The results of the study were as follows (Messier & Austen, 2000: 119): *"The results show that the pervasive and specific factors included in the experiment were significant to both the auditors' inherent risk and control risk assessments."*

Inherent risk and control risk assessments are therefore interdependent largely because of the concept of the control environment. This is an indication that the decomposition of audit risk into the three components of inherent risk, control risk and detection risk were not successful.

4.3.6. Detection risk

Graham (IV) (1985: 38) described detection risk as the possibility that neither analytical review procedures, nor substantive procedures by themselves, will reduce material misstatements to a cumulatively immaterial amount. A certain amount of risk will remain, namely detection risk.

Alderman and Tabor (1989: 57) explain detection risk as follows:

Detection risk is related to the effectiveness of an auditing procedure and of its application by the auditor. It arises partly from uncertainties that exist when the auditor does not examine all components of an account balance or class of transactions (sampling risk). Additional risk is present because an auditor might select an inappropriate auditing procedure, misinterpret the audit results or otherwise introduce human error into the process (non-sampling risk).

Detection risk is described by Alderman and Tabor (1989: 57) as consisting of both sampling risk and non-sampling risk. Furthermore, Arens and Loebbecke (2000: 260) indicate two key factors about planned detection risk:

- Detection risk is the variable the auditor plans to determine, and depends on the other three components: audit risk, inherent risk and control risk.
- Detection risk is determined by the sufficiency and appropriateness of audit evidence. The size of detection risk is inversely related to the amount of substantive evidence.

The determined level of detection risk assists the auditor in judging if sufficient, appropriate audit evidence is obtained. The auditor is able to control detection risk that includes both sampling and non-sampling risk through the performance of audit procedures.

In the next part of the chapter, the impact of audit risk on audit programme planning will be discussed. This will illustrate the success of the inherent risk audit approach in practice.

4.3.7. The impact of audit risk on audit programme planning

The objective of an audit approach is to assist auditors to make judgment decisions to determine the nature, timing and extent of the audit procedures. Graham (V)(1985: 29) further emphasised that an essential element of auditing is the exercising of professional judgment. The motivation behind the existence of the inherent risk audit approach is, amongst others, to assist the auditor to make professional judgment decisions in respect of audit programme planning that ensures sufficient and appropriate audit evidence is obtained. Initial behavioural studies, for example Libby, *et al.* (1985: 225), indicated that the inherent risk audit approach did indeed assist auditors in audit programme planning. They reported that the inherent risk audit approach representation of the impact of internal control on audit programme planning, closely matched the auditor's decision-making process in the experiment (Libby, *et al.* 1985: 225). Alderman and Tabor (1989:55) remarked that: "*Yet we believe some auditors (either consciously or subconsciously) are not using this approach but, rather, are allowing audit procedures to drive their evidence-gathering decisions (called the procedures-driven audit approach)*"

The impact of audit risk changes on audit programme planning decisions may indicate the significance of the inherent risk audit approach model in the planning of an audit, when implemented in practice. This section will focus primarily on archival studies that investigated the reasons for audit programme planning changes.

Bedard (1989: 57) undertook a descriptive study with the objective of determining how auditors change their client's audit programmes as a result of changing environments. The study consists of how and why substantive procedures are revised within an audit, and from a selected audit to the next year's audit (Bedard, 1989: 57). Bedard's (1989: 59) study included a total of 48 clients of three Big Eight firms in Britain. Data obtained from actual audit engagements were prepared by seniors who supervised the audits (Bedard, 1989: 59). The content of the survey used by Bedard (1989: 58) covered the number and nature of audit programme changes, the reasons for these changes, and specific factors that might be associated with changes in the audit programme. The results of the research questions in the study were as follows (Bedard, 1989: 59-60):

- Audit plan changes are mainly done during the first stages of audit planning. Few changes are done after establishing the initial audit plan.
- Audit plan changes were based on internal control quality and the previous year's audit findings that provided a level of reassurance, sufficient to change the extent of audit procedures in the current year's audit plan. Analytical review results had a very limited impact on the audit plan.

Huss and Jacobs (1991: 26) stated that the consistency of audit programmes revealed in the research of Bedard (1989) may be explained, in part at least, by the continuance of decisions of the auditing firms. Significant changes in the risk profile of the client may result in a non-acceptance of the audit engagement by an audit firm, with the consequent impact that audit programmes may appear to be consistent for continuing clients.

Mock and Wright (1993) (in Mock & Wright, 1999: 55) gathered data related to the assessment of the risk components and audit procedures over a two-year period in an archival study, limited to accounts receivable and accounts payable areas. The results show a weak association between the nature of audit procedures and the assessment of risks, excluding the number of prior errors that indicated a strong association with the

extent of the audit procedures (Mock & Wright, 1993 in Mock & Wright, 1999: 55). They concluded (Mock & Wright, 1993 in Mock & Wright, 1999: 55): "*Therefore the findings suggest audit extent and not nature is apparently the primary mechanism utilised to adapt evidential plans to client risk.*"

DiPietro, Mock and Wright (1994) (in Mock & Wright, 1999: 55) investigated whether programme plans are adapted to the client's industry (manufacturing vs merchandising) and whether compulsory audit procedures (accounts receivable confirmations) inhibited planning adaptability to client risks. The results of DiPietro, *et al.* (1994) indicate that the nature of tests varied significantly between industries, but audit planning decisions were not strongly associated with the level of, or changes in, audit risks. Therefore, audit risks do not have a strong influence on audit programme planning changes.

Bedard and Wright (1994) in Mock & Wright (1999: 55) also report that audit plans are not strongly related to audit risks. In spite of this,, Wright (1988) in Mock & Wright (1999: 55) finds that evidential audit planning is adjusted to address increases in audit risks, but that these adjustments maybe inefficient.

Haskins and Dirsmith (1995: 78) made a noteworthy observation, that auditors interviewed during their experimental study showed reluctance to reduce the extent of audit procedures based on a positive assessment of the control environment, especially when this assessment was difficult to document. In contrast, the extent of audit procedures was increased in case of a negative assessment of the control environment; consequently failing to utilise audit efficiencies (Haskins & Dirsmith, 1995: 78).

Conversely, the impact of prior year errors gave a different result to the observation of Haskins and Dirsmith (1995: 78). The study of Hill (1995) in Mock & Wright (1999: 55) considered the impact of errors found, or no errors found, in the previous year's audit of the revenue cycle. Mock and Wright (1999: 55) concluded as follows, in respect of the Hill (1995) study: "*Her experiment revealed that both the presence and absence of prior error information significantly impacted programme plans.*"

Therefore, errors made in the current year and in the previous year, significantly affected

audit planning decisions, but no changes were made to the assessment of audit risks.

In the study of Quadackers *et al.* (1996: 234) the audit risk assessments and audit risk model components vary little over time; a finding consistent with prior research. They found that risk factors on the financial statement level show more variation over time that was not reflected in the variation of the audit risk model components' assessments (Quadackers, *et al.* 1996: 234). According to them the reason for the lack of variation in the audit risk component assessments was the result of changes in risk factors that are not material and/or risk factors that neutralise one another or of auditors that do not sufficiently adjust the audit risk component assessments (Quadackers, Mock & Maijoor, 1996: 234). They also mentioned that (Quadackers, Mock & Maijoor, 1996: 235): *"Another audit judgment issue is raised when one notes that the audit firms that develop combined risk model assessments show less sensitivity at the assertion level to changes in risks."*

Mock and Wright (1999: 65) conducted an archival study, investigating the impact of a broader set of risks on audit planning through consideration of working papers on audit strategies and audit plans. They gathered data on audit risk assessments and the resultant audit planning decisions in the accounts receivable area from the working papers of 74 randomly selected manufacturing clients (42 general manufacturing and 32 high-technology manufacturing) (Mock & Wright, 1999: 55). They found a statistical association between a limited number of risks and audit planning decisions (Mock & Wright, 1999: 55). The risks included both inherent risks and control risks; for example, management aggressiveness, was not associated with audit planning decisions because audit plans were not changed over time (Mock & Wright, 1999: 55). Finally, they reported that risks affected audit plans to a greater extent than were previously indicated by research, but concluded that there was no association between audit risks, inherent and control risks and changes in audit plans (Mock & Wright, 1999: 55, 67). This raised concerns about the importance and impact of the inherent risk audit approach followed that should supposedly determine the compilation of audit procedures or audit plans.

4.3.8. Conclusion

When the decomposition of audit risk into its components is evaluated against the benefits of a decomposition strategy as described by Jiambalvo and Waller (1984: 81), the following must be mentioned:

- The concept of inherent risk does not prevent the omission of relevant inherent risks, or provide guidance of what such a complete list of inherent risks should comprise. This is an essential requirement of a successful decomposition strategy. This complex concept is seldom completely understood, as explained with reference to the professional and academic literature.
- The concept of control risk based on the undisputed importance of the system of internal control could be misunderstood.
- The interdependency of inherent risk and control risk completely negates the objective of decomposition, making it impossible to combine the information.

Haskins and Dirsmith (1995: 81) stated in respect of the interdependency of inherent risk and control risk, the following:

The public accounting profession may need to revisit the basic question of the role of the Statement of Audit Standards; particularly as it concerns audit risk: Are they guides for audit practice, professional commentaries, symbolic displays issued for public consumption, or some combination?

In this regard the words of Burns and Pearl (1981: 391) in Jiambalvo & Waller (1984: 80) probably are true in this case: *"The issue of how a task is to be decomposed should be considered carefully – an apparently simple form of decomposition does not necessarily lead to greater judgment accuracy."*

In consideration of the studies done to investigate the impact of audit risk on audit planning decisions Mock and Wright (1999: 66) concluded: *"All these results do not show a clear association between client risks and programme plans, and thus, it is questionable whether evidential plans in practice are strongly 'risk-adjusted.'*"

The question that remains is asked by Mock and Wright (1999: 55):

If it is found that the audit risk model, which arguably is the main theoretical construct

that underlies contemporary audit planning, is not descriptive of practice, consideration should be given to whether this model is an appropriate, complete theoretical perspective for evidential planning that captures the richness of the audit environment.

Perhaps the success of the conceptual audit risk model lies in the words of Mark Twain (in Leslie, *et al.* 1980: 296): “*All you need in this life is ignorance and confidence, and then success is sure.*”

4.4. Engagement risk

4.4.1. Introduction

In the next part of this chapter engagement risk will be discussed. Engagement risk is described by Colbert, Luehlfiing and Alderman (1996: 54) as follows: “*Engagement risk represents the overall risk associated with an audit engagement. Engagement risk consists of three components: client’s business risk (also referred to as entity’s business risk), audit risk and auditor’s business risk.*”

To address the fact that the audit risk model was not representative of all the risks in the audit engagement, Colbert, *et al.* (1996: 54) reported that the AICPA included in its 1993 audit risk alerts, the term “engagement risk”. Engagement risk described the various risks auditors consider in performing an engagement. Colbert, *et al.* (1996: 54) stated that the concept of engagement risk serves to formalise the auditor’s consideration of the factors and risks affecting an engagement. The first component of engagement risk, namely audit risk, was covered in Chapter 3 of this study from a statistical perspective, and from a conceptual perspective in the first part of Chapter 4.

The next two components, the entity’s business risk and the auditor’s business risk were perceived to be risks that were not addressed by the audit risk model. Colbert, *et al.* (1996: 54) defined the entity’s business risk as follows:

An entity’s business risk is the risk associated with the entity’s survival and profitability. The concept recognises that because of factors such as rapid changes in the industry, liquidity problems, or speculative ventures, the possibility exists the client may not achieve his/her profit goals or even continue in existence.

In the business risk audit approach the entity's business risk replaced the concept of audit risk in the planning phase of the audit. The term "business risk" was formally recognised and defined in the auditing standards in 2003. In the last part of Chapter 4 the business risk audit approach will be discussed and Chapter 5 will focus on the integration of business risk into the auditing standards.

The third component of engagement risk, the auditor's business risk, was defined in AU Section 312: Statement on Auditing Standards 47 (Effective June 1984) Footnote 2 (1984: 57) as follows: *"In addition to audit risk, the auditor is also exposed to loss or injury to his professional practice from litigation, adverse publicity, or other events arising in connection with financial statements that he has audited and reported on."*

In this part of the chapter the auditor's business risk and other risks that are not included in the audit risk model or engagement risk, for example pre-engagement risk and fraud risk, will be addressed.

4.4.2. Auditor's business risk

The auditor's business risk originated in the fact that clients or other parties may hold auditors liable, as described by Arens and Loebbecke (2000: 112):

Professionals have always had a duty to provide a reasonable level of care while performing work for those they serve. ... They are liable to their clients for negligence and/or breach of contract should they fail to provide the services or not exercise due care in their performance. Auditors may also be held liable under common law in certain circumstances to parties other than their clients.

Legal liability and generally accepted auditing standards are like two sides of the same coin. If the audit is performed according to generally accepted auditing standards, the auditor cannot be held liable. This risk of legal liability is referred to as the auditor's business risk. Brumfield, Elliott and Jacobson (1983: 60) list the following as the elements of business and these are also confirmed by Houston, Peters and Pratt (1999: 281): *"Litigation, sanctions imposed by public or private regulatory bodies, impaired professional reputation, which can occur as result of litigation, sanctions or adverse publicity."*

Colbert, *et al.* (1996:56 Exhibit 3) mention that the following factors impact on the auditor's business risk:

- Lawsuits or disagreements involving the client could indicate the possibility of a going concern problem and management fraud could increase the auditor's business risk.
- Continuously changing the entity's auditors.
- If capital and credit is obtained from the public, there is probably a division between management and stakeholders, which increases the auditor's business risk.
- Possibility of acquisitions, mergers, take-overs or the disposal of a business or a segment thereof.

Chen, Huang and Shih (2006: 515) report that the assessed levels of audit risk, business risk and the auditor's personal risk are subject to the evaluation of the client's control environment, client's characteristics and the auditor's characteristics. They further report that the financial resources available to investors increase the auditor's business risk, as the losses investors suffered would exceed the cost of suing (Chen, *et al.* 2006: 516). Consequently, the size of the client is a determinant of auditor's business risk, because the investors of large entities probably may have the financial resources available to increase the auditor's business risk.

A second aspect, namely the impact of cultural differences, is also highlighted by Chen, *et al.* (2006: 520). They found that the effectiveness of a company's control activities in an Eastern culture does not reduce the auditor's business risk, because in a culture of "*national obedience*", an employee may keep silent, if he or she detects irregularities that were committed by senior management; for example the Barings Bank scandal (Chen, *et al.* 2006: 520).

Several factors affect business risk and Arens and Loebbecke (2000: 262) emphasise three, namely: the degree to which external users rely on the statements; the likelihood that a client will have financial difficulties after the audit report is issued; and the integrity of management. Arens and Loebbecke (2000: 262) define the auditor's business risk as

follows: *"Business risk is the risk that the auditor or audit firm will suffer harm because of a client relationship, even though the audit report rendered for the client was correct."*

The relation between the auditor's business risk and generally accepted auditing standards is explained as follows by SAS 47 (1984: 57 Footnote 2):

This exposure is present even though the auditor has performed his examination in accordance with generally accepted auditing standards and has reported appropriately on those financial statements. Even if an auditor assesses this exposure as low, he should not perform less extensive procedures than would otherwise be appropriate under general accepted auditing standards.

Auditors may, because of an attitude of conservatism, perform more audit procedures than necessary. The Canadian Institute of Chartered Accountants (1980: 96) in Odendaal (1999: 239) explains that for example, in regulated industries such as the financial services sector and listed entities, the exposure and sensitivity of the public will increase the auditor's business risk. Increased business risk will lead to a lower degree of acceptable audit risk and more audit procedures, irrespective of the higher costs (CICA, 1980: 96 in Odendaal, 1999: 239).

The above explanation contends that the auditor's business risk impacts on audit risk. The question is: Is the auditor's business risk separate from the audit risk, and if not, what is the impact on the audit? Brumfield, *et al's* (1983: 60) answer is as follows:

Business risk is the probability that an auditor will suffer a loss or injury to his professional practice. Audit risk can influence business risk because an inappropriate opinion can be a significant factor in the events that lead to loss or injury to an auditor's professional practice. Conversely, business risk may, within limits, influence the auditor's assessment of the acceptable level of audit risk.

Legal liability and complying with generally accepted auditing standards form the two sides of the same coin; this analogy could be extended to audit risk, representing generally accepted auditing standards and to the auditor's business risk, representing legal liability.

Auditors use professional judgment to determine the audit procedures to obtain sufficient, appropriate audit evidence and simultaneously provide a cost-efficient audit (Brumfield, *et al.* 1983: 60). The auditor's business risk influences the auditor's judgment, as follows (Brumfield, *et al.* 1983: 60): *"However, an auditor, knowing that additional work (i.e. more evidence gathering) will reduce the likelihood of an incorrect opinion, may choose to do more work than the required minimum to lessen the possibility of damage to his professional practice."*

The motivation for this change in the professional judgment decision of the auditor is explained by the auditor's business risk. The auditor's business risk forms part of engagement risk, but is not formally included in generally accepted auditing standards. Imhoff (2003: 120) confirms by asking if the auditor's business risk should form part of audit risk.

If the auditor's business risk is incorporated into the audit risk model, the new changed audit risk will become the product of the risk that the auditor gives an inappropriate opinion **and** the risk that the auditor may suffer loss or injury to his/her practice (Brumfield, *et al.* 1983: 62). At the right side of the equation the auditor's business risk and inherent risk are interdependent, as the factors that indicate business risks are also indicators of inherent risk, as explained by Brumfield, *et al.* (1983: 62): *"The existence of common factors for business and inherent risk is easily explained by the relationship between the two risks: the occurrence of material errors can lead to inappropriate audit reports to loss or injury to the auditor's practice."*

The interdependency of business risk and inherent risk will make the incorporation of business risk in a newly adapted audit risk impossible, because of the multiplicative rule of statistical independent events. The current *status quo* of quality control policies and procedures that ensure adequate performance of the audit and provide the defence against legal liability is possibly still the only feasible answer. The adequate performance of the audit is ensured by quality control policies and procedures that address the auditor's business risk. Quality control policies and procedures could assist the audit firm that each audit supply at least the level of audit assurance required by generally accepted auditing standards and that each auditor's opinion is set at this level of assurance.

Walo (1995: 115) did a study to determine if auditors adjust their audit scope in the presence of conditions that represent the auditor's business risk and form part of overall engagement risk. He obtained detailed audit budgets and their expectations about the possibility of a misstatement in accounts receivable from thirty-two managers from two Big 6 audit firms (Walo, 1995: 115). He manipulated the following aspects: litigation (litigious *versus* non-litigious), ownership (public *versus* private), and financial condition (weak *versus* strong) experimentally to determine the impact on the budget. He found that auditors do in fact consider clients' risk and auditors' business risk, although the latter is not included in the audit risk model (Walo, 1995: 115). The results imply that the risk considered in evidential planning decisions may be broader than audit risk as determined conceptually by the audit risk model and may include the auditor's business risk (Walo, 1995: 123). The findings could also be an indication that the audit risk model does not encompass all the applicable aspects.

Houston, *et al.* (1999: 281) performed an experiment in which audit partners and audit managers evaluated one of two case studies. In the first case study an error was discovered and in the second case study an irregularity was discovered. The audit partners and managers then assessed the elements of the audit risk model, assessed business risk and provided recommendations for the audit investment and fee (pricing decision). Firstly, the results indicated that when the possibility of an irregularity increases, business risk dominates the audit risk model in explaining audit investment and fee (includes a "risk premium") (Houston, *et al.* 1999: 281). Secondly, the results indicate that when an error was detected, business risk had no impact on the audit investment and fee decisions (Houston, *et al.* 1999: 282). Finally, Houston, *et al.* (1999: 282) stated that: *"These results question whether current audit standards are providing useful guidance in the presence of irregularities."*

These findings are consistent with Shibano (1990: 111) who argues that the decision-theoretic framework underlying the audit risk model is formulated successfully for errors, but not for irregularities. This is confirmed by Houston, *et al.* (1999: 290) stating that by altering the components of the audit risk model, the auditor cannot successfully manage business risk and the potential impact of the probability of undetected material

misstatements. An improved audit risk model that also addresses fraud risk will be able to successfully address the auditor's business risk. As stated by Houston, *et al.* (1999: 290):

An important implication of these results is that the discovery of irregularities leads auditors to consider a wider range of issues than those encompassed by SAS No. 47. Apparently, this key professional standard is offering incomplete guidance to auditors in certain situations where they face high levels of business risk. Perhaps audit standards should be revised to address more explicitly how irregularities (and business risk) should be reflected in the elements of the audit risk model, audit investments and audit fees.

Arens and Loebbecke (2000: 262) report that auditors disagree about whether business risk should be considered in planning the audit, but Huss and Jacobs (1991: 16) warn: *"Society's expectations about the independent auditor's role in maintaining the integrity of the securities markets are increasing, resulting in serious legal challenges when those expectations are not met."*

The auditor's business risk and audit risk could be described as two sides of the same coin. The auditor obtains sufficient and appropriate audit evidence to comply with generally accepted auditing standards, reducing audit risk to an acceptable level, and that same audit evidence obtained also decreases the auditor's business risk and the risk of legal liability.

The auditor's business risk and audit risk could be reduced, according to Colbert, *et al.* (1996: 55) by the following: *"The auditor's business risk is controllable to some degree by the auditor. The auditor can influence the auditor's business risk, and thus engagement risk, through the selection of clients."*

Pre-engagement risk will be discussed in the next part of this chapter.

4.4.3. Pre-engagement risk

Huss and Jacobs (1991: 16) state that existing audit risk models do not incorporate risk assessments made prior to the engagement; the assessment of pre-engagement risk. The assessment and reduction of pre-engagement risk could influence engagement risk

significantly. Cushing and Loebbecke (1983: 39) confirm the importance of pre-engagement risk stating: "(The auditor) *would explicitly identify all important decision points in the audit, including the point of acceptance or rejection of the client. ... Indeed such a comprehensive risk model is essential in the contemporary audit environment.*"

Huss and Jacobs (1991: 16) performed a study to consider the impact of pre-engagement activities on the firm's overall risk; thus scrutinising the impact of pre-engagement risk. They reported that evidence collected from reviews of the firm's written policies and from interviews with audit engagement partners reveal that significant risk assessments occur prior to acceptance of the client (Huss & Jacobs, 1991: 16). As explained by them, the pre-engagement acceptance decision is perhaps the most vital assessment of audit risk and is carried out before the preliminary planning stage during the engagement acceptance decision (Huss & Jacobs, 1991: 20).

Huss and Jacobs (1991: 20) mention that certain prospective clients can be detrimental to the audit firm due to a high overall risk. Even if extensive procedures are performed, it could be insufficient to reduce the overall risk to an acceptable level. Consequently, the importance to a firm's practice of risk assessments in the client acceptance process is evident from the following excerpts from a Big-Six practice manual (Huss & Jacobs, 1991: 20): "*Accordingly, our assessments of high-risk circumstances should not assume that all risks may be overcome through professional expertise.*"

In their study, Huss and Jacobs (1991: 16) found differences among the Big-Six auditing firms in respect of the importance placed on the pre-engagement activities as risk containment. They confirm through decision variables, found in firm policies and procedures, that the auditor consider during the pre-engagement activities, pre-engagement risk that consists of the client's business risk, audit risk and the auditor's business risk (Huss & Jacobs, 1991: 22). Pre-engagement risk is therefore engagement risk assessed during the engagement acceptance phase.

Auditing firms started to incorporate the pre-engagement decision as part of their overall risk containment during the 1990s (Konrath, 1999: 159):

The Client Acceptance Decision Serves as Part of Risk Analysis – In March 1996, KPMG Peat Marwick announced that the firm would no longer audit the financial statements of Northstar Health Services, Inc. because of weak internal controls, the firm was 'not willing to be associated with the financial statements prepared by management' (The Wall Street Journal, 20 June 1997 in Konrath, 1999:159). During 1996, Coopers & Lybrand discontinued twenty-eight public clients; Arthur Andersen & Co. dropped forty-seven since 1994; and Price Waterhouse terminated forty-six during the same period. (The Wall Street Journal, 25 April 1997 in Konrath, 1999:159)

Pre-engagement risk is an important part of overall engagement risk.

4.4.4. Fraud risk

Colbert, *et al.* (1996: 54) suggested that fraud risk forms part of engagement risk in stating that:

The SEC Practice Section Detection and Prevention Task force recently developed a list of circumstances that may lead to a higher assessment of engagement risk and its components. The factors provide additional insights into the concept of engagement risk. These factors are sometimes called red flags or warning signs, because they signal the need for caution on the auditor's part.

In a study by Newman, Patterson and Smith (2001: 59) that considered the assessment of fraud risk, they conducted an experiment where auditors assess risk when a possibly fraudulent client anticipates the assessment of risk in the planning process, when compiling an (possibly fraudulent) earnings report. The findings in respect of their experiment show that as the client increases reported earnings, the auditor increases audit effort and that the client manipulates the reports and earnings in such a way that they maximise earnings and minimise the risk of detection (Newman, *et al.* (2001: 59)). The implications are explained by them as follows (Newman, *et al.* 2001: 59): "*Thus, because of the dynamic interaction between the auditor and auditee, procedures that aid in assessing audit risk may not reduce that risk or result in more efficient audits.*"

In respect of the study of Newman, *et al.* (2001: 67) the following could be considered when evaluating the findings:

The distinguishing characteristic of this setting is the fraudulent auditee's (client's) ability to anticipate and exploit the auditor's response to this earnings report. The auditee in our model is informationally advantaged and uses that advantage through his reporting strategy.

Although it is suggested that fraud risk forms part of engagement risk, it does not currently form part of the audit risk model and is assessed separately. Consideration should be given to the sensibility of the part of the audit approach that does not consider the impact of the risk of fraud. Auditors' responsibilities have changed in terms of fraud, and the consequent impact on the audit approach is reflected in Chapter 5. The above argument is supported by Watts (1991: 147) stating: *"If a major role of the audit risk model is to develop legally defensible audit strategies, then it may be inappropriate to assume that the auditee will act non-strategically or according to some relaxed rationality postulates."*

The growing understanding of the interrelationship between audit risk and fraud risk is reflected in the changes to audit risk standards that refer to risks of material misstatement and risks of material misstatement due to fraud and error, clearly indicating that risks of material misstatement due to fraud and error are included in risks of material misstatement. This is further emphasised by the scope of IAASB/IRBA ISA 240R (2006: para. 1), stating:

This International Standard on Auditing (ISA) deals with the auditor's responsibilities relating to fraud in an audit of financial statements. Specifically, it expands on how ISA 315 (Redrafted), 'Identifying and Assessing the Risks of Material Misstatement Through Understanding the Entity and Its Environment' and ISA 330 (Redrafted) 'The Auditor's Responses to Assessed Risks', are to be applied in relation to risks of material misstatement due to fraud.

Fraud risk forms an important part of overall engagement risk and the risk of material misstatement.

4.4.5. Other variables not included in the conceptual audit risk model

Other variables that were suggested by the academic literature that should also be incorporated in the audit risk model are as follows.

Firstly, Guy (1981: 137) suggests that sampling risk and non-sampling risk should be separately identified in the audit risk model. Sampling risk and non-sampling risk are assumed to be included in detection risk (refer to par 4.3.6 *Detection Risk*). Sampling risk is the risk that the sample does not represent the population, while non-sampling risk represents human errors in the application of statistical sampling techniques (Guy, 1981: 137).

Secondly, Quadackers, *et al.* (1996: 232) mentions as part of their study:

One of the items in the questionnaire asked for the importance of four variables which are not explicitly included in the audit risk model, but are generally considered as potential stimuli for changing the audit programme from year to year. These four variables are: (1) client-imposed time pressure and/or changes in deadlines (2) budget constraints (3) unexpected changes in audit staff and (4) litigation risk.

Finally, Fearnley, Beattie and Brandt (2005: 39) suggest: *"Threats to independence arising within audit firms are not recognised in the current United Kingdom audit risk model. An extended risk model incorporating within-firm risk is suggested."*

The above risks, although not included separately in the audit risk model, are addressed in the audit process. Sampling and non-sampling risk is included in detection risk. The impact of deadlines, budget constraints and resources in the audit are addressed as part of the quality control process in an audit. Independence is addressed by the guidance given in the Professional Code of Conduct. This author is of the opinion that these risks do not warrant separate inclusion in the audit risk model.

4.4.6. Conclusion

Engagement risk consists of three components: entity's business risk, audit risk and auditor's business risk. Engagement risk could be compared to a coin: the one side

reflects audit risk and the entity's business risk; and the other side the auditor's business risk. Audit risk in the inherent risk-audit risk model or business risk in the business risk audit approach is utilised in the positive search for indications of risks of material misstatement. If the audit is not performed according to generally accepted auditing standards, the other or negative side of the coin represents the auditor's business risk.

The solution to controlling the auditor's business risk is, firstly, the recognition and containing of pre-engagement risk and secondly, the performing of an audit according to generally accepted auditing standards. Fraud risk does not form part of the audit risk model or the business risk audit approach, but the interrelationship between risks of material misstatement and risks of material misstatement due to fraud, indicates that formal integration of fraud risk in the audit approach could be considered.

In the last part of the chapter the business risk audit approach will be discussed.

4.5. The business risk audit approach

4.5.1. Introduction

The only constant in this world is change. In the late 1990s progress and change to the auditor's audit approach resulted in the business risk audit approach. Lemon, *et al.* (2000: 1) stated that as with most areas of business and economic activity, auditing is continually changing and developing. They stated that: "*This process reflects the need to respond to changes in the manner in which the organisations being audited, conduct, control and record their activities.*"

Power (2007: 379) commented on the reasons for this change in the audit approach, as follows: "*Studies of auditing suggest that technical 'progress' has always been the product of an entanglement of economic pressure on firms, social and institutional demands to demonstrate adherence to best practice and fashion.*"

The focus shifted from the audit risk components to the phase of obtaining knowledge of the business, as explained by Konrath (1999: 15): "*In order to adequately assess risk exposure, the auditor needs to understand the entity, the industry, and the economic*

substance of all significant transactions."

Bell, *et al.* (1997: 1) describes one of the reasons for this shift as: *"In today's complex and dynamic economic world, obtaining this knowledge is a formidable undertaking."*

The increased focus on the understanding of the entity or client resulted in a shift from audit risk to the entity's business risk as the driving force of the audit approach. This is confirmed by Lemon, *et al.* (2000: 1), stating:

In recent years a number of firms have adopted audit approaches which rely much more explicitly than previously on concepts of business analysis and the identification of business risk, defined as the risk that the audited entity will fail to achieve its objectives, as a means of structuring the audit process.

The business risk audit approach is explained by Bell, *et al.* (1997: 2) as follows: *"It (business risk) guides the focus, breadth and depth of the auditor's knowledge acquisition and the integration of business knowledge into expectations about financial-statement assertions."*

How this business risk audit approach worked is explained by Bell, *et al.* (1997: 1):

Knowledge about the nature of the client's business activities and related business risks, its organizational structure and internal environment, and its relationships and interactions with its external environment, provides a basis for the auditor's evaluation of whether financial-statement assertions are valid.

The success of the business risk audit approach was influenced by the reasons for the adoption of the business risk approach, the benefits gained from the business risk audit approach and the critique on the business risk audit approach. The next part of the chapter will discuss the historical background to the business risk audit approach. This will include the causes for the adoption of the risk based audit approach; a description of the business risk audit approach, a comparison with the inherent risk audit approach and a critique on the business risk audit approach.

4.5.2. The historical background to the business risk audit approach

4.5.2.1. Introduction

In the 1990s most of the major firms adopted the business risk audit approach. The term “business risk audit” represents an audit approach that utilises the audit client’s business risk to assist the auditor in the planning phase of the audit (Knechel, 2007: 385). Knechel (2007: 385) explains that as result of the fact that the business risk audit approaches were developed in parallel at the major audit firms without much collaboration, a range of terminology and processes exist that constitute a business risk audit approach, and consequently the extent and nature of the use of business risk audit approaches at various firms varied. These business risk audit approaches were advocated by the audit firms as a complete transformation of audit and assurance services and the firms stated that business risk audit approaches were developed to address the changes that transpired in the management and organisation of modern corporations (Robson, Humphrey, Khalifa & Jones, 2007: 411). The re-engineering wave at the audit firms of the 1990s resulted in Arthur Andersen that began the development of *The Business Audit*, Ernst & Young that undertook their *Audit Innovation* project, and KPMG that commenced with the *Business Measurement Process*. These three new audit approaches led to significant changes in the way an audit was planned and conducted (Knechel, 2007: 393).

Knechel (2007: 386) indicates that the origins of the business risk audit approach were to be found in risk management. The emergence of risk management as the foremost strategic management tool, caused, not surprisingly, according to Knechel (2007: 389), that concepts of risk management so closely related to the audit risk concept would penetrate the world of auditing. The auditing profession closely involved in the development of internal controls, risk management and corporate governance principles, adopted a broader focus on risk, namely business risk, as included in the COSO report of *Internal Control – Integrated Framework* (1992). The business risk audit approach changed the information that the auditor obtained about the client’s business and industry through the use of a “client business modelling framework”, consequently identifying business risks (Bell, *et al.* 1997: 2). One should keep in mind that auditors still needed to comply with the auditing statements including the audit risk model. This was integrated by Bell, *et al.* (1997: 3) in the business risk audit approach as follows:

In this section we draw a distinction between the reductionist approach to audit risk assessment – assessing audit risk ‘through the accounting transactions’ – and the strategic-systems approach – assessing audit risk through a top-down, holistic view of the client’s business and its connections and interactions with its environment. We suggest that these perspectives are complements, and that the auditor should assess audit risk from both perspectives to make effective judgments about the validity of the client’s financial statements in today’s complex business environment.

The business risk audit approach was presented as follows (Bell, *et al.* 1997: 4): *“We present a proposed knowledge acquisition framework for the ‘whole-system’ strategic approach for assessing audit risk.”*

Eilifsen, *et al.* (2001: 194) pointed out that the motivations for, and reasons behind many large accounting firms’ conclusion that the audit process needed new skills, techniques and service deliverables were manifold and multifaceted. They mentioned that audit practices were under unprecedented market pressures, such as market saturation, “commodity” based pricing, pressure to reduce substantive testing, a focus on value-added assurance and increasing costs from training, technology, and litigation.

A study funded by the AICPA was done by Lemon, *et al.* (2000: 8) on the development in audit methodologies of firms. They covered three countries: the United States, the United Kingdom and Canada, and it comprised the then Big Five, together with two to three (respective of the relevant country) from the tier of firms immediately outside this grouping. They confirmed that several firms indicated that their audit approach had been changed to incorporate a more explicit consideration of the entity’s business risk (defined as the risk that the entity will fail to achieve its objectives) (Lemon, *et al.* 2000: 9). According to them, the audit firms indicated that there were mainly eight reasons for adopting a business risk approach (Lemon, *et al.* 2000: 12-13). A possible three other causes or reasons for the changes in audit approaches will also be discussed.

Firstly, audit approaches were adapted to improve audit effectiveness and simultaneously decrease the risk of audit failures. This continuous striving for improvement will ensure the future improvement and development of audit approaches and is a normal reality for

the auditing profession. Lemon, *et al.* (2000: 12) furthermore suggested that the perceived audit failures that brought about the changes were not caused by the ineffectiveness of procedures in detecting misstatements, but because of difficulties; for example, in recognising ongoing problems or identifying fraud. These difficulties arose from other aspects in the client's business context and this resulted in a shift towards a better understanding of this business context and related business risks.

Secondly, audit approaches were adapted to increase audit efficiency. Lemon, Tatum and Turley (2000: 12) explained that audit firms wanted to fully utilise the audit evidence they obtained during the audit and did not want to feel obliged to follow a certain set of procedures. They furthermore mentioned that pressure on audit fees also encouraged a rethinking of existing methods to ensure that it did not result in over-auditing during the audit engagement. In designing the business risk audit approach, audit firms concentrated on reducing or shifting audit costs, and increasing the value of the audit (Eilifsen, Knechel & Wallage, 2001: 194). They reported that this led to changes in staffing and recruiting, specialisation by industry, reduced reliance on substantive testing, increased emphasis on qualitative and analytical evidence, and mounting investments in technology.

Thirdly, audit approaches were adapted to address and utilise considerable technological changes. The fear of the impact of technological changes was expressed by Elliott (1994: 75), stating that: *"The audit also is threatened by the fact that annual printed financial statements may be destined for history's scrap heap because information technology permits far more frequent and timely reports."*

Technological changes had the impact that routine processing errors were no longer a major cause of audit risk. The business risk audit approaches therefore involved a more developed response to this change in the reliability of accounting records (Lemon, *et al.* 2000: 12).

Fourthly, audit approaches were adapted to provide a service to clients. Audit firms wanted to add value to the audit and assurance service; therefore, the business risk audit approach provided insights and information which were valued by the entity's

management, and that could contribute to the enterprise that was audited. (Lemon, *et al.* 2000: 12-13).

Fifthly, audit approaches were adapted to incorporate the growing acceptance of good corporate governance principles (Lemon, *et al.* 2000: 13).

Sixthly, globalisation (internationalisation) demanded an audit approach that could be applied consistently to global audit clients by global audit firms (Lemon, *et al.* 2000: 13).

Seventhly, the commercialisation of the audit resulted in audit approaches that could be seen as the firm's product. The importance of product differentiation that could provide a competitive edge to differentiate that firm's audit from those offered by the competitors, increased the focus on the development of the business risk audit approach (Lemon, *et al.* 2000: 12-13).

Lastly, Lemon, *et al.* (2000: 12-13) reported that engagement risk was the eighth reason for the development of the business risk audit approach. They reported that some audit firms believed that a broader understanding of the client's business risk would decrease the audit firm's engagement risk and exposure to litigation.

Knechel (2007: 405) explains that a further possible cause or motivation for the adoption of the business risk audit approach was the need for an audit approach that was not formally structured. He mentions that due to the rapid growth of audit practices in the early 1980s, the expansion of professional firms internationally, improvements in technology and the perceived need to reduce costs in the audit process, auditors aimed to develop an audit approach that was formally structured (Knechel, 2007: 384,386,387). The firms believed that when employing a formal structure in their audit processes, they would obtain the necessary process consistency and cost certainty (Knechel, 2007: 384,386,387). The mentioned pressures compelled audit firms to design and implement highly structured and formalistic processes (Knechel, 2007: 386). Especially significant is the fact that fees and margins of audit services were under a great deal of strain, forced audit firms to begin investigating alternative models to approach an audit (Knechel, 2007: 387). He further explains that these pressures and motivations that led to the

development of highly structured audit processes caused an inward revolution in the practice of auditing in the early 1990s. This inward revolution was in the opposite direction this time, against excess formalism and structure, culminating in a shift to the business risk audit approach, which was based on concepts in risk management (Knechel, 2007: 405). He stated that this "*radical changeover*", combined with "*opportunistic behaviour*" by audit partners with the intention of increasing revenues, led to the adoption of the business risk audit approach (Knechel, 2007: 405).

