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The effect of hypothesis framing, prior expectation and professional trait scepticism on experts' and novices' evidence selected in a complex task

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THE EFFECT OF HYPOTHESIS FRAMING, PRIOR EXPECTATION AND PROFESSIONAL TRAIT SCEPTICISM ON EXPERTS' AND NOVICES' EVIDENCE SELECTED IN A COMPLEX TASK

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A thesis submitted in partial fulfilment of the requirements for the degree of

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Use of Thesis

The Use of Thesis Statement is not included in this version of the thesis

ABSTRACT

This study examines evidence selection strategy among external auditors (i.e. professionals) and accounting students (i.e. novices) in a going concern assessment task considering three factors; hypothesis framing, prior expectation and professional "trait" scepticism as measured by Hurtt (2010) scale. Within this context, the study sets out to accomplish three goals: (1) to re-examine evidence selection strategy based on hypothesis framing and prior expectation, (2) to validate the Hurtt (2010) scale using expert reviews and confirmatory factor analysis and (3) to investigate whether professional trait scepticism influences selection strategy.

Owing to the incidence of high-profile accounting and auditing scandals worldwide, the regulatory bodies identified that two of the top five areas that contributed to audit deficiencies are: (a) failure to gather sufficient appropriate audit evidence and (b) insufficient level of professional scepticism. However, it is to be noted that the regulatory bodies did not specify how professional scepticism is to be measured. As a result, researchers across the globe explored this concept and tried to understand what factors influence professional scepticism and how it can be measured. One of the factors was identified as the trait of an individual that affects professional scepticism. Other factors include incentives, knowledge and audit experience. This study was motivated by the fact that limited research has been conducted to date to understand the effect of trait scepticism on auditors' behaviour. Accounting students were chosen to understand the influence of trait scepticism unaffected by audit experience.

The result reconfirmed previous research findings that auditors across junior to partner level exhibit disconfirmation selection behaviour mainly because of sensitivity to the potential loss function for not identifying a failed firm whereas students exhibit confirmatory selection behaviour indicating they are not so sensitised to the loss function that may be due to lack of real audit experience.

This study also validates the Hurtt (2010) 30 item scale and reduces the scale to 16 items to have a good model fit. With the reduced 16 item scale, trait scepticism was measured for individual auditors and students and the study found that trait scepticism had an effect on evidence search among students but only a marginally effect among auditors. The result may be due to the fact that although devoid of practical audit experience students are aware of the concept of professional scepticism and going concern assessment as these concepts are taught

in their curriculum, hence were primed to the task and approached it cautiously. For the auditors, it may be the task did not motivate them to exhibit enough scepticism as they are well versed in the nature of going concern assessment. Further, other factors (i.e. states or situations) such as accountability, incentives, knowledge and experience also influence their day-to-day work and, therefore, may be in combination with trait scepticism, be required to exhibit sceptical behaviour. However, after controlling the different situations formed by a combination of hypothesis framing and prior expectation, the results showed that trait scepticism influences evidence selected among auditors but not among students.

The study contributes to existing auditing literature by validating the Hurtt (2010) scale and by investigating the impact of trait scepticism on selection strategy among students in an Australian university and external auditors based in the US. Further, this study explored the impact of hypothesis framing and prior expectation among students and re-examined the effect of hypothesis framing and prior expectation using auditors.

Declaration

I certify that this thesis does not, to the best of my knowledge and belief:

(i) Incorporate without acknowledgment any material previously submitted for a degree or diploma in any institution of higher education;

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Chapter One: Introduction

1.1 Introduction

This introductory chapter is arranged in the following manner. Section 1.2 describes the background to and rationale for the study including an overview of the findings of regulatory bodies like the US Securities and Exchange Commission (SEC) and the Australian Securities and Investments Commission (ASIC) regarding causes of audit deficiency followed by the research questions to be addressed in this study in Section 1.3. Section 1.4 highlights the implication or significance of the study. Section 1.5 outlines the structure of this thesis.

1.2 Background to and rationale for the study

The purpose of the financial audit (henceforth, termed 'audit') is to enhance the credibility of information disclosed by organisations to parties who otherwise would have limited access to the information. Investors make their decision to invest in the debt and/or equity securities of organisations on the basis of audited information, therefore auditing functioning through the operation of the capital markets, serves as an important facilitator of resource allocation in the economy. The audit is thus essential to protect and preserve investor confidence in capital markets. Therefore, external auditors are considered the gatekeepers of the financial markets: their responsibility is to scrutinise the financial information properly and provide their opinions in the form of audit reports. The audit reports state whether the scrutinised financial information is fairly presented in all material respects, regarding the financial position, results of operations, and cash flows, in conformity with generally accepted accounting principles. Hence, it can be said audit reports provide confidence by enabling the users of the audited financial information to make correct and appropriate decisions, thus ensuring stable financial markets.