The next possible cause or motivation for the adoption of the business risk audit approach was, according to Knechel (2007: 388), the coincidental and corresponding set of developments in risk management as a generalised approach for handling complexity in the business world, and the increasing attention it has drawn in the auditing world. The global economy and the business organisations operating within it have become complex and interdependent. Rather than simplify the complexity inherent in this global world, it was believed that the auditor should accept and control these complexities (Bell, *et al.* (1997: 1)). They suggested that the business risk audit approach could therefore assist in the detection of material misstatements while concurrently creating auditing efficiencies.

Another possible motivation or reason for the development of the business risk audit approach was the status of the audit. The audit function lost prestige mainly because of a decline in profits and this impacted on the professional identity of auditors and the cultural and socialisation processes in the large audit firms (Robson, *et al.* 2007: 419). This resulted in a continued evaluation of the traditional audit's importance, value and contribution that led to a critical re-evaluation of audit practices (Robson, *et al.* 2007: 411). The role of the audit as an instrument of social control was disregarded, and firm leaders, engagement partners and clients, treated the audit as a commodity that should add value (Panel on Audit Effectiveness, 2000: 99-100). The Panel on Audit Effectiveness (2000: 99-100) reported on the results of its survey that engagement teams expressed a similar opinion that the audit should add value, comparing the traditional audit to the firm's other service lines' growth and profitability. As Robson *et al.* (2007: 421) mention, the adoption of the business risk approach created the opportunity for the traditional audit to add value to its clients, create opportunities for other services and simultaneously enhance the status of the professional auditor and increase profitability. The survey

further reported that the adoption of the business risk audit approach, in order to add value to the audit, contributed to this perception; namely that the audit itself had little value (Panel on Audit Effectiveness, 2000: 99-100).

The above-mentioned was a brief summary of the motivations for and circumstances that caused auditors to develop and adopt the business risk audit approach. Two aspects stand out and will be addressed in the next part of this chapter. On the positive side, the business risk audit approach was developed to improve audit effectiveness and audit efficiency. On the negative side the business risk audit approach was developed mainly to create consulting opportunities and increase the profitability of the audit firms. As stated by Knechel (2007: 383): *"Is the business risk audit a better way to assess risks leading to focused audit testing, or is it simply a tool for generating opportunities to sell non-audit services?"*

Why do the reasons that brought about the change to a new business risk audit approach matter? Robson, *et al.* (2007: 414) answers this, stating:

Audit change focus upon the economics of audit: audit markets are driving change and auditors are demanding cost reductions. In this way audit techniques appear as mere servants or tools to economic processes. Although the costs and prices of audit plainly have a role in audit changes, such aspects tell us little about the form or structure of the new audit techniques that emerge.

Lemon, Tatum and Turley (2000: 10) report that on the basis of their research, it appears that the business risk approach is a significant innovation to the existing audit risk model, although based on previous ideas of risk and the obtaining of an understanding of the business. They (Lemon, Tatum & Turley, 2000: 10) furthermore also recognise that: *"There is therefore an added-value or client service dimension to the reasoning which underlies the business risk audit approaches."*

Alternatively, Knechel (2007: 384) queries whether the business risk audit approach is an improvement over "tried-and-true" audit methods. He asks if the business risk audit approach really did increase the value of the audit, or whether it was just a better way to create opportunities for increased revenue?

Finally, Knechel (2007: 401) summarises the circumstances and motivations for the development of the business risk audit approach as follows:

Three possibilities arise:

- (1) the business risk audit methodology was developed solely to support sales of non-audit services; or*
- (2) the business risk audit was simply a victim of the circumstances of the time; or*
- (3) the business risk audit was diverted by a consulting mentality and misused relative to its original purpose.*

The first possibility will be discussed in the next part of the chapter, and will investigate whether the business risk audit approach was primarily adopted in order to create consulting opportunities for the audit firms. The last two responsibilities will then be discussed. Thereafter, the development of the business risk audit approach will be investigated as an improvement on the audit risk model that formed part of audit guidance and standards. The business risk audit approach will then be described in par 4.5.3 *Description of the business risk audit approach.*

4.5.2.2. Creating consulting opportunities

Zeff (2003: 280) explains that the following chain of significant events and changes in professional regulation created an environment wherein consulting services flourished and the professional audit came under intense scrutiny:

- The actions taken by the Federal Trade Commission and the Department of Justice to influence the profession to abolish its bans on competitive bidding and direct, uninvited solicitation of clients.
- When the Accounting Practices Board was replaced by the FASB in 1973, the big auditing firms were excluded from the standard-setting process, resulting in a gradual withdrawal of involvement of the firms in discussion of the accounting principles.
- Professional firms' diversification into other service lines transformed these firms into huge enterprises that started a "headlong drive for growth, profitability and global reach". Professional values were replaced by business values to serve these new enterprises.

These new global audit enterprises' cultures changed from a main focus of delivering professional services in a professional manner, to a business with the objective of growing revenues and profitability (Wyatt, 2004: 49). The increasing competition internally between service divisions and between the big firms for growth and profitability in a stable audit market resulted in a shift of emphasis to tax and consulting services to compensate for declining profits in audit and assurance services (Zeff, 2003: 280). Finally, in the 1990s consulting services had relegated the traditional tax, accounting and assurance services to a subordinate role (Wyatt, 2004: 49).

During the 1990s observers warned the profession against these ever-expanding service lines offered by public accounting firms. Most of these concerns centred on possible impairment of the independence expected of public accounting firms when reporting on the fairness of the presentation of their clients' financial statements (Wyatt, 2004: 49). These concerns were ignored, according to Wyatt (2004: 49), because these were the good times and the environment was growth- and profit-oriented. The impact on the auditing profession was, as stated by Wyatt (2004: 50): "*Primarily commercial interests had undermined the core values of the professional firm.*"

Zeff (2003: 280) explains the motivation behind the above changes in values:

The consequent weakening of audit partners' will to take a stand against clients' questionable accounting practices, as their risk (the impact on partner profit) of doing so would fall squarely on their shoulders, and not be diversified throughout the firm, as in earlier decades.

Robson, *et al.* (2007: 417) stated that audit firms' revenues were driven by the expansion of non-audit services. The extent of these consulting services' revenues are illustrated by Fisher (2004) in Robson, *et al.* (2007: 417), in his study of the FTSE 100 companies' total audit fees and non-audit fees earned by accounting firms from 1992 until 2001 (refer to Table 7).

Table 7: The extent of non-audit fees

The extent of non-audit fees

Extract from Fisher (2004) in Robson, Humphrey, Khalifa and Jones (2007: 417)

	Percentage of audit fees	Percentage of non-audit fees	Total fees
1992	81	19	100
1993	63	37	100
1994	62	38	100
1995	62	38	100
1996	51	49	100
1997	44	56	100
1998	39	61	100
1999	30	70	100
2000	26	74	100
2001	21	79	100

This prepared an environment that was conducive to the business risk audit approach. As explained by Knechel (2007: 389), in order to make the audit more valuable, it had to provide more value to clients, therefore: *"The seed was planted that making auditing part of the mosaic of risk management, while leveraging effective risk management as part of the audit process, would provide the framework for such a revolution."*

Audit professionals justified that the business risk audit approach creates an opportunity for the audit to add value to the entity's long-term continuity and to identify weaknesses which would threaten the entity's objectives, and at the same time, provide assurance on the financial statements (Lemon, *et al.* 2000: 10). Lemon, *et al.* (2000: 11) reported that business risk audit approaches were an extension of the audit risk model and therefore, from a different perspective, client service considerations are additional to, rather than alternative to financial statement attestation. Furthermore, as reported by Fischer (1996: 222), the state of the audit markets during the 1990s was, referring to the words of one of the partners that he interviewed: *"we've got a war going on. A competitive war ..."*

The crux of the matter was that the auditing profession needed to be more profitable in order to retain partners and managers. Rittenberg, *et al.* (2008: 5) reported: *"In order to be more profitable, many of the firms reduced the amount of audit testing by stating that they were applying the risk-based approach to auditing."*

Imhoff (2003: 120) confirmed this, stating that the perceived decrease in audit fees led to a relative decrease in salaries and in the quality of audit staff; fewer substantive tests of details and more reliance on analytical review techniques; and finally, to a lower quality audit. Audit firms defended this strategy, arguing that with effective risk management processes implemented, the client company's controls represented a lower risk and could be audited with fewer resources (Knechel, 2007: 389). Of even greater importance were the perceived gaps in risk management that could be included in the management letter, consequently adding value to the client, and yielding even more lucrative opportunities for spin-off non-audit services (Knechel, 2007: 389). The business risk audit approach was turning the tide of audit and assurance service professionals.

The only fly in the "ethical" ointment as mentioned by Imhoff (2003: 119), is the dual role that audit firms play as both independent auditors and management consultants to some of their client firms.

Presently, auditing firms realise the strategic advantage that they possess as the provider of audit services in developing their high-margin consulting practices (Imhoff, 2003: 119). Lemon, *et al.* (2000: 11) report that some firm representatives argue that a longer-term view of an audit should be held which could add value to businesses, and that the audit process must be seen in the context of a continuing relationship, rather than as an one-off annual exercise. Knechel (2007: 387) stated: *"Audits started to be treated as a loss leader in order to leverage lucrative consulting contracts from clients."*

This impact on the business risk audit approach as stated by Knechel (2007: 383) in regard to:

Given that the sales culture of consulting was taking hold among auditors at about the same time, it is possible that the well-intentioned efforts to revitalise the audit process

were derailed by these difficulties and then diverted to support revenue growth via non-audit services.

In conclusion, the origins of the business risk audit approach definitely had an impact on the development of the theoretical basis of the business risk audit approach. The development of the business risk audit approach in the 1990s was a complex process that evolved naturally from the recognition of the expectation gap in the 1980s and the profession addressing the need to compensate for the perception that the audit was valueless and profitless (Knechel, 2007: 383).

The business risk audit approach was primarily adopted in order to be an improvement on the audit risk model that was prescribed in the auditing standards and statements of the time.

4.5.2.3. The development of the risk-based audit approach

The business risk audit approach emphasised and was built on existing concepts in financial-statement auditing, such as the obtaining of an understanding of the client's business and a 'top down' or systems-based approach in financial-statement auditing (Bell, *et al.* 1997: v). Bell, *et al.* (1997: v) stated that references to both can be found in the 1960s audit manuals of large audit firms; the difference came in applying these concepts. They explained the business risk audit approach as follows (Bell, *et al.* 1997: vi): *"If the entity has a viable strategy, reasonable plans, effective internal control, and account balances that are close to expectations, then the need for detailed auditing is limited to exceptional items."*

Audit practitioners realised that the main aspects that determine audit effectiveness are more likely to be associated with the manner in which the business entity is managed to achieve its objectives, in contrast to processing errors (Lemon, *et al.* 2000: 10). Firm representatives mentioned that the significant factors were the business environment, governance issues, possibilities of fraud, going concern and the nature of managerial control (Lemon, *et al.* 2000: 10). Globalisation and technological advances brought about businesses that were complex and daunting. Bell, *et al.* (1997: 1) suggested that with the business risk audit approach, auditors should "embrace and master" the complexity

inherent in the "economic web of interrelationships" of which the client's business is a part. They recommend that the business risk audit approach promised a better chance to detect material misstatements, while simultaneously creating auditing efficiencies.

The promoters of the business risk audit approach suggested a clean break from current audit practices that had evolved from the early balance-sheet audit. Bell, *et al.* (1997: 12) stated that in the past the auditor focused primarily on the transactions and account or balance level and furthermore: "(Their) *views about what is evidence are heavily skewed toward tangibility (i.e. the physical existence of assets, the existence of tangible documentation supporting transactions etc.)*."

They stated that this "traditional risk-based" audit and its "disaggregative, bottom-up" focus limited the auditor's understanding of the business in order to evaluate the financial-statement assertions (Bell, *et al.* 1997: 2). In this regard, they stated: "*After all, those accounting and processing foci (focuses) are 'human artefacts' that are levels removed from the actual business activities to which they relate.*"

This strategic approach or business risk audit approach was generated on the basis of risk management concepts and processes that provided a convincing perspective for the re-engineering of the audit (Knechel, 2007: 383). Specifically, this entailed obtaining knowledge of the business and the identification of audit risks that were affected.

Bell, *et al.* (1997: 4) described a business risk audit approach that included a "knowledge acquisition framework" for the "whole-system"; a more strategic approach for assessing audit risk. This changed process of obtaining knowledge of the business covered aspects such as the nature of the client's business activities and related business risks, its organisational structure and internal environment, and its relationships and interactions with its external environment (Bell, *et al.* 1997: 1). The acquired knowledge then provided a basis to determine if the auditor's evaluation of the financial-statement assertions was valid (Bell, *et al.* 1997: 1). The business risk audit approach, according to Eilifsen, *et al.* (2001:193), gave a new emphasis to assessing business- and process-risks in the conduct of an audit. The business risk audit approach required that audit teams acquire industry-specific knowledge and therefore, audit firms were divided into industry

groups to facilitate this new perspective.

In a study performed by Low (2004: 201) the effects of industry specialisation on auditors' risk assessments and audit-planning decisions were investigated in the conduct of an audit for a Czechoslovakian Bank. He found that the auditors' knowledge of the client's industry improves their audit risk assessments and directly influences the nature and perceived quality of their audit planning decisions (Low, 2004: 201). Furthermore, he found that the audit teams' additional knowledge of the client's industry moderates the sensitivity of the auditors' planning decisions to their audit risk assessments (Low, 2004: 201). In conclusion, Low (2004: 202) found that:

Overall, the results have important implications for audit effectiveness and efficiency as auditors' knowledge of the client's industry is found to affect not only the auditors' risk assessments, but also the nature, quality, and risk-sensitivity of their planning decisions.

The business risk approach was based on the overall quality of an audit; therefore, audit firms concluded that a large portion of audit procedures, mainly a substantive test of details, did not increase the level of assurance for the engagement, nor did it provide any noticeable value to the client and was thus significantly reduced in the business risk audit approach (Knechel, 2007: 393).

The audit profession confronted unprecedented challenges during the 1990s embarking on a process of improving the financial statement audit and expanding external assurance that in the end had far-reaching implications (Eilifsen, *et al.* 2001: 193). During this challenging time conventional approaches were confronted, not necessarily with success (Humphrey, *et al.* (2004) in (Eilifsen, *et al.* 2001: 193). Knechel (2007: 393) mentions that ironically, many of the traditional audit inefficiencies that were challenged by the business risk audit approach were attributed to mandated requirements of a structured audit, which in itself pointed to the possible need to rethink the audit process. Business risk audit approaches therefore justifiably emphasised the need for professional judgment in the design of an audit (Lemon, *et al.* 2000: 21).

One of the main advantages of the business risk audit approach, according to a firm

represented in the study performed by Lemon, *et al.* (2000: 9), were the improvements regarding internal control evaluation. The business risk audit approach provided more structure and clarity in its evaluation methods that improved the basis of knowledge for evaluation, and increased the assurance level resulting from the internal control evaluation (Lemon, *et al.* 2000: 9). This was supported by Kopp and O'Donnell ((2005) in Allen, Hermanson, Kozloski & Ramsay, 2006: 160) stating that the classifying of information about controls around business processes improves internal control evaluation, compared to classifying information around traditional control objectives.

The Panel on Audit Effectiveness (2000: 100) reported that the combination of improved methods of analytical testing, control evaluation and audit firm technology did not keep pace with the cutbacks in traditional testing. Fischer (1996:220) supports this, stating that it appears to be taken for granted that new technologies are the source of the desired efficiency gains that were needed to satisfy the competitive auditing markets during the 1990s. In respect of this, Knechel (2007: 387) stated that: *"Coming during a period when businesses were increasingly complex, global, integrated and technology-based, firms may have been gambling on the efficacy of their methods more than they realised."*

In addition to the above, he stated that (Knechel, 2007: 384): *"No matter what the intentions of the supporters of business risk based audit methods may have been, the effective development and implementation of business risk audit methods may have been derailed by circumstances."*

4.5.2.4. Conclusion

In the previous part of this chapter a summary of the motivations for, and circumstances that caused auditors to develop and adopt the business risk audit approach, was presented, but not one of these factors could be regarded as the primary reason for the development and adoption of the business risk audit approach. One reason should be emphasised as the main driving force behind the development of the business risk audit approach; namely, that the audit should add value, with a focus on profitability through the creation of consulting opportunities.

In conclusion, the motivations for, and circumstances that caused auditors to develop and adopt the business risk audit approach, did indeed have an impact on the business risk audit approach and its theoretical basis. Knechel (2007: 384) states in this regard:

However, before business risk audit methods are thrown overboard, it is important to understand how and why they developed and how they may have failed. Only then can an informed judgment be made as to whether the business risk audit was a prime culprit in the audit failures of the past few years or a good idea that arrived on the scene at the wrong moment.

4.5.3. Description of the business risk audit approach

4.5.3.1. Introduction

What did this business risk audit approach entail? The business risk audit approach concentrated upon the modelling of the business risk processes of the client's company, using this knowledge as the basis for ascertaining business risk (Robson, *et al.* 2007: 411). In describing the business risk audit approach Robson, *et al.* (2007: 411) mentioned that the client's company strategy is examined and tied to its business processes in order to assess the key business risks that in turn indicate the important areas of potential audit risk for the auditor; and then accordingly, determine the subsequent audit procedures.

Approaching the client's organisation from a business perspective, challenged the auditor to consider the organisation's broadest business context and to base the auditor's understanding of the business activities, processes, and individual accounting transactions, on a "*comprehensive understanding*" of this "*broader strategic context*" (Bell, *et al.* (1997: 24). Additional to the above, the business risk audit approach focuses on non-sampling risk in the audit and views this risk as essential in the evaluation of audit risk (Peecher, Schwartz & Solomon, 2007: 468).

Two main aspects of the traditional audit approach were handled completely differently and changed by the business risk audit approach; namely, obtaining knowledge of the business and identifying business risks to establish audit risk in order to plan the nature, timing and extent of the audit procedures. This will be discussed in the next part of the

chapter.

4.5.3.2. Knowledge of the business

4.5.3.2.1. Introduction

Lemon, *et al.* (2000: 15) states that previously, there appeared to be less guidance in the auditing standards and in the professional literature of firms to answer the question: What constitutes sufficient knowledge of the entity's business? Obtaining sufficient knowledge of the entity's business and therefore, an understanding of the context in which the business operated, is an essential and crucial part of the planning of the audit. The business risk audit approach aimed to answer this question.

The business risk audit approach enhanced the breadth and depth of knowledge of the entity's business that an auditor should obtain, due to the broader focus on critical business risks and related controls (Lemon, *et al.* 2000: 15). Peecher, *et al.* (2007: 465) also emphasised the profound impact that the business context has on a client's business risks and, in turn, on audit risk. They mention that when the auditor aims to provide high assurance about whether financial statements are a fair representation, it is generally not possible unless the auditor maintains a rich understanding of the entity's business condition or state. In conclusion, Peecher, *et al.* (2007: 469) states: "*One cannot judge the fairness of a representation of a business state without an understanding of the business state.*"

Eilifsen, *et al.* (2001: 195) state in this regard, that the financial statements are "validated" with a rich and comprehensive understanding of a client's business and business risks that support the audit conclusions about financial statement assertions.

Bell, *et al.*'s (1997) description of the business risk audit approach is perhaps the most recognised account of the business risk audit approach. According to them, the methods and procedures that comprise their business measurement process are based on five principles of business monitoring and measurement: strategic analysis, risk management, business process analysis, business measurement, and continuous improvement (Bell, *et al.* 1997: 33). The above five aspects form a "*client business model*" that is used to

organise and integrate the information the auditor gathers about the client's business and industry (Bell, *et al.* 1997: 37). This proposed framework for obtaining that comprehensive understanding is briefly discussed below:

4.5.3.2.2. Strategic analysis

The first aspect of the framework for knowledge acquisition is obtaining an understanding of the client's strategic advantage, as explained by Bell, *et al.* (1997: 31): "*What is the client's plan for creating value? What are its niches and what are its advantages that make it better suited than its competitors to occupy those niches?*"

4.5.3.2.3. Risk management

The second aspect of the framework for knowledge acquisition is to review the processes and procedures that the client has established to identify and manage strategic and process risks; the business risks that threaten attainment of the client's business objectives (Bell, *et al.* 1997: 49). The development of risk management in the management sciences encouraged organisations to begin implementing processes for identifying and controlling business risks and for taking advantage of business opportunities. As explained by them, an understanding should be obtained of (Bell, *et al.* 1997: 31): "*What might prevent the client from creating targeted value? What forces are challenging its competitive advantages? How effective are its risk management, strategic management and information management processes?*"

The auditor should gain an understanding of management's perceptions, assumptions, and judgments about business risks in order to assess the business risk implications, both for the client's business and for the audit approach (Bell, *et al.* 1997: 35).

4.5.3.2.4. Business process analysis

The third aspect of the framework for knowledge acquisition is to understand the key business processes and related competencies needed to realise strategic advantage (Bell, *et al.* 1997: 31). This originated in another development in the management sciences that focused on the optimisation of processes in order to create a process advantage for an organisation (Bell, *et al.* 1997: 34).

Bell, *et al.* (1997: 31) states that an understanding should be obtained of:

What competencies and process advantages must the client possess to create targeted value? What are the business's risks threatening attainment of its process objectives? Are its process objectives properly aligned with its strategic objectives? How effective are process controls at controlling process risks?

Finally, the auditor must identify significant business process risks and evaluate how management has decided to address these risks (Bell, *et al.* 1997: 35).

This was confirmed by the survey done by Lemon, *et al.* (2000: 16) stating that in order to focus ultimately on the financial statements, audit firms should focus on important business processes and the way the business is conducted.

4.5.3.2.5. Business measurement

The fourth aspect of the framework for knowledge acquisition is to measure and benchmark process performance.

Bell, *et al.* (1997: 35) explain that the auditor identifies the critical key performance measures used by management to manage performance of the organisation's key business processes. Thereafter, the auditor identifies "performance gaps" between client processes and comparable processes of benchmark competitors (Bell, *et al.* 1997: 35). During the business measurement phase, the auditors measure the processes and performance criteria that have a significant effect on the business (Bell, *et al.* 1997: 36).

These measurements of process performance can then be used as corroborating evidence to support the auditor's expectations about financial-statement assertions (Bell, *et al.* 1997: 35). Additional audit procedures are performed in the areas where the performance measures are inconsistent and do not meet the expectations of the auditors (Bell, *et al.* 1997: 36).

4.5.3.2.6. Continuous improvement

The fifth aspect of the framework for knowledge acquisition is to understand if the client is a going concern, e.g. the client's ability to create value and generate future cash flows by way of a client business model, process analyses, key performance indicators, and a business risk profile (Bell, *et al.* 1997: 31). This includes an evaluation of processes for innovation, and the implementation of new and improved technologies and organisational designs (Bell, *et al.* 1997: 58).

4.5.3.2.7. Conclusion

The major benefit gained in following the business risk audit approach is that the auditor obtains a comprehensive understanding of the client's business. This highlights that an effective audit in changing and complex environments should be supported by a solid knowledge of the industry and the client's business (Winograd, Gerson & Berlin, 2000: 177). Additional to the above benefit, Knechel (2007: 395) mentions that the business risk audit approach has a "*great deal of intuitive appeal*" and therefore assists the auditor in the detection of fraud and error.

The major advantage from obtaining an understanding of the entity in the business risk approach is that it utilises the knowledge and expertise available in the fields of auditing, systems theory, and business strategy (Bell, *et al.* 1997: 71). The latter-mentioned authors further state that this probably should lead to the enhancement of analytical procedures and effective audits.

In conclusion, Knechel (2007: 395) points out:

Whether one agrees with the assessment of the potential benefits of business risk auditing, it is hard to argue that knowing more about a client is a bad thing; or that extending the scope of audit assurance over broader aspects of an organization is detrimental.

4.5.3.3. Business risk assessment

In the business risk audit approach, auditors identify business risks that may prevent management from achieving the organisation's objectives, and identify the related

controls that management put in place to mitigate the significant business risks (Winograd, *et al.* 2000: 177). Bell, *et al.* (1997: 35) states that business risks consist firstly of strategic business risks that threaten the overall success of the entity's business and risks that threaten the business bond with its environment; and secondly, of process business risks that threaten the achievement of specific process objectives. According to Bell, *et al.* (1997: 27) conditions and forces within the organisation's internal environment, industry forces and macro-environmental forces, give rise to these business risks.

The business risks identified by the auditor are then linked to areas of audit concern (Eilifsen, *et al.* 2001: 195). The linked business risks are then related to specific controls and audit procedures that will mitigate these linked business risks (Winograd, *et al.* 2000: 179). Therefore, the linked business risks in audit areas will achieve audit objectives when performing the chosen audit procedures.

The business risk audit approach focuses, in the selection of audit procedures, increasingly on analytical procedures as a source of evidence (Lemon, *et al.* 2000: 18). Analytical procedures are effective, especially when compared with the comprehensive understanding of the entity's business (Lemon, *et al.* 2000: 18). In conclusion, as explained by Peecher, *et al.* (2007: 473): "*The degree of concordance versus discordance between these expectations and management's representations fuels the auditor's recursive risk assessment process.*"

4.5.3.4. Conclusion

The business risk audit approach described above, Bell, *et al.* (1997: 4) summarises as follows:

What we are suggesting is subtle and yet, in our view, a perspective that is much more powerful – that the auditor should consider the broader economic system as an integrated whole. Further, we are suggesting that to effectively 'audit' this broader system, the auditor needs to establish a work process that places more weight on developing knowledge about, and evidence in support of, the strengths of its interconnections, the rapidity and magnitude of changes in its connectivity, and the viability of the firm's strategies.

Lemon, *et al.* (2000: 15) suggest that although the business risk audit approach entails a more comprehensive understanding of the entity, there is little or no change in adhering to the objective of the audit with respect to giving an opinion on the annual financial statements. Conversely, the obtaining of knowledge of the business phase and the evaluation of business and audit risk are crucial parts of the audit and have a significant impact on the performance of the audit. The auditor analyses the client's organisation at two levels in terms of the business risk audit approach: at the strategic and business-process levels (Ballou, Earley & Rich, 2004: 71).

In summary, Rittenberg, *et al.* (2008: 107) explains and summarises the planning phase in the business risk audit approach as follows:

Step 1: Obtain an understanding of management's risk processes.

Step 2: Develop this understanding of the business and evaluate business risks.

Step 3: Develop a set of expectations about financial results and non-financial results of the entity and evaluate business risks.

Step 4: Evaluate the quality of the control system that is designed to mitigate business risks.

Step 5: Determine the potential of risk of account misstatement (residual risk) relating business risks to audit risk.

Step 6: Consider the remaining audit risk and perform additional audit procedures.

4.5.4. Comparison between the business risk audit approach and the inherent risk audit approach

In reinventing the inherent risk audit approach or the conceptual audit risk model, the business risk audit approach primarily aimed to enhance auditors' understanding of the entity. An understanding of the entity gave auditors insight into the economic reasonableness of transactions that form the foundation of the financial statements (Erickson, Mayhew & Felix, 1996 in Bell *et al.* 1997: 21). The disadvantage of previous audit approaches was that transactions were perceived as "stand-alone events", thereby increasing non-sampling risk because the auditor might misinterpret the transactions context, meaning or purpose (Bell, *et al.* 1997: 21). Furthermore, as explained by Bell, *et al.* (1997: 21): "*Also, with the transactions orientation there can be an associated*

tendency to become overly preoccupied with the mechanics of the accounting afforded the transaction, with insufficient attention being paid to its economic underpinnings.”

Bell, *et al.* (1997: 72) tabled a comparison between the business risk audit approach and the inherent risk audit approach. In the comparison they suggested that the business risk audit approach significantly enhances the auditor’s understanding of the economic substance of the transactions. This could underestimate the difficulty of the challenge of understanding the economic substance of transactions.

The advantage of the business risk audit approach is that the auditor’s enhanced understanding of the business will assist him/her to identify transactions that are out of the ordinary; yet the completeness assertion would be problematic to identify in the light of the fact that everything suits the mould and not enough time maybe devoted to a detailed investigation into transactions and account balances. The business focus of the search could absorb the auditor in such a manner that the auditor may lose his/her objectivity and focus on the objective of the audit, namely to provide assurance. Finally, the perception created by a broad understanding may be deceptive and not in line with the underlying reality, which is the advantage of a bottom-up approach versus a top-down approach.

A comparison of the inherent risk audit approach and the business risk audit approach was investigated by Eilifsen, *et al.* (2001: 193) in a field study. They first identified the outcomes that they expected to observe in an audit based on the business risk audit approach and then studied an actual engagement, namely the 1997 audit of the Czech Bank, CSOB, to gather preliminary evidence about their expectations.

Eilifsen, *et al.* (2001: 193) found the following aspects that differ between the two approaches:

- Audit risk assessments are done according to a framework of audit objectives. The business risk audit approach identifies strategic risks and process risks that are related to audit risks. In the business risk audit approach more resources are allocated to consideration of political risks and human resource management risks, and fewer audit resources were devoted to credit and investment management risks.

- In the business risk audit approach more audit resources are allocated to "*interviewing people involved in key process activities*" and fewer resources are allocated to the performance of substantive audit procedures.
- The secondary objective of the business risk audit approach to create consulting opportunities is also evident from the comparison, in the discussion of value-added services and expanded client service opportunities.

The impact that consulting services and the blurring of independence and objectivity have on the business risk audit approach is clear from the above comparison. Furthermore, one must consider if political and economic risks that are very important business risks have the same impact when they are regarded as audit risks.

4.5.5. Critique against the business risk audit approach

The critique on the business risk audit approach revolved mainly around the following aspects: the connection between business risks and audit risk; the lack of emphasis on fraud; and the psychological effects of typicality and Halo theory. In contrast, the business risk audit approach improved the process of consideration of internal controls.

Firstly, Eilifsen, *et al.* (2001: 194) points out that a major challenge to auditors is the connection or link between the knowledge gained about client strategy, competitive advantage and business risk to the possible misstatement of the financial statements. This was supported by the survey done by Lemon, *et al.* (2000: 11) that reported:

Clearly the business risk approaches rest on an assumption that there is an articulation between business risk and audit risk as conventionally understood in terms of material misstatement in the financial statements. It may be necessary to have this articulation explained in a very explicit way if business risk approaches are to be generally disseminated and adopted.

Secondly, there are opposing opinions on the business risk audit approach effectiveness concerning the detection of fraud. Cullinan and Sutton (2002: 297) state:

The main premise of this paper is that the increased emphasis on systems assessments is at odds with the profession's position regarding fraud detection because most material frauds originate at the top levels of the organisation, where controls and systems are least prevalent and effective. As such, the profession may be paying lip service to fraud detection, while at the same time changing the audit process in a manner that is less effective at detecting the most common frauds.

Cullinan and Sutton (2002: 297) mention that the major audit firms adopted the business risk audit approach to improve the cost effectiveness of completing the audit and to increase the value of the audit. They argue that this was done through a decrease in substantive detail testing of the underlying transactions and account balances and an increase in analytical procedures as the main source of substantive evidence (Cullinan & Sutton, 2002: 297). Moreover, the business risk audit approach increases the reliance on internal control systems; this relied on the assumption that the majority of risks could be controlled, and that a sound system of internal control could significantly decrease the

prevalence of fraud. Nevertheless, it is not possible to build effective control systems for senior management (Cullinan & Sutton, 2002: 298). Cullinan and Sutton (2002: 299) state that their detailed review of the security and exchange commission's accounting and auditing enforcement releases in 1998 and 1999 identified 72 unique instances of fraud. They reported that 70% of the fraud directly involved the top executives of the organisation, and an additional 14 of the 72 fraud cases (i.e. 19,4%) were the result of actions by a senior manager who was not the top official of the organisation; therefore, in total 90% (Cullinan & Sutton, 2002: 300). They report that mainly senior management perpetrates financial statement fraud and that its prevalence may be increasing; yet, the business risk audit approach is not addressing this dilemma sufficiently (Cullinan & Sutton, 2002: 299).

Peecher, *et al.* (2007: 467) support the above in referring to the Sarbanes Oxley section 704 report on the Causes of Fraud and Audit Failures (Security and Exchange Commission, 2003) that reveals that in just over 80% of the cases studied, at least one member of senior management was implicated. Peecher, *et al.* (2007:467) furthermore, refers to the report that mentions the following professional judgment errors as problematic, namely:

- *Failure to obtain a sufficient understanding of the client's business.*
- *Failure to sufficiently corroborate management's representations and explanations.*
- *Failure to exercise professional scepticism on unusual, last-minute or related party transactions.*
- *Failure to conduct adequate risk assessments.*

Peecher, *et al.* (2007: 467) differ on the success of the business risk audit approach in addressing fraud perpetrated by senior management, because they mention that the business risk audit approach addresses only the motivation behind the fraud perpetrated by management; for example, earnings management and not fraud itself. Their opinion is supported by Knechel (2007: 403) who contends that business risk analysis may provide a basis for improving an auditor's assessment of the risk of fraudulent financial reporting for companies facing environmental and industry pressures. As a deterrent, they suggested that the importance of substantive tests of details and other procedures in the detection of fraud should also be considered (Knechel, 2007: 403). Lemon, *et al.* (2000: 19) report

in this regard, that some firms include fraud risk assessment within the consideration of business risk, whereas others conduct the fraud risk assessment separately. Almost all firms make use of automated questionnaires or decision aids to help identify fraud risk factors.

Thirdly, the critique on the business risk approach comprises the closely related psychological effects of typicality and Halo theory. These effects are linked to the business risk audit approach's major advantage of assisting auditors in gaining an increased understanding of the client's business (Ballou, *et al.* 2004: 71).

The results of the study of Ballou, *et al.* (2004: 71) that illustrate the typicality effect in an audit environment are:

The study indicates that when a client is typical of others in its industry, information at the business-process level regarding a small problem in a business process will be weighted less than when the strategic-positioning information indicates the client is atypical (not typical of the industry). Results support this contention.

Ballou, *et al.* (2004: 81) report that the gaining of an understanding of a client's strategic analysis and risk assessment before assessing the critical business-process performance, influences the auditor's professional judgment. An auditor's professional judgment, when client-provided performance measures were in line with auditor expectations, were influenced when the direct and indirect evidence obtained regarding business processes were inconsistent with the auditor's initial expectations. Ballou, *et al.* (2004: 81) agrees that:

Although in practice the risk level of a critical business process is often consistent with the risk level of the client's strategic-analysis, certain risk-increasing items within a business may indicate a lack of control over strategic risks, resulting in residual risks that may materially impact financial statements.

As a final comment to illustrate their point, they mention that recent large audit failures occurred at companies that appeared to be strongly performing companies (Ballou, *et al.* 2004: 81).

These findings of Ballou, *et al.* (2004: 81) are confirmed by a study performed by O'Donnell and Schultz (2005). They examined the influence of the "*holistic perspective*" or understanding obtained by auditors, after considering the client's strategic and risk management processes. They question if the above understanding influences (O'Donnell & Schultz, 2005: 922): "*the extent to which they (auditors) adjust account-level risk assessments when they encounter changes in accounts that are inconsistent with information about client operations.*"

O'Donnell and Schultz (2005: 922) further mention the example of WorldCom, an organisation with a successful business model and a viable business strategy, as support for their argument. The auditors therefore would have found that WorldCom had favourable strategic and risk management processes in place, and possibly these influenced them so that they failed to interpret a \$3.8 billion increase in capital expenditures and a decrease in routine maintenance costs as a pattern of change in accounts that signalled material financial misstatement (Glater & Eichenwald - New York Times, 28 June 2002 in O'Donnell & Schultz, 2005: 922).

The hypotheses of the study performed by O'Donnell and Schultz (2005: 922) are:

Based on Halo theory from the performance evaluation literature, we hypothesise that auditors who (1) perform (do not perform) strategic assessment, and (2) develop favourable (unfavourable) strategic risk assessments, are less (more) likely to adjust account-level risk assessments for inconsistent fluctuations.

Their results from the experiment performed, confirmed their hypotheses and they suggest that the audit profession should aim to develop an audit approach that could assist in the identification of risks of material misstatement that are evident in detailed accounting information (O'Donnell & Schultz, 2005: 937). In conclusion, O'Donnell and Schultz (2005: 922) state: "*The issue for audit practice is not whether to perform strategic assessment, but rather how to structure this important audit task to avoid undesirable consequences.*"

Another aspect of the business risk audit approach that should be considered is that a broader and more complex understanding of the entity "*contains more noise*" or irrelevant

information that increases the difficulty of identifying the risks of material misstatement (Peecher, *et al.* 2007: 483). Furthermore, the orientations of a decision aid (i.e. a negative focus emphasising risks and their consequences) can influence the judgment of auditors (Allen, *et al.* 2006: 160). The business risk focus that is not aligned with the objective of the audit indicates that two different orientations are followed during the performing of the planning process and this could influence the professional judgment of the auditor negatively.

Knechel (2007: 396) made a list of the challenges of the business risk audit approach. These challenges are the managing of communications with key stakeholders and overcoming the difficulties of obtaining information from management, other than accounting executives. Lastly, it aims to overcome the perception that the business risk audit approach is the provision of management consulting services disguised as an audit.

In a study performed by Kopp and O'Donnell (2005: 423) it is suggested that the business risk audit approach presents further advantages because it produces a stronger form of "category knowledge" to organise information about internal control. Category knowledge is knowledge that is classified or categorised in such a manner that it is easier to comprehend and understand. The authors further report that this improves training and decision performance during internal control evaluation. The impact of category knowledge is explained by Day, Arthur and Gettman (2001) in Kopp and O'Donnell (2005: 424): "*Category knowledge becomes stronger when the mental structures that people use to store information become more clearly defined, which enhances their ability to encode and remember the information that they acquire.*"

Furthermore, O'Donnell and Schultz (2003) in Kopp and O'Donnell (2005: 423) report that the business risk audit approach assists auditors to identify more risk factors during analytical procedures, in contrast to auditors who use information organised according to financial cycle categories.

Critique on the business risk audit approach revolved mainly around the connection between business risks and audit risk, the lack of emphasis on fraud, and the psychological effects of typicality and Halo theory. In contrast, the business risk audit

approach improved the evaluation of internal controls through stronger category knowledge.

The business risk audit approach is not the solution to all the answers of the audit profession; this said, the profession should build on the advantages gained through stronger category knowledge. The risks posed by the disadvantages, for example, a stronger link with risks of material misstatement, an increase in the emphasis on fraud and the psychological effects of typicality and Halo theory would have to be considered.

4.5.6. Conclusion to the business risk audit approach

This part of the study discussed the business risk audit approach, specifically the background to the development of the business risk audit approach that includes the causes for adoption of the risk based audit approach, a description of the business risk audit approach, a comparison with the inherent risk audit approach and the critique against the business risk audit approach.

The development of the business risk audit approach started with the auditing profession doubting the value of the audit, and these reasons for development have created doubt about the legitimacy of the business risk audit approach (Knechel, 2007: 402). Robson, *et al.* (2007: 410) confirms this, mentioning that the business risk audit approach reflected the perceived status and professional self-image of auditors at that point in time; specifically, the large audit firms' partners who were under immense profitability pressures, after developing the business risk audit approach as solution (Robson, *et al.* 2007: 432).

The business risk audit approach changed two aspects; namely, the obtaining of knowledge of the business and the identification of business risks to establish audit risk and plan audit procedures. The major advantage from obtaining an understanding of the entity according to the business risk audit approach was that it incorporated knowledge from the fields of management strategy, risk management and systems theory. As explained by Mautz and Sharaf (1961: 18), other methods and expertise have a limited ability to be transferred to another field. They also stated in this regard that:

Its (other methods and expertise) success in one discipline is no guarantee at all that it

will be successful elsewhere. In some cases there are similarities among fields that permit an established method to be largely taken over, but even so there must be modification and adaptation to the new subject. Methodology grows with the field of inquiry, and, in its growth and degree of refinement, represents to some extent the stages of intellectual development in the subject itself.

As explained by Mautz and Sharaf (1961: 18) there are dangers in the adoption of a method without any adaptation. This became apparent in the business risk audit approach in aspects such that the assessment of risks alone is not enough; sufficient substantive procedures should also be done, and the fact that the link between business risks and audit risks is not clear (Knechel, 2007: 404). Knechel (2007: 404) states in this regard: *"The links between risks, controls and performance measurement, and financial statement assertions and substantive testing remains quixotic."*

It is evident from the critique on the business risk audit approach that certain aspects surrounding this approach are problematic; nevertheless, the profession should build on the advantages gained through stronger category knowledge. In this study, refer par 6.2.4.4 *Business risk audit approach*, the risks posed by the lack of a clear link with risks of material misstatement is supported, thus emphasising the problematic nature of the business risk audit approach.

Power (2007: 380) summarises it well: *"There is an underlying suggestion, shared by many critics, that BRA (business risk audit approach) took audit too far beyond its proper remit."*

In conclusion, Knechel (2007: 389) highlighted some of the unanswered questions that were emphasised by the development of the business risk audit approach regarding audit approaches in the auditing profession:

- 1. Does the benefit of structure in the audit process gained from the automation and mechanisation of judgment enhance the fabric of judgment?*
- 2. Does examining a few transactions in a sea of activity provide adequate assurance over a stream of transactions?*
- 3. Are traditional substantive tests really as good as most believed?*

4. *What does 'internal control' mean in the context of the audit process?*
5. *Can analytical tests provide evidence that is as strong as evidence from traditional substantive tests?*
6. *What are the boundaries of the auditor's responsibility for policing management fidelity?*
7. *How can the need to collaborate with client personnel be balanced against the need to maintain professional scepticism?*
8. *Can assurance be expanded beyond the traditional audit without undermining independence?*

4.6. Conclusion

In this fourth chapter the development of the audit risk model from a conceptual perspective was discussed. Two variations of this conceptual audit risk model were used in practice; first, the inherent risk-audit approach and second the business risk audit approach.

In the conclusion (4.3.8) concerning the inherent risk audit approach, this study concludes that other alternatives to the conceptual audit risk model should be investigated. The Panel on Audit Effectiveness (2000: 12), that investigated audit approaches, confirms this critique on the inherent risk audit approach by reporting the following comments made by participants:

- The audit risk model is out-of-date because of technical reasons; for example, it does not include engagement risk or fraud risk.
- The audit risk model is out-of-date because it does not adequately address the increased uncertainty caused by complex transactions and events and the accounting for them.
- The audit risk model is not sufficiently specific and rigorous.
- The audit risk model cannot be applied consistently because it does not assist the auditor in obtaining a deep understanding of business processes and related risks.
- The audit risk model does not direct auditors in the detection of fraud.

The Panel states that they are satisfied that the audit risk model is appropriate, although they recognise a need for enhancing and updating (Panel on Audit Effectiveness, 2000:

12). In conclusion, the Panel on Audit Effectiveness (2000: 12) states: *"In the Panel's view, the recommendations do not call for a wholesale abandonment of the model, although some of them may be perceived as significantly modifying it."*

According to the above decision and possibly as a result of Enron and Arthur Andersen, Swinson (2002: 85) states that a complete re-engineering of the audit approach was done, incorporating both the inherent risk audit approach and the business risk audit approach. This risk-process audit approach will be discussed in Chapter 5.

CHAPTER 5 - THE DEVELOPMENT AND EVALUATION OF THE RISK PROCESS AUDIT APPROACH

5.1. Introduction

In the wake of failures such as Enron, Worldcom and Parmalat, the auditing profession was under enormous pressure to change the business risk audit approach because of severe criticism. Arthur Levitt (Former Chair, Securities and Exchange Commission) in Cullinan and Sutton (2002: 297) for example, stated: "*We cannot permit thorough audits to be sacrificed for reengineered approaches that are efficient but less effective.*"

The events of 2002 resulted in the issuing of the eight "risk standards" by the International Auditing and Assurance Standards Board (IAASB) in 2003. The audit risk standards were a result of the conclusions made by the IAASB and the Joint Risk Assessment Task Force of the Auditing Standards Board of the United States. The task force considered the recommendations of the August 2000 report of the Panel on Audit Effectiveness of the Public Oversight Board and the results of *Developments in the Audit Methodologies of Large Accounting Firms* by Lemon, Tatum and Turley (2000), a study that investigated the application of the business risk audit approach in three countries (Fogarty, Graham & Schubert, 2006: 46). The risk standards were issued during 2003 by the IAASB and were issued in 2005 in the United States of America.

The changes made to the risk-based audit approach affected the core of auditing; for example, it provided for a different and more structured risk assessment process (Fogarty, *et al.* 2006: 44). A survey done by the CPA Australia (2006: 3) reported that 79% of respondents felt that the new auditing standards would improve the quality of audits in Australia, because of greater clarity of the audit approach. Nevertheless, some of the respondents felt that the underlying basis of auditing had not changed.

The main feature of the risk-based audit approach included in the 2003 audit risk standards is the emphasis on the task of risk management e.g. identification, assessment and response to risks. For the purposes of this study, this risk-based audit approach is referred to as the 'risk-process audit approach'.

The development of the risk-process audit approach that comprised an integration and revision of the business risk audit approach and the inherent risk audit approach did not occur over a period of time, as the standard setters were rushed to save the credibility of the auditing profession; thus, they formed the Joint Risk Assessment Task Force for that purpose. Consequently, the development of this approach could not be traced in the academic literature. The risk-process audit approach represents a combination of:

- (a) The inherent risk audit approach (refer to Chapter 4),
- (b) The business risk audit approach (refer to Chapter 4); and
- (c) Risk management concepts from the fields of Strategic management and Corporate Governance.

The first two audit approaches, are the previous audit approaches that were combined and adapted to form the current risk-process audit approach. In evaluating the adaptation of the previous audit approaches, by incorporating concepts from the fields of strategic management and corporate governance, to form the risk-process audit approach, guidance given by Mautz and Sharaf (1961: 15) will be used to investigate the incorporation of these concepts.

Auditing has borrowed, and will probably continue to borrow from other fields, what it needs to elaborate its method and fulfil its function. However, there must be careful selection of those ideas and procedures which can be of assistance. Generally speaking, successful adoption of this kind requires an understanding of the subject's own problems as much as an understanding of the nature of the borrowed tools. Rarely are ideas and methods in other fields such that they can be accepted without modification.

Mautz and Sharaf (1961: 15) suggest factors to consider in the "successful adoption" of concepts in other fields of study and these factors will be used in this study to evaluate the incorporation of risk management concepts in the risk-process audit approach. These factors are:

- Obtaining an understanding of the nature of the concepts and approaches in risk management that was adopted in Auditing.
- Obtaining an understanding of risk management's "own problems".

The first part of the chapter will consider risk management that forms part of the fields of strategic management and corporate governance, according to the guidance given by Mautz and Sharaf (1961: 15). The second part of the chapter will discuss the risk-process audit approach and the third part of the chapter will evaluate the risk-process audit approach, including an evaluation of the selection of ideas that were chosen for adaptation in Auditing.

5.2. Background and overview of risk management from an audit perspective

5.2.1. Introduction

The subject of risk management is a discipline or field of study in its own right, and cannot be explored in full in this part of the study. The background and overview of the subject of risk management that will be discussed in the next part of the chapter will be discussed in the context of the development of the risk-process audit approach that adopted concepts from risk management.

Firstly, definitions of risk management will be considered to gain an overview of what risk management encompasses. Secondly, the historical background to risk management will be considered very briefly. Thirdly, the underlying **concept of "risk"** will be investigated, as this was the starting point or main reason for the borrowing of ideas from the subject of risk management. Fourthly, the **risk management process** will be investigated as this represents the area, where the main ideas that were adopted in Auditing, originated.

Risk management and enterprise-wide risk management is viewed in this study as the same term. Risk management is discussed in the specific context of managing risks across the enterprise and at every level and unit within the enterprise (COSO (Committee of Sponsoring Organisations of the Treadway Commission) (2004: 2).

5.2.2. Definitions of risk management

The managing of risks, with the aim of optimising the rewards of business, forms an important part of managing an enterprise, as explained by McNamee (1998: 9): "*To manage risk is the essence of management.*"

The process of managing risks is called "risk management" and was defined by various organisations. The definitions of risk management will be analysed in Table 8, through consideration of the following four aspects:

- Descriptors given in the definition explaining the **process** of risk management.
- The **tasks** to be performed in the process of risk management.
- The **objective** or **purpose** of risk management.
- Descriptors given in the definition explaining the **concept of "risk"**.

Table 8: A summary of definitions of the concept of "risk management"

Summary of definitions of the concept of "risk management"				
Definitions	Process descriptors	Tasks	Objective /purpose	Descriptors of risk
<i>Risk management can be defined as the identification and evaluation of actual and potential risk areas as they pertain to the company as a total entity, followed by a process of either termination, transfer, acceptance (tolerance) or mitigation of each risk. (King II, 2002: 73)</i>		Identify, evaluate, terminate, transfer, accept, mitigate.	-	Actual and potential risk areas.
<i>Risk management is a managerial function aimed at protecting the organisation, its people, assets and profits against the physical and financial consequences of risk. (Valsamakis, et al. 2005: 2)</i>	Managerial function	-	Protecting the organisation, etc.	Physical and financial consequences.
<i>The risk management process is the systematic application of management policies, procedures and practices to the tasks of communicating, establishing the context, identifying, analysing, evaluating, treating, monitoring and reviewing risk. (AS/NZS 4360,</i>	Systematic	Establish context, identify, analyse, evaluate, communi-	-	-

Summary of definitions of the concept of "risk management"				
Definitions	Process descriptors	Tasks	Objective /purpose	Descriptors of risk
2004: 5)		cate, treat monitor, review.		
<i>Enterprise risk management is a rigorous and coordinated approach to assessing and responding to all risks that affect achievement of an organisation's strategic and financial objectives. This includes both upside and downside risks. (Institute of Internal Auditors in Valsamakis, et al. 2005: 79)</i>	Rigorous & coordinated.	Assess, respond.	Achievement of organisation's strategic & financial objectives.	Up-side and down-side risks.
<i>Enterprise risk management is a process, effected by an entity's board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives. (COSO, 2004: 2)</i>	Effected by board management & personnel. Applied in strategy & enterprise.	Identify events. Manage risks.	Provide reasonable assurance regarding the achievement of entity's objectives	Only risks within risk appetite.
<i>Risk management is a central part of any organisation's strategic management. It is the process whereby organisations methodically address the risks attaching to their activities with the goal of achieving sustained benefit within each activity and across the portfolio of all activities. (AIRMIC, ALARM & IRM, 2002: 2)</i>	Methodically strategic management & activities.	Address	Achieve sustained benefit within each activity/ portfolio of activities.	Risks attach to activities.

Summary of definitions of the concept of "risk management"				
Definitions	Process descriptors	Tasks	Objective /purpose	Descriptors of risk
<i>Enterprise risk management is the process by which organisations identify, assess, control, exploit, finance, and monitor risks from all sources for the purpose of increasing the organisation's short- and long-term value to its shareholders. (Casualty Actuarial Society in Valsamakis, et al. 2005: 79)</i>		Identify, assess, control, exploit, finance, monitor.	Increase organisation's short & long term value to its shareholders.	Risks from all sources.
<i>Enterprise risk management is the discipline by which an entity in any industry assess, controls, measures, exploits, finances and monitors risk from all sources for the purpose of increasing the entity's short- and long-term value to its stakeholders. (US Society of Actuaries in Morton, 2005: 24)</i>		Assess, controls, measures, exploit, finances, monitors.	Increase organisation's short- & long-term value to shareholders.	Risks from all sources.

An investigation of the above definitions of "risk management" indicates the following:

Descriptors of the process of risk management

- The process of risk management is intended to be systematic, methodical, rigorous and coordinated (as indicated by three of the eight definitions).
- Risk management influences every level of the organisation from strategic management to the activities across the enterprise (four of the eight definitions refer to an impact on the different levels in the organisation).

The tasks to be performed in the process of risk management

- Seven of the eight definitions indicate the tasks to be performed, with six of the eight definitions that provide detail descriptions of the tasks to be followed in the

process of risk management. In the subject of risk management emphasis was placed on the pragmatic implementation or tasks to be done in risk management. These different tasks are also indications of the different risk management frameworks that are discussed in par 5.2.5.2.2. *Risk management frameworks.*

The objective or purpose of risk management

- The purpose of risk management is to achieve the objectives of the organisation (two of the eight definitions).
- The purpose of risk management is to increase benefits and shareholder value (three of the eight definitions).
- Two definitions provided no purpose for risk management according to the definition of risk management.

Descriptors given surrounding the concept of "risk"

- Risks are connected with risk areas, risk activities and sources of risks (three of the eight definitions).
- Risks are limited to physical and financial consequences, or risks within the risk appetite of the organisation. The concept of "risk", in one definition, is described to include both the up-side and down-side risks.

Various definitions of risk management were considered in this part of the study to gain an overview of what risk management encompasses in the literature. The next part of the chapter will discuss, very briefly, the historical background to risk management.

5.2.3. Historical background to risk management

The historical background to risk management will commence with the existence of risk. The reason for the existence of risk is explained by Denenberg, Eilers, Melane and Zelden (1974: 3) in Odendaal (1999: 2): *"Everything is sweetened by risk" said Alexander Smith "Imagine life without uncertainty ... knowing what words would be spoken, what sights would be seen, how every game would turn out ... never the pleasure of surprise, never the joy of winning."*

Yet, surprise may also be very unpleasant and in an attempt to protect themselves, people try to prevent these unpleasant surprises; or more correctly, they try to manage or minimise the risk of an unpleasant surprise. This is called risk management (Valsamakis, *et al.* 2005: 2). For example, it can be contended that Pharaoh applied risk management as a solution for the explanation given by Joseph, with regard to the dream he received from God, and therefore ordered Joseph to store up grain in case of famine (The Holy Bible: Genesis 41).

Up to the late 1960s, risk management was viewed as the management of insurable risks and insurance buying (Valsamakis, *et al.* 2005: 21). When risk management was limited to insurable risks, risks were occurrences that were the result of fate or "acts of God". In the development of the concept of risk management, risks also became associated with unanticipated outcomes of human action (Spira & Page, 2003: 642). This development was caused by advances in science and technology, enabling management to attempt to protect organisations against risks (Spira & Page, 2003: 642).

The "risk" concept also has different meanings in the following closely related fields of study; for example, in financial economics, the "risk" concept is represented by the investment's covariance with the rest of the possible investments (Ruefli, Collins & LaCugna, 1999: 182). The risk that is managed in statistical decision theory is the volatility of the company's performance, while in managerial risk management, it is represented by the application of decision-making heuristics (Ruefli, *et al.* 1999: 182).

Valsamakis, *et al.* (2005: 2) believes that the recognition of risk management as a separate management function can be attributed to Fayol, whose article in 1916 on the functional approach to management, identified security activities, such as the protection of property and people, as one of the six fundamental management functions (Valsamakis, *et al.* 2005: 19).

The development of risk management is closely connected to the adoption and implementation of corporate governance principles. This is clearly explained by AS/NZS HB 436 (2005: 11): "*Risk management contributes to good corporate governance by providing reasonable assurance to boards and senior managers that the organisational*

objectives will be achieved within a tolerable degree of residual risk."

Corporate Governance was, among others, the result of the division between ownership and control. Owners or shareholders delegated the control of the company and vested it in the hands of the managers of the company (King II – Executive Summary, 2002: 2). This caused a need for guidelines that align the interests of managers and owners; in effect, the creation of a system of corporate governance, as explained by Sir Adrian Cadbury (Corporate Governance Overview, World Bank Report, 1999 in King II, 2002: 7): *"Corporate governance is concerned with holding the balance between economic and social goals and between individual and communal goals ... the aim is to align as nearly as possible the interests of individuals, corporations and society."*

Corporate governance is defined as *"the system by which companies are directed and controlled"* (King II – Executive Summary, 2002: 2). According to Sharman and Copnell (2002: 4) in Financial Management Accounting Committee (FMAC) of the International Federation of Accountants (IFAC) (2002: 4), the contribution of corporate governance is both business prosperity and accountability. In order for organisations to prosper, directors need take to risks and at the same time, be accountable to the stakeholders of the organisation, making the implementation of risk management a necessity (FMAC of IFAC, 2002: v).

Risk management is widely implemented and accepted; yet, management nevertheless desires to really understand what risk is, and how to properly manage it (Hamilton, 2005: 24).

In the next part of the study, the underlying concept of "risk" in risk management will be investigated, as this was the starting point or main reason for the borrowing of ideas from the subject of risk management.

5.2.4. The concept of “risk” in risk management

5.2.4.1. Introduction

The concept of “risk” is problematic, as it is a “highly emotive” word that has a variety of meanings and connotations (Ciechanowicz, 1997: 223). Ciechanowicz (1997: 223) explains further:

There are a number of related words which are used to a lesser or greater extent when discussing risk: words like threat, vulnerability, impact, security requirement and exposure are all used frequently. Within such discussions some of these concepts are used interchangeably which inevitably leads to confusion.

The next part of the chapter will aim to investigate the concept of “risk” in risk management. First, the broader or generic concept of “risk” is considered to form a basis of understanding, wherefrom the context-specific concept of “risk” in risk management will be investigated.

The concept of “risk” in risk management will then be addressed with reference to the components of risk.

5.2.4.2. Definitions of the generic concept of “risk”

In the search for the meaning of “risk”, a variety of definitions of the generic concept of risk are considered; for example, the Oxford Dictionary (1998: 1015) defines risk as: “*The possibility of meeting danger or of suffering harm or loss.*”

The definitions of the generic concept of “risk” were analysed to identify the components or aspects that were important in the formulation of these definitions. Two aspects stood out in this regard, as illustrated in Table 9: *A summary of definitions of the generic concept of “risk”*. First, the definitions of risk consist of an aspect that reflects **uncertainty**, also described as a possibility, probability or potential for threats and opportunities. The second aspect or component of the concept of risk is a **loss** (or losses). A loss is described in more detail in some of the definitions, as: consequences or an event and its consequences or the occurrence and outcome of an event (consequence). The Australian Standard on risk management confirms the above and

defines a "loss" as (AS/NZS 4360, 2004: 3): *"any negative consequence or adverse effect, financial or otherwise"*

Table 9: A summary of definitions of the generic concept of "risk"

A summary of definitions of the generic concept of "risk"		
Definition	Uncertainty	Loss
<i>'risk' (is an) uncertainty or loss, where both the degree of the uncertainty and/or the loss was not measurable. (Denenberg et al. 1974: 4-5 in Valsamakis, et al. 2005: 26).</i>	Uncertainty	Loss
<i>A condition in which loss or losses are possible. Risk (pure), involves the possibilities of loss or no loss. (Athearn & Pritchett, 1984: 4-5 in Valsamakis, et al. 2005: 26).</i>	Possibility	Loss(es)
<i>Absolute risk is a term for the threats and consequences without considering the controls likely to be present and operating. (McNamee, 1998: 9)</i>	Threat	Consequences
<i>Risk can be defined as the combination of the probability of an event and its consequences. (PD ISO/IEC Guide 73(2002) in AIRMIC, ALARM & IRM, 2002: 2).</i>	Probability	An event and its consequences.
<i>In all types of undertaking, these are the potential for events and consequences that constitute opportunities for benefit (up-side) or threats to success (down-side). (AIRMIC, ALARM & IRM, 2002: 2).</i>	Potential threats and opportunities.	Events and consequences.
<i>Risk is defined as a deviation from the expected value. It implies the presence of uncertainty. There may be uncertainty as to the occurrence of an event producing a loss, and uncertainty as regards the outcome of the event. The degree of risk is interpreted with reference to the degree of variability and not with reference to the probability that it will display a particular outcome. (Valsamakis, et al. 2005: 29).</i>	Uncertainty (degree of variability and not with reference to probability of a particular outcome).	Occurrence of an event and the outcome of the event.

The definitions of the generic concept of "risk" consist of two components, namely uncertainty and loss. The next part of the chapter will place the generic concept of "risk" in a specific context.

5.2.4.3. Definitions of "risk" in risk management

Valsamakis, et al. (2005: 26) mentions that the meaning of "risk" should preferably be determined according to a specific context, because no single definition can include all possible meanings of risk.

The context of "risk" in risk management occurs when entrepreneurs and shareholders accept risk to earn the reward associated with risk taking (*Valsamakis, et al.* 2005: 2). This is described as follows in AS/NZS 4360 (2004: v): "*Organisations that manage risk effectively and efficiently are more likely to achieve their objectives and do so at lower overall cost.*"

The concept of "risk" in risk management is emphasised in this chapter, as this was the starting point or main reason for the borrowing of ideas from the subject of risk management. A variety of definitions for the concept of "risk" in risk management exists, and will form the foundation of the understanding of the concept of "risk" in risk management. These definitions of the concept of "risk" in risk management are listed and analysed in Table 10.

The three aspects that are used in Table 10 to analyse the definitions of the concept of "risk" in risk management are an extension of the two components of the generic concept of "risk", namely uncertainty and loss. The second aspect of "loss" is extended in this specific context of risk management, to reflect the components of a risk as described in AS/NZS HB 436: 2004 (2005: 38):

Components of a risk - a risk is associated with:

- A **source** of risk or hazard
- An **event or incident**
- A **consequence**, outcome or impact on a range of stakeholders and assets.
- A **cause** (what and why) (usually a string of direct and underlying causes) for the presence of the hazard or the event occurring.

- **Controls** and their level of effectiveness.
- **When** could the risk occur and **where** could it occur.

The components of risk as stated in the Australian Standard are the only exposition of its kind that the author could find in the professional literature (AS/NZS HB 436: 2004, 2005: 38).

A third aspect, namely the impact of the concept of "risk" in risk management on the achievement of organisations' objectives is added to the above two aspects in order to analyse the concept of "risk" in risk management. The objective of risk management is to assist in the achievement of an organisation's objectives. Some of the definitions describe the influence of the concept of "risk" in risk management on the achievement of the organisation's objectives, and this aspect is also considered.

The analysis of the definitions of the concept of "risk" in risk management is illustrated in Table 10, according to three aspects, namely:

- What components of risk are included in the definition?
- How is uncertainty defined?
- How is the impact on the achievement of the objectives of the enterprise described?

Table 10: An analysis of definitions of the concept of "risk" in risk management

An analysis of definitions of the concept of "risk" in risk management			
Definitions	Components of risk	Uncertainty	Achievement of objectives
<i>Business</i> (in contrast to audit risk) <i>risk is a risk resulting from significant conditions, events, circumstances, actions or inactions that could adversely affect an entity's ability to achieve its objectives and execute its strategies, or from the setting of inappropriate objectives and strategies.</i> (IAASB/IRBA ISA 315R, 2006: para. 4(b))	Significant conditions, events, circumstances actions or inactions.	Could – future	Adversely affect, inappropriate.

An analysis of definitions of the concept of "risk" in risk management			
Definitions	Components of risk	Uncertainty	Achievement of objectives
<i>(Business) risks are threats to achieving management's objectives. (Whittington & Pany, 2004: 178)</i>	Threats	Future	Threat to achievement of objectives
<i>Risk is something that may impede the organization in achieving its objectives. (Treasury Board of Canada Secretariat, 2003: 4)</i>	Something	May – future	Impede
<i>Risk refers to the uncertainty that surrounds future events and outcomes. It is the expression of the likelihood and impact of an event with the potential to influence the achievement of an organisation's objectives. (TBS Integrated Risk Management Framework, April 2001: 8 in Treasury Board of Canada Secretariat, 2003: 4)</i>	Impact Events Outcomes	Future likelihood	Potential to influence
<i>Risk is the chance of something happening that will have an impact on objectives. (AS/NZS 4360, 2004: 2)</i>	Something happening	Chance – future	Impact
<i>Risks are uncertain future events that could influence the achievement of a company's objectives. (King II, 2002: 73)</i>	Events	Uncertain future	Could influence.

The investigation of the above definitions of "risk" in risk management indicates the following:

- **The effect on the achievement of the objectives of the enterprise**

Three of the six definitions indicate a negative affect on the achievement of the objectives of the enterprise. The other three definitions use descriptors such as "impact" and "influence", indicating the possibility of both a positive and/or negative result. This

interpretation is confirmed by AIRMIC, ALARM& IRM (2002: 2) and AS/NZS 4360 (2004: v) that describe risk management as a process that addresses both potential gains and losses.

The concept of "risk" in risk management incorporates a positive perspective or opportunity and/or a negative perspective or threat, because of the interrelationship between risk and reward (King II – report, 2002: 74). In contrast, McNamee (1998: 9) describes the concept of "risk" as the consideration of only the negative consequences, and opportunity as the positive consequences of risk management. McNamee's opinion is corroborated by COSO (2004: 2), stating that:

Events can have a negative impact, positive impact, or both. Events with a negative impact represent risks, which can prevent value creation or erode existing value. Events with positive impact may offset negative impacts or represent opportunities. Opportunities are the possibility that an event will occur and positively affect the achievement of objectives, supporting value creation or preservation.

In this study, the view is taken that the concept of "risk" in risk management represents both possible positive and/or negative consequences. The uncertainty inherent in the concept of "risk" represents a great variety of possibilities that could be both positive (opportunities) and negative (threats). As stated by McNamee (1998: 7): "*Risk is neither good nor bad, it just 'is'.*"

- **Uncertainty**

The aspect of "uncertainty" in the concept of "risk" in risk management is derived from the uncertainty surrounding the future, and is further discussed in par 5.2.4.4.2 *Uncertainty*.

- **The components of risk**

The objective of this aspect was to identify components of risk as described in the Australian Standard (AS/NZS HB 436:2004, 2005: 38) or other similar components. The risk component of "events" was identified in the majority of the definitions (three of the six definitions). "Something (happening)" that represents a summary of all the components was mentioned in two of the six definitions. Other components of risk that

were mentioned were outcomes, threats, actions or inactions, conditions and circumstances.

The components of risk correspond with the elements of risk management described by Valsamakis, *et al.* (2005: 24); namely outcomes, events, sources and environmental factors, and will be discussed hereafter.

5.2.4.4. The components of "risk"

5.2.4.4.1. Introduction

The components of risk are the different parts that form the concept of "risk" in risk management. The components of risk in the Australian Risk Standard (AS/NZS HB 436:2004, 2005: 38) are adapted for the purpose of this study to include the component of uncertainty or likelihood.

The components of risk, the pieces that form the concept of "risk" in risk management, will be discussed in the next part of this chapter.

5.2.4.4.2. Uncertainty

Risk and uncertainty are closely related, because the nature of uncertainty depicts risk. This is explained by Valsamakis, *et al.* (2005: 31) as follows: *"In a literal sense, the concepts of risk and uncertainty are regarded as interrelated. The perception is that uncertainty gives risk to risk."*

COSO (2004: 1) explains that uncertainty represents both threats to shareholder value and opportunities to create shareholder value. Valsamakis, *et al.* (2005: 32) mentions that conceptually, risk should be interpreted as the absence of certainty, where certainty symbolises the situation where there is only one possible outcome. Contrary to this, uncertainty occurs where there is more than one possible outcome and the particular outcome is not known in advance. Stated differently, uncertainty is the opposite of certainty, where certainty is the lack of doubt (Valsamakis, *et al.* 2005: 30). Uncertainty consists of two elements (Valsamakis, *et al.* 2005: 30):

- *"Uncertainty whether an event will occur, and*

- *If the event does occur, what the outcome of the event will be.*"

In order to explain the relationship between risk and uncertainty, Valsamakis, *et al.* (2005: 27) states that the degree of uncertainty surrounding the event determines the extent of risk. Three features describe uncertainty (Weber & Liekweg, 2005: 498):

- *"The intensity of uncertainty: How much does one know objectively about the chance or risk or the influencing factor?"*
- *The symmetry of uncertainty. This feature characterises the result of a change of the influencing factor or does it lead to symmetric variability (chance and risk)?*
- *... the locus of appearance. Where does the influencing factor have the first repercussion, on cash flow, earnings or assets?"*

The intensity or level of uncertainty is explained by Valsamakis, *et al.* (2005:30) in the following table (refer to Table 11).

Table 11: A summary of the characteristics of "uncertainty"

A summary of the intensity of uncertainty, its characteristics and examples Valsamakis, <i>et al.</i> (2005: 30)			
Note	Level of uncertainty	Characteristics	Examples
1	<i>None (certainty)</i>	<i>Outcomes can be predicted with precision.</i>	<i>Physical laws, natural sciences.</i>
2	<i>Level 1: Objective uncertainty</i>	<i>Outcomes are identified and probabilities are known.</i>	<i>Games of chance, cards, dice.</i>
3	<i>Level 2: Subjective uncertainty</i>	<i>Outcomes are identified but probabilities are unknown.</i>	<i>Fire, investments.</i>
4	<i>Level 3: Totally uncertain</i>	<i>Outcomes are not fully identified and probabilities are unknown.</i>	

Note 1 in Table 11 describes certainty; a position where outcomes can be predicted with precision. The first level (Note 2 in Table 11) of uncertainty is objective uncertainty; this level is defined and described in statistics and is characterised by known outcomes and

known probabilities. The second level (Note 3 in Table 11) is subjective uncertainty and in this level the probabilities are unknown. The last level (Note 4 in Table 11) is total uncertainty that is characterised by unknown outcomes.

The concept of "risk" in risk management measures or assesses the uncertainty that revolves around the achievement of organisational objectives (McNamee, 1998: 7). McNamee (1998: 5) further describes uncertainty, in the achieving of organisational objectives, as business decisions that are subject to the changes in the business environment due to normal variation.

The uncertainty element of the concept of "risk" in risk management is also referred to as "likelihood", as explained in the Australian Standard (AS/NZS 4360, 2004: 6): *"This Standard uses the word 'likelihood' to refer to the chance of something happening, whether defined, measured or estimated objectively or subjectively, or in terms of general descriptors, frequencies or probabilities."*

The first element of the concept of "risk" is uncertainty or likelihood. Next are the components of risk as mentioned in the Australian risk standard (AS/NZS 4360, 2004). These components of risk will be discussed hereafter.

5.2.4.4.3. The component of "a source of risk or hazard"

The first component of risk in the Australian Risk Standard is the source of the risk or a hazard. AS/NZS 4360 (2004: 3) defines "hazard" as: *"a source of potential harm."*

A more detailed description of "hazard" is made by Valsamakis, *et al.* (2005: 33), which is defined as:

Hazard relates to the environment/agent (source) surrounding the cause of loss. The material or physical aspects in the environment surrounding the cause of loss are termed physical hazards; the personal aspects or characteristics are termed moral hazards.

Terminology such as 'hazard' and 'sources of risk' are used interchangeably in the literature. Sources are divided into two categories: physical hazards (or environmental)

and moral hazards (or human – accidental or deliberate) (Ciechanowicz, 1997: 223). Hazards indicate sources of risk, regardless of the controls or control environment (McNamee, 1998: 8).

This component of risk, a source of risk or hazard, is identified separately, with the aim (AS/NZS 4360, 2004: 16): *"to generate a comprehensive list of sources of risks and events that might have an impact on the achievement of each of the objectives identified in the context."*

5.2.4.4.4. The component of "a cause" – what and why?

The second component of risk is a cause that will bring about the event. This component is defined in AS/NZS HB 436 (2005: 38) as follows: *"A cause (what and why) (usually a string of direct and underlying causes) for the presence of the hazard or the event occurring."*

The cause (what and why) is an important aspect to identify, separately. The cause, as component of "risk", is related to the first component, source of risk or hazard, as emphasised by Valsamakis, *et al.* (2005: 26), stating that: *"The **cause** of outcomes can in many instances, be traced to specific sources."*

5.2.4.4.5. The component of "events or incidents"

The third component of risk is the occurrence of an event or incident, defined as: (AS/NZS 4360, 2004: 2):

Occurrence of a particular set of circumstances.

Note 1: The event can be certain or uncertain

Note 2: The event can be a single occurrence or a series of occurrences.

The occurrence of the event should not necessarily be uncertain. The first note in the definition indicates that an event can be certain, but have a variety of consequences or outcomes. Valsamakis, *et al.* (2005: 26) indicate that events can be recorded with the consequent possibility of statistical analysis.

5.2.4.4.6. The components of “time and place – when and where?”

The fourth component of risk, is closely linked with the event or incident, and considers the time (when) and place (where) of occurrence of the event or incident. The fourth component of risk is defined in AS/NZS HB 436 (2005: 38), as follows: *“When could the risk occur and where could it occur?”*

A further basic concept is that the nature of risk and opportunity change over time (McNamee, 1998: 9). The impact of time on both risk and opportunity may cause a very different outcome in each period (McNamee, 1998: 10).

5.2.4.4.7. The component of “consequence”

The fifth component of risk is the consequence, outcome or impact on a range of stakeholders and assets (AS/NZS HB 436, 2005: 38). AS/NZS 4360 (2004: 2) defines “consequence” as:

outcome or impact of an event.

Note 1: There can be more than one consequence from one event.

Note 2: Consequences can range from positive to negative.

Note 3: Consequences can be expressed qualitatively or quantitatively.

Note 4: Consequences are considered in relation to the achievement of objectives.

Furthermore, this fifth component of risk encompasses two distinct outcomes (AS/NZS 4360, 2004: v) (emphasis added): *“risk as exposure to consequences of uncertainty, **or** potential deviations from what is planned or expected.”*

McNamee, 1998: 7) defines consequences as the **tangible** outcomes of risk on decisions, events or processes. Risk is intangible, but we can predict and observe the consequences of risk (McNamee, 1998:7). In this regard, he mentions (McNamee, 1998: 7): *“When we think of risk, most of us think in terms of consequences rather than pure probabilities.”*

The assessment of risk can also be referred to as “High”, “Medium”, or “Low”. This indicates that the consequences of risk are respectively severe, average or negligible; or

that the probability of the occurrence of an event or consequence is respectively great, average, or remote (McNamee, 1998: 9).

He further states that consequences can vary in severity depending on a number of factors, namely (McNamee, 1998: 8) (comments added):

- *The assets at risk* (our exposure).
- *The type of threat* (sources of risk and causes – what and why).
- *The duration of the consequence* (event, time and place).
- *The effectiveness of controls in place* (the next component of risk).

5.2.4.4.8. The component of “control”

The sixth component of risk is controls and their level of effectiveness (AS/NZS HB 436, 2005: 38). AS/NZS 4360 (2004: 2) defines “control” as: *“an existing process, policy, device, practice or other action that acts to minimise negative risk or enhance positive opportunities.”*

Although the concepts of ‘risk’ and ‘control’ are integrated and interrelated, it is debatable if controls and their level of effectiveness should form part of the components of risk; this consideration will not be investigated in this study.

Consequences are mitigated by the internal control system and the effectiveness of internal controls (McNamee, 1998: 8). Therefore, managed risks are sources of risk or hazards, events and consequences that are responded to through a system of internal control (McNamee, 1998: 8). McNamee (1998: 9) warns that risk management influences the perception about risk and he explains as follows: *“Strong controls give the impression that risk is minimised when in fact only the consequences are minimised. There are no practical methods for making uncertain events more certain.”*

5.2.4.4.9. Conclusion to the components of "risk" in risk management

This part of the chapter provides a brief overview of the components of the concept of "risk" in risk management.

The seven components of the concept of "risk" in risk management are (AS/NZS HB 436, 2005: 38):

- **Uncertainty**
- A **cause** (what and why) (usually a string of direct and underlying causes) for the presence of the hazard or the event occurring.
- A **source** of risk or hazard.
- An **event or incident**.
- **When** the risk could occur and **where** it could occur.
- A **consequence** - outcome or impact on a range of stakeholders and assets.
- **Controls** and their level of effectiveness.

The reason for the identification of these components is explained in AS/NZS HB 436 (2005: 38) as:

"These components of risk should not be confused and need to be separately identified."

5.2.4.5. Conclusion

Risk is a complex and powerful concept with diverse meaning. Through an analysis of the definitions of the generic concept of "risk", it is concluded that the generic concept of "risk" consists of mainly two components: uncertainty and loss. This generic concept of "risk" is considered in the specific context of risk management.

The variety of definitions of the concept of "risk" in risk management was evaluated according to the component of uncertainty, the components of risk in the Australian Standard and a third aspect, the effect on the achievement of the objectives of the enterprise. For the purpose of this study, the components of risk in the Australian Risk Standard (AS/NZS HB 436:2004, 2005: 38) are adapted to include the component of uncertainty or likelihood. The seven elements or components of the concept of "risk" in

risk management are listed in par 5.2.4.4.9 *Conclusion to the components of "risk" in risk management* (AS/NZS HB 436, 2005: 38).

The component of "uncertainty" in the concept of "risk" in risk management is derived from the uncertainty surrounding the future. In this study, the view is further taken that the concept of "risk" in risk management represents both possible positive and/or negative results. The uncertainty inherent in the concept of "risk" represents a great variety of possibilities that could be both positive (opportunities) and negative (threats). The concepts of "risk" and "controls" are integrated, as illustrated by the fact that the last component of risk, is controls and their level of effectiveness.

Risk will always be present, and through the managing of risks the company could enhance the financial viability of the organisation (Rittenberg, *et al.* (2008: 92). The next part of the chapter will discuss the risk management process.

5.2.5. Risk management process

5.2.5.1. Introduction

The process of risk management is, according to the definitions of risk management, intended to be systematic, methodical, rigorous and coordinated (refer to par 5.2.2. *Definitions of risk management*). In contrast, Valsamakis, *et al.* (2005: 2) explain that: "*Risk management in a loose sense is the art and science of managing risks.*"

Morton (2005: 24) confirms this, reporting that at a meeting of Chief Risk Officers in New York, co-hosted by the US Society of Actuaries, Standard & Poor's and the Casualty Actuary Society, risk management was defined as: "*It (Risk management) is in a state of flux, it is part art, part science and a work in progress* (ongoing process)."

The risk management process of managing "risks" or, stated differently, influencing future consequences, outcomes and the impact on a range of stakeholders and assets, is a science as well as an art; the art of "conducting business".

The second aspect that was emphasised in the definitions of risk management, in respect

of the risk management process, is the different tasks to be performed which constitute a risk management framework and will be discussed next.

5.2.5.2. Risk management frameworks

A risk management framework is defined by AS/NZS 4360 (2004: 5) as a: "*Set of elements of an organisation's management system concerned with managing risk.*"

A risk management framework consists of elements or tasks that ensure that the managing of risks is a systematic process. The risk management process is a series of tasks that could be adapted for the organisation's needs and culture (AS/NZS 4360, 2004: 27).

Table 12 lists different risk management frameworks available and their suggested tasks. The first column in Table 12 represents a suggested risk management framework that consists of tasks that are common in all risk management frameworks. For the purpose of this study, the emphasis will fall on *Task 2: Risk identification and assessment* and *Task 3: Response to risks*. The importance of risk management Tasks 2 and 3 in the context of the study is emphasised by the fact that they represents the area, from which the main ideas that were adopted in Auditing, came.

Table 12: Risk management frameworks

Risk management frameworks					
Suggested tasks for the study	AS/NZS 4360 (2004: 9)	AIRMIC, ALARM, IRM (2002:4)	McNamee (1998:81)	Valsamakis, <i>et al.</i> (2005:13)	COSO (2004:3-4)
Task 1: <i>Setting objectives</i>	Establish the context	Determine organisation's strategic objectives	-	-	Objective setting & internal environment
Task 2: <i>Risk identification and assessment</i>	Risk Assessment <ul style="list-style-type: none"> • Identify risks • Analyse risks • Evaluate risks 	Risk Assessment <ul style="list-style-type: none"> • Risk analysis (identification, description, estimation) • Risk evaluation 	Risk Assessment <ul style="list-style-type: none"> • Identification • Measurement • Prioritisation 	Risk identification Risk evaluation and assessment	Event identification Risk assessment (analyse for likelihood and impact)
Task 3: <i>Response to risks</i>	Treat risks	Decision Risk treatment	Response (avoid, control, share)	Risk control/responses (avoid, accept, mitigate, and financing)	Risk response (avoid, accept, reduce or share according to risk tolerances & appetite)
Task 4: <i>Reporting</i>	Communicate and consult	Reporting - threats, opportunities, residual risk	-	-	Information and communication
Task 5: <i>Monitoring</i>	Monitor & review	Modification	-	Monitoring & administration	Monitoring

The main elements of the risk management process in the Australian Standard are to: communicate and consult, to establish the context, identify risks, analyse risks, evaluate risks, treat risks and monitor and review (AS/NZS 4360, 2004: 5).

The risk management process in the risk standard published by AIRMIC, ALARM, IRM (2002: 4) consist of: the organisation's strategic objectives, risk assessment, risk reporting, decision-taking, risk treatment, residual risk reporting and monitoring. Risk assessment consists of risk analysis (risk identification, risk description, risk estimation) and risk evaluation (AIRMIC, ALARM & IRM, 2002: 4). McNamee (1998: 81) explains that risk management encompasses risk assessment, a three-step process of identifying, measuring and prioritising and the "*acting on that assessment*". Risk management is a process that consists of the following important steps: risk identification, risk evaluation, risk mitigation and risk monitoring (Valsamakis, *et al.* 2005: 82).

COSO (2004: 3-4) describes the risk management process, as a process that consists of the following tasks: setting the objectives for achievement by the enterprise, the identification of events and the assessment of risks, the response to these assessed risks through avoidance, acceptance, reduction, and sharing, and the continuous processes of communication and monitoring.

In the next part of the chapter, the specific areas of identification and assessment of risks and the response to risks will be covered as indicated in Table 12. It is recognised that the identification and assessment of risks is an interrelated process, which is confirmed by the fact that three of the five risk management frameworks in Table 12 indicate that identification of risks is a sub-task of risk assessment.

5.2.5.3. Identification and assessment of risk

5.2.5.3.1. Introduction

The next part of this chapter will discuss the two tasks of identification and assessment of risks.

5.2.5.3.2. Identification of risk

5.2.5.3.2.1. Introduction

The key to risk management is the identification of risks, consisting of threats and opportunities (McNamee, 1998: 29). In this regard McNamee (1998: 29) points out: "*Risk cannot be measured, prioritised, or managed until it has been identified.*"

The definitions of risk identification will be analysed in Table 13. This analysis will give an overview of this phase of the risk management process. The following three aspects in the definitions are considered separately:

- The description of the action of identification or the 'verb' in the definitions;
- What are the aspects to be identified, as indicated in the definitions? and
- Further descriptors, in respect of the aspects to be identified, given in the definitions.

Table 13: An analysis of the definitions of "risk identification"

An analysis of the definitions of "risk identification"			
Definition	Verb	What?	Descriptors
<i>Risk identification sets out to identify an organisation's exposure to uncertainty.</i> (AIRMIC, ALARM & IRM, 2002: 5)	Identify	Exposure to uncertainty	
<i>Risk identification involves speculating about the relevant threats (and possibly opportunities) that could affect an organisation and its ability to achieve its business goals.</i> (McNamee, 1998: 29)	Speculate	Threats and opportunities	Affect ability to achieve its business goals
<i>The identification and classification of what the risks are, and their characteristics.</i> (McNamee, 1998: 5)	Identify & classify	Risks	Risk characteristics
<i>Risk identification is the process of determining what, where, when, why and how something could happen</i> (AS/NZS 4360, 2004: 4)	Determine	Something could happen	What, where, when, why & how?

The investigation of the above definitions of "risk identification" in risk management indicates the following:

- The verbs used in the definitions vary from speculate and determine, to identify and classify. These verbs cover a broad spectrum of alternatives with no clear indication of what identification constitutes.
- The variety in the aspects and descriptors of the aspects to be identified indicates that there is a variety of characteristics to be considered in respect of the concept of "risk" in risk management.

Organisations face many risks, therefore the need for a consistent and continuous process to assess risk is imperative (De la Rosa, 2006: 13). In the process of identifying risks a structured formalised process should be followed, combined with the use of imagination and skill (De la Rosa, 2006: 13). Risk identification approaches will be discussed in the next part of the chapter.

5.2.5.3.2.2. Risk identification approaches

Managers use a general or accepted framework to identify the risks in the organisation (Valsamakis, *et al.* 2005: 83). This consists of an understanding of what risk is and the classification of risks in a framework that should be broad enough to include all sources and classifications of risk (Valsamakis, *et al.* 2005: 83).

A framework or scheme for the classification of risks comprises a set of characteristics or features that is used to characterise or describe the risks (Kristensen, Aven & Ford, 2005: 421). Each specific risk could also be categorised into a group that forms a framework or scheme; these groups could be based on the magnitude or value of the characteristics of the risk (Kristensen, *et al.* 2005: 421). A risk classification scheme for the identification of risk could be based on (Kristensen, *et al.* 2005: 421): "*The type of hazards, others on definitions of risk, others on risk conflicts, and some on semantic images revealed through risk perception studies.*"

More than one perspective may be combined and in this regard, Renn (1992) in Kristensen, *et al.* (2005: 423) states:

The various perspectives and frameworks have their specific niche in the analysis of risk, and the main objective should be to make the various perspectives compatible with each other and provide a semantic framework that allows comparative analysis across the various perspectives.

The first approach of identifying risk is the classical statistical approach where risk is considered to exist objectively (Kristensen, *et al.* 2005: 424). Adequate historical records of actual occurrences of threats or disasters are used to develop a frequency distribution chart of historical risks (Cerullo & Cerullo, 2005: 38). The method then extrapolates the past data to predict future risks and this analysis of possible failings is especially relevant in an engineering environment (Cerullo & Cerullo, 2005: 38).

The second approach in the identification of risks that concerns the operations of an organisation is an exposure analysis (McNamee, 1998: 29). McNamee (1998: 8) defines exposure as follows: "*Exposure is the susceptibility to loss or a perception of a threat to an asset or asset-producing process, usually quantified in dollars. An exposure is the total dollars at risk without regard to the probability of a negative event.*"

The exposure approach emphasises the assets at risk in the organisation (McNamee, 1998: 29). The approach represents the idea that managers put assets at risk to achieve their objective (McNamee, 1998: 29). Risks are categorised or classified as threats to the following assets or asset producing processes (McNamee, 1998: 29):

- *Physical assets such as plant and equipment.*
- *Financial assets such as cash and investments.*
- *Human assets including the knowledge and experience of the staff.*
- *Intangible assets such as information, reputation and brand recognition.*

Threats and risks are considered that could harm the assets and concern the size, type, portability, and location of the assets (McNamee, 1998: 29). In the exposure approach classification of risks are according to exposures; this is described by McNamee as follows (McNamee, 1998: 8): "*Exposure becomes a measure of relative importance when prioritising audit elements during risk assessments.*"

The third approach in the identification of risks that concerns the operations of an organisation is an environmental analysis (McNamee, 1998: 29). The approach

represents the idea that the organisation exists in an external environment, made up of many other environments (McNamee, 1998: 30). The environmental approach emphasises various states of the different environments in which the organisation or process exists; both the current state and the future states of these environments (McNamee, 1998: 30). Risks are categorised or classified according to the risks that exist or could originate from the following different environments (McNamee, 1998: 30):

- *Physical environment: site, location, weather, terrain, access*
- *Economic environment: finances, interest rates, general economy*
- *Government regulation: laws, policies, and regulations – real or impending*
- *Competition: direct competitors, substitutions, indirect competitors*
- *Constituents/Customers*
- *Suppliers (including Unions)*
- *Technology*

The fourth approach in the identification of risks is the risk scenario approach (Cerullo & Cerullo, 2005: 38). In this approach threat scenarios are considered (Cerullo & Cerullo, 2005: 38). This approach was developed for specialised risk identification of fraud and/or disasters and security risk management (McNamee, 1998: 29). Scenarios are developed by experts and are utilised to identify risks. These 'threat scenarios' are developed for and limited by a specific time period (McNamee, 1998: 32). Threat scenarios are bounded by time, since the consequences of realised threats change over time (McNamee, 1998: 32). McNamee classifies short-term threats as errors, omissions, fraud and delays (McNamee, 1998: 32). The risk standard refers in a list of risk identification techniques to this approach as the scenario analysis approach (AIRMIC, ALARM & IRM, 2002: 14).

The fifth approach in the identification of risks is the use of checklists. This is an efficient method to ensure familiar risks are identified (Del Bel Belluz, 2002: 40). Checklists consist of a series of "what if" questions that can assist in the detection of latent risks (Del Bel Belluz, 2002: 40). An adaptation of this approach is the completion of security surveys completed by major groups in the organisation (Cerullo & Cerullo, 2005: 38). The risk standard refers in a list of risk identification techniques to this approach as the questionnaires technique (AIRMIC, ALARM & IRM 2002: 14).

A combination of the last two approaches, the risk scenario approach and checklists could be used (Cerullo & Cerullo, 2005: 38). Through the use of brainstorming and automated decision support software techniques, a panel of experts identifies and ranks risks, to finally consolidate the individual risk rankings into an overall list representing a consensus of the experts. With a similar approach, McNamee (1998: 35) reports that Texas Instruments and “a number of other internal audit groups” improve the risk identification process by using a formal/informal brainstorming session. These additional brainstorming sessions, according to McNamee, are highly efficient and effective to generate possible risks about an organisation (McNamee, 1998: 35 and AIRMIC, ALARM & IRM, 2002: 14).

The sixth approach in the identification of risks is an examination of risks via key risk indicators or influencing factors (Bruce, 2005: 22). This is a practical approach that will enhance self-assessment through risk managers in organisations (Bruce, 2005: 22). According to Weber and Liekweg (2005: 502) generally six types of influencing factors can be distinguished:

- **General, external factors** are factors that concern all firms (of an industry or region), such as changes in the GDP, climate changes or natural catastrophes, new laws and regulations or leaps in technology.
- **Market factors** are changes concerning the firm’s position on the procurement markets or concerning finished products/services. Examples of this type can be changes in product demand, concentration among suppliers, alterations in competition, and so forth.
- **Productive factors** are directly connected to the value-creation process of the firm, e.g. production-stops due to accident/strike.
- **Financial factors** are often the most noted factors creating risks for the firm.
- **Organisational factors** – mostly induce asymmetric uncertainty i.e. risks. Organisational factors are problems within or between different levels of management, from simple neglect of standard operating procedures to fraud and espionage.
- **Legal factors** play an important role in project business. The resulting type of risk is usually due to terms of contract that have to be fulfilled. Non-compliance may lead to penalty payments or indemnification.

The risk standard (AIRMIC, ALARM & IRM) refers in a list of risk identification techniques to the sixth approach as business studies that consider each business process and identify both the internal processes and external factors which can affect those processes (AIRMIC, ALARM & IRM 2002: 14). The Code of Corporate Practices and Conduct in the King II-report's (2002: 31) description of the identification of risks could also be defined as a risk factor approach (sixth approach), for example:

The board is responsible for ensuring that a systematic, documented assessment of the processes and outcomes surrounding key risks is undertaken, at least annually, for the purpose of making its public statement on risk management. ... The risk assessment should address the company's exposure to at least the following:

- (a) Physical and operational risks;*
- (b) Human resource risks;*
- (c) Technology risks;*
- (d) Business continuity and disaster recovery;*
- (e) Credit and market risks; and*
- (f) Compliance risks.*

The seventh approach in the identification of risks is an analysis of historical losses (Bruce, 2005: 22). The insurance industry ranks threats in tables according to probabilities of risks occurring. The various categories of probabilities are, virtually impossible, might happen once in 40 years, might happen once in 100 days, and might happen once a day (Cerullo & Cerullo, 2005: 38). The risk standard refers in a list of risk identification techniques to this approach as an incident investigation (AIRMIC, ALARM & IRM, 2002: 14).

Risk identification is often done by using a combination of the above approaches and the most appropriate combinations are chosen depending on the nature of the organisation (McNamee, 1998: 29). The identified risks are listed in a form of a "risk register" or "risk profile" generally updated through enterprise-wide risk assessments (Smith, 2002: 35 in FMAC of IFAC, 2002: 35).

5.2.5.3.3. Risk assessment

5.2.5.3.3.1. Introduction

Risk assessment evaluates the uncertainty of something happening (in the future).

The two elements of risk assessment are firstly, quantitative assessment, the probability and magnitude of potential benefits and/or consequences (Del Bel Belluz, 2002: 40). The risk standard emphasises both the probability of the risk and the significance of the risk when quantifying business risk (AIRMIC, ALARM & IRM, 2002: 6). The second element of risk assessment is a qualitative assessment, representing what the decision and range of possible outcomes for the entity and its stakeholders signifies, given the values, goals, needs, issues and concerns of each party (Del Bel Belluz, 2002: 40).

McNamee (1998: 39) mentions that mathematicians quantify risks as probability estimates and managers use qualitative terms to quantify risks, but risk assessment may be quantitative, semi-quantitative or qualitative, or a combination of the above (AS/NZS 4360, 2004: 44).

Risk assessment consists of two phases: first, the understanding and measuring of risks and secondly, the evaluation or prioritisation of risks. The first phase of risk assessment, risk measurement, will be discussed in the next part of the chapter.

5.2.5.3.3.2. Risk measurement

Risks and their consequences are measurable over three dimensions according to McNamee (1998: 39), namely, (emphasis added):

- *Risk occurrence is a **probability of the likelihood that the risk will create a consequence** that could materially affect our ability to achieve our business goals.*
- *The **severity of consequences** is another dimension of risk measurement. Severity of consequence is often dependent on the operation of internal controls.*
- *The **timing** of a risk and the **duration** of its consequence are the third dimension of risk measurement. Risks may have consequences that vary in severity depending on when in the business process they occur and how long the effect of the consequence lasts.*

Valsamakis, et al. (2005: 15) emphasise the second dimension of risk measurement; that is, the severity of consequences or losses. They further add a fourth dimension, namely the frequency of losses and a fifth dimension, the impact of the financial strength of the organisation (*Valsamakis, et al.* 2005: 15). The impact of the financial strength of the organisation explains an entity's risk-retention capacity. The entity's risk-retention capacity is explained as follows (*Valsamakis, et al.* 2005: 15): "*The objective is to ascertain what the impact of a given risk might be, relative to the financial strength of the firm.*"

Risk measurement consists of the dimensions of the probability of the likelihood of occurrence, severity, timing, duration, frequency of consequences and the entity's risk retention capacity. The results of risk measurement are used to evaluate and prioritise the risks.

5.2.5.3.3. Risk assessment approaches

In the assessment and measuring of risks and consequences, *McNamee* (1998: 40) suggests the following approaches:

- *Direct probability estimates and expected loss functions: the application of probabilities to asset values to determine exposure of loss (first approach).*
- *Risk factors: the use of observable factors to substitute for measuring a specific risk or class of risks (second approach).*
- *Weighted matrices: the use of threats times components matrices to evaluate consequences and controls (third approach).*

The first approach represents methods and techniques that are developed in the field of statistics.

The second approach is the risk factor approach. The approach integrates the perception of risks, consequences and controls into observable events or conceptual attributes that are called risk factors to simplify the measuring of risk (*McNamee*, 1998: 43). According to *McNamee* there are three types of risk factors generally in use (1998:43):

- *"Subjective risk factors e.g. integrity of management;*

- *Objective or historical risk factors e.g. dollars at risk (objective) or employee turnover rates (historical); and*
- *Calculated risk factors e.g. distance from main office.”*

From the above three types of risk factors generally in use, subjective risk factors are the most difficult to measure. Subjectivity could result in bias or prejudice for a specific alternative; this bias could be reduced by the use of assessment methods. McNamee recommends several methods for the assessment of subjective risk factors, for example (McNamee, 1998: 43):

- (a) Statistical measurements.
- (b) Pattern or profile measurements – an attempt to classify subjective risk factors according to the aggregate risk pattern or profile that the unit has in relation to known risk standards.
- (c) Intuition – studies have shown that experienced managers/analysts/auditors/technicians can use intuition to arrive at reasonable estimates of risk that cannot be measured accurately using only the five senses.
- (d) Group processes – the Delphi technique and other group decision tools are useful in pooling the experience and intuition of a larger group of experts.

The third approach is a method or matrix that assists management in subjective risk assessments. In the assessment of risks, Kristensen (2005: 423), *et al.* warns that the following factors should be considered:

- (a) *The decision alternatives being analysed.*
- (b) *The performance measures analysed.*
- (c) *The fact that the results of the analyses represent judgments, to a large extent conducted by some experts.*
- (d) *The difficulty of assessing values for uncertainties.*
- (e) *The fact that the analysis results apply to a model, i.e. a simplification of the world, and not the world itself.”*

5.2.5.3.3.4. Conclusion

In conclusion, risk assessment may be quantitative, semi-quantitative, qualitative, or a combination of all the above. Secondly, risk assessment consists of two phases: first the

understanding and measuring of risks; and secondly, the evaluation or prioritisation of risks. Risk measurement consists of the dimensions of the probability of the likelihood, severity, timing, duration, frequency of consequences and the entity's risk retention capacity. Thirdly, different risk assessment approaches are available to assist in the assessment of risks.

Lastly, when assessing the consequences of events in the future, it should be considered that the perceptions about these future events are constantly changing, necessitating the assessment of risks becoming a continuous process (Valsamakis, *et al.* 2005: 15).

5.2.5.3.4. Conclusion to identification and assessment of risks

The importance of the identification and assessment of risks is (Lindsay, 2001: 44):

The difference between missing opportunities and taking a risk knowing it's going to deliver is complex and all very subjective, but it is a case of nothing ventured, nothing gained. Using proper analysis would mean fewer companies taking unnecessary risks and more companies taking risks that would create value.

5.2.6. Response to risks in risk management

The assessment of risks determines the response to these risks. The response to risks or the management of risks is the (Valsamakis, *et al.* 2005: 15): "*process of determining whether or how much of the risk is acceptable and what action should be taken.*"

The factor of cost efficiency is very important in determining the response to risks in risk management. The following responses to risks in risk management are possible:

- (a) Avoidance – some risks can be avoided by refraining from specific activities. Avoiding a risk (100%) is unfortunately, rarely possible in the business environment (Valsamakis, *et al.* 2005: 16).
- (b) Acceptance – certain risks are inherent to a specific business. Trying to avoid them would mean disinvesting from a particular industry. If the risk-return properties are acceptable, the risk associated with that industry or type of business needs to be accepted (Valsamakis, *et al.* (2005: 16)). In certain

instances, a business could consider a deliberate self-funding plan for such risks (Valsamakis, *et al.* 2005: 16).

- (c) Mitigation – a risk that a business cannot avoid could be mitigated. Through mitigation the impact of the risk is reduced (Valsamakis, *et al.* (2005: 16)). Risks are mitigated through the establishment of controls for known risks (McNamee, 1998: 5).
- (d) Diversification or hedging - the combination of risks to obtain the benefit of greater certainty in predicting the loss occurs through the use of the statistical law of large numbers (Valsamakis, *et al.* 2005: 16). In diversification, the nature of the activity (process) is changed through spreading the exposure over multiple activities (McNamee 1998)
- (e) Sharing/ transferring the risk: a form of diversification where parties take shares of the risk in the activity. Sharing can be with customers, suppliers, or third parties (e.g. insurance) (McNamee, 1998: 5). Similarly, risks could be transferred to other third parties, and not shared with other parties, through techniques such as insurance (Valsamakis, *et al.* 2005: 16).

5.2.7. Risk management levels

Risk management is applied and implemented on three levels (McNamee, 1998: 23):

- *Strategic level:* risk management is used as a tool to guide the organisation over a time period of five to ten years.
- *Project/Programme/Process level:* a risk management focus is used to manage the day-to-day processes.
- *Operational level:* risk management is used to assist management in complying with health, safety and other applicable laws and regulations.

This is confirmed by COSO's enterprise risk management model that optimises firstly, strategic and high-level planning objectives (*strategic level*); secondly, operational objectives and daily operations (*project/programme and process level*); and thirdly, compliance and regulatory objectives (*operational level*) (Campbell (2005: 58)).

5.2.8. Conclusion

The aim of the first part of this chapter was to consider risk management, to obtain an understanding of the concepts and nature of the approaches in risk management that were adopted in Auditing.

The definitions of the concept of "risk" in risk management were evaluated according to the aspects of uncertainty; the components of risk; and a third aspect, the effect on the achievement of the objectives of the enterprise. The aspect of "uncertainty" in the concept of "risk" in risk management is derived from the uncertainty surrounding the future. In this study, the view is taken further that the concept of "risk" in risk management represents both possible positive and/or negative results. As stated by McNamee (1998: 7): "*Risk is neither good nor bad, it just 'is'.*"

The seven elements or components of the concept of "risk" in risk management are listed in par 5.2.4.4.9 *Conclusion to the components of "risk" in risk management* (AS/NZS HB 436, 2005: 38). The concept of "risk" and control is interrelated, as illustrated by the fact that the last component of risk is controls and their level of effectiveness.

In this chapter, the risk management process is investigated, as this represents the area where the main ideas that were adopted in Auditing, originated. The specific tasks of identification and assessment of risks and response to risks were covered. The main emphasis in the definitions of the risk management process was on the tasks to be performed, indicative of a very pragmatic focus in the professional literature.

Risk identification is done by using a combination of risk identification approaches, that comprise a set of characteristics or features that are used to characterise, describe or classify the risks.

Risk assessment may be quantitative, semi-quantitative or qualitative, or a combination of the above. Secondly, risk assessment consists of two phases: first, the understanding and measuring of risks; and secondly, the evaluation or prioritisation of risks. Risk measurement consists of the dimensions of the probability of the likelihood, severity, timing, duration, frequency of consequences and the entity's risk retention capacity.

Thirdly, different risk assessment approaches are available to assist in the assessment of risks. In the assessment of the consequences of events in the future, it should be considered that the perceptions about these future events are constantly changing and therefore the assessment of risks becomes a continuous process (*Valsamakis, et al.* 2005: 15).

Management responds to risks through avoidance, acceptance, mitigation, hedging or sharing of risk.

Risk management is an inexact method that assists management in understanding and managing, not necessarily solving, the problems of the organisation (McNamee, 1998: 5).

5.3. The risk-process audit approach

5.3.1. Introduction

The risk-process audit approach as included in the International Standards on Auditing provides a broad outline or guide to auditors for planning and performing the audit.

The risk-process audit approach was the result of events such as Enron and Worldcom, the impact of which caused a credibility crisis in the auditing profession and consequent changes to the audit risk standards. These were discussed in Chapter 1, par 1.2 *The importance of an audit approach* and Chapter 5, par 5.1 *Introduction*.

The audit risk standards of IAASB/IRBA ISA 315R (2006) "***Identifying and assessing the risks of material misstatement through understanding the entity and its environment***", and IAASB/IRBA ISA 330R (2006) "***The auditor's responses to assessed risks***", indicate that the emphasis in the audit risk standards is on the risk management tasks of identification, assessment and response. For the purposes of this study the name of this risk-based audit approach is formulated as the risk-process audit approach. The reason for this formulation is the emphasis in the audit risk standards on the risk management tasks.

The definition of the risk-process audit approach given in the International Auditing Standards will be discussed in the next part of this chapter.

5.3.2. Description of the risk-process audit approach

Guidance on the risk-process audit approach is described in the "risk standards", that consist of IAASB/IRBA International Standards on Auditing (ISA) 240R (2006), ISA 300R (2006), ISA 315R (2006) and ISA 330R (2006) (Fogarty, Graham & Schubert, 2006: 43). The risk standards describe the risk-process audit approach as follows (IAASB/IRBA ISA 315R, 2006: para. 25 (a)–(d) & IAASB/IRBA ISA 330R, 2006: para. 03):

(a) The auditor shall identify risks throughout the process of obtaining an understanding of the entity and its environment, including relevant controls that relate to the risks, and by considering the classes of transactions, account balances and disclosures in the financial statements.

(b) The auditor shall assess the identified risks, and evaluate whether they relate more pervasively to the financial statements as a whole and potentially affect many assertions.

(c) Relate the identified risks to what can go wrong at the assertion level, taking account of relevant controls that the auditor intends to test.

(d) Consider the likelihood of misstatement, including the possibility of multiple misstatements, and whether the potential misstatement is of a magnitude that could result in a material misstatement. ...

The objective of the auditor is to obtain sufficient, appropriate audit evidence about the assessed risks of material misstatement, through designing and implementing appropriate response to those risks.

This description of the risk-process audit approach will be analysed in the next part of the chapter. As mentioned in Chapter 2, par 2.1.2 *the meaning of "risk-based audit approach"*, an approach consists of a "method of attack" or "methodological procedure" and an attitude, to achieve a goal or purpose (Mautz & Sharaf (1961: 18) and Van den Bos, 2006: 67). Such a method or methodological procedure will consist of a series of tasks, as well as criteria, for the successful performance of the tasks. The objective of these tasks is to achieve the set goal or purpose. The specific components of a method, tasks, criteria and purpose, will form the foundation of the consideration of the description of the risk-process audit approach.

In the consideration of the description of the risk-process audit approach, the goal or purpose to achieve is the objective of the audit. A discussion of the objective of an audit does not fall within the scope of this study. The analysis of the description of the risk-process audit approach will consider three components (as outlined in Table 14). The three components are:

- The tasks to be performed in the risk-process audit approach;
- The indication of further sub-tasks to be performed for the identified tasks in the first component; and
- The criteria used to evaluate the performance of the tasks.

Analysis of the description of the "risk-process audit approach"			
Components	1	2	3
Description of components	Task	Sub-tasks	Criteria for performance
		<ul style="list-style-type: none"> Consider the magnitude of misstatement(s). 	Planning materiality.
<p><i>The objective of the auditor is to obtain sufficient, appropriate audit evidence about the assessed risks of material misstatement, through designing and implementing appropriate response to those risks. (IAASB/IRBA ISA 330R, 2006: para. 03).</i></p>	Re-sponse	<ul style="list-style-type: none"> Design at financial statement level and at assertion level. Implement at financial statement level and at assertion level. 	Sufficient, appropriate audit evidence.

The first component of the risk-process audit approach consists of the tasks that are performed, namely: identify the risks, assess the identified risks and respond to the assessed risks. Further tasks or sub-tasks are indicated as part of the second component. The deciding factor between what constitutes a main task and a sub-task are the headings of the audit risk standards of IAASB/IRBA ISA 315R (2006) "**Identifying and assessing the risks of material misstatement through understanding the entity and its environment**" and IAASB/IRBA ISA 330R (2006) "**The auditor's responses to assessed risks**".

The second component indicated in the description of the risk-process audit approach are further tasks or sub-tasks to be performed for each of the three main tasks. These sub-tasks indicate that the three main tasks are divided into tasks at the financial statement level and tasks at the assertion level. Identification of risks of material misstatement includes the obtaining of an understanding of the entity and its environment, including relevant controls (at the financial statement level) and the consideration of classes of transactions, account balances and disclosures (at the assertion level). The main task of assessment of risks, include three sub-tasks that are:

- Evaluate whether the risks relate more pervasively to the financial statements as a whole and potentially affect many assertions (at the financial statement level). Relate risks to what can go wrong at the assertion level (at the assertion level).
- Consider the likelihood of misstatement(s).
- Consider the magnitude of misstatement(s).
- The response to assessed risks includes the sub-tasks of designing and implementing the audit plan.

The third component of the risk-process audit approach indicates the criteria used to evaluate the successful performance of the tasks (and sub-tasks) and provide guidance on how the tasks should be performed. The criterion for the performance of the main task of "identifying the risks material misstatement", is the concept of "risk" or what constitutes risk. The criterion for the sub-task of obtaining an understanding of the entity and its environment is that (main task of identification of risks of material misstatement) (IAASB/IRBA ISA315R (2006: para. A3): *"The depth of the overall understanding that is required by the auditor is less than that possessed by management in managing the entity."*

The criterion for the assessment of the identified risks is the relation of the identified risks of material misstatement to the assertions. In this study it is suggested that the criterion for performance of the sub-task, of "considering the likelihood of the misstatement" is the concept of "misstatement" or what constitutes misstatement; and the criterion for the performance of the sub-task of "considering the magnitude of the misstatement" is planning materiality. The criterion for the performance of the task of "response" to the assessed risks is obtaining sufficient and appropriate audit evidence.

An overview of the three components identified in the analysis of the description of the risk-process audit approach was briefly discussed. These components of the risk-process audit approach will be discussed in this part of the chapter; but first, an overview of the audit planning-phase, and the background to the risk-process audit approach, is given.

5.3.3. Audit planning

The objective of audit planning is to perform an audit engagement in an effective manner (IAASB/IRBA ISA 315, 2004: para. 02). Guidance on audit planning is described in the

“risk standards”, that consists of IAASB/IRBA International Standards on Auditing (ISA) 240R (2006), ISA 300R (2006), ISA 315R (2006) and ISA 330R (2006) (Fogarty, *et al.* 2006: 43). The risk standards direct the audit planning process in the establishment of an overall audit strategy that determines the scope, timing and direction of the audit and in the design and implementation of an audit plan (IAASB/IRBA ISA 300R, 2006: para. 06).

The audit strategy establishes firstly the nature of the audit engagement; and secondly, the resources needed by the auditor to perform the engagement (Arens, Elder & Beasley, 2008: 213). The audit strategy considers the characteristics of the engagement, such as the reporting framework, identifies the significant factors and areas to be considered (the nature of the audit engagement), and sets the timetable for the engagement (resources needed for the engagement) (IAASB/IRBA ISA 300R, 2006 and IAASB/IRBA ISA 300R, 2006: Appendix). The significant factors and areas, direct the performance of the audit engagement and consist of a consideration of the past effectiveness of client controls and areas with a greater risk of significant misstatements (Arens, *et al.* 2008: 213). The audit strategy also assists the auditor in determining the nature, timing and extent of resources required for the engagement, as summarised in the audit budget and timetable (Arens, *et al.* 2008: 213).

Risk assessment procedures are performed to design the audit plan, with the objective of obtaining sufficient, appropriate audit evidence (IAASB/IRBA ISA 315R, 2006: para. 5). The method or approach used to design the audit plan is called the risk-process audit approach. This audit plan is described in IAASB/IRBA ISA 300R (2006: para. 8) and is as follows:

The auditor shall develop an audit plan that shall include a description of:

- (a) The nature, timing and extent of planned risk assessment procedures; and*
- (b) The nature, timing and extent of planned further audit procedures at the assertion level.*
- (c) Other planned audit procedures are required to be carried out so that the engagement complies with ISA’s (International Standards on Auditing).*

The planning of the audit is represented and documented in the overall audit strategy and the audit plan. The method or approach followed to establish the audit plan is the risk-process audit approach.

The criteria for the performance of the three tasks and sub-tasks of the third component are discussed in the next part of the chapter, according to the three main tasks to be performed.

5.3.4. Criteria for performance in the risk-process audit approach

5.3.4.1. Introduction

The third component in the analysis of the description of the risk-process audit approach indicates the criteria used to evaluate the successful performance of the tasks in the risk-process audit approach and provide guidance on how the tasks should be performed.

Criteria that guide auditors to determine if a task in the risk-process audit approach was sufficiently and appropriately executed, could make a major contribution to the performance of an audit.

5.3.4.2. Criteria for the identification of "risks of material misstatement"

5.3.4.2.1. Introduction

Risk of material misstatement, according to Fogarty, *et al.* (2006: 49) forms the "theoretical starting point" for the designing of further audit procedures, including tests of controls, analytical procedures and tests of details. This "theoretical starting point" indicates that auditors plan to direct their audit procedures to those areas where the risk of material misstatement is the greatest (Fogarty, *et al.* 2006: 43). In this regard, Rittenberg, *et al.* (2008: 105) remark as follows: "*Risk is a concept that drives the auditor's thinking.*"

The concept of "risk" in Auditing, or risk of material misstatement, represents the theoretical starting point of the risk-process audit approach; or, stated differently, it is the idea behind the planning of an audit. It will determine why an aspect or matter is an indication that the financial statements could be materially misstated. The characteristics

and features of this concept of "risk" will determine what constitute a risk of material misstatement and what aspects or matters should be identified as risks of material misstatement to direct the planning of the audit.

This concept of "risk" will guide the auditor to obtain an understanding of the entity and its environment; it will determine what information is important; and in what categories the information will be obtained. Consequently, the concept of "risk" will become the criterion used in the performance of the task of identification of risks and the guide auditors could follow in performing the task.

Table 15 contains a summary of previous concepts of "risks", risk-based audit approaches, and the related criteria for the task of identification of risks.

Table 15: Summary of concepts of "risk" in risk-based audit approaches

Summary of concepts of "risk" in risk-based audit approaches and the related criteria for the task of identification of risks.		
Concept of "risk"	Criteria for the task of identification of risks.	Audit approach
Audit risk, that consists of inherent risk, control risk and detection risk	The concept of "audit risk" is decomposed into inherent risk, control risk and detection risk. Auditors could assess inherent risk and control risk as high and therefore decide not to identify these risks and consequently, to increase substantive procedures. The characteristics of inherent risk, control risk and detection risk are discussed in Chapter 4, and are the criteria used to identify risks.	Inherent risk audit approach (discussed in Chapter 4)
Business risk that is related to audit risk	The understanding of the entity and its environment was obtained in order to identify business risks. The identified business risks were related to audit risks	Business risk audit approach (discussed in Chapter 4)

Summary of concepts of "risk" in risk-based audit approaches and the related criteria for the task of identification of risks.		
Concept of "risk"	Criteria for the task of identification of risks.	Audit approach
	and assessed. The characteristics of the concept of "business risk" are the criteria that are used to identify business risks.	
Fraud risks	The criteria for the identification of fraud risks is done according to the characteristics of fraud; for example, an incentive or pressure, a perceived opportunity and the rationalisation of the act (IAASB/IRBA ISA 240R (2006: A1).	Not included in audit approaches and additionally required.

In the next part of the chapter the concept of "risk of material misstatement" that forms part of the risk-process audit approach is discussed.

5.3.4.2.2. The concept of "risk"

The concept of "risk" in the risk-process audit approach is called "risk of material misstatement".

The concept of "risk of material misstatement" is not defined in the IAASB/IRBA Glossary of Terms (2007). Risk of material misstatement is referred to in IAASB/IRBA ISA 200 (2006), stating that (IAASB/IRBA ISA 200, 2006: para. 25):

Audit risk is a function of the risk of material misstatement of the financial statements (or simply, the "risk of material misstatement" i.e. the risk that the financial statements are materially misstated prior to audit) and the risk that the auditor will not detect such misstatement ("detection risk").

According to the above extract, the concept of "risk of material misstatement" is incorporated into the events' structure or decomposition of the concept of "audit risk" that

is defined as follows (IAASB/IRBA ISA 200 (2007: para. 23) and IAASB/IRBA Glossary of terms, 2007: 3):

The risk that the auditor expresses an inappropriate audit opinion when the financial statements are materially misstated is known as 'audit risk'. (This definition of audit risk does not include the risk that the auditor might erroneously express an opinion that the financial statements are materially misstated.)

This creates the impression that the risk-process audit approach is in essence, an adaptation of the inherent risk audit approach. This impression in regard to the definition of "risk of material misstatement" is contradicted in the following instances:

First, the decomposition of risk of material misstatement in inherent risk and control risk is mentioned in the Glossary of Terms (2007: 41) (emphasis added) as follows:

*The **risk of material misstatement** has two components: inherent risk and control risk (as **described at the assertion level** below).*

- (a) Inherent risk is the susceptibility of an assertion to a misstatement that could be material, individually or when aggregated with other misstatements assuming that there were no related internal controls.*
- (b) Control risk is the risk that a misstatement could occur in an assertion and that could be material, individually or when aggregated with other misstatements, will not be prevented or detected and corrected on a timely basis by the entity's internal control.*

The concept of "risk of material misstatement" decomposition into inherent risk and control risk is "described at the assertion level", with no explanation given of the definition of the concept of "risk of material misstatement" at the financial statement level or overall level. This therefore, supposedly excludes an assessment of audit risk on the overall level, one of the initial benefits of the audit risk model (refer also to par 3.5.4.5. *The aggregation of the individual risks*). This perhaps is confirmed by the fact that the following assessment criteria in IAASB/IRBA ISA 300R (2004: para. 13) were removed from IAASB/IRBA ISA 300R (2006) and ISA 315R (2006): "*The auditor shall develop an audit plan for the audit in order to reduce audit risk to an acceptably low level.*"

Secondly, this decomposition is nullified by the explanation in IAASB/IRBA ISA 200 (2006: para. 30), that states:

The ISAs do not ordinarily refer to inherent risk and control risk separately, but rather to a combined assessment of the 'risk of material misstatement'. Although the ISAs ordinarily describe a combined assessment of the risk of material misstatement, the auditor may make separate or combined assessments of inherent and control risk depending on the preferred audit techniques or methodologies and practical considerations.

Thirdly, risk of material misstatement also includes risk of material misstatement due to fraud and error that are identified and assessed according to the characteristics of fraud (refer to Table 15). Fraud risks were not incorporated in the definition of audit risk that decomposes into inherent risk, control risk and detection risk.

Fourthly, reference is made in IAASB/IRBA ISA 200 (2006: para. 30) to the fact that risk of material misstatement is closely related to the business risks of the entity, a different perspective on the concept of "risks of material misstatement" than the decomposition into inherent risk and control risk. The interpretation of IAASB/IRBA ISA 200 (2006: para. 30) stated hereafter, indicates that inherent risks and control risks are controlled by the entity: *"Inherent risk and control risk are the entity's risks; they exist independently of the audit of the financial statements."*

It can be construed that "risk of material misstatement" has evolved into a new concept that has no relation to the initial understanding of the events structure in the inherent risk audit approach. Jackson and Stent (2007: 7/23), refer also Rittenberg, *et al.* (2008: 108), attempted to explain the relationship between risk of material misstatement and audit risk, emphasising that audit risk and risk of material misstatement are two separate concepts:

What is the link between IAASB/IRBA ISA 315R (2006) (the concept of "risk of material misstatement") and audit risk? It is simply that if the auditor fails to identify the factors which give rise to the risk of material misstatement and respond to them, audit risk (the risk of expressing an inappropriate opinion) increases. Furthermore, if the auditor does

not understand the entity and its environment he or she is far more likely to fail in identifying potential risk, and audit risk is increased.

The concept of “risk of material misstatement” is perhaps a broader concept than only a revision of the audit risk formula of “*audit risk = inherent risk x control risk x detection risk*” as suggested by the IAASB/IRBA Glossary of Terms (2007: 41). This concept of “risk of material misstatement” is not clearly defined and described. It is suggested that this was done intentionally by the standard setters, to accommodate the view of the IAASB, in IAASB/IRBA ISA 200 (2006: para. 30), stating that: “*The need for the auditor to make appropriate risk assessments (identify and assess risks) is more important than the different approaches by which they may be made.*”

The concept of “risk of material misstatement” was therefore structured in such a way that it could include both the inherent risk audit approach, the business risk audit approach or for that matter, another approach. This concept of “risk” that could describe the criteria used in the performance of the task of identification of risks and is the guide auditors could follow in performing the task, is in essence, a choice in which the auditor has the freedom to choose an approach.

The sub-tasks of obtaining an understanding of the entity and its environment, including internal control (discussed separately) and the consideration of classes of transactions, account balances and disclosures that guide an auditor in identifying risks of material misstatement are discussed in the next part of this chapter.

5.3.4.2.3. Obtaining an understanding of the entity and its environment

The auditor’s identification of risk of material misstatement is dependent on the auditor’s adequate understanding of the client’s business (Rittenberg, *et al.* 2008: 107).

The criteria for the performance of the sub-task of “obtaining of an understanding of the entity and its environment” are mentioned in IAASB/IRBA ISA 315R (2006: para. A3): “*The depth of the overall understanding that is required by the auditor is less than that possessed by management in managing the entity.*”

Auditors have the freedom to determine what is expected of them, and the depth of understanding is to be determined with professional judgment. The auditing standards give guidance on the sources and types of information to obtain, but IAASB/IRBA ISA 315R (2006: para. A5), states that this information is a guideline and auditors are allowed to obtain other information or only part of the above-mentioned information. The auditor should obtain an understanding of the entity and its environment, including an understanding of internal control, discussed in the next part of the chapter, to form the basis for the identification of "risks of material misstatement".

5.3.4.2.4. Obtaining an understanding of internal control

The auditor's professional judgment will determine how, what and how much of a system of internal controls will be integrated into the understanding of the entity and its environment. Fogarty, *et al.* (2006: 49) interprets that the assessment of risk of material misstatement includes an assessment of related controls, as stated in (IAASB/IRBA ISA 200, 2006: para. 30): *"the auditor's assessment of risk of material misstatement includes an expectation of the operating effectiveness of controls."*

The connection between risks of material misstatement and controls in the risk-process audit approach are not so obvious, and therefore difficult to describe. It is explained by IAASB/IRBA ISA 315R (2006: para. A111) as follows: *"Controls can be either directly or indirectly related to an assertion. The more indirect the relationship, the less effective that control may be in preventing, or detecting and correcting, misstatements in that assertion."*

The controls to consider are called relevant control activities and these are described in IAASB/IRBA ISA 315R (2006: para. 20), as: *"being those (control activities) the auditor judges necessary to understand, in order to assess the risks of material misstatement at the assertion level and design further audit procedures responsive to assessed risks."*

Based on professional judgment the dilemma to decide which controls are relevant in respect of the identified risks of material misstatement at the assertion level is explained by Pareek (2006: 39):

In real-life situations where risks number into many hundreds with an equally intimidating number of controls with complex interrelationships, it becomes difficult for

the auditor to decide which combination of controls to test, to minimise the total audit effort required to address all the risks.

In deciding on the relevant controls and in evaluating the design the auditor should take the following into consideration (Pareek, 2006: 39):

- (a) Some risks and their related controls are more significant;
- (b) Some controls are more relevant, due to their focus;
- (c) Some controls are more sensitive to testing, and therefore the testing of such controls is more effective;
- (d) The cost-effectiveness of controls varies;
- (e) Some controls operate at the transaction level while other controls are the aggregation of them; and
- (f) Some controls are pervasive and others specific.

In conclusion, Pareek (2006: 39) explains: *"The process for deciding which controls to test, given a finite set of risks, is, as can be expected, highly subjective and judgment-based. It is more of an art than a science."*

IAASB/IRBA ISA 315R (2006: para. A109) provide the following guidance and criteria for the performance of the sub-task of obtaining an understanding of internal control:

Generally, it is useful to obtain an understanding of controls and relate them to assertions in the context of processes and systems in which they exist because individual control activities often do not in themselves address a risk. Often, only multiple control activities, together with other components of internal control, will be sufficient to address a risk.

The first two sub-tasks that were discussed were obtaining an understanding of the entity and its environment, including internal control. The last sub-task is the consideration of the classes of transactions, account balances and disclosures.

5.3.4.2.5. The consideration of classes of transactions, account balances and disclosures

Criteria for the performance of the task of “identification and assessment of risks of material misstatement” could be divided between criteria for the identification and assessment of risks of material misstatement on the financial statement level; and assessment of risks of material misstatement on the assertion level.

On the assertion level, the characteristics of misstatements and the relation between misstatements and assertions are used as criteria for the performance of the task of “the consideration of classes of transactions, account balances and disclosures”. Fogarty, *et al.* (2007: 5) confirms that some auditors use audit methodologies that integrate assertions into identifying risks, assessing controls and performing procedures. IAASB/IRBA ISA 315R (2006: A103) confirms this interpretation stating that: *“Assertions used by the auditor to consider the different types of potential misstatements that may occur.”*

The *“consideration of different types of potential misstatements that may occur”* is the reason for identification and assessment of risks of material misstatement. This assertion focus is further discussed in par 5.3.4.3.2. *Assertion-focus*.

5.3.4.2.6. Conclusion

This concept of “risk of material misstatement” is the idea, the why and what, in the planning of an audit. Therefore, the characteristics and features of this concept of “risk” could be translated into the criteria for the performance of the task of identification of risks of material misstatement and the guidance auditors follow in performing the task.

In identifying risks of material misstatement on the financial statement level no criteria are given for the performance of the task. The sub-tasks of obtaining an understanding of the entity and its environment, including internal control, are suggested in the risk standards to guide an auditor in identifying risks of material misstatement.

The concept of “risk of material misstatement” is broader than the suggested definition in the auditing standards and includes the consideration of potential misstatements

according to the assertions or an assertion-focus on the assertion level.

The criteria for the performance of the task of “assessment of identified risks” will be discussed in the next part of the chapter.

5.3.4.3. Criteria for the assessment of identified risks

5.3.4.3.1. Introduction

According to IAASB/IRBA ISA 200 (2006: para. 30), auditors are allowed the freedom to choose an approach of their choice, to identify and assess risks of material misstatements, because: *“The need for the auditor to make appropriate risk assessments is more important than the different approaches by which they may be made.”*

An example of such a “different” approach is the business risk audit approach that uses the identification of business risks to assist in the identifying of risks of material misstatement. Auditors are allowed to use different audit approaches to make appropriate risk assessments, and guidance is provided in the auditing standards on the criteria for the task of assessing the identified risks.

The criteria for the task of assessing the identified risks will be discussed according to the three sub-tasks in the task of “assessing identified risks”. The task of “assessment of identified risks” consists of the following sub-tasks:

- Relate risks to what can go wrong at the assertion level
- Consider the likelihood of misstatement(s)
- Consider the magnitude of misstatement(s)

5.3.4.3.2. Assertion-focus

The criteria for the performance of the task of “assessing identified risks”, is that the identified risks are related to what can go wrong at the assertion level, affecting multiple assertions or an assertion (IAASB/IRBA ISA 315R, 2006: para. 25 (b)-(d)). This can be explained as the identification of possible misstatements through the consideration of the assertions.

The different types of assertions are used as the criteria for assessing risks of material misstatements. The assertions are the tool or method that indicates or identifies possible misstatements and consequently determines the importance of the risks of material misstatement. The identification and assessment of misstatements is the objective of an audit. With reference to the task of "assessing the identified risks", IAASB/IRBA ISA 200 (2006: para. 30) further states that: *"The auditor is required to assess the risk of material misstatement at the assertion level ... though that assessment is a judgment, rather than a precise measurement of risk."*

A second or additional set of criteria for the performance of the task of "assessment" was given in IAASB/IRBA ISA 300 (2004: para. 13), but was removed from IAASB/IRBA ISA 300R (2006) and ISA 315R (2006), stating that: *"The auditor shall develop an audit plan for the audit in order to reduce audit risk to an acceptably low level."*

The assertion-focus differentiates the risk-process audit approach from previous audit approaches and is linked to the concept of "misstatement" that will be discussed in the next part of this chapter.

5.3.4.3.3. The concept of "misstatement"

5.3.4.3.3.1. Introduction

The criteria for the performance of the sub-task of "considering the likelihood of misstatement(s)" are the components of the concept of "misstatement".

5.3.4.3.3.2. Definition of the concept of "misstatement"

The word "statement" according to the Oxford dictionary (1999: 1165) is defined as: *"A formal account of facts or views e.g. a report"*

Rittenberg, *et al.* (2008: 398,412) emphasise that a misstatement is a difference between an incorrect balance and a balance that is a fair presentation of the company's operations and position according to an acceptable financial reporting framework (refer to IAASB/IRBA ISA 200 (2006: para. 2). The description of "misstatement" in the Glossary of Terms, refers to the sources of misstatements and is as follows: (IAASB/IRBA Glossary

of terms (2007: 11): "A *misstatement of the financial statements that can arise from fraud or error.*"

IFAC ED ISA 320 (Revised) and ISA 450 (2007: para. 4(d)) define a misstatement as (emphasis added):

*A **difference** between the amount, classification, presentation, or disclosure of a reported financial statement item and the amount, classification, presentation, or disclosure that is required for the item to be in accordance with the applicable financial reporting framework.*

A misstatement represents a difference and this difference has different characteristics. The different characteristics result in the classification of misstatements in different categories. The classification of misstatements will be discussed in the next part of the chapter.

5.3.4.3.3. Classification of misstatements

The classification of misstatements illustrates the different components of the concept of "misstatement".

Firstly, Konrath (2002: 111) mentions that there are two categories of misstatements that are as follows (emphasis added): "*Misstatements that **understate** financial statement components may be referred to as misstatements due to **omission**. Misstatements that **overstate** financial statement components may be referred to as misstatements due to **commission**.*"

Secondly, misstatements are categorised into factual misstatements, judgmental misstatements and projected misstatements. The different types of misstatements are defined as follows; IFAC ED ISA 320 (Revised) and ISA 450 (2007: para. 4):

- *Factual misstatements – Misstatements about which there is no doubt.*
- *Judgmental misstatements – Differences which arise from management's judgments concerning accounting estimates that the auditor considers unreasonable, or the selection or application of accounting policies that the auditor considers inappropriate.*

- *Projected misstatements – The auditor’s best estimate of misstatements in populations, involving the projection of misstatements identified in audit samples of the entire populations from which the samples were drawn.*

Initially misstatements were categorised in known misstatements, consisting of misstatements of fact and misstatements involving subjective decisions, and likely misstatements (IFAC ED ISA 320 (Revised), 2004: para. 31). In the Basis for Conclusions: ISA 320R and ISA 450 (2006: para. 21–24) the IAASB summarised the views and comments received from respondents. In conclusion, the IAASB decided to alter the preliminary categorisation of misstatements to factual, judgmental and projected misstatements. IFAC ED ISA 320 (Revised) and ISA 450 (2007: para. A2) require that this classification is used in documenting misstatements, because: *"The distinction between factual misstatements, judgmental misstatements and projected misstatements assists the auditor in considering the effects of misstatements accumulated during the audit."*

Thirdly, misstatements are also classified according to the different types of potential misstatements that may occur; or stated differently, the misrepresentation of management’s assertions is a misstatement. The term “assertions” is defined in IAASB/IRBA ISA 315R (2006: para. 4(a)) as follows (emphasis added): *"Assertions – Representations by management, explicit or otherwise, that are embodied in the financial statements, as used by the auditor to consider the **different types of potential misstatements** that may occur."*

Morton and Felix (1991: 1) confirm that management assertions are an *"accepted scheme"* for classifying misstatements.

Fourthly, misstatements may be classified according to the causes of misstatements. These causes of misstatements are mentioned in IFAC ED ISA 320 (Revised) and ISA 450 (2007: para. A2) and are related in Table 16 to types of misstatements and the assertions.

Table 16: Causes of misstatements related to the assertions and types of misstatements

Causes of misstatements	Type of misstatement	Assertions (IAASB/IRBA ISA 500 (2004: para. 17))
<i>Misstatements can arise from error or fraud and may result from</i> (IFAC ED ISA 320 (Revised) and ISA 450, 2007: para. 4(d)):		
<i>(i) An inaccuracy in gathering or processing data from which the financial statements are prepared;</i>	Factual misstatements	Assertions about classes of transactions and events for the period under audit
<i>(ii) An omission of an amount or disclosure;</i>	Factual misstatements	Assertions about account balances - Completeness Assertions about presentation and disclosure - Completeness
<i>(iii) An incorrect accounting estimate arising from overlooking or obvious misinterpretation of facts; and (iv) Management's judgments concerning accounting estimates that the auditor considers unreasonable; or the selection and application of accounting policies that the auditor considers inappropriate.</i>	Judgmental misstatements	Assertions about classes of transactions and events for the period under audit - Accuracy - Classification Assertions about account balances - Valuation and allocation Assertions about presentation and disclosure - Accuracy and valuation - Classification

In Table 16 the misappropriation of assets that may cause a factual misstatement, and is explained by the assertions of existence of rights and obligations, are not included in the list of causes given in IFAC ED ISA 320 (Revised) and ISA 450 (2007: para. 4(d)).

5.3.4.3.3.4. Causes of misstatements

Fraud or error causes misstatements in the financial statements (IAASB/IRBA ISA 240, 2006: para 2). IAASB/IRBA ISA 240R (2006: para 2) explains the difference between fraud and error as follows: *"The distinguishing factor between fraud and error is whether the underlying action that results in the misstatement of the financial statements is intentional or unintentional."*

Material misstatements comprise unintentional and intentional misstatements. With regard to intentional misstatements, only misstatements resulting from fraudulent financial reporting and misstatements resulting from misappropriation of assets are relevant to the auditor (IAASB/IRBA ISA 240, 2006: para. 03).

5.3.4.3.3.5. Conclusion

The criteria for the performance of the sub-task of "considering the likelihood of misstatement(s)" are the characteristics and elements of the concept of "misstatement" in combination with the concepts of "uncertainty" or "likelihood". The concepts of "uncertainty" or "likelihood" are not described or explained in the risk standards.

In the next part of the study, the assessment criterion of planning materiality will be discussed.

5.3.4.3.4. The concept of "materiality"

5.3.4.3.4.1. Introduction

The criterion for the performance of the sub-task of "considering the magnitude of misstatement(s)" is planning materiality.

Materiality is a deciding factor or criterion in the assessment of misstatements (Nolan, 2005:19). The reasoning behind materiality is explained by Mautz and Sharaf (1961: 85): *"Auditing works within a framework of economic usefulness that requires balancing of cost with benefit derived."*

The Panel of Audit Effectiveness (2000: 177) states that auditors do not investigate every possible misstatement of the financial statements that might occur, but apply the concept of materiality when planning the risk assessment procedures and the nature, timing and extent of the audit procedures (Panel of Audit Effectiveness, 2000: 177). In addition to the above-mentioned reason of cost-efficiency, materiality and risk are interrelated, as explained by Mckee, Eilifsen, Hitzig and Klein (2000: 54): "*Audit risk is defined in terms of a 'material misstatement'. From both a theoretical and practical perspective this means that it is not possible to discuss audit risk in a meaningful way without also discussing a corresponding level of materiality.*"

Although the concept of "materiality" had already been included in the auditing standards for quite a time, to apply it appropriately has often "eluded" the auditing profession (Gist & Shastri & Colson, 2003: 61). An example of the controversy surrounding the practical application of the materiality concept was a \$51 million adjustment that was considered to be immaterial in the 1997 audit of Enron by Arthur Andersen, when Enron reported income of \$105 million (Brody, Lowe & Pany, 2005: 153). Brody, *et al.* (2005: 159) concluded after investigation, as follows:

In conclusion, using the quantitative guidance available in the AICPA Audit and Accounting Manual (AICPA 1996), a \$51 million restatement of Enron's \$105 million 1997 net income is in a 'gray area' when using various net-income-related materiality measures. When using the smaller income-based numbers (5 per cent of income) it is generally material, but when using the larger income-based measures (10 per cent of income) it is not material under some assumptions. It is immaterial when using any of the asset and revenue measures.

The controversy surrounding materiality is extended with the concern expressed by the Securities and Exchange Chairman, Arthur Levitt in regard to the concept of materiality in what is called his "Numbers Game" speech. Commissioner Levitt stated that (Levitt (1998) in Messier, *et al.* (2005: 153-154):

Some companies misuse the concept of materiality. They intentionally record errors within a defined percentage ceiling. They then try to excuse that fib by arguing that the effect on the bottom line is too small to matter. If that's the case, why do they work so hard to create these errors? Maybe it is because the effect can matter,

especially if it picks up that last penny of the consensus estimate. When either management or the outside auditors are questioned about these clear violations of GAAP, they answer sheepishly ... "It doesn't matter. It's immaterial." In markets where missing an earnings projection by a penny can result in a loss of millions of dollars in market capitalization, I have a hard time accepting that some of these so-called non-events simply don't matter.

5.3.4.3.4.2. The definition of "materiality", a user perspective

Materiality is defined in the International Accounting Standards Board's "Framework for the Preparation and Presentation of Financial Statements" in the following terms (IAASB/IRBA ISA 320, 2006: para. 3):

Information is material if its omission or misstatement could influence the economic decisions of users taken on the basis of the financial statements. Materiality depends on the size of the item or error judged in the particular circumstances of its omission or misstatement. Thus, materiality provides a threshold or cut-off point rather than being a primary qualitative characteristic which information must have if it is to be useful.

In the IAASB Basis for Conclusions: ISA 320R and 450 (2006: para. 12), the IAASB explains, in regard to materiality in the context of an audit, the following:

The IAASB accepted that the applicable financial reporting framework, may define materiality, and that such definition may differ from that in IFAC ED-ISA320, and that at some future date the International Accounting Standards Board may amend its definition. The IAASB concluded that it would be more appropriate to describe the characteristics of materiality often discussed in financial reporting frameworks, and to indicate that, should such a discussion of materiality exist in the applicable financial reporting framework, it would provide a frame of reference to the auditor in determining materiality for the audit.

The characteristics of materiality in the context of an audit are described as follows (IFAC ED ISA 320 (Revised) and ISA 450 2007: para. 2):

Although financial reporting frameworks may discuss materiality in different terms, they generally explain that:

- *Misstatements, including omissions, are considered to be material if they,*

individually or in the aggregate, could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements;

- *Judgments about materiality are made in the light of surrounding circumstances, and are affected by the size or nature of a misstatement, or a combination or both; and*
- *Judgments about matters that are material to users of the financial statements are based on a consideration of the common financial information needs of users as a group. The possible effect of misstatements on specific individual users, whose needs may vary widely, is not considered.*

Materiality's definition is characterised by what is called a "user perspective" (Messier, *et al.* (2005: 155). Auditors may make the following assumptions in respect of the users of the financial statements (IFAC ED ISA 320(Revised) and ISA 450, 2007: para. 4):

- a) Informed and competent users.
- b) Users that understand that materiality is necessary.
- c) Users that recognise the uncertainties caused by the use of estimates, judgment and the consideration of future events.
- d) Users that make reasonable economic decisions.

Tuttle, Coller and Plumlee (2002: 11) performed a study that concentrated on the aspect of the magnitude of materiality and investigated whether misstatements that are at or below materiality thresholds, result in market prices that differ from those resulting from correctly stated information. They conducted a series of 12 experimental asset markets each consisting of 12 independent three-minute trading periods with six traders in each market, and then compared prices for companies generated by markets that provided either correctly stated information, information containing misstatements that would typically be considered immaterial, or information containing material misstatements (Tuttle, *et al.* 2002: 11). The results of the study showed that undisclosed misstatements within materiality thresholds do not affect market prices, while misstatements well above these thresholds do (Tuttle, *et al.* 2002: 11).

The set of planning materiality is important because the risk assessment standards indicate that when planning materiality is set, this materiality level should not be lowered

when misstatements are evaluated, regardless of the inherent business characteristics of the entity being audited (Carmichael, 2006: 33). The reason for this is that the inherent uncertainty of financial statement items does not result in the application of different procedures for planning or evaluating misstatements (Carmichael, 2006: 33).

5.3.4.3.4.3. Materiality level for the financial statements as a whole

Included in the overall audit strategy of an audit engagement, is a materiality level for the financial statements as a whole (IFAC ED ISA 320 (Revised) and ISA 450, 2007: para. 9).

The former practice of determining planning materiality for the financial statements taken as a whole is now explicitly required (Carmichael, 2006: 14). Planning materiality, the basis on which the planning materiality level was determined, and any changes thereto should be documented (Carmichael, 2006: 14).

Concerns identified by the study of Messier, *et al.* (2005: 153-154) indicate that audit firms differ on the methods used to establish overall planning materiality and in allocating planning materiality to financial statement accounts or to the assertion level; and that this will influence the extent of the audit procedures planned. The methods or approaches to determine planning materiality are discussed in two parts: firstly, quantitative percentages or benchmarks; and secondly, the consideration of qualitative factors.

5.3.4.3.4.4. Materiality levels for particular classes of transactions, account balances or disclosures

The auditor may set materiality levels for particular classes of transactions, account balances or disclosures, also called the tolerable misstatement level (IFAC ED 320 (2004: para. 20); Carmichael (2006: 14)). The reason for setting a tolerable misstatement level is the possibility of the aggregating effects of immaterial misstatements, and to assist auditors in designing audit procedures at the assertion level (Fogarty, *et al.* 2006: 44).

Auditors can follow a selection of approaches to establish materiality at the assertion or account level. The following approaches are summarised by McKee, *et al.* (2000: 57):

- *Judgmental approach: The auditor sets the account materiality on a purely*

judgmental basis;

- *Ratio approach: The auditor sets the account tolerable misstatement at a range that depends on the auditor's assessment of risk;*
- *Adjusting entry assessment: The auditor sets the account tolerable misstatement at some fraction of overall financial statement materiality, depending upon the number of adjusting entries from the previous year's audit;*
- *Formula approach: Some auditors use a formula that assigns some proportion of overall materiality to the individual accounts based on their relative size and the possibility of offsetting errors.*

5.3.4.3.4.5. Quantitative percentages of benchmarks

Discussion Paper 6 (DP6) (1984) first introduced quantitative percentages of benchmarks to determine planning materiality (Marx, *et al.* 2006:8-23). In 2004, IFAC ED ISA 320 (Revised) (2004: para. 14) included illustrative examples of percentages applied to benchmarks, to assist auditors in determining materiality. These percentages of benchmarks were removed in IFAC ED ISA 320 (Revised) and 450 (2006: para. 15) because of the following conclusion in IAASB Basis for Conclusions: ISA 320R and ISA 450:

Many respondents questioned whether it was advisable to include such examples in the revised ISA. They were concerned that such 'rules of thumb' would become 'standard'; the examples gave undue emphasis to the quantitative aspects of materiality; and the examples might encourage those responsible for inspecting an audit engagement to focus on why the auditor did not apply the given percentages, rather than how the auditor determined a particular percentage.

Messier, *et al.* (2005: 157) have summarised research concerning materiality, since 1982, according to the research methods employed; specifically archival studies and behavioural or experimental research studies. They discussed the research results obtained from archival studies according to the source of the underlying data: firstly, data from auditor-related sources; for example, audit firm manuals and data from auditor working papers. Secondly, data from public sources was examined; for example, published financial statement data and auditor reports (Messier, *et al.* 2005: 157).

Firstly, the results from archival research that relied to data from auditor-related sources, report that professional judgment plays a significant role and that the manner in which firms establish planning materiality differs. Revenue or a related amount forms the major benchmark or basis for materiality (Messier, *et al.* 2005: 157).

Secondly, the results from archival research that relied on data from public sources, confirm that the materiality of the item is determined by the effect of the item on income (Messier, *et al.* 2005: 157).

Thirdly, Messier, *et al.* (2005: 157) summarised the results from experimental studies that examined materiality judgments of users e.g. investors, auditors, and other participants e.g. judges and lawyers. They reported that in line with the above findings, net income continues to be the most important benchmark on which to base materiality. Of secondary importance is the effect of the misstatement on earnings, the trend or expectation (Messier, *et al.* 2005: 157). Furthermore, the results for the benchmarks of total assets or net assets, as basis of materiality, were mixed (Messier, *et al.* 2005: 157).

5.3.4.3.4.6. Consideration of qualitative factors

Planning materiality is determined through a combination of quantitative percentages applied to benchmarks and the consideration of qualitative factors and auditor judgment. Messier, *et al.* (2005: 157)) found that qualitative factors affect materiality decisions and that materiality judgments differ according to the experience of the auditor and firm type.

Carmichael further suggests that in the planning phase of the audit, qualitative aspects are seldom included in the use of planning materiality (Carmichael (2006: 16)). DeZoort, *et al.* 2006: 385) confirm this observation, reporting that the proportion of qualitative factors considered was consistently higher for the final materiality judgment than for the planning materiality judgment.

5.3.4.3.4.7. Conclusion

The criteria for the performance of the sub-task of “considering the magnitude of misstatement(s)” are planning materiality. Messier, *et al.* (2005: 153-154) state in their

literature study, that: *"Auditors experienced difficulty in applying their professional judgment to decide on the materiality of misstatements"*.

5.3.4.3.5. Conclusion to the criteria of "assessment" of identified risks

The criteria for the sub-tasks of "assessment of identified risks" are as follows:

- The different types of assertions are used as the criteria for assessing risks of material misstatements through the identifying of possible misstatements.
- The concept of "misstatements" is the criteria used to consider the likelihood of misstatement(s).
- The concept of "planning materiality" is used to consider the magnitude of misstatement(s).

5.3.4.4. Criteria for the response to assessed risks

The auditor should determine his/her response to the assessed risks of material misstatement. The auditor designs and implements appropriate responses to the assessed risks in deciding on the nature, timing and extent of the audit procedures (IAASB/IRBA ISA 330R, 2006: para. 03). The nature, timing and extent of the audit procedures should provide sufficient, appropriate audit evidence about the assessed risks of material misstatement (IAASB/IRBA ISA 330R, 2006: para. 03).

The criteria of the performance of the task of "response" are sufficient, appropriate audit evidence and are fully discussed in IAASB/IRBA ISA 500 (2004), but do not fall within the scope of this study.

5.3.4.5. The relationship between the criteria for performance in the risk-process audit approach

A key aspect of the risk-process audit approach is the link between the identified risks and the assessment of the identified risks, including the relevant controls. Furthermore, with reference to the connecting of the auditor's response to the assessed risks (Fogarty, *et al.* (2006: 45), Keenan (2005: 43) and Carmichael (2006: 14)) mention that the link of assessed risks with an appropriate response, consisting of the nature, timing and extent of audit procedures, is a requirement of the risk standards.

On the assertion level, the assertion-focus is used to identify, assess and respond to risks of material misstatements. This is confirmed by Fogarty, *et al.* (2006: 43), stating (comment added): *"The standards emphasise the use of assertions to link the risks, controls, audit procedures and conclusions. Auditors can use this technique (assertion-focus) to determine whether audit procedures are responsive to identified risks."*

On the financial statement level, the areas of obtaining an understanding of the entity and the COSO framework for internal control are used as broad areas to consider risks. These risks are then related to multiple assertions that are responded to.

5.3.4.6. Conclusion

The freedom to choose between the different audit approaches that could be followed is contradicted by specific criteria included in the risk standards that favour the use of assertions to identify and assess potential misstatements on the assertion level.

Guidance given in the risk standards contradicts the description of the concept of "risk of material misstatement" as described in the Glossary of Terms (2007: 41). The situation is exacerbated by the freedom to choose an approach, each with an own concept of "risk" that has a different meaning.

In the following paragraphs of this study the three major tasks and sub-tasks of the risk-process audit approach will be discussed, including the division into the financial statement level and the assertion level during the risk-process audit approach.

5.3.5. Identification of risk of material misstatement

5.3.5.1. Introduction

The first component of the risk-process audit approach consists of the following tasks: identify the risks, assess the identified risks and respond to the assessed risks. These tasks are referred to as risk assessment procedures and IAASB/IRBA ISA 315R (2006: para. 4(d)) requires that the auditor perform risk assessment procedures to identify and assess the risks of material misstatements.

The task of identification of risks of material misstatement, the second component of the risk-process audit approach will be discussed in the next part of this chapter.

5.3.5.2. Approaches for the identification of risks of material misstatement

The process of identifying risks of material misstatement should be approached according to a risk classification framework or combination of frameworks selected by the auditor. A risk classification framework comprises a set of characteristics or features that are used to characterise or describe the risks to be identified (Kristensen, *et al.* 2005: 421).

Risk classification frameworks that could be used for the identification of risks of material misstatement are as follows:

First, the audit risk model suggests a risk classification framework of classifying risks of material misstatement to be identified in inherent risks and control risks (refer to Chapter 4: *Inherent risk audit approach from a conceptual perspective*).

Secondly, the business risk audit approach suggests a risk classification framework that identifies business risks according to business processes. These business risks are then related to risks of material misstatement, to assist the auditor in the identification of risks of material misstatement (refer to Chapter 4: *The business risk audit approach*). The above two risk classification frameworks were the result of the defining of the concept of "risk" in the inherent risk audit approach and the business risk audit approach.

Thirdly, the risk-process audit approach suggests a risk classification framework that classifies risks of material misstatement on the financial statement level and the assertion level. The assertion level is further subdivided into categories of risks of material misstatement that affect the different assertions relating to accounts, transactions and disclosures (IAASB/IRBA ISA 315R, 2006: para. 24).

The fourth approach to identifying risks of material misstatement suggests a risk classification framework that classifies risks of material misstatement according to risks that existed or originated because of the entity and its environment, including the entity's

internal control. In the identification of risks of material misstatement, it is suggested that the characteristics of the entity and its environment and internal control, are factors that indicate risks of material misstatement. The entity and its environment, including internal control, represent environments starting from the most external environment; for example other external factors, regulation and the industry in which the entity reside. Moving closer to internal environments such as the nature of the entity, its financial performance, and finally, obtaining an understanding of the system of internal control is necessary (IAASB/IRBA ISA 315R, 2006: para. 11). These different environments represent sources of risks of material misstatement. The sources indicate risks of material misstatements during the obtaining of an understanding of the entity and its environment. The obtaining of an understanding of the entity and its environment, including internal control will be discussed in par 5.3.5.3 *Developments in obtaining an understanding of the entity and its environment, including internal control*. This is also one of the sub-tasks of identification of risks of material misstatement.

The fifth approach in identifying risks of material misstatement is a risk-scenario approach or brainstorming session that forms part of the auditor's risk assessment procedures. This brainstorming session is explained in IAASB/IRBA ISA 315R (2006: para. 10) as follows:

The engagement partner and other key engagement team members shall discuss the susceptibility of the entity's financial statements to material misstatement, and the application of the applicable financial reporting framework to the entity's facts and circumstances.

The sixth approach uses checklists to identify risks of material misstatement. In IAASB/IRBA ISA 315R (2006: para. A108 & Appendix 2) a list of conditions and events that may indicate risks of material misstatement is given, this is explained, as follows:

The following are examples of conditions and events that may indicate the existence of risks of material misstatement. The examples provided cover a broad range of conditions and events; however, not all conditions and events are relevant to every audit engagement and the list of examples is not necessarily complete.

Fogarty, *et al.* (2006: 44) mention that the list of risks and risk factors could be of assistance during brainstorming sessions because some of these factors are rooted in

business risks and could indicate misstatements in the financial statements (Fogarty, *et al.* 2006: 44).

These approaches to identify risks of material misstatement are used in a combination by the auditor, according to his/her professional judgment.

5.3.5.3. Developments in obtaining an understanding of the entity and its environment, including internal control

The objective of obtaining an understanding of the entity and its environment, including internal controls, is to create a frame of reference within which risks are identified, identified risks are assessed and assessed risks are responded to (IAASB/IRBA ISA 315R, 2006: para. A1). This frame of reference is also a risk classification framework and has been described previously as the fourth approach in par 5.3.5.2. *Approaches for the identification of risk of material misstatement.*

In obtaining an understanding of the entity and its environment, including internal control, auditors use information obtained from the following sources that were added to IAASB/IRBA ISA 315R (2006: para. 6 - 9 & A6 – A12), to identify and assess risks of material misstatement (Arens, *et al.* (2008: 425)):

- Information obtained from analytical procedures performed on financial statements, management accounts and reports prepared by management that include financial performance indicators (IAASB/IRBA ISA 315R, 2006: para. A7–A8);
- Information obtained from the discussion among the engagement team (IAASB/IRBA ISA 315R, 2006: para. A11);
- Information from the auditor's client acceptance and continuance process (IAASB/IRBA ISA 315R, 2006: para. 7);
- Information from other engagements performed for the entity (IAASB/IRBA ISA 315R, 2006: para. 8);
- Inquiries of those charged with corporate governance and marketing and sales personnel (IAASB/IRBA ISA 315R, 2006: para. A6).

The areas (in which information is classified) that should be considered in obtaining an understanding of the entity and its environment, including internal control, were much more clearly defined and described in the risk standards, and are as follows (IAASB/IRBA ISA 315R, 2006: para. 11):

The auditor shall obtain an understanding of the following:

- (a) Relevant industry, regulatory, and other external factors including the applicable financial reporting framework.*
- (b) The nature of the entity including its operations, ownership and governance structures, types of investments, the way that the entity is structured and how it is financed, to enable the auditor to understand the classes of transactions, account balances and disclosures to be expected in the financial statements.*
- (c) The entity's selection and application of accounting policies, including the reasons for changes thereto. The auditor shall evaluate whether the entity's accounting policies are appropriate for its business and consistent with the applicable financial reporting framework and accounting policies used in the relevant industry.*
- (d) The entity's objectives and strategies, and those related business risks that may result in risks of material misstatement.*
- (e) The measurement and review of the entity's financial performance.*
- (f) Internal control (the control environment, entity's risk assessment process, information system including related business processes, control activities and monitoring of controls).*

The major difference in the areas that are considered when obtaining an understanding of the entity and its environment, included in the latest risk standards, was the inclusion of the area of risk management. The benefits of obtaining an understanding of risk management are explained by Whittington and Pany (2004: 242) (explanation added): *"An understanding of the risk assessment process (of the client) assists the auditors in identifying risks of material misstatement, because many risks of material misstatement arise as a result of business risks faced by management."*

The first COSO framework for internal controls was used to structure and describe the guidance about obtaining an understanding of internal controls; a further discussion of internal control frameworks does not form part of the scope of this study.

In the next part of this chapter the identification of risks of material misstatement due to fraud and error that form part of the identification of risks of material misstatement, will be discussed.

5.3.5.4. Identification of risks of material misstatement due to fraud

In the identification of risks of material misstatement additional procedures should be undertaken to identify risks of material misstatement due to fraud because the risk of not identifying the risks of material misstatement due to fraud is higher (IAASB/IRBA ISA 240R, 2006: para. 6). The reasons for the performance of additional audit procedures are explained in IAASB/IRBA ISA 240R, 2006: para. 6) as follows: *"This is because fraud may involve sophisticated and carefully organised schemes designed to conceal it, such as forgery, deliberate failure to record transactions, or intentional misrepresentations being made to the auditor."*

In the identification of risks of material misstatement due to fraud, the IAASB/IRBA ISA 240R, (2006: para. 26) further states (emphasis added):

*When identifying and assessing the risks of material misstatement due to fraud, the auditor shall, **based on a presumption that there are risks of fraud in revenue recognition**, evaluate which types of revenue, revenue transactions or assertions give rise to such risks.*

Therefore, the identification of risks of material misstatement due to fraud, and specifically the risks associated with revenue recognition, should receive much more attention during the performance of the audit. In addition to the above guidelines given in the auditing standards, the identification of risks of material misstatement due to fraud was researched extensively, because it plays a major role in the effectiveness of the audit (McDaniel and Kinney, 1995 in Shelton, Whittington & Landsittel, 2001: 19). This is confirmed in IAASB/IRBA ISA 240R (2006: para. 27) that states that risks of material misstatement due to fraud are assessed as significant risks.

Fraud risk factors are events and conditions that could indicate risks of material misstatement due to fraud. Fraud risk factors that could indicate risks of material

misstatement due to fraud are classified in the following categories (a risk classification framework) (IAASB/IRBA ISA 240R, 2006: Appendix 1):

The fraud risk factors identified in this Appendix are examples of such factors that may be faced by auditors in a broad range of situations. Separately presented are examples relating to the two types of fraud relevant to the auditor's consideration – that is, fraudulent financial reporting and misappropriation of assets. For each of these types of fraud, the risk factors are further classified based on three conditions generally present when material misstatements due to fraud occur: (a) incentives/pressures (b) opportunities, and (c) attitudes and rationalisations.

Shelton, Whittington and Landsittel (2001: 19) performed a study that considers the practices of auditing firms in respect of the auditor's responsibilities relating to fraud in the audit. They interviewed audit teams and evaluated audit manuals and practice aids from all of the Big 5 firms and two second-tier firms (Shelton, *et al.* 2001: 19). The study investigated, among other aspects (Shelton, *et al.* 2001: 19):

- *Whether their practice aids for fraud risk management are separate or integrated with other risk assessment practice aids; and*
- *The methods for identification of risk of material misstatement due to fraud.*

First, Shelton, *et al.* (2001: 21) reported that the majority of audit firms combined the identification of risks of material misstatement with the identification of risks of material misstatement due to fraud, because they believe that fraud risk is included and integrated in inherent risk and control risk. These practices were reflected by the standard setters, in IAASB/IRBA ISA 240R (2006: para. 1), but these practices also directed the standard setters to emphasise the additional work that should be done in respect of risks of material misstatements due to fraud, as mentioned: *"Specifically, it expands on how ISA 315 (Redrafted), and ISA 330 (Redrafted), are to be applied in relation to risks of material misstatement due to fraud."*

Secondly, Shelton, *et al.* (2001: 25) reported that the majority of firms use simple checklists in the identification of risks of material misstatement due to fraud, while some firms use a more sophisticated scoring system. Lemon, Tatum and Turley (2000: 18)

confirmed this result, stating that the method for identifying risks of material misstatement due to fraud was automated questionnaires or similar decision aids.

5.3.5.5. Conclusion

The identification of risks of material misstatement can be done according to several approaches, specifically the obtaining of an understanding of the entity and its environment. The categories that represent the obtaining of an understanding of the entity and its environment were broadened to include consideration of the entity's risk management process. The obtaining of an understanding of internal control is presented according to an internal control framework. These changes were the result of the success of the business risk audit approach (refer to Chapter 4), and because of the influence of risk management risk classification frameworks. The impact of the identification of business risks in the business risk audit approach caused an increase in the available approaches or combination of approaches that the auditor may follow to identify risks of material misstatement.

The task of identifying risks of material misstatement were changed so as to appear much more structured and logical, and to include the identifying of risks of material misstatement due to fraud and error. The next main task of assessment of identified risks of material misstatement will be discussed hereafter.

5.3.6. Assessment of identified risks of material misstatement

The aim of the risk-process audit approach is to guide auditors in performing effective audits; therefore, as stated by Fogarty, Graham and Schubert (2006: 43): *"The standards are designed to result in more effective audits as a result of better risk assessments and improved design and performance of audit procedures to respond to risks."*

The assessment of identified risks of material misstatement consists of the sub-tasks of (IAASB/IRBA ISA 315R, 2006: para. 25 (b)-(d)):

- Relating risks to what can go wrong at the assertion level;
- Considering the likelihood of misstatement(s); and
- Considering the magnitude of misstatement(s).

The criteria for the successful performance of these tasks were discussed previously.

As part of the assessment of risks of material misstatement, the auditor shall judge, whether any of the risks identified requires special audit consideration (IAASB/IRBA ISA 315R, 2006: para. 25 (c)). These risks are defined as significant risks. The definition of significant risk is as follows (IAASB/IRBA ISA 315R, 2006: para. 4(e)): "*Significant risk – an identified and assessed risk of material misstatement that, in the auditor's judgment, required special audit consideration.*"

To obtain a better understanding of the meaning of significant risks, the meaning of significant business risks is investigated next. According to the risk standard, a high business risk is significant (AIRMIC, ALARM& IRM, 2002: 7): "*High = 'significant impact on the organisation's strategy or operational activities and significant stakeholder concern.'*"

Cerullo and Cerullo (2005: 38) describe "significant" in terms of Pareto's Law stating that: "*The (Pareto's) law states that a small percentage of the items in a population represents the most significant items in the population.*"

They further mention that the identification of significant business risks will ensure the best use of scarce resources (Cerullo & Cerullo, 2005: 38) and that the organisation will prosper through staying in touch with its environment (McNamee, 1998: 4). Through the identification of significant risks the organisation does not over- or under-manage its risks (Del Bel Belluz, 2002: 41). Gafford and Carmichael (1984: 109) explain 'significant' in the context of sample items as an item that is material or "of a particular nature". Therefore, the word "significance" is an indication of an assessment value. The question if significant risk of material misstatement equals or replaces high risk of material misstatement is still unanswered.

In an auditing context the first reference to the term "significant" is found in the article of Elliott and Rogers (1972: 49) who opine that: "*If he were testing the allowance for doubtful accounts in a commercial enterprise, however, he might assess the risk as*

significant, even though he believed that the management of the particular client would not in fact override the internal controls."

Von Wielligh (2005: 31-32) maintains that significant risk is equal to high inherent risk because of IAASB/IRBA ISA 315R, (2006: para. 26) stating that: *"In determining whether a risk is significant, 'the auditor shall exclude the effects of identified controls related to the risk' (control risk). The only other relevant element of the audit risk formula is inherent risk."*

The auditing standards provide guidance for the identification of significant risks as risks that relate to significant non-routine transactions or judgmental matters (IAASB/IRBA ISA 315R, 2006: para. A112). In addition to the above two factors, risks of material misstatement due to fraud are also assessed as significant risks (IAASB/IRBA ISA 315R, 2006: para. A116). The definitions of non-routine transactions or judgmental matters are stated in IAASB/IRBA ISA 315R (2006: para. A112), and give an indication of what "significant" comprises:

- *Non-routine transactions are transactions that are unusual, due to either size or nature, and that therefore occur infrequently...*
- *Judgmental matters may include the development of accounting estimates for which there is significant measurement uncertainty.*

In conclusion, Fogarty, Graham and Schubert (2006: 44) mention that risk assessment is an important part of the obtaining of audit evidence, as it directs and determines the auditor's response. Arens, Elder and Beasley (2008: 257) state, in respect of the assessment of risks of material misstatement: *"Most risks auditors encounter are difficult to measure and require careful consideration before the auditor can respond appropriately. Responding to these risks properly is critical to achieving a high-quality audit."*

The main task of response to assessed risks of material misstatement will be discussed in the next part of this chapter.

5.3.7. Response to assessed risks of material misstatement

The auditor's response to assessed risks of material misstatement consists of the design and implementation of the overall response and the response on the assertion level.

The auditor's response is described with reference to the audit risk model and its components' inherent risk, control risk and detection risk. The auditor's response is determined by inherent risk and control risk's inverse relationship with detection risk. This is described as follows, in IAASB/IRBA ISA 330R (2006: para. 7) (emphasis added):

In designing the further audit procedures to be performed, the auditor shall:

*(a) Consider the **reasons for the assessment** given to the risk of material misstatement at the assertion level for each class of transactions, account balance, and disclosure, including:*

*(i) The **likelihood** of material misstatement due to the **particular characteristics** of the relevant class of transactions, account balance, or disclosure (i.e. the **inherent risk**); and*

*(ii) Whether the risk assessment **takes account of relevant controls** (design) (i.e. the **control risk**); thereby requiring the auditor to obtain audit evidence to determine whether the controls are **operating effectively** (implementation) (i.e. the auditor intends to rely on the operating effectiveness of controls in determining the nature, timing and extent of substantive procedures).*

In deciding on the response to the identified and assessed risks of material misstatement at the assertion level, the auditor should consider the reasons for the assessment as stated in IAASB/IRBA ISA 330R (2006: para. 07) above, and the assessment of the identified risks at the assertion level.

The response on the assertion level consists of the design of the nature, timing and extent of the audit procedures (IAASB/IRBA ISA 330R, 2006: para. 5 & 6), and forms the foundation of an appropriate approach (combined or substantive approach), followed by the auditor (IAASB/IRBA ISA 330R, 2006: para. A4).

The tasks of identification of risks of material misstatement, the assessment of identified risks and the response to assessed risks are done on the financial statement level and the assertion level. This will be discussed in the next part of this chapter.

5.3.8. The financial statement level and the assertion level

5.3.8.1. Introduction

In the second component of the risk-process audit approach, the three major tasks are divided into two levels. The levels, at which risks of material misstatement should be identified and assessed, are described in IAASB/IRBA ISA 315R, 2006: para. 24) as the financial statement level and the assertion level for classes of transactions, account balances and disclosures.

The response to the assessed risks are also divided into an overall response to address the assessed risks of material misstatement at the financial statement level (IAASB/IRBA ISA 330R, 2006: para. 5) and “*further audit procedures whose nature, timing and extent*” are based on, and are responsive to the assessed risks of material misstatement at the assertion level (IAASB/IRBA ISA 330R, 2006: para. 6).

The division in the financial statement level and the assertion level will be discussed in the next part of this chapter.

5.3.8.2. Financial statement level

Graham (Part II) (1985: 36) describes first the division between the financial statement level and the assertion level, when he divided the inherent risk assessment between inherent risk characteristics and inherent risk conditions. Inherent risk conditions exist on one of three levels; namely the macroeconomic level, the industry level and the company level, which represent the financial statement level. Inherent risk characteristics explain the impact on the account or balance and recognise the assertion level. Ricchiute (2006:251) emphasises this distinction of the levels, explaining that the “unit of analysis” in a financial statement audit is not limited to transactions (or assertions), because: “*Transactions alone are far too narrow to capture the complex web of truths that preoccupy management.*”

The financial statement level, also referred to as the overall level, indicates an impact that interacts pervasively with the financial statements as a whole and potentially impacts on many assertions (IAASB/IRBA ISA 315R, 2006: para. A98). This indicates that risks of material misstatement on the financial statement level are not always connected to a specific assertion or assertions (IAASB/IRBA ISA 315R, 2006: para. A98). Risks of material misstatement on the financial statement level indicate circumstances or conditions that may increase the risks of material misstatement at the assertion level (IAASB/IRBA ISA 315R, 2006: para. A98).

The overall response to the assessed risks of material misstatement on the financial statement level is stated as follows in IAASB/IRBA ISA 330R, (2006: para. A1):

- *Emphasising to the audit team the need to maintain professional skepticism.*
- *Assigning more experienced staff or those with special skills or using experts.*
- *Providing more supervision.*
- *Incorporating additional elements of unpredictability in the selection of further audit procedures to be performed.*
- *Making general changes to the nature, timing and extent of audit procedures.*

Risks on the financial statement level are especially important in the consideration of risks of material misstatement due to fraud (IAASB/IRBA ISA 315R, 2006: para. A98). In support of this statement, four examples are mentioned (IAASB/IRBA ISA 315R, 2006: para. A98-A100). The following circumstances could have a pervasive effect on the financial statements and the assessment of risks of material misstatement on the financial statement level:

- The possibility of management overriding controls;
- A weak control environment, including a lack of competence in management;
- The integrity of the entity's management; and
- The condition and reliability of an entity's records.

The second level is the assertion level and will be discussed hereafter.

5.3.8.3. Assertion level

The second level for the identification and assessment of risks of material misstatement is the assertion level. Rittenberg, Schwieger and Johnstone (2008: 7) and Alderman and Tabor (1989: 56) define assertions, mentioning that these representations of management are: *"a positive statement about an action, event, condition or performance over a specified period of time."*

The assertions were reviewed when the risk standards were established. The assertions were classified in the categories of classes of transactions, account balances, and disclosures (IAASB/IRBA ISA 315R, 2006: para. A102 and IAASB/IRBA ISA 500, 2004: para. 17). Assertions that relate to the category of presentation and disclosure were added to improve the implementation of the assertions in the risk-process audit approach (Fogarty, Graham & Schubert, 2006: 45).

The definition of "assertions" in IAASB/IRBA ISA 315R (2006: para. 4(a)) is as follows: *"Assertions – Representations, by management, explicit or otherwise, that are embodied in the financial statements, as used by the auditor to consider the different types of potential misstatement that may occur."*

Assertions as defined by the IAASB/IRBA ISA 315R (2006: para. 4(a)) emphasise three aspects of "assertions":

- Firstly, representations of management;
- Secondly, fair representation is determined by the criteria as set out in the international financial reporting standards (Rittenberg, *et al.* 2008: 7); and
- Thirdly, it is indicative of the *"different types of potential misstatements that may occur"*.

In conclusion, Fogarty, Graham and Schubert (2007: 5) warn that certain audit approaches followed by auditors do not integrate the assertions into identifying risks, assessing controls and determining the appropriate response; a requirement in the current audit risk standards.

5.3.8.4. Conclusion

The implications and benefits of dividing the audit into the financial statement level and the assertion level are under-valued by both practitioners and in the academic literature in the United States and Europe. This is further investigated in the next part in this study and will deal with the interpretation and implementation in the academic literature of guidance given in the risk standards, in respect of the tasks and sub-tasks required in the risk-process audit approach.

5.3.9. Risk-process audit approach task structures in the academic literature

The auditing standards provide guidance that forms the risk-process audit approach, as discussed previously, for auditors to apply during the audit. Nevertheless, knowledge of the guidance does not ensure that it will be interpreted and applied consistently by different auditors (Joyce, 1976: 54). The task structures or overview of the audit approach followed in the different academic literature will be discussed hereafter.

The business risk audit approach as discussed in Chapter 4 *par 4.5 The business risk audit approach* was followed by practitioners before the issuing of the International Auditing Standards that form the foundation of the risk-process audit approach. The business risk audit approach is still followed by Rittenberg, *et al.* (2008: 106 - 111) and Arens, *et al.* (2008: 218 –219,257), but with adaptations to accommodate the changes in the audit risk standards. The business risk audit approach in this academic literature comprises the following Arens, *et al.* (2008: 218 –219,257) (emphasis added):

- a) The auditor obtains a strategic understanding of the client's business and industry to **identify and assess client business risk.**
- b) The identification and assessment of client business risk direct the auditor to **identify and assess the risks of material misstatement.**
- c) The audit risk model ("audit risk = inherent risk x control risk x detection risk") is then applied to plan the obtaining of sufficient, appropriate audit evidence.

In a comparison of the different risk-based audit approaches followed by Rittenberg, *et al.* (2008: 106 - 111), Arens, *et al.* (2008: 209) and Ricchiute (2006: 251), the following **similarities** were found:

- The process of obtaining an understanding of the entity and its environment is according to the business risk audit approach. Therefore, an understanding is obtained through evaluation of management's business risk management processes.
- The identification and assessment of business risk is used to direct the identification of risks of material misstatement
- Rittenberg, *et al.* (2008: 111) suggests that the auditor should develop informed expectations about company results as a result of the understanding of the entity and its environment. These expectations should be documented, including the rationale behind the expectations (Rittenberg, *et al.* 2008: 107 and Arens, *et al.* 2008: 224).
- The identification of risk of material misstatement leads to the assessment of inherent risk, control risk and acceptable audit risk.

In a comparison of the different risk-process audit approaches followed by Rittenberg, *et al.* (2008: 106 - 111), Arens, *et al.* (2008: 209) and Ricchiute (2006: 251), the following **differences** were found:

- **The categories of obtaining an understanding of the entity, and its environment**
 - Arens, *et al.* (2008: 146) further suggests a grouping of transactings according to the financial cycles. It would be sensible to group closely related types (or classes) of transactions and account balances together and consider the assertions surrounding these groups of transactions and account balances. An example is that the classes of transactions of sales, sales returns, cash receipts, and bad debts (impairment to debtors) causes accounts receivable or debtors to increase or decrease and forms therefore, the revenue and receipts cycle (Arens, *et al.* 2008: 146). Arens, *et al.* (2008: 150) then recommends the performance of an audit, according to classes of transactions that are represented by the cycles, by setting audit objectives for these classes of transactions or cycles.
 - Rittenberg, *et al.* (2008: 107) prefer the adaptation of the business risk audit approach to form the risk-process audit approach cause the classifying of the transactions according to business processes, with the aim of identifying business process risks that leads to risks of material misstatement at the assertion level.
 - Ricchute (2006: 250) suggests that management's risks, the strategies that

management adopts to respond to risks and the transactions and events that are the result of management's strategies, could be considered.

- **Obtaining an understanding of internal controls**

- Rittenberg, *et al.* (2008: 112) assess the quality of internal controls after developing informed expectations and before assessing the risk that an account is misstated and the managing of audit risk and detection risk.
- Inherent risk and control risk is assessed separately by Arens, *et al.* (2008). This entails the assessment of internal controls after inherent risk is considered for every account. Arens, *et al.* (2008: 209) follows the steps of: firstly, the set of materiality and assessing acceptable audit risk and inherent risk. Secondly, an understanding of internal control is obtained that result in an assessment of control risk. Ricchute (2006: 271) also considers internal control, the performance of tests of controls and the assessment of control risk to be a separate task.

- **Risks of material misstatement due to fraud and error**

- Arens, *et al.* (2008: 209) gather information to assess fraud risks after the completion of the assessment of inherent risk and control risk. This fragmented approach is the trademark of the conceptual inherent risk audit approach that was adapted to form their interpretation of the risk-process audit approach.
- Ricchute (2006: 255) considers the risks of misstatements arising from fraud together with the consideration of risks of material misstatements, specifically focusing on the discussion as required in ISA 240R (2006. para. 10).

- **Consideration of residual risk**

In Rittenberg, *et al.* (2008: 107) residual risk is considered, stating that auditors should: *"Utilise a solid understanding of business transactions to assess economics of material transactions."*

- **Audit strategy and audit plan**

Finally, Arens, *et al.* (2008: 209) adapted their audit approach to the new International Standards on Auditing, stating that the last step of their suggested approach is to: *"Develop an overall audit plan and audit program."*

The academic literature suggests that the guidance in the risk standards, IAASB/IRBA ISA 240R (2006), ISA 300R (2006), ISA 315R (2006), ISA 330R (2006), did not incorporate any changes to the concept of “risk of material misstatement” and therefore the academic literature did not view the changes promulgated, as presenting a new risk-based audit approach. The suggested split into the financial statement level and the assertion level and the relation of assertions to potential misstatements on the assertion level was only incorporated in Marx, *et al.* (2006) and Jackson and Stent (2007: 7/23).

Marx, van der Watt, Bourne and Hamel’s (2006: 8-17) approach divides the audit planning process into two levels: the financial statement level and the assertion level, as required in IAASB/IRBA ISA 315R (2006: para. 24). They divide the audit planning process into firstly, overall audit planning and secondly, into the detail audit planning for classes of transactions, account balances and disclosures (Marx, *et al.* 2006: 8-8, 8-29). The detail audit planning for classes of transactions, account balances and disclosures consist of (Marx, *et al.* 2006: 8-30):

- Step 1: Identify significant classes of transactions, account balances and disclosures;*
- Step 2: Identify and assess the risks of material misstatement for specific transactions, balances and disclosures; and*
- Step 3: Set an audit strategy (approach and resources) specifically for the class of transactions, account balances or disclosures.*

It is acknowledged that risk of material misstatement on the overall financial statement level may be identified with the assistance of the concept of “business risk” (Marx, *et al.* 2006: 8-17). On the assertion level, the assertions that are at risk are identified and responded to ((Marx, *et al.* 2006: 8-30) and (Jackson & Stent, 2007: 7/23)).

Some of the academic literature was slow to change and adopt the new guidance presented in the audit risk standards.

5.3.10. Conclusion

This concept of “risk of material misstatement” is the idea, the why and the what, in the planning of an audit. The characteristics and features of this concept of “risk” define the

risk-process audit approach. In the identifying of risks of material misstatement on the financial statement level no criteria are given by the standard setters for the performance of the task of identification on the financial statement level.

The concept of "risk" in the performance of the task of identification of risks is, in essence, a choice in which the auditor has the freedom to choose an approach. The concept of "risk of material misstatement" is broader than the suggested definition in the auditing standards and also includes the consideration of potential misstatements according to the assertions on the assertion level (assertion-focus).

The sub-tasks of obtaining an understanding of the entity and its environment, including internal control are suggested in the risk standards to guide an auditor in identifying risks of material misstatement on the financial statement level. The criteria for the sub-tasks of "assessment of identified risks" are as follows:

- The different types of assertions are used as the criteria for assessing risks of material misstatements through the identifying of possible misstatements.
- The concept of "misstatements" is the criterion used to consider the likelihood of misstatement(s).
- The concept of "planning materiality" is used to consider the magnitude of misstatement(s).

The importance and possibilities of the division of audit planning on the financial statement level and the assertion level are not yet fully applied in some of the academic literature.

Additional to the above-mentioned aspects, the Practical Accountant (2006: 20) states that the risk-process audit approach differs from previous audit approaches in the following aspects:

- a more in-depth understanding of the audited entity and its environment, including its internal control;
- a more rigorous assessment of the risks of where and how the financial statements could be materially misstated; and
- an improved link between the auditor's assessed risks and the nature, timing and

extent of audit procedures performed in response to those risks.

5.4. A critical discussion of the risk-process audit approach

5.4.1. Introduction

In the first part of the chapter, risk management, that forms part of the fields of strategic management and corporate governance, was considered according to the guidance given by Mautz and Sharaf (1961: 15). The second part of the chapter discussed the risk-process audit approach and the third part of the chapter will evaluate the risk-process audit approach, including an evaluation of the selection of risk management concepts that were chosen for adaptation in Auditing.

5.4.2. The adaptation of risk management concepts in Auditing

5.4.2.1. Introduction

The adaptation of risk management concepts in Auditing will be considered in the next part of this chapter.

5.4.2.2. Evaluation of risk management concepts that were adopted in Auditing

The risk management task structure (refer to par 5.2.5.2. *Risk management frameworks*) of identification, assessment and response was adopted and adapted in Auditing and provided a much more structured and logical outline for the risk-process audit approach.

The identification of risks of material of misstatement were enhanced with additional risk identification frameworks that were adopted and adapted in auditing from the field of risk management; for example, the risk-scenario approach (brainstorming sessions) (refer the fourth approach in par 5.2.5.3.2.2. *Risk identification approaches* in risk management and the fifth approach in par 5.3.5.2 *Approaches for the identification of risks of material misstatement*). The fifth approach in par 5.2.5.3.2.2. *Risk identification approaches* in risk management describe an approach that utilises key risk indicators to identify risks, also relate to the sixth approach in par 5.3.5.2 *Approaches for the identification of risks of material misstatement*.

The assessment and response of risks of material misstatement were included and emphasised in auditing guidance because of the new risk management task structure.

5.4.2.3. Conclusion

The adaptation of concepts from another subject should be done with careful consideration of the nature of the concepts and the other subjects' own problems (Mautz & Sharaf, 1961: 15).

It is recommended that the components of the concept of "risk" in risk management could be adapted with success in an explanation of the concept of "risk of material misstatement" in an auditing context. The seven components of the concept of "risk" in risk management are (AS/NZS HB 436, 2005: 38):

- **Uncertainty**
- A **cause** (what and why) (usually a string of direct and underlying causes) for the presence of the hazard or the event occurring.
- A **source** of risk or hazard
- An **event or incident**
- **When** and **where** the risk could occur.
- A **consequence**, outcome or impact on a range of stakeholders and assets.
- **Controls** and their level of effectiveness, indicating that the concepts of "risk" and "control" are interrelated.

5.4.3. Evaluation of the risk-process audit approach

The concept of "risk of material misstatement" is broader than the suggested definition in the auditing standards and includes the consideration of potential misstatements according to the assertions on the assertion level. This assertion-focus is not reflected in the description of the concept of "risk of material misstatement", that suggests that risk of material misstatement is the combination of inherent risk and control risk (IAASB/IRBA Glossary of Terms, 2007: 41).

In identifying risks of material misstatement on the financial statement level, no criteria are given in the audit risk standards for the performance of the task. The concept of "business risk" forms the conceptual basis for the identification of risks of material misstatement on the financial statement level. The problematic aspects surrounding the linking of business risks and risks of material misstatements were previously discussed in Chapter 4.

5.5. Conclusion

In the fifth chapter the risk-process audit approach included in the 2003 audit risk standards, with the emphasis on the tasks of identification, assessment and response was discussed. The risk-process audit approach has its roots in risk management and therefore risk management was investigated to enhance the understanding of the risk-process audit approach.

Audit planning is a complex process of identification, assessment and response to risks of material misstatement through the performance of risk assessment procedures that depend on the auditor's professional judgment. In conclusion, Arens, Elder and Beasley (2008: 247) state the inevitable reality that every auditor faces when performing an audit: *"The message is, folks, that it's a lot easier to sweat over doing a tough audit right than it is to justify your judgments and decisions after it's too late. And good luck if you think that a harmed investor will ever see things from your point of view."*

CHAPTER 6 – CONCLUSION

6.1. Introduction

The risk-based audit approach is the map auditors use to guide them through the audit. A broad overview of this risk-based audit approach is included in the auditing standards to provide guidance to auditors in the performance of the audit. The aim of guidance in generally accepted auditing standards, including the risk-based audit approach that it represents, are determined, amongst others, by the following (Mautz, 1961: 12 in Mautz and Sharaf, 1961: 113):

- It provides the auditor with the means for self-review in order to determine if he/she is fulfilling his/her professional responsibility;
- Courts and stakeholders have an understanding of what comprises the adequate performance of an audit; and
- It is useful to lecturers and students for educational purposes.

The purpose of the study was to consider the development of, and to evaluate risk-based audit approaches in order to describe the complexities and difficulties of these approaches, with the objective to possibly contribute to the process of improving the risk-based audit approach followed by practitioners. The purpose of the study consists of two parts; firstly, to describe the risk-based audit approach in its full context, with all its intricacies; and secondly, to possibly contribute to the process of improving the risk-based audit approach. In this chapter an overview of the development and evaluation of risk-based audit approaches will be discussed. This overview will consist of a summary of risk-based audit approaches, a comparison of risk-based audit approaches, critique of risk-based audit approaches and further suggestions for the development of risk-based audit approaches. In the last part of this chapter, the study will present conclusions and indicate directions for future research.

6.2. Overview of the development and evaluation of risk-based audit approaches

6.2.1. Introduction

In this study the development of audit approaches from 1904 was discussed. The emphasis in the study is on the development and evaluation of risk-based audit

approaches and the different forms or versions of audit approaches that can be categorised as risk-based audit approaches. Audit approaches that are categorised as risk-based audit approaches can be differentiated according to the meaning of what risk constitutes, as well as the method or approach that is followed. The reasons or motivations behind the development of a certain type of risk-based audit approach also influenced the specific audit approach, and was discussed in the study. The main reasons for changes in audit approaches will also be summarised in par 6.2.2.

The first risk-based audit approach, namely the statistical audit risk approach, began in an attempt to justify the successful completion of the audit and this limited the auditor's risk of legal liability through measuring the risks associated with an audit. The first example was the Elliott and Rogers model (1972). In 1983 the auditing profession in the United States realised that measuring audit risk was very subjective and in essence, was a decision based on the professional judgment by the auditor. This caused the adoption of a conceptual understanding of the audit risk model that resulted in the inherent risk audit approach. The reasons for the change were the recognition of the major and irreplaceable role that professional judgment plays in the performance of an audit.

The next risk-based audit approach, the business risk audit approach developed mainly for two reasons: firstly, the increase mainly in consultation fees to the audit profession; and secondly, the improvement of the first phase in the planning of the audit, namely the obtaining of knowledge of the entity. These changes occurred in an era marked by rapid changes in information technology that were a further major catalyst for the change that occurred.

The final audit approach, the risk-process audit approach was the product of the auditing profession's struggle to improve its credibility after a series of failures such as Enron, Worldcom and Parmalat, to name a few. This was not limited to the audit profession alone as mentioned by Power (2004: 21):

The rise of internal control is symptomatic of an institutionalised mode of responding to crisis and failure by extending the formalisation of reporting and control functions. Sarbanes-Oxley is a classic example of this as a response to Enron and other high profile failures.

The auditing profession's efforts to continuously improve the audit approach should also be recognised in the development of the final audit approach. The final risk-based audit approach, the risk-process audit approach, emphasised the tasks of identification, assessment and response and these concepts were borrowed and adapted from the field of risk management.

The different risk-based audit approaches will be compared in the next part of this chapter.

6.2.2. Summary of risk-based audit approaches

The summary of the following risk-based audit approaches: the audit risk formula, inherent risk audit approach, business risk audit approach and the risk-process audit approach are to be found in Table 17.

The summary of the risk-based audit approaches will start with the concepts of risks that form the conceptual bases of these risk-based audit approaches. This is summarised under the following headings and leads to a description of the risk-based audit approach:

- Terminology used to represent the concept of risk (Table 17, part (a)).
- Description of the concept of "Risk" (Table 17, part (b)).
- Description of the risk-based audit approach (Table 17, part (c)).

The next part of this summary will summarise the different information needed and processes to be followed by the different risk-based audit approaches to obtain an understanding of the entity and its environment. This understanding is the information needed on which to base the planning of the audit, and will be summarised under:

- Obtaining an understanding of the entity and its environment (Table 17, part (d)).
- Approach or method of obtaining an understanding of the entity and its environment (Table 17, part (e))

The last part of the summary of the different risk-based audit approaches will summarise differences in the nature, timing and extent of audit procedures (Table 17, part (f) – (h)).

Table 17: Different risk-based audit approaches

Different risk-based audit approaches			
Statistical audit risk approach	Inherent risk audit approach	Business risk audit approach	Risk-process audit approach
(a) Terminology used to represent the concept of "risk"			
Audit risk = Inherent risk x Control risk x Detection risk	Audit risk = Inherent risk x Control risk x Detection risk	Business risk	Risk of material misstatement (Inherent risk and control risk)
(b) Description of the concept of "risk"			
Audit risk was initially the beta risk or <i>"the risk of accepting financial statements in error by exactly a material amount"</i> (Elliott & Rogers, 1972: 47). That developed into <i>"The allowable ultimate risk that the auditor will fail to detect a monetary error equal to the maximum</i>	Audit risk is the risk that the auditor may unknowingly fail to appropriately modify his/her opinion on financial statements that are materially misstated AICPA SAS 47 (1983: 9). <i>"Inherent risk is the susceptibility of an assertion to a material misstatement assuming</i>	<i>"A risk resulting from significant conditions, events, circumstances, actions or inactions that could adversely affect an entity's ability to achieve its objectives and execute its strategies, or from the setting of inappropriate objectives and strategies."</i> (IAASB/IRBA ISA 315R, 2006: para. 4(b))	* The concept of "risk of material misstatement" was discussed in par 5.3.4.2.2 <i>The concept of "risk"</i> , and is a broader concept than the suggested combination of inherent risk and control risk. * Risk of material misstatement does not only represent the inherent risk audit approach but also allows for the application of the business risk audit approach. The combination of inherent risk and control risk that is

Different risk-based audit approaches

Statistical audit risk approach	Inherent risk audit approach	Business risk audit approach	Risk-process audit approach
<p><i>tolerable amount (AICPA SAS 39, 1981: para. 4 in Cushing and Loebbecke, 1983:25)</i></p>	<p><i>that there are no related internal control structure policies or procedures. Control risk is the risk that a material error that could occur in an assertion will not be prevented or detected on a timely basis by the entity's internal control structure policies or procedures. Detection risk is the risk that the auditor will not detect a material misstatement that exists in an assertion. (AICPA SAS 47, 1983: para. 20)</i></p>		<p>defined as risk of material misstatement is related to identified business risks.</p>

Different risk-based audit approaches			
Statistical audit risk approach	Inherent risk audit approach	Business risk audit approach	Risk-process audit approach
(c) Description of the risk-based audit approach			
<p>The audit approach was based on a statistical foundation, that determines, with professional judgment, variables related to audit objectives that were used in a statistical sampling plan (Elliott & Rogers, 1972: 55)</p>	<p>In the inherent risk audit approach the auditor will consider the susceptibility of an account to material misstatement and the reliability of the internal control system for the purpose of planning the nature, extent and timing of substantive procedures. (AICPA SAS 47, 1983: para. 20)</p>	<p>The business risk audit approach identifies business risks to "<i>guide the focus, breadth and depth of the auditor's knowledge acquisition, and the integration of business knowledge into expectations about financial statement assertions.</i>" (Bell, <i>et al.</i> 1997:2). The understanding of the entity "<i>provides a basis for the auditor's evaluation of whether financial-statement assertions are valid.</i>" (Bell, <i>et al.</i> 1997:1)</p>	<p>* The first component of the risk-process audit approach consists of the tasks of: identifying the risks, assessing the identified risks and responding to the assessed risks (IAASB/IRBA ISA 315R, 2006: para. 25 and IAASB/IRBA ISA 330R, 2006: para. 3).</p> <p>*The second component of the risk-process audit approach indicates the criteria used to evaluate the successful performance of the tasks and provide guidance on how the tasks should be performed.</p> <p>1. The criteria for the performance of the task of "identifying risks" are the concept of "risk".</p>

Different risk-based audit approaches			
Statistical audit risk approach	Inherent risk audit approach	Business risk audit approach	Risk-process audit approach
			<p>2. The criteria for the assessment of the identified risks, are the relation of these assertions to possible misstatements, the concept of "misstatements" and planning materiality.</p> <p>3. The criteria for the performance of the task of "response" to the assessed risks are the obtaining of sufficient, appropriate audit evidence.</p> <p>* The third component of the risk-process audit approach is further tasks or sub-tasks to be performed for each of the three major tasks. These sub-tasks indicate that the three major tasks are divided into tasks at the financial statement level and tasks at the assertion level.</p>

Different risk-based audit approaches			
Statistical audit risk approach	Inherent risk audit approach	Business risk audit approach	Risk-process audit approach
(d) Obtaining an understanding of the entity and its environment			
<p>The understanding of the entity and its environment comprises sufficient knowledge to make an assessment of inherent risk and control risk, expressed as probabilities.</p>	<p>The understanding of the entity and its environment comprises sufficient knowledge to make an assessment of inherent risk and control risk, expressed in linguistic terms such as high, medium or low.</p>	<p>The objective of obtaining an understanding of the entity and its environment is twofold; firstly, to form expectations about the financial statement assertions (Bell, <i>et al.</i> 1997: 2). Secondly, to identify business risks that are related to risks of material misstatement (inherent risks and control risks), to direct the nature, timing and extent of audit procedures.</p>	<p>* The objective of obtaining an understanding of the entity and its environment, including internal controls is to create a frame of reference, within which risks are identified; identified risks are assessed and assessed risks are responded to (IAASB/IRBA ISA 315R, 2006: para. A1).</p> <p>* IAASB/IRBA ISA 315R, 2006: para. 11) describes the aspects of the entity and its environment from which the auditor should obtain an understanding.</p> <p>* IAASB/IRBA ISA 315R, 2006: para. 6) prescribe that certain sources of information should be considered</p>

Different risk-based audit approaches			
Statistical audit risk approach	Inherent risk audit approach	Business risk audit approach	Risk-process audit approach
			when obtaining an understanding.
(e) Approach of obtaining an understanding of the entity and its environment			
<p>The approach of obtaining an understanding of the entity and its environment consists of first assessing inherent risk that consists of economic and external factors, the nature of the entity and other internal characteristics. Secondly, an understanding was obtained to make an assessment of the risk that the system of internal controls failed (Cushing & Loebbecke, 1983: 32).</p>	<p>The approach of obtaining an understanding of the entity and its environment consisted of considering inherent risks and control risks. The three perspectives that are used to consider inherent risks are described in par 4.3.3.2 - <i>The different facets of inherent risk.</i></p>	<p>The approach of obtaining an understanding of the entity consists of a business measurement process that is based on the five principles of strategic analysis, risk management, business process analysis, business measurement and continuous improvement (Bell, <i>et al.</i> 1997: 33).</p>	<p>* The approach of obtaining an understanding of an entity and its environment is not prescribed in the audit standards to allow auditors to follow the business risk audit approach, the inherent risk audit approach, or any other approach they may prefer.</p>

Different risk-based audit approaches			
Statistical audit risk approach	Inherent risk audit approach	Business risk audit approach	Risk-process audit approach
(f) The nature of audit procedures			
The nature of audit procedures did not change from the systems-based audit approach.	The nature of audit procedures did not change from the systems-based audit approach.	The business risk audit approach placed much more emphasis on substantive analytical procedures as a source of evidence (Lemon, <i>et al.</i> 2000: 18).	The nature of audit procedures is predetermined in three circumstances: <ol style="list-style-type: none"> 1. "Irrespective of the assessed risks of material misstatement, the auditor shall design and perform substantive procedures for each material class of transactions, account balance and disclosure." (IAASB/IRBA ISA 330R, 2006: para. 20)) 2. If the auditor determines that a significant risk exists, the auditor shall obtain an understanding of the entity's controls and control activities that relate to the significant risk. (IAASB ISA 315R, 2006: para. 28)

Different risk-based audit approaches			
Statistical audit risk approach	Inherent risk audit approach	Business risk audit approach	Risk-process audit approach
			3. "In respect of some risks, the auditor may judge that it is not possible or practical to obtain sufficient, appropriate audit evidence only from substantive procedures." (IAASB ISA 315R, 2006: para. 28)
(g) The timing of audit procedures			
The timing of audit procedures did not change from the systems-based audit approach.	The timing of audit procedures did not change from the systems-based audit approach.	Due to the ever increasing impact of information technology, and a greater emphasis on obtaining an understanding of the entity, more audit procedures were performed before year-end.	The timing of tests of controls, including rotation, are described in IAASB/IRBA ISA 330R, 2006: para. 11) and the timing of substantive procedures are described in IAASB/IRBA ISA 330R, 2006: para. 23), including procedures necessary for a roll-forward process.
(h) The extent of audit procedures			
The extent of the audit procedures was	The extent of the audit procedures was	The business risk audit approach was adopted to	The auditor designs and implements appropriate responses to the

Different risk-based audit approaches

Statistical audit risk approach	Inherent risk audit approach	Business risk audit approach	Risk-process audit approach
<p>determined by the statistical sampling plan that was used to measure the extent of uncertainty that the auditor considers acceptable (Stringer, 1961: 64)).</p>	<p>determined according to the auditor’s professional judgment, after considering the relationships between audit risk, inherent risk, control risk and detection risk.</p>	<p>obtain, a decrease in substantive detail testing of the underlying transactions and account balances and an increase in analytical procedures as the main source of substantive evidence, to improve the cost effectiveness of an audit (Cullinan & Sutton, 2002: 297).</p>	<p>assessed risks in deciding on the nature, timing and extent of the audit procedures (IAASB/IRBA ISA 330R, 2006: para. 3). The extent of the audit procedures is therefore the result of the risk-process audit approach and is determined through professional judgment. The nature, timing and extent of the audit procedures should provide sufficient, appropriate audit evidence about the assessed risks of material misstatement (IAASB/IRBA ISA 330R, 2006: para. 3)).</p>

6.2.3. Comparison of risk-based audit approaches

The risk-based audit approaches summarised above, that is the statistical audit risk approach, the inherent risk audit approach, the business risk audit approach and the risk-process audit approach, will be briefly compared. These audit approaches were discussed in detail in Chapters 3 to 5 in the study. This comparison aims to identify and emphasise the aspects that changed and developed in these risk-based audit approaches. The comparison of the audit approaches will be briefly discussed, according to the same aspects that were emphasised in the summary. These aspects are:

- The concepts of "risk", the conceptual starting point for planning the audit.
- Description of the risk-based audit approach.
- Obtaining of an understanding of the entity and its environment.
- The nature, timing and extent of audit procedures.

6.2.3.1. The concepts of "risk", the conceptual starting points for planning the audit

The concepts of "risk" in the different approaches are completely different. The only clear trend that could be found in the comparison of the concepts of "risk" is a shift from a mathematical foundation to a "logical foundation" that uses professional judgment. These concepts of "risk" were used as the foundation or conceptual starting points of these risk-based audit approaches significantly influencing the nature of the audit approaches.

The concept of "risk of material misstatement" in the risk-process audit approach is presented as an adaptation of the inherent risk audit approach. Although risk of material misstatement represents the inherent risk audit approach, the concept also allows for the application of the business risk audit approach. This was discussed in par 5.3.4.2.2 - *The concept of "risk"*. In essence, "risk of material misstatement" is designed to be a vehicle for different concepts of "risk", giving the auditor the freedom of choice. The advantage of freedom of choice could be in the alternative, a concept that lacks any conceptual basis.

6.2.3.2. Description of the risk-based audit approaches

The first three audit approaches, namely the statistical audit risk approach, the inherent risk audit approach and the business risk audit approach had clearly defined concepts of

what "risk" constitute. This caused remarkably different risk-based audit approaches and audit processes.

The current risk-based audit approach, the risk-process audit approach, emphasise the audit tasks. Auditors are allowed to follow or use a conceptual starting point or concept of "risk" of their choice.

6.2.3.3. Obtaining of an understanding of the entity and its environment

The approach followed to obtain an understanding of the entity and its environment is determined by the concept of "risk" of the relevant risk-based audit approach. This understanding of the entity and its environment is clearly explained in IAASB/IRBA ISA 315R (2006: para. A1) as the "frame of reference" the auditor uses to plan the audit. The business risk audit approach was more successful in obtaining an understanding of the entity and its environment, in comparison to the inherent risk-based audit approach. In the inherent risk-based audit approach the interdependency between inherent risk and control risk was problematic when obtaining an understanding of the entity and its environment. This may be attributed to the decision of the auditing profession to change the suggested approach in the international standards on auditing, allowing auditors the freedom to choose the approach of obtaining an understanding of the entity and its environment in the risk-process audit approach.

6.2.3.4. Evidence acquisition – nature, timing and extent of audit procedures

Statistical sampling plans and professional judgment were used to determine the nature, timing and extent of audit procedures. The development in risk-based audit approaches reached the conclusion that only professional judgment could assess sufficient, appropriate audit evidence. The business risk audit approach aimed to reduce the extent of audit procedures by changing the mix (or nature) of evidence acquired. This could have led to the possible exercising of abuse in professional judgment. The risk-process audit approach and the auditing standards include additional prescribed requirements for the nature, timing and extent of audit procedures in certain circumstances, to prevent the abuse.

In the next part of this chapter, the critique on the different risk-based audit approaches will be summarised.

6.2.4. Critique on the different risk-based audit approaches

6.2.4.1. Introduction

The critique on the different risk based audit approaches was discussed in detail in the following parts of the study:

- Statistical audit risk approach (audit risk model):
 - Par 3.4. – *A critical discussion from a statistical perspective of the audit risk model.*
- Inherent risk audit approach (conceptual audit risk model):
 - Par 4.3.3. – *Inherent risk*
 - Par 4.3.4. – *Control risk*
 - Par 4.3.5. – *Interdependency of inherent risk and control risk*
 - Par 4.3.7 – *The impact of audit risk on audit program planning*
 - Par 4.4. – *Engagement risk*
- Business risk audit approach
 - Par 4.5.5. – *Critique against the business risk audit approach*
- Risk-process audit approach
 - Par 5.4. – *A critical discussion of the risk-process audit approach*

In both the inherent risk audit approach and the risk-process audit approach, a discussion of the underlying concepts indicated the difficulties and therefore problematical aspects in these conceptual audit approaches. These problematical aspects or unresolved difficulties of the concepts are briefly summarised hereafter.

6.2.4.2. Statistical audit risk approach (audit risk model)

Critique on the statistical audit risk approach (multiplicative audit risk model) revolved mainly around the following aspects:

- **Decomposition strategy and events structure**

The decomposition strategy of the audit risk model is divided in three events; also called the events structure of the audit risk model, and was not effective. Researchers found that the benefits of decomposing in components were not reflected in audit planning, because of a weak relationship between audit risk and audit programmes (Quadackers, *et al.* 1996: 217). Furthermore, the preventative effect of controls is not reflected in the audit risk model, indicating an ill-defined events structure (Waller, 1993: 787)). Waller (1993: 787) also proved that there is no logical foundation for concluding that occurrence risk is equal to inherent risk multiplied with control risk. Finally, Shibano (1990: 11) explains that the formal theory that forms the basis of the audit risk model does not incorporate the fact that a client may behave strategically (fraudulently) and that it does not assist the auditor in the detection of irregularities.

- **Independence of risk components**

The audit risk model uses the multiplication rule for statistical independent events, with the assumption that the events in the event structure are independent. Various researchers confirm that there is a knowledge-based dependency between inherent risk and control risk, and the use of the multiplication rule in the audit risk model is therefore inappropriate.

- **Complexity of risk components**

The multiplicative audit risk model is also referred to as a joint probability model. The practical implementation of the capturing of qualitative factors was very difficult in a probability-based model.

- **Assessment of risks**

To assess audit risk, inherent risk and control risk, in terms of probabilities are described as "*an individual's degree of belief in a particular proposition*" (Horowitz, 1970: 78 in Chesley, 1978: 225). Assessing risks in terms of probabilities proved to be a practical dilemma, and Reimers, *et al.* (1993: 62) found that the auditor's numerical risk assessments were significantly lower than the corresponding linguistic risk assessments and that the auditor's consensus was consistently higher in linguistic assessments.

- **Audit outcome space**

The audit risk model could significantly understate achieved audit risk as result of the omission or misspecification of elements of the audit outcome space, or the omission of some branches of the auditor's decision tree.

- **Revision of the audit plan**

In the compounding of probabilities, Kinney (1983: 13) warned that the calculation of the risk components, from a statistical point of view become very complex, specifically when the results of audit procedures are worse than the auditor estimated in the planning phase.

- **The aggregation of the individual audit risks**

Audit risk and the risk components should be determined for the smallest audit element or the assertions of the account balances. These elements are then combined or aggregated to determine the final risk at the financial statement level. Therefore, risk and materiality are determined for each of these levels, which are statistically a very complex, impractical task.

- **Audit sampling plan**

An auditing sampling plan is a methodology for assessing the sample results from a population (Loebbecke & Neter, 1975: 38). The environmental characteristics of the population determine the possible application and success of a sampling plan (Loebbecke & Neter, 1975: 41). The characteristics of an audit population make it, in some instances, difficult to apply a statistical sampling plan. These environmental characteristics are skewed reflections of the population, zero and low error rates, the magnitude, direction and pattern of audit differences (errors), limited sample sizes due to cost constraints, and the necessity of enlarging samples.

In conclusion, the critique against the multiplicative audit risk model indicates what many researchers have confirmed over the years, that it is not a theoretically sound foundation for a risk-based audit approach.

6.2.4.3. Inherent risk audit approach (conceptual audit risk model)

Critique on the business risk audit approach revolved mainly around the following aspects:

- **Concept of “inherent risk”**

Inherent risk is a very broad concept, consisting of many perspectives. These different perspectives are used interchangeably by academics and practitioners, indicating that this concept can create confusion and is ill-defined and underspecified.

- **Interdependency of inherent risk and control risk**

It is confirmed by Haskins and Dirsmith (1995: 76) that inherent risk and control are interdependent, specifically in respect of the client control environment concept. This has serious implications for the appropriateness and validity of the inherent risk audit-approach that is based on the logical relationship between the risk components.

- **Engagement risk**

The audit risk model was not representative of all the risks in the engagement that led to the concept of “engagement risk”. Engagement risk consists of three components: the auditor’s business risk, audit risk and the entity’s business risk. The auditor’s solution to controlling the auditor’s business risk is firstly, the recognition and containing of pre-engagement risk; and secondly, the performing of an audit according to general accepted auditing standards. Pre-engagement risk forms an important part of the overall containing of engagement risk and possibly the audit risk model. The inclusion of fraud risk should be considered, as it does not form part of the audit risk model. The exclusion of fraud risk is explained by Kinney (2005: 97):

Perhaps the most surprising omission from SAS No. 39 and 47 is explicit mention in the audit risk model of the risk of management fraud ... This now notable omission reflects legal advice and the legal, economic, and political climate of the early 1980s in which management fraud was not viewed as a problem as serious as it is today, and auditors’ responsibilities for fraud were not as well developed.

6.2.4.4. Business risk audit approach

Critique on the business risk audit approach revolved mainly around the following:

- **The link between business risks and risks of material misstatement**

The main critique against the business risk audit approach is the lack of a clear connection or link between business risks that are a result of the understanding of the entity and its environment and possible risks of material misstatement.

In this study the above-mentioned critique is supported by an understanding of the differences in the concepts of business risk ("risk" in risk management) and risks of material misstatement (in auditing). Business risk or the concept of "risk" in risk management was discussed in par 5.2.4.3. *Definitions of risk in risk management* and it is concluded in par 5.2.4.4. *The components of risk* The concept of "risk" in risk management consists of uncertainty, a cause (what and why), a source of risk or hazard, when and where the risk could occur, a consequence, an outcome or impact, controls and their level of effectiveness. The component of "uncertainty" in the concept "risk" in risk management is derived from the uncertainty surrounding the future; this is discussed in par 5.2.4.3. *Definitions of "risk" in risk management* and Table 10: *An analysis of definitions of the concept of "risk" in risk management*. This relation between the uncertainty component in "risk" in risk management and the future, firstly results in a continuous process of assessment of risks in risk management due to constantly changing perceptions about future events (Valsamakis, *et al.* 2005: 15) and secondly, results in the view that "risk" in risk management represents both possible positive and/or negative results.

Risk of material misstatement (in auditing) also includes a component of uncertainty which is not related to future events, as risks are identified, assessed and responded to in the performance of an audit on historical financial statements. The concepts of "risk" in risk management and risk of material misstatement (in auditing) relates to different time frames, the future and the past. "Risk" in risk management attempts to explain the future, and risk of material misstatement considers a potential misstatement that occurred, allowing an auditor to investigate further. The nature of these two concepts is significantly different. This supports the argument that there is a lack of a clear connection between business risks and risks of material misstatement.

Further critique against the business risk audit approach is the lack of emphasis on fraud and the negative implications of the psychological effects of typicality and Halo theory.

6.2.4.5. Risk-process audit approach

The main critique against the risk-process audit approach is the lack of a conceptual starting point or the very broad concept of "risk of material misstatement". There are no criteria to assist in the identification of risks of material misstatement. The identification and assessment of risks of material misstatement on the financial statement level is also problematic.

6.2.5. Conclusion

The multiplicative audit risk model (audit risk equals inherent risk, times control risk, times detection risk) is not a theoretical sound foundation for a risk-based audit approach. The inherent risk audit approach's foundation is not logically sound because of the interdependency between inherent risk and control risk, as well as the under specification of inherent risk. This said, the audit risk components still form the conceptual basis of the current risk-based audit approach, the risk-process audit approach.

The auditing profession borrowed concepts from risk management and developed the business risk audit approach and the risk-process audit approach. Although these approaches were more successful, they lack a clear concept of what "risk", or risk of material misstatement, constitutes.

The next part of the study will offer suggestions for consideration in the future development of the current risk-based audit approach.

6.2.6. Development of the risk-process audit approach

The starting point in the future development of the risk-based audit approach is perhaps the words of Pierce (1877: 1- 15) in Mautz and Sharaf (1961: 89): *"Logic provides the criteria by which we can settle doubts and evaluate beliefs, whether obtained in the performance of rational thinking or in the regular pursuit of everyday life."*

In the study it is suggested that a fourth aspect, the significance of audit procedures, additional to the current nature, timing and extent of audit procedures, maybe considered in respect of aspects that influence the response to risks of material misstatement included in the audit plan.

The concept of "risk of material misstatement" is broader than the suggested definition in the auditing standards and includes the consideration of potential misstatements according to the assertions on the assertion level. This assertion-focus is not reflected in the definition of the concept of "risk of material misstatement".

The importance and possibilities of the division of audit planning on the financial statement level and the assertion level are not yet fully considered.

6.3. Suggestions for future research

This part of the chapter contains a discussion of key areas for possible future research identified during the course of this research:

- The impact of behavioural aspects on the auditor's professional judgment, specifically the use of task structures to assist the auditor in the application of professional judgment.
- The further adaptation of concepts in risk management, for example the consideration of the components of "risk" in risk management to be adapted in the field of Auditing.
- An attempt could be made by audit researchers to define the concept of risk of material misstatement, the conceptual starting point of the risk-process audit approach. This definition of risk of material misstatement should incorporate the following:
 - The assertion-focus in the consideration of potential material misstatements.
 - The relationship between risk of material misstatement and internal control.
 - The inclusion of risk of material misstatement due to fraud and error in the definition of risk of material misstatement; especially the human element that is reflected in the characteristics of fraud.
 - The division of audit planning on the financial statement level and the

assertion level.

6.4. Conclusion

A variety of factors culminated in pressure to change the risk-based audit approaches. In this study, to evaluate the changes in the risk-process audit approaches, the historical and theoretical background of risk-based audit approaches were investigated. This was done to possibly contribute to the process of improving the risk-based audit approach.

At the heart of the risk-process audit approach is the concept of risk of material misstatement, the conceptual starting point of the audit approach. This concept of "risk of material misstatement" is surrounded by confusion. Risk of material misstatement is defined in relation to the concept of "audit risk" that forms part of the audit risk model. The audit risk model's event structure is ill-defined; the risk components lack independence that is a basic assumption for the use of the multiplicative formula. The risk components are complex and interdependent and are difficult to assess; therefore, practitioners prefer to assess these risk components in linguistic terms e.g. low, medium and high. The multiplicative rule does not provide protection against an understatement of audit risk if the audit outcome space is not completely specified and when a revision of the audit plan is needed. The aggregation of the individual risks is problematic and therefore the audit risk model should be used only for planning purposes. These limitations of the audit risk model suggest that all references made to "audit risk = inherent risk x control risk x detection risk" in current guidance could be reconsidered.

The decomposition structure of audit risk was unsuccessful due to the interdependency of inherent risk and control risk. The concept of "inherent risk" is also too broad and may be even confusing. These concepts are not a sound base to form the foundation of the current risk-based audit approach.

As alternative, risk of material misstatement could be related to business risk to form the business risk audit approach. The initial success of the business risk audit approach of obtaining an understanding of the entity and its environment is contradicted with the risks posed by the lack of a clear link between business risks and risks of material misstatement and the lack of emphasis on fraud. Business risks are not risks of material misstatement.

It is suggested that the focus of development in auditing should be on the concept of “risk of material misstatement” and not on the link between business risks and risks of material misstatement.

In conclusion, the author believes that auditing history has repeated itself. This study has attempted to describe aspects of auditing theory and shares the opinions of Mautz and Sharaf (1961: 1) as stated in 1961:

This is an attempt to outline the theory of auditing. To some this may appear an unlikely if not an impossible task; to others it may at best seem futile. Many think of auditing as a completely practical, as opposed to theoretical, subject. To them, auditing is a series of practices and procedures, methods and techniques, a way of doing with little need for the explanations, descriptions, reconciliations, and arguments so frequently lumped together as 'theory'. ... It is our belief ... that an understanding of auditing theory can lead us to reasonable solutions of some of the most vexing problems facing auditors today.

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APPENDIX A – EARLY AUDIT APPROACHES

This appendix consist of a summary of the early audit approaches, to be exact: Dicksee’s initial audit approach (Table A), the balance sheet audit approach (Table B) and the systems based audit approach (Table C).

The summaries of the early audit approaches comprise extracts from academic literature that were categorised according to main aspects in the current audit process:

- Objective of the audit (IAASB/IRBA ISA 200 (2008: para .02))
- Audit strategy (IAASB/IRBA ISA 300R (2008: para .06))
- Obtaining an understanding of the entity, it’s environment and internal control (IAASB/IRBA ISA 315R (2008: para .11))
- Audit plan (IAASB/IRBA ISA 300R (2008: para .08))
- Response: Nature of the audit procedures (IAASB/IRBA ISA 330R (2008:A9))
- Response: Timing of the audit procedures (IAASB/IRBA ISA 330R (2008:A11))
- Response: Extent of the audit procedures (IAASB/IRBA ISA 330R (2008:A15))

8.1. Table A: Dicksee’s initial audit approach

Factors to consider	Dicksee’s initial audit approach
The objective of the audit	<p>Dicksee (1904:7) <i>"The object of an audit may be said to be threefold:- 1. The detection of fraud</i></p> <p style="padding-left: 2em;"><i>2. The detection of technical errors</i></p> <p style="padding-left: 2em;"><i>3. The detection of errors of principle"</i></p> <p>Dicksee (1904:7) <i>"On account of its intrinsic importance the detection of fraud is clearly entitled to be considered an "object" in itself, although it will be obvious that it can only be concealed by the commission of a technical error, or of an error of principle.</i></p> <p>No definition of a technical error or of an error of principle is supplied.</p>
Audit strategy	<p>Dicksee (1904:8) <i>"the Balance Sheet cannot well be verified without a proper examination of the Revenue Account, which in its turn involves a complete examination of the books."</i></p>

	<p>Dicksee (1904: 207) <i>"It would seem that, if both Balance Sheet and profit and Loss Account be correct, it matters but little which is called the cause and which the effect."</i></p> <p>Dicksee (1904: 395) <i>"On the other hand the defalcations, if considerable, are likely to be concealed by a falsification of Balance sheet items rather than of Revenue items. A falsification of Balance Sheet items, with a view to concealing defalcations, ought not to escape the attention of the investigating accountant: not, of course, because he is necessarily responsible for the values attached to the various assets and liabilities in the Balance Sheets of the undertaking."</i></p> <p>Dicksee (1904:B) The contents refer to: <i>"Auditing (up to the trail balance)."</i></p> <p>Dicksee (1904:2) <i>"Audit Note Book – Record of routine work and of the queries raised. A clear list of instructions."</i></p>
<p>Obtaining an understanding of the entity and its environment including internal control.</p>	<p>Dicksee (1904:3) <i>"Ascertain and take note of the general system upon which the books are constructed, and the plan of checking the correctness of the accounts paid".</i></p> <p>Dicksee (1904:3) <i>"There will usually be some special circumstances connected with each audit that distinguish it from others, and these circumstances will usually involve some modification of the customary routine obtaining to that class of accounts."</i></p>
<p>Audit Plan</p>	<p>Dicksee (1904:3) <i>"At the commencement of an audit the principal should, if possible, go over the ground personally, and decide what work requires to be done." ... "but there will usually be some special circumstances connected with each audit that distinguish it from others, and these circumstances will usually involve some modification of the customary routine obtaining to that class of accounts."</i></p> <p>Dicksee (1904:10) <i>"Having thoroughly made himself master of the system, the auditor should look for its weakest points "Where is fraud most likely to creep in?, he should ask himself; and, if he</i></p>

	<i>can find a loop-hole, let him be doubly vigilant there. But never let him for a moment suppose that, because he sees no opportunity for fraud, none can exist."</i>
Response: Nature of audit procedures	Not applicable
Response: Extent of the audit procedures	Dicksee (1904:10) <i>"To the intelligent Auditor who has grasped his system thoroughly, it is generally practicable to dispense with some portion of the mechanical means of checking. To what extent this can be done with safety must always remain a question for each Auditor's own intelligence and experience to answer, and it may be added that probably he must take the risk of any consequences that may ensue."</i> Dicksee (1904:40) <i>"This is a matter that may very profitably engage the careful attention of the Auditor, for not only will a proper system of internal check frequently obviate the necessity of a detailed audit."</i>
Response: Timing of the audit procedures	Dicksee (1904:10) <i>"Method of audit, two choices: the continuous audit and the completed audit. ...The continuous audit sometimes includes the preparation of the periodical accounts by the Auditor's staff. It's advantages may be said to be:</i> <i>1. The examination occurs sooner, and consequently any errors committed are more quickly detected and rectified</i> <i>2. A more detailed audit is practicable</i> <i>3. The audit can be completed soon after the closing of the books without unduly hurrying the examination.</i> <i>The completed audit begun after the Trial Balance has been completed and the books remain in the Auditor's sole custody during the audit entirely."</i>

8.2. Table B: Balance sheet audit approach

Factors to consider	Balance sheet audit approach
<p>The objective of the audit</p>	<p>Lancaster (1935: 63) <i>"The main object of an audit is to make such an investigation into the books of account and the information from which they have been written up as will enable the auditor to report to his client upon the accuracy or otherwise of the balance sheet or other statement(s) prepared from such books. The subsidiary objects of an audit, which follow naturally from the above main object, are:</i></p> <ul style="list-style-type: none"> • <i>The detection of errors; and</i> • <i>The detection and prevention of fraud."</i> <p>Binnie & Manning (1938: 19) <i>"Exhibits a true and correct view of the state of the affairs of the undertaking."</i></p> <p>Binnie & Manning (1938: 19) exclude the subsidiary objects of an audit.</p> <p>De Paula (1939:4) <i>"Two main purposes of an audit are the prevention and detection of errors and fraud. Errors may consist of clerical errors, either of commission or of omission, and errors of principle."</i></p> <p>Hanson (1942:368) <i>"We have examined the accounts and records of ... and we certify that, in our opinion, the above Balance Sheets sets forth the correct financial condition of the company at July,31, 1934. "</i></p> <p>In Rowland (1945: 22) Dicksee's Auditing 16th edition the objective of an audit, was still exactly the same as the 6th version of 1904.</p> <p>Lancaster (1935: 60) <i>"The duties and liabilities of auditors are:</i></p> <ul style="list-style-type: none"> • <i>An auditor must do more than merely check the arithmetical accuracy of the books; he must satisfy himself that the books themselves are correct and the accounts show a true view of the financial position of the business.</i> • <i>An auditor is not called upon to adopt an attitude of suspicion but he must always exercise reasonable care and skill before he is satisfied that all is in order.</i> • <i>As to what is reasonable skill depends upon the circumstances of each case and upon the general standard adopted in the profession,</i>

but an auditor will not necessarily be liable for failing to detect an ingenious and carefully planned system of fraud when there is nothing calculated to arouse his suspicions, and particularly where those frauds have been perpetrated by tried and trusted servants of the business."

Cutforth (1931:1) *"The nature and extent of the work to be performed by the auditor is a matter largely in the latter's discretion. The auditor in coming to a decision on this matter, must be guided by the particular circumstances of each individual case. It is impossible to lay down any hard and fast rules in this connection, but the following general comments may serve as a guide: -*

- *An auditor must not merely confine himself to ascertaining that the Balance Sheet, or other Accounts which he certifies, are in accordance with the entries in the books; he must take reasonable steps to satisfy himself that the entries in the books are a correct record of transactions.*
- *On the other hand, an auditor is not necessarily expected to verify every individual transaction – indeed, in the vast majority of cases, such a procedure would be a practical impossibility; and he is entitled to rely on the system of internal check in force in business, the object of which is to reduce to a minimum the possibility of fraud or of errors in the accounts.*
- *An auditor is entitled to place reliance on the certificates of managers or other officials connected with the business whose accounts he is auditing.*
- *While an auditor cannot ascertain definitely that every transaction which has occurred has been duly recorded, he is expected to take reasonable steps to enable him to form the opinion."*

De Paula (1939:9) *"It is not sufficient for an auditor merely to compare the Balance Sheet and Profit and Loss Account with the books of account, but he must go, to a certain extent, behind the books. Error of principle and fraud, as a rule, will not be discovered upon the surface, but will be detected only by investigations outside*

	<p><i>the actual books that form part of the system of double entry. The auditor, therefore, must use every reasonable care and precaution in order to satisfy himself that the books themselves are correct, and include all the transactions that should be recorded therein. Therefore, the extent to which an auditor must carry his investigations is a practical question of great importance, and of necessity it must depend largely upon the whole of the circumstances of each case."</i></p>
<p>Audit strategy</p>	<p>Hanson (1942:7) <i>"As generally understood the balance sheet audit comprehends verification of all balance sheet items as of a given date, together with sufficient review and tests of profit and loss items to permit certification of an income statement and a statement of changes in surplus for the period ending on the date of the balance sheet. As its name implies, its emphasis is on the balance sheet and, therefore, on conditions as of the date of the balance sheet."</i></p> <p>Kirkham & Gaa (1939: 143) <i>"If the engagement calls for a detailed audit, it is presumed that a balance sheet audit plus a verification of income and expense accounts will be performed."</i></p>
<p>Obtaining an understanding of the entity and its environment and internal control</p>	<p>Lancaster (1935: 70) <i>"At the commencement of the audit the auditor should investigate the whole system of internal check, and should, if possible obtain a written statement regarding it. He should then decide for himself as to the extent to which he may rely upon the system in operation. If, after carrying out a series of intelligent tests, he is convinced that the system is adequate and efficient, he may rely thereon to a considerable extent as regards a large part of the detailed work, and thus be able to devote more time to the more important matters."</i></p> <p><i>Internal check is a method of organizing the entire operations of office, factory, and warehouse, and the duties of the respective staffs so that fraud and irregularities are impossible without collusion. It involves a sub-division of duties by means of which no one person is entirely responsible for one transaction but, at some stage in its performance, each person's work thereon comes to the notice of least one other person. It is thus very difficult for fraud to be perpetrated</i></p>

	<p><i>without collusion between the members of the staff concerned.</i></p> <p>Cutforth (1931:48-49) "A control over the correctness of the work of the clerks who are engaged in posting up books such as Bought Ledgers and Sales Ledgers is effected by the system of making these Ledgers self-balancing. ... It is true that this system will not bring to light incorrect or improper transfers from one debtor's account to another, but a further safeguard which is not infrequently employed is the circularising of the individual debtors by a person independent of the ledger-keep, in order to confirm the correctness of the amount stated to be owing by each."</p> <p>Cutforth (1931:49) "As regards the division of duties of the staffs. The keeping of the Ledgers, and the receipt and payment of Cash and the recording thereof, should be in entirely different hands; and the two staffs should have separate office accomodation"</p>
Audit Plan	<p>Lancaster (1935: 64) "It will facilitate the auditor's search for errors if, in the first place, due consideration is given to the various types of errors that may be made. These are :</p> <ul style="list-style-type: none"> ▪ <i>Errors of omission: These arise where an item is wholly omitted from the books (i.e. from both the book of original entry and the ledger).</i> ▪ <i>Errors of commission: These consist of entries of transactions in wrong accounts of the same class.</i> ▪ <i>Errors of principle: This type of error, which relates to entries of transactions in the wrong class (balance sheet or income statement) of account, frequently has serious results.</i> ▪ <i>Error is original entry: In addition to Errors of Omission, errors may arise in respect of a book of original entry, where transactions are wrongly recorded therein."</i> <p>Daly (1933: 172) "It is obvious that the auditor can hope to check only a fractional proportion of the entries, and it is important that his tests should be intelligently chosen so that they will prove as effective as possible. The object of his task should be to enable him to ascertain the state of the records, and the efficiency of the system of internal</p>

	<p><i>check, rather than to verify the correctness of the entries themselves."</i></p> <p>De Paula (1939: 4) <i>"Two main purposes of an audit are the prevention and detection of errors and fraud. Although the discovery of such omissions, which point will be dealt with at some length later on, forms a very important part of the duty of the auditor, yet in a large business he is compelled to rely to a certain extent upon the internal checks in the business itself to assist him in the performance of this part of his duty. If, however, his audit programme is complete and is thoroughly and efficiently carried out, most of such omissions should be discovered".</i></p> <p>Hanson (1942:41) <i>"The public accountant, supposed to be an educated, intelligent, professional man of experience, is bound to determine reasonable well what constitutes a suitable and sufficient program to meet the particular needs of a given assignment. He performs a detailed audit when he finds it necessary: to go back to such original records as those of purchases, sales, payrolls, cash received, and accounts payable, to check these individually one against another as fast as possible; then to check them minutely against entries on the books of original entry; then to compare the postings on the ledger one by one with entries in the original records of account, verifying footings and cross footings meticulously as he proceeds. He is definitely not relying upon the bookkeeping system and the internal check to produce figures accurate enough to be certified with limited, restricted tests and checks."</i></p> <p>Lancaster (1935: 68) <i>"The possibility of fraud should never be lost sight of, but on the other hand the auditor is not bound to assume when he commences his audit that he is dealing with fraudulent and dishonest people."</i></p>
<p>Response:</p> <p>Nature of the audit procedurs</p>	<p>Kirkham & Gaa (1939: 139) <i>"As basis for his judgment, the auditor must study the validity of the recorded facts by examining the supporting data."</i></p> <p><i>Four separate lines of evidence may be followed in this examinations process.</i></p>

	<ul style="list-style-type: none"> • <i>The first line comprises the entries appearing in the books of account as made by those charged with this task.</i> • <i>The second line is composed of documents, papers and records prepared by those who also made the book entries.</i> • <i>The third line of evidence embraces documents and papers prepared and records kept by persons in the enterprise but not engaged in account keeping, including certificates signed by officials of the enterprise and responsible employees.</i> • <i>The fourth line of evidence is included in all documents, papers and records prepared by outsiders and certificates secured from impartial, outside sources."</i> <p>Egglestone (1946: 19) – support the above.</p> <p>Borth & Winakor (1935:178) "<i>An understatement of factual data is quite as deceiving as over-statements, yet few accountants seem to be willing to admit it. Though understatements of certain economic data may be beneficial to one class of interests in the company, this same deliberate misstatement deceives and possibly injures the economic interests of other classes."</i></p> <p>Lancaster (1935:400) "<i>Examine the system of paying wages as to recording and checking amounts due to workmen."</i></p>
<p>Response:</p> <p>Extent of the audit procedures</p>	<p>Daly (1933:173) "<i>As has been indicated the volume of transactions makes detail checking impossible. It is essential, therefore, that the tests made be selected and planned with the greatest care. ... The first task the auditor must tackle is to ascertain what system of control is in force and to see how far he considers it adequate."</i></p> <p>Kirkham & Gaa (1939: 143) "<i>However it is not to be inferred that every item on the books must be verified but rather that tests checks used must cover the entire period in an attempt to determine the essence and accuracy of the transactions."</i></p> <p>De Paula (1939: 11) "<i>The extent to which an auditor may rely safely upon internal checks, and omit to check the whole of the detail entries, depends entirely upon the whole of the circumstances of the particular case, and this question must be decided by each auditor for</i></p>

	<p><i>himself. In this direction he requires considerable skill, experience, and judgment, and the efficiency of his audit will depend largely upon the skill with which he deals with this question."</i></p> <p>Egglestone (1946:48) <i>"Considerations must be given to the company's internal control system in determining how extensively the verification of vouchers, additions, and postings may be made by means of selective tests. Independent accountants usually rely, to a considerable extent upon test-checking portions of the records of the company under audit...The degree of internal control can be ascertained by inquiring into the duties of each employee in the accounting department and the procedure followed in recording financial transactions."</i></p> <p>Hanson (1942:7) <i>"In large part the review or tests of operations for the period preceding are incidental to the verification of the items on the balance sheet. It is quite customary in such an audit, if conditions warrant, to subject a chosen month or two of the period under review to a detailed checking. In addition, a few broad tests are usually made as a general check upon the statement of income for the period."</i></p>
<p>Response:</p> <p>Timing of audit procedures</p>	<p>Continuous audit and completed audit.</p>

8.3. Table C: Systems-based audit approach

Factors to consider	Systems-based audit approach
<p>The objective of the audit</p>	<p>Willingham & Carmichael (1971: 107) <i>"The objective of the auditor's examination is the expression of an opinion on the fairness of presentation of his client's financial statements.</i></p> <p>Arens & Loebbecke (1976:18) <i>"The overall objective of the ordinary audit of financial statements is to determine whether the statements are presented in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year....</i></p> <p>Taylor & Kritzingner (1962:7) <i>"It has been stated that the auditor's function is to satisfy himself that the accounts presented to him are true and fair. Out of this arise two further objects, viz</i></p> <ul style="list-style-type: none"> - the detection of errors and fraud, and - the prevention of errors and fraud. <p><i>The detection of errors made innocently or fraudently is incidental to the auditor's main duty of verifying the accounts."</i></p> <p>Arens & Loebbecke (1976:18) <i>"Although the auditor is not an insurer or a guarantor of the fairness of the presentations in the statements, he has considerable responsibility for notifying users as to whether or not the statements are properly stated."</i></p>
<p>Audit Strategy</p>	<p>Porter & Burton (1971:153) <i>"We believe the appropriate audit approach and objective is to develop an understanding of the firm's information requirements with the audit objective of evaluating the adequacy of the firm's information system to meet those requirements."</i></p> <p>Taylor & Glezen (1979: 767) <i>"The essential ingredient of the Systems Evaluation Approach is that it is objective-oriented auditing. The auditor establishes objectives to be attained and then develops auditing procedures which enable him to achieve these objectives in an efficient and economical manner.</i></p>

Procedures which are not productive in attaining audit objectives should be avoided"

Willingham & Carmichael (1971: 83)

"Collection of analytical evidence

- *Diagnostic analysis of the business*
- *Evaluation of internal control*

Collection of corroborative evidence of exchange transactions

- *Tests of exchange transactions*
- *Tests of balances resulting from exchange transactions and allocations*

Audit review and report

- *Completion of the audit*
- *Communication of the auditor's judgment in the form of an audit report."*

Arens & Loebbecke (1976:18) "Overview of the audit process:

- *Obtain a general understanding of the client and its circumstances.*
- *Study and evaluate the system of internal control*
- *Test the effectiveness of the system.*
- *Directly test the financial statement accounts*
- *Complete the audit, combine the results of all of the tests, and draw conclusions*
- *Issue an audit report."*

Taylor & Glezen (1979: 768) *Systems Evaluation Approach:*

- *Establish overall audit objectives and strategy.*
- *Determine effect of current economic conditions on the audit.*
- *Understand the industry and accounting and auditing problems peculiar to the industry.*
- *Understand client's business, products, goals, plans, etc. and administrative and accounting control environment of client*
- *Review pertinent financial data to identify and unusual or unexpected relationships.*

- *Perform initial planning procedures, confer with client and have planning meetings with appropriate personnel.*
- *Perform preliminary evaluation of internal controls. The preliminary evaluation is concerned primarily with general controls.*
- *Determine whether to rely on internal controls. If not, determine if entity is auditable. If entity is not auditable, consider alternatives, such as proceeding with the expectation of issuing a disclaimer of opinion, or withdrawing from the engagement.*
- *Prepare memoranda of discussions, inquiries, evaluation, etc. obtained during the planning, including discussion of identified critical audit areas and unusual accounting matters.*
- *Prepare flow charts of major transaction cycles. Narrative write-ups should be prepared for areas not susceptible to flow-charting. When no significant reliance is placed on internal controls, documentation may be limited, but should indicate auditor's understanding of the system.*
- *"Walk" selected transactions through the system to test understanding of the system.*
- *Identify pertinent internal controls strengths and weaknesses of the system related to internal control objectives. Also determine potential errors or irregularities which could occur and are of vital concern. When no significant reliance is placed on the system, identify resulting audit concerns.*
- *Prepare a work paper which describes the control strengths and weaknesses in the system. When no significant reliance is placed on the system, document basis of determining scope and extent of substantive tests*
- *Perform an overall evaluation of internal control identified. This evaluation is made for each system or transaction cycle. The auditor may conclude that one transaction cycle is strong and another is weak and, there fore, approach the*

	<p><i>audit of the data produced by these systems differently</i></p> <ul style="list-style-type: none"> • <i>Determine if we plan to rely on internal controls.</i> • <i>Design audit program and identify pertinent evidential matter available. Document relationship of substantive audit tests to evaluation of system.</i> • <i>Perform compliance testing.</i> • <i>Evaluate internal control strengths when compliance testing is completed.</i> • <i>Determine if we can rely on internal controls, If not, determine if other compensating internal control strengths exist. If compensating controls do not exist, adjust audit procedures.</i> • <i>Perform any interim substantive testing.</i> <p>Arens & Loebbecke (1976:3) <i>"Auditing is an integrated process of accumulating and evaluating evidence by a competent independent person about quantifiable information of a specific economic entity for the purpose of determining and reporting upon the degree of correspondence between the quantifiable information and established criteria."</i></p> <p>Arens & Loebbecke (1976:90) <i>"The decision about how much evidence to accumulate comprises two basic steps:</i></p> <ul style="list-style-type: none"> • <i>The overall level of assurance the auditor feels he needs in the existing circumstances.</i> • <i>The evidence necessary to achieve that overall level of assurance, considering the existing circumstances."</i>
<p>Obtaining an understanding of the entity and its environment and internal control</p>	<p>Arens & Loebbecke (1976:19) <i>The general understanding of the client includes four general categories of information:</i></p> <ul style="list-style-type: none"> ▪ <i><u>Background information for the audit.</u> Background information enables the auditor to better understand the client's industry and the peculiarities of the business.</i> ▪ <i><u>Analytical tests.</u> Analytical tests include the calculations and comparisons by the auditor of ratios and trends in the client's records as a test of reasonableness of the account</i>

	<p><i>balances.</i></p> <ul style="list-style-type: none"> ▪ <u><i>Information concerning the client's legal obligations.</i></u> <i>The legal commitments of the client, including such items as government regulations, the corporate charter and bylaws, corporate minutes, and contracts of all types, must be understood before it is possible to evaluate whether the financial statements are fairly stated.</i> ▪ <u><i>Information for evaluation of the possibility of management involvement in fraud.</i></u> <i>In recent years there has been an increasing incidence of involvement by management in fraudulent activities."</i> <p>Porter & Burton (1971:142-143) <i>"To evaluate the system, the auditor performs these tasks:</i> <i>(In evaluating the system the auditor is concerned with an analysis of the structure and design of the system itself)</i></p> <p><i>a) Defining the system supposed to be in existence.</i> <i>b) Testing the system to confirm the accuracy of his definition and the completeness and effectiveness of the system defined.</i></p> <p><i>(i) Evaluating strengths and weaknesses of the system so to as to determine:</i></p> <p><i>(ii) additional audit procedures required in areas where weaknesses exist;</i></p> <p><i>(iii) recommendations for improving the system in light of the information requirements of the client."</i></p> <p>Mautz (1954:308) <i>"Internal control comprises the plan of organization and all of the coordinate methods and measures adopted within a business to safeguard its assets, check the accuracy and reliability of this accounting data, promote managerial efficiency, and encourage adherence to prescribed managerial policies."</i></p> <p>Taylor & Glezen (1979:141) <i>"It is important that an auditor maintain an overall perspective of the financial statements he is examining. It is easy to become involved in the details and</i></p>
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	<p><i>forget to ask: "Does this answer or presentation make good sense in light of present industry and economic conditions?" To be able to answer that question adequately, the auditor must understand the client's business operations and have some knowledge of the industry and economic decisions. This means that the auditor must be more than a number checker; he must develop business judgment and knowledge equal to or greater than those of the clients he serves. This knowledge will help the auditor to identify audit areas needing special consideration and to determine the appropriateness of accounting principles and the adequacy of disclosure. Also, he will be in a better position to evaluate the reasonableness of estimates and representations made by management."</i></p> <p>Taylor & Glezen (1979:142) <i>"One specific application of a business approach to auditing is the calculation and evaluation of certain financial statement ratios. These data should not be computed and appraised in a "mechanical" fashion without regard for the business and industry environment in which the client operates. But if such computations are used properly and are integrated with pertinent information obtained from other sources, they can be valuable tools in allocating more efficiently the auditor's time and efforts."</i></p>
<p>Audit plan</p>	<p>Willingham & Carmichael (1971: 83) <i>"Evidence (facts in many forms). Stating that evidence may take any form of fact which has an inherent objective property does not provide one with a very specific definition of this important auditing concept; by its nature evidence just cannot be defined with precision. It is simply anything that influences the auditor."</i></p> <p>Willingham & Carmichael (1971: 83) <i>"In fact, much of the process of evidence gathering in auditing is an application of the classical subject of logic."</i></p> <p>Willingham & Carmichael (1971: 110)</p>

Analytical evidence (entity organization)

1. Overall relationships between transactions and knowledge of the business operations resulting in transactions (diagnostic analysis).
2. The method of means of processing transactions (internal control evaluation)

Corroborative evidence (entity activity)

3. Documentary or testimonial support for individual transactions (tests of transactions).
4. Testimonial or observational support for the end result or outcome of an aggregate of transactions (test of balances).

Audit procedures: Observation, Inquiry, Confirmation, Retracting data processing, Recomputation, Vouching

Willingham & Carmichael (1971: 140)

"Program Planning:

(a) There are three general possibilities for the modification of an audit program:

- i) Variation in the nature of the procedures selected,*
- ii) Alteration in the timing of audit procedures, and*
- iii) Expansion or reduction of the extent of application of the procedures selected.*

(b) Materiality: The selection of accounts to be confirmed and the determination of the permissible amount of error in the receivable are both influenced by materiality considerations.

(c) Relative risk: The program planning criterion for relative risk influences confirmation of accounts receivable in at least four ways: (1) emphasis on direction of error, (2) selection of accounts, (3) combination with non-receivable procedures, and (4) importance of other receivables procedures.

(d) Reliability of evidence."

Lenhart & Defliese (1957:12-13) *"In the performance of field work the auditor must keep in mind considerations of materiality*

	<p><i>and relative risk. The exercise of due care implies greater attention to the more important items in the financial statements than to those of less importance. The risk of error may be greater in certain areas and under certain conditions of internal accounting control or internal check than in others. ... After testing the effectiveness of the system in practice, the auditor exercises judgment as to the extent to which auditing procedures must be applied in the circumstances".</i></p> <p>Lenhart & Defliese (1957:50) <i>"Financial soundness of a business has a bearing on the degree of risk the auditor may safely assume. Finally in his estimation of the permissible effect of relative risk on his audit procedures, the auditor will consider the plan and effectiveness of the company's system of internal accounting control and internal check".</i></p> <p>Lenhart & Defliese (1957:50) <i>"The doctrine of materiality and relative risk tends to promote efficiency in the conduct of an audit. It insists upon proper attention to the important and encourages the exercise of judgement in eliminating or minimizing the unimportant. The auditor may properly reduce the extent of auditing procedures if the item under examination is not of importance, because an undetected error would seldom affect materiality, the fairness of the financial statements or, if corrected, change the auditor's opinion."</i></p> <p>Lenhart & Defliese (1957:30) <i>"Public accountants generally recommend, as an additional line of defence against fraud, coverage of all employees, or at least those occupying positions of trust, by fidelity bonds."</i></p>
<p>Response: Nature of audit procedures</p>	<p>Willingham & Carmichael (1971:69) <i>"From an auditing perspective, accounting principles appear to centre about three stages in the accounting process:</i></p> <p style="padding-left: 40px;"><i>(1) the original data or behaviour of accounting analysis</i> <i>(Note: Willingham & Carmichael (1971: 70) In summary, at the most basic stage of the accounting process, the auditor is</i></p>

concerned with the three basic concepts that make up this first stage, i.e. the exchanges of an entity expressed in money values.)

- *the allocations, reclassifications, and resulting valuations of these data after admission to the process; and (Note: Allocation and reclassifications comprise the inventory methods, depreciation methods, and amortization methods prescribed by generally accepted accounting principles.)*
- *the form, terminology, and explanatory notes used to present the results of the analysis of these data in financial statements.*

Mautz (1954:12) *"Three areas of error possibility deserve attention. They are*

1. Transaction recording

- *Improper transaction analysis.*
- *Omission of transactions which should be included.*
- *Inclusion of transactions which should be omitted.*

2. Bookkeeping procedures.

- *Consists largely of accumulating, transferring, offsetting, and combining figures.*

3. Financial statement preparation. In the preparation of financial statements, errors may be made in:

- *Improperly including items or amounts.*
- *Excluding items or amounts.*
- *Inadequately or inaccurately describing items.*
- *Failing to make full disclosure."*

Arens & Loebbecke (1976:317-335) *"Direct tests of financial balances: (per audit objectives)*

(a) Overall reasonableness (amounts deriving special attention and analytical tests)

(b) Mechanical accuracy; Existence; Ownership; Valuation; Classification; Proper cut-off

	<p><i>(c) Adequate disclosure."</i></p> <p>Refer Stettler (1970: 126,160,223)</p> <p>Taylor & Glezen (1979: 363)</p> <p><i>"Specific objectives for the audit of inventories:</i></p> <ul style="list-style-type: none"> • <i>Determine that the inventory amount on the balance sheet is represented by physical items actually on hand, in transit, or on consignment (Existence).</i> • <i>Determine that the inventory is calculated properly at the lower of cost or market in accordance with generally accepted accounting principles consistently applied. (Valuation).</i> • <i>Determine that the inventory belongs to the company and that any liens on the inventory are disclosed properly (Ownership).</i> • <i>Determine that any excess, slow-moving, or special-purpose items are properly valued and classified (Valuation and Classification)."</i> <p>Willingham & Carmichael (1971: 283) "Two audit procedures common to all transactions of an entity</p> <ul style="list-style-type: none"> • Review the cut-off of transactions at year-end. • Analysis of all unusual transactions."
<p>Response:</p> <p>Extent of the audit procedures</p>	<p>Lenhart & Defliese (1957:49) <i>Materiality and relative risk are also important in determining the extent of auditing procedures. It is fundamental <u>that there should be stronger grounds to sustain the auditor's opinion of relatively important items in the financial statements and those with possibilities of relatively <u>material error</u> than are to required to sustain his opinion of items without these characteristics.</u></i></p>
<p>Response:</p> <p>Timing of audit procedures</p>	<p>Timing of procedures was before and after year-end.</p>

APPENDIX B – MULTIPLICATIVE AUDIT RISK MODEL

9.1. Table D: A summary of research on the multiplicative audit risk model

Table D: A summary of research from a statistical perspective of the audit risk model.

Date	Authors	Research methodology	The objective of the study	Summary of problematic aspects	Suggested improvements /Reported Results
1972	Elliott & Rogers	Development of theory	The purpose of this article is to suggest an approach relating statistical techniques to audit objectives.	<ul style="list-style-type: none"> Require greater precision than the typical audit approach that translates into larger sample sizes. <i>"The required calculations, if done manually, are so onerous as to discourage the use of statistical techniques."</i> Elliot & Rogers (1972:55) 	An auditing model that assisted auditors in making the judgment decisions to determine the variables, for e.g. β or audit risk, internal control and materiality for use in a statistical method, based on hypothesis testing. (Elliott & Rogers (1972:49))
Professional Pronouncement					
1972	American Institute of Chartered Professional Accountants Statement of Audit	Guideline A more precise approach to the quantification of audit risk as Elliott & Rogers. Cushing & Loebbecke (1983: 25)	Professional Audit Standard	<ul style="list-style-type: none"> SAP 54 discusses a type of risk e.g material errors occurring in the financial statements in the absence of satisfactory internal control and estimates this risk "implicitly and 	<ul style="list-style-type: none"> Formula to solve for the appropriate substantive test reliability level, having first determined the desired overall reliability level for the audit, and the reliance to be assigned to internal

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	Practice 54			conservatively" to be 1.00.	control. • The hypothesis are reversed in SAP 54: H ₀ : The monetary error is equal to ±M H ₁ : The monetary error is zero. (Roberts (1974:52))
1974	Roberts	Not applicable	Understanding the nature of precision and reliability in statistical sampling.	Roberts (1974:50) " <i>This use of the statistical evidence involves the risks of making two types of mistakes. The second type of error – namely, deciding there is a material error when in fact there is none – is not mentioned in SAP No. 54. While the consequences of this type of error are not as</i>	Roberts (1974:53) " <i>In their decision-making role in statistical analysis, the specific nature of the strategy used determines which error is related to reliability and which to precision. For substantive tests, if the auditor chooses to use Strategy 1 (SAP 54), and he calculates the precision and reliability of his estimate of</i>

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Date	Authors	Research methodology	The objective of the study	Summary of problematic aspects	Suggested improvements /Reported Results
				<p><i>severe as those of incorrectly deciding there is no material error, they are nevertheless important and must be considered in deciding upon an appropriate precision."</i></p>	<p><i>monetary error by standard statistical procedures, reliability is associated with the error of failing to detect a material error when it exists. This is the strategy used in Appendix B and consequently all references to reliability for substantive tests in paragraphs 25-36 must be translated to $((100+R)/2)\%$ where $R\%$ is the reliability associated with the precision interval."</i></p>
1975	Stringer	Development of audit theory.	Suggesting a statistical technique for analytical review.	Not applicable	<p>Extension of the formula: $S = 1 - (1 - D)(1 - A)$, where S = Reliability level desired for substantive tests;</p>

Table D: A summary of research from a statistical perspective of the audit risk model.

Date	Authors	Research methodology	The objective of the study	Summary of problematic aspects	Suggested improvements /Reported Results
					D = Reliance assigned to tests of details; A = Reliance assigned to analytical review.(Stringer 1975:3).
1977 & 1980	1977 - Anderson & Teitlebaum & Anderson 1980 – Leslie & Anderson	Not applicable –Appendix C of Dollar Unit Sampling – A Practical Guide for Auditors.	To discuss the use of the Bayesian framework in the simplistic joint risk model. Leslie, Teitlebaum & Anderson (1980:296).	(4) " <i>The comparison of true posterior confidence with joint planning confidence resulted in significant differences, as a result of possible unfavourable prior probabilities.</i> " Leslie & Teitlebaum & Anderson (1980:302). (5) " <i>Prior probabilities (assessment of inherent risk) cannot be quantified precisely and the question</i>	(6) " <i>Preferable to segregate for the inherent risk factor, for not only will it be less than 100% but it will vary from item to item.</i> " <ul style="list-style-type: none"> • <i>The extended joint risk model:</i> • <i>risk of material error occurring in the first place (after considering the influence of preventive internal control), times</i> • <i>risk of the material error</i>

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				<p><i>is if the test is worth doing at all?</i> Leslie & Teitlebaum & Anderson (180:304)</p>	<p><i>not being detected by internal control, times</i></p> <ul style="list-style-type: none"> <i>risk of the material error not being caught by overlapping audit procedures, times</i> <i>sampling risk on this substantive test equals the combined risk of undetected material error” (Leslie, Teitlebaum & Anderson (1980:296))</i>
1979	Warren	Development of audit theory	<p><i>“The objective of this article is to explain audit risk so that the effects of the audit decisions</i></p>	<ul style="list-style-type: none"> <i>“SAS 1 assumes the risk of occurrence of a material error is 100 percent (1.0). This ignores cost-benefit.” (Warren (1979:66))</i> <i>“The partial objective of</i> 	<ul style="list-style-type: none"> Incorporate the likelihood of material error in the financial statements directly in above formulation as follows: $(1-R) = (1-S)(1-C)(ME)$

Table D: A summary of research from a statistical perspective of the audit risk model.

Date	Authors	Research methodology	The objective of the study	Summary of problematic aspects	Suggested improvements /Reported Results
			<p><i>on risk can be understood & controlled.</i> (Warren (1979:66))</p>	<p><i>professional standards is to establish an upper bound of riskiness – this upper limit is ill-defined.</i>" Warren (1979:66)</p>	<p>ME = The likelihood of material error as subjectively assess by the auditor. Warren (1979:73)</p> <ul style="list-style-type: none"> • Audit risk will be defined, segregated into risk determinants, analyzed into controllable and non-controllable components.
Professional Pronouncements					
1980	CICA (Canadian Institute of Chartered Accountants)	Guideline	Research Monograph	<ul style="list-style-type: none"> • Comments the same as in Leslie, Teitlebaum & Anderson (1980) 	<p><i>"Joint risk = inherent risk x control risk x risk from other audit procedures x substantive test risk"</i> (Cushing & Loebbecke (1983:26)</p> <ul style="list-style-type: none"> • Use Bayesian Framework • Incorporates Inherent Risk • Change the notation to Risk

Table D: A summary of research from a statistical perspective of the audit risk model.

Date	Authors	Research methodology	The objective of the study	Summary of problematic aspects	Suggested improvements /Reported Results
					factors and not reliance factors.
1981	AICPA: American Institute of Chartered Professional Accountants	Guideline	Professional Audit Standard	<ul style="list-style-type: none"> • The individual risk components are assumed to be independent of each other. • The non-sampling risk component of the model is assumed to be negligible, based on the level of quality controls in effect. • Inherent risk, because it is difficult and potentially costly to quantify, is set conservatively at one; since audit audit experience indicates clearly that it is substantially lower, the actual risk will ordinarily be 	<p>UR = IC x AR x TD</p> <p>UR = the allowable ultimate risk that the auditor will fail to detect a monetary error equal to the maximum tolerable amount.</p> <p>IC = the auditor’s assessment of the risk, that given that errors equal to tolerable error occur, the system of internal accounting control fails to detect them,</p> <p>AR = the auditor’s assessment of the risk that analytical review procedures and other relevant substantive tests</p>

Table D: A summary of research from a statistical perspective of the audit risk model.

Date	Authors	Research methodology	The objective of the study	Summary of problematic aspects	Suggested improvements /Reported Results
				less than ultimate risk. (SAS 39 (AICPA (1981)))	would fail to detect errors equal to tolerable error, and TD = the sampling risk of incorrect acceptance for substantive tests of details (AICPA, 1981, para 4).
1983	Cushing & Loebbecke	Literature survey and critical analysis of audit theory Limitations of the study: Quantification of audit risk measures. Literature dealing exclusively with the qualitative aspects of audit risk is not reviewed. Cushing & Loebbecke (1983:24)	Cushing & Loebbecke (1983: 23) This paper critically examines a representative audit risk model and identifies several flaws in the model which limits its applicability in	Cushing & Loebbecke (1983:28-32) 1. The Aggregation Problem 2. Independence of Components 2.1 Inherent risk depends on internal control risk 2.2 Analytical review risk depends on internal control risk 2.3 Substantive test of details risk depends on internal	Cushing & Loebbecke (1983: 38) " <i>We offer several policy-type rules for the application of the simplified audit risk model:</i> <i>1. When the auditor believes that the likelihood of material errors is high, the model should not be used.</i> <i>2. When the model is used in planning and the</i>

Table D: A summary of research from a statistical perspective of the audit risk model.

Date	Authors	Research methodology	The objective of the study	Summary of problematic aspects	Suggested improvements /Reported Results
			<p>practice. In order to assist auditors in avoiding problems which may arise from using the audit risk model, the paper proposes a set of rules for its application in practice.</p>	<p>control risk 3. Differences between real and assessed risks 3.1 Differences between real and assessed risks 3.2 Complexity of system components 3.3 Auditor errors in parameter assessment 3.3.1 Internal control risk 3.3.2 Analytical review risk 3.3.3 Tests of details risk 4. Establishing Ultimate Risk 5. Evaluation of Audit Results</p>	<p><i>evidence gathered indicates a strong likelihood of material error, the model should not be relied upon to rationalise foregoing additional audit work.</i></p> <p><i>3. Since there is conditional dependence on internal control for the other components of the model, the model should not be relied upon except where internal control is evaluated as good or excellent.</i></p> <p><i>4. Since the model is sensitive to nonsampling error, it is essential that nonsampling risks be controlled.</i></p>

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					<p>5. Where the auditor elects to assess inherent risk he should realize the direct effect of so doing and be certain his assessment is based on observable evidence, not just intuition”.</p>
1983	Kinney	Audit theory	<p>Discussing the compounding of probabilities in auditing with the assistance of a hypothetical example. (Kinney (1983:13))</p>	<p>Kinney (1983:13) <i>"The use of the audit risk formula to conditionally revise an audit plan or to evaluate audit results may subject the auditor to more risk than would seem to be indicated by such use of the formula."</i></p>	<p>Kinney (1983:17-18) The auditor must restrict the acceptance-outcome space to ultimate risk.</p>

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Date	Authors	Research methodology	The objective of the study	Summary of problematic aspects	Suggested improvements /Reported Results
Professional Pronouncement					
1984	Jiambalvo & Waller	Empirical study – <i>"Thirteen auditors from one Big Eight firm were asked to assess audit risk from case information about four hypothetical clients' accounts receivable. The subjects were assigned to two groups. The first group was asked to make a direct holistic assessment of TD (Tests of Details). The second group was asked to first consider and quantify their judgments of UR, IC (Internal Control) and AR</i>	<i>"The purpose is to investigate empirically the effects of decomposition on auditors' assessments of the allowable risk of incorrect acceptance for planned substantive tests of details within the framework of the audit risk model."</i> Jiambalvo	<ul style="list-style-type: none"> ▪ Based on the experimental results some questions are raised concerning the internal consistency of auditors' risk assessments and the appropriateness of the audit risk model as a framework for decomposing and articulating audit risks. Jiambalvo & Waller (1984:80) 	<ul style="list-style-type: none"> ▪ <i>"Hypothesis 1: were not supported: The assessments of test of details made by auditors using a direct, holistic approach will be different than the assessments of tests of details made by auditors using a decomposition approach."</i> (Jiambalvo & Waller (1984:84)) ▪ <i>"Hypothesis 2: were supported: Assessments of tests of details using a decomposition/intuitive combination approach will be different than</i>

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		<p><i>(Analytical Review), and then provide an assessment of Tests of Details. The value for Tests of Details provided by the auditors after quantifying the other risk model components was considered to represent a decomposition /intuitive approach. To evaluate whether decomposition improved the subjects' risk assessments, the researchers then mathematically combined the assessments of UR, IC and AR from the second group using the</i></p>	<p>&Waller(1984:80)</p>		<p><i>assessments of tests of details using a decomposition/algorithmic combination approach."</i> Jiambalvo & Waller (1984:84)</p>

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		<i>formula suggested by SAS No.39, This computed value for TD represented a decomposition/ algorithmic approach."</i> Jiambalvo & Waller (1984:84)			
1984	Leslie	Analysis with a hypothethical example		Leslie (1984) in Aldersley (1989:85) The Bayesian model suggested by (Leslie 1984) differs in a fundamental way from the joint risk model (AICPA audit risk model). In the Bayesian case such a change in inherent risk has a very large leverage effect on the calculated posterior risk	Recommend the CICA (1980) model.

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				whereas in hte joint risk case, the effect is simply multiplicative.	
1985	Libby & Artman & Willingham	Empirical study – Experimental Libby & Artman & Willingham (1985:222) 12 auditors from 12 different offices of KPMG with an average of 10.1 years in public accounting Libby, et al (1985:213) Limitation: <i>“It is not the purpose of the paper to argue the audit risk model’s appropriateness for practice.”</i>	(1985:213) “The purpose of the paper is to develop and test some of the characteristics (Internal control design & strength) at the level of individual information processing streams.		Libby & Artman & Willingham (1985:225) <i>“Given the complexity of the relationships involved, it is refreshingly that the auditor subject’s performance so closely matched the predictions developed from the audit risk model.”</i>

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Date	Authors	Research methodology	The objective of the study	Summary of problematic aspects	Suggested improvements /Reported Results
1985	Beck & Solomon	Audit theory	Provide guidance to auditors in selecting (modifying) a statistical decision rule e.g. Elliott & Rogers (1972) or SAP 54. Beck & Solomon (1985:1)	Beck & Solomon (1985:9) <ul style="list-style-type: none"> • <i>"If the accounting errors observed in the sample are relatively small and include both overstatements and understatements (inventory) then the SAP 54 decision rule would appear to be preferable.</i> • <i>If the sample errors are predominantly large overstatements (accounts receivable) the Elliott & Rogers (1972) decision rule appears to be preferable."</i> • Refer risks - audit sampling 	Beck & Solomon (1985:9) <ul style="list-style-type: none"> • <i>"Decision rule selection for these estimators should be based upon the characteristics of the population indicated by the sample. In particular the auditor should consider the accounting error pattern."</i>

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Date	Authors	Research methodology	The objective of the study	Summary of problematic aspects	Suggested improvements /Reported Results
1986	Smieliauskas	Emperical study Use the four accounting populations used by Neter and Loebbecke (1975).	Smieliauskas (1986:218) "The objective of this study was to analyze the relative efficiency of dollar unit sampling and stratified mean per unit estimation procedures under different risk and materiality levels."	Smieliauskas (1986:218) "But an analysis of performance at low risk levels may not extend to statistical test performance at high risk levels."	Smieliauskas (1986:218) "The findings of this study are summarized as follows: <ul style="list-style-type: none"> • Both dollar unit- and stratified mean per unit sampling are reliable at extremes of risk levels indicated by auditing standards. • Planned materiality can be an important factor affecting relative peformance of statistical estimators; and • The benefits of internal control reliance may vary depending of the statistical estimator used in testing of details."

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1987	Boritz & Gaber & Lemon	Empirical study Survey They surveyed 10 of the 20 largest accounting firms in Canada.	Boritz & Gaber & Lemon (1987:36) Managing audit risk – the quantitative versus the qualitative approach.	Boritz & Gaber & Lemon (1987:40) <i>"The majority of junior auditors said they didn't know their firm achieved basic audit assurance."</i> Boritz & Gaber & Lemon (1987:41) <i>"The technical limitations of formal risk models may provide a possible explanation. The theory underlying them is still open for debate; they are too narrowly focused, lacking sufficient variables; and may even be ill-conceived, relying as they do on a multiplicative approach requiring that</i>	Boritz & Gaber & Lemon (1987:41) <i>"A survey in 1976 employed quantitative approaches to risk assessment and audit assurance. Only 29% made any attempt to quantify the risk of not detecting a material error in financial statements. By 1984, the percentage of auditors quantifying risk hadn't increased, though most seemed quite familiar with the concept."</i>

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				<i>component risks be independent, when, in fact, they maybe correlated."</i>	
1988	Daniel	Emperical study Extends the previous work of Jiambalvo & Waller (1984) Daniel (1988:174) 33 audit managers from 9 of the ten largest accounting firms in the Tulsa/Oklahoma City were asked to assess the audit risk for accounts receivable for an actual audit engagement	Daniel (1988:174) " <i>The purpose of this paper is to investigate the application to the audit risk models outlined in SAS 39/SAS47 and CICA</i> "	<ul style="list-style-type: none"> ▪ "<i>Whatever the explanation, it is clear that, as a group, the auditors in the study did not follow a well-defined model to assess audit risk. Daniel ('88:179)</i> ▪ <i>It is also possible that there are other factors or components in the audit risk decision model that have not been properly identified and addressed in the existing models."</i> Daniel ('88:179) 	Daniel (1988:177) " <i>The multiplicative forms generally resulted in much lower audit risk values than those specified by the auditors."</i>
Professional Pronouncement – "Expectation Standards"					

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1989	Kinney	Kinney (1989:67) Analysis via a hypothetical numeric example	Kinney (1989:67) A completely specified audit outcome space is presented (tree diagram) and analyzed via a numeric example.	Kinney (1989:67) <i>"The AICPA's audit risk formula is shown to have properties that may significantly understate the achieved audit risk."</i>	<ul style="list-style-type: none"> ▪ Kinney (1989:68) <i>"The understatement of achieved audit risk is due to the failure to completely define the audit outcome space, or equivalently, the omission of some branches of the auditor's decision tree."</i> ▪ Kinney (1989:68) <i>"The audit risk model yields actual achieved audit risk only if all initial "reject" decisions by the auditor lead to error-free financial statements accompanied by unqualified opinions".</i> ▪ Kinney(1989:68) <i>"Disconfirming evidence</i>

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Date	Authors	Research methodology	The objective of the study	Summary of problematic aspects	Suggested improvements /Reported Results
					<i>should be incorporated in such a way as to increase the required evidence rather than being treated as non-informative."</i>
1989	Aldersley	Discussion of article	Discussion of Achieved Audit Risk and the Audit Outcome Space – Kinney (1989)	Aldersley (1989:88) <ul style="list-style-type: none"> ▪ <i>"The essential features Kinney identified in his paper are apparent in this rather simple example. For the auditor to correctly determine the achieved audit risk, it is essential for him to properly understand the possible audit outcome space."</i> ▪ <i>"This alone, however, does not mean that these</i> 	Aldersley (1989:95) <p><i>"Personally, I would not want such formal modifications to be made to professional standards. It seems to me that a knowledgeable reader would have recognised these application problems and would not simply describe the words of SAS 47 into an algebraic formula and solve for the substantive test-of-details component."</i></p>

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Date	Authors	Research methodology	The objective of the study	Summary of problematic aspects	Suggested improvements /Reported Results
				<p><i>models are incorrect. Rather, it means that the models have been applied in a context in which they are no longer valid."</i></p>	<p>Aldersley (1989:96) "<i>Many of the sequential problems are resolved in a Bayesian framework."</i></p>
1990	Senetti	<p>Senetti (1990:103) "<i>An audit risk model is developed and shown to be conceptually different from the audit risk model that is commonly accepted."</i></p> <p>This development is similar to Kinney (1989) and addresses the questions raised by Aldersley (1989) in discussion of Kinney's</p>	<p>The paper attempts to clarify the modeling concepts of audit risk planning and of audit risk evaluation.</p> <p>Senetti (1990:103)</p>	<p>Senetti (1990:108) "<i>For planning purposes, the SAS 39/47 model and other models also appear to be incomplete."</i></p> <p>Senetti (1990:108) "<i>The SAS 39/47 model use control risk in place of reliance risk, thus confusing the risk of the financial system with the auditor's risk of correctly assessing and testing that system"</i>.</p>	<p>The audit risk model developed by Sennetti (1990:103) formally extends and redefines some concepts introduced by similar, tree-like models specifically Kinney (1989)</p>

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Date	Authors	Research methodology	The objective of the study	Summary of problematic aspects	Suggested improvements /Reported Results
		(1989) paper.			
1990	Peters	Empirical study Experimental Subjects – a total of 13 auditors (2 partners, 9 managers, and 2 seniors) contributed to the model’s development and 5 additional managers evaluated the model’s performance. The 18 subjects come from four of the Big Six public accounting firms.			
1991	Morton & Felix	Discussion of the theory.	Morton & Felix (1991:1) A Critique of Statement on	Morton & Felix (1991:2) " <i>The remainder of SAS 55 deals primarily with the explanation of the concept of</i>	Morton & Felix (1991:10) ▪ In general, SAS 55’s obscure reasoning, imprecise language and

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Date	Authors	Research methodology	The objective of the study	Summary of problematic aspects	Suggested improvements /Reported Results
			Auditing Standards No. 55	<i>assessing control risk. This differs dramatically from the concept of "reliance" on internal control prevalent in AU section 320 and is perhaps the most critical and potential troublesome area of SAS 55."</i>	<p>confusing discussions regarding the assessment of control risk make it unlikely that SAS 55 will achieve its objectives.</p> <ul style="list-style-type: none"> ▪ Our recommendation is a thorough revision of the standard, this time beginning with a strong theoretical foundation.
1993	Waller	<p>Waller (1993:783)</p> <ul style="list-style-type: none"> • Empirical study: • Auditors inherent risk and control risk assessments in field settings • Analyzing archival data drawn from the audit 	<i>Waller (1993:784) "The article reports empirical evidence on auditors inherent and control risk assessments in field settings by</i>	<i>Waller (1993:784) Contrary to expectation, the empirical evidence supports the conclusion of an insignificant association between inherent risk and control risk; however, in a predominance of the cases,</i>	<p>Waller (1993:784)</p> <p><i>(a) "The analysis in this study concludes that the dependence problem arises because (1) its event structure is ill-defined and (2) it fails to recognize that</i></p>

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Date	Authors	Research methodology	The objective of the study	Summary of problematic aspects	Suggested improvements /Reported Results
		<p>work papers of KPMG Peat Marwick.</p> <ul style="list-style-type: none"> As part of audit planning, the firm requires its auditors to make and document internal control and control risk assessments for each assertion of each significant account. The assessments are made with respect to tolerable error, an algorithm-based measure of planning materiality at the assertion level. Waller (1993:784) The data include 	<p><i>analyzing archival data drawn from the audit work papers of KPMG.</i></p> <p><i>"The data analysis considers four issues:</i></p> <p><i>(3) Whether there is a statistical association between auditors' IR and CR assessments.</i></p> <p><i>(4) Requirements of assertion level risk</i></p>	<p><i>control risk is assessed at the maximum, probably for reasons of efficiency.</i></p>	<p><i>an auditor's assessments are conditional on his or her knowledge. A knowledge-based independence may produce a statistical association between inherent risk and control risk.</i></p> <p><i>(b) Par 2.1 is supported inasmuch as there are significant differences in the rate of detected misstatements over assertions for each account.</i></p> <p><i>(c) However, auditors typically assess</i></p>

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Date	Authors	Research methodology	The objective of the study	Summary of problematic aspects	Suggested improvements /Reported Results
		<p>approximately 5000 risk assessments at the assertion level for trade accounts receivable, inventory and trade accounts payable on a total of 215 audit engagements.</p> <p>The data also indicate, for each assertion, whether a misstatement exceeding tolerable error was detected by the auditor.</p>	<p><i>assessments</i></p> <p><i>(5) the rate of misstatements varies over assertions</i></p> <p><i>auditors' risk assessments vary over assertions,</i></p> <p><i>and</i></p> <p><i>(6) The association between the rate of misstatements and auditors' risk assessments is positive.</i></p>		<p><i>inherent risk and control risk at the same value for all assertions for an account, which is inconsistent with the second premise (par 2.2).</i></p> <p><i>(d) When the data pertaining to all assertions for an account are included in the analysis, the association between inherent risk and the rate of detected misstatements (after controlling for control risk and detection risk) tends to be positive but</i></p>

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Date	Authors	Research methodology	The objective of the study	Summary of problematic aspects	Suggested improvements /Reported Results
					<p><i>low. This indicates modest support for the third premise.</i></p> <p><i>(e) Conclusion: Take as whole the results indicate a need to reconsider the policy of multiple risk assessments."</i></p>
1996	Dusenbury & Reimers & Wheeler	Emperical study Dusenbury & Reimers & Wheeler (1996:12) <i>"In an experiment, experienced inherent, control and analytical procedures for two accounting cycles.</i>	Dusenbury & Reimers & Wheeler (1996:12) <i>"This study extends prior theoretical work by soliciting component risk</i>		Dusenbury & Reimers & Wheeler (1996:12) <i>"Across different levels of several substantive auditing variables, the firm-specific model was significantly more conservative than the SAS model. Within the information environment in</i>

Table D: A summary of research from a statistical perspective of the audit risk model.

Date	Authors	Research methodology	The objective of the study	Summary of problematic aspects	Suggested improvements /Reported Results
		<p><i>The allowed test of details risk was derived from these assessments using three versions of the audit risk model: the arithmetic model described in Statements on Auditing Standards, a model used by a major accounting firm, and a belief-based specification of the audit risk model. Beliefs were estimated using qualities of evidence sanctioned by professional standards and were combined using Dempster's rule." Dusenbury & Reimers &</i></p>	<p><i>assessments of experienced auditors in contextually-rich experimental cases, combining the component risks for various probability-based and belief-based specifications of the audit risk model, and comparing the resulting test of details risks."</i></p>		<p><i>this study, the belief-based model was more conservative than the firm's model."</i></p>

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		Wheeler (1996:15) <i>"The models vary in the conceptual nature of chance used to assess the component risks (probabilities vs beliefs) and in the rules of combination used to combine the component risks."</i>			
2000	Messier & Austen	Empirical (Experimental) Messier & Austen (2000:119) <i>"Two hypothesis concerning the significance of inherent and control risk factors on auditors' inherent risk and control risk assessments were</i>	Messier & Austen (2000:119) <i>"In this paper we test for dependencies in the inherent risk and control risk components of the audit risk</i>	9. Messier & Austen (2000:130) <i>"It may be that the audit profession should revisit SAS No. 47 and revise the audit risk model in terms of the existing research and the changes occurring in the profession.</i> 10. <i>The results show that</i>	<ul style="list-style-type: none"> ▪ Messier & Austen (2000:119) <i>"The results show that the pervasive and specific risk factors included in the experiment were significant to both the auditors' inherent risk and control risk assessments.</i> ▪ <i>Taken together, these</i>

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		<p><i>tested by having 124 senior auditors and managers provide risk assessments on eight cases."</i> Messier & Austen (2000:122) The subjects were seniors and managers from each of the Big 6 CPA firms.</p>	<p><i>model using an experimental approach. The study examines the effect of pervasive and specific risk factors on auditors' inherent risk and control risk assessments.</i></p>	<p><i>auditors' IR and CR assessments are inconsistent with the multiplicative formulation of the audit risk model that appears in SAS 47. Auditors are aware of the real-world dependencies that exist between inherent and control risk."</i></p>	<p><i>findings are consistent with Waller's (1993) notion of a knowledge-based dependency between internal and control risk assessments.</i></p> <ul style="list-style-type: none"> ▪ <i>The findings are not consistent with Kinney's (1989) reformulation of the (IR x CR) component of the audit risk model'.</i>
2000	Dusenbury & Reimers & Wheeler	Dusenbury & Reimers & Wheeler (2000:105) <i>"In an experiment, experienced auditors made the risk assessments that are, in practice, inputs for using the audit risk model</i>	Dusenbury & Reimers & Wheeler (2000:105) <i>"The purpose of this study is to assess empirically whether</i>	Dusenbury & Reimers & Wheeler (2000:105) The wording in the standard indicates that the component risk assessments should not be made independently.	Dusenbury & Reimers & Wheeler (2000:105) <i>"Results showed that the previously assessed risk substantially increased the explanatory power of the models in accounting for variation in the</i>

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		<p><i>for planning the extent of detailed testing. Conditional dependencies were tested using a sequential linear modelling process that added previously assessed risks to the model.</i></p>	<p><i>component audit risks are assessed independently or are assessed interdependently & conditionally.”</i></p>		<p><i>subsequently assessed components. The results support the notion that audit risk components are assessed conditionally.”</i></p>