At the present time, the importance of the role of external auditors has become even more critical given the recent worldwide economic turmoil in the period from 2000 to 2010, with corporate failures like Ansett, Enron, WorldCom, Xerox, HIH, One-Tel, Satyam as well as the banking crisis that destabilized the functioning of capital markets. These recent high- profile corporate failures have shown that external auditors have failed to perform this role responsibly. This led to the catastrophic erosion of investors' wealth and against this backdrop of audit failures stakeholders questioned the integrity of financial information in general and the audit profession in particular. It is apparent that the audit function failed miserably in most of the cases involving corporate collapses.

Owing to these audit failures, the reputation of the profession has been greatly jeopardized. As mentioned above, the audit is critical in maintaining confidence in the capital markets particularly in the present financial climate of growing complexities in economic transactions, accounting standards and regulations; it is of prime importance for auditors to assure that financial reports presented by business organisations are reliable.

In the wake of audit failures, regulators and academic researchers have investigated the main causes of audit deficiencies. The top five areas of audit failures in the US publicly traded companies, highlighted by Beasley, Carcello, Hermanson, and Neal (2013), based on audit deficiencies found by the Securities Exchange Commission (SEC) are:

1. failure to gather sufficient, appropriate audit evidence

2. failure to exercise due professional care

3. insufficient level of professional scepticism

4. failure to obtain adequate evidence related to management representations

5. failure to express an appropriate audit opinion

Furthermore, a recent Audit Inspection Report for 2011-2012 published by the Australian Securities & Investment Commission [ASIC] (2012, p. 4) on 20 Australian firms of all sizes found that in 18% of the 602 key audit areas[1] reviewed by ASIC across 117 audit files, auditors failed to obtain sufficient, appropriate audit evidence, exercise sufficient professional scepticism, or comply with auditing standards in at least one significant audit area. Globally, other international regulatory bodies also criticised auditors for failing to demonstrate sufficient professional scepticism in the conduct of their audits (Accounting and Corporate Regulatory Authority [ACRA], 2013; Canadian Public Accountability Board (CPAB), 2013; Financial Reporting Council (FRC), 2013; Public Company Accounting Oversight Board [PCAOB], 2012, 2013). Although it is evident from the findings of both the SEC and the ASIC that two of the audit deficiencies that led to audit failure are the lack of professional scepticism and failure to gather sufficient audit evidence, it should be noted that there is ambiguity regarding how the regulators and standard setters determined and measured the lack of professional scepticism among auditors. As a result, academic researchers have started to investigate the factors that influence professional scepticism (Nelson, 2009) and how to measure individual

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[1] Examples of the key audit areas include asset and liability valuations and going concern assessments, the level of professional scepticism applied in relation to management's assumptions, judgements, representations and explanations.

levels of professional scepticism among auditors (Hurtt, 2010). Hurtt (2010), developed a scale to measure auditors' trait (i.e. personality) scepticism level as a way of understanding how trait scepticism affects sceptical behaviour. She also suggested that professional scepticism depends not only on an individual level of trait scepticism but also on engagement circumstances (i.e. states). According to her, trait scepticism is considered as "a relatively stable, enduring aspect of an individual" and is effectively a personality trait whilst "state" scepticism is "a temporary condition aroused by situational variables", for example hypothesis frame, prior expectation, client specific experience, goal framing, time pressure, budget constraint that trigger sceptical behaviour. However, only a few studies have used the scale in various contexts (Carpenter & Reimers, 2011; Fullerton & Durtschi, 2004; Hurtt, Eining, & Plumlee, 2012; Peytcheva, 2014; Popova, 2012; Quadackers, Groot, & Wright, 2009) but none of the published studies have validated the scale using confirmatory factor analysis. The present study will validate the scale with the use of the confirmatory factor analysis (CFA) in AMOS and also seek the opinion of two experts.

An individual auditor's professional scepticism is considered to be the epitome of the auditing profession. In fact, the auditing profession is the only profession with an explicit professional requirement for application of professional scepticism. For example, Statement on Auditing Standards (SAS) No.1 by the American Institute of Certified Public Accountants [AICPA] (1997), mandates an auditor's use of professional scepticism, stating "Due professional care requires the auditor to exercise professional scepticism" (AU 230.07). Although considerable focus is provided on professional scepticism, there is a paucity of research regarding what constitutes professional scepticism and how it can be measured. Furthermore, Hurtt, Brown-Liburd, Earley, and Krishnamoorthy (2013, p.71) mentioned that while most research has focused on auditor judgement (e.g. identification of issues), the SEC and PCAOB inspection reports have focused primarily on auditor actions. There is, therefore, a disconnection between scepticism and auditor action (behaviour) which should be addressed by future research.

Auditing involves the critical examination by the auditor of an organisation's financial statements, financial control systems and underlying documentation for the purpose of expressing an independent opinion on whether the financial statements are free from material misstatements and represent a "true and fair" view of the financial position and results of the organisation. To express an opinion regarding "true and fair" view of the financial position and results, auditors have to search through different types of evidence and select appropriate evidence. As one of the audit deficiencies identified is the lack of sufficient appropriate evidence

collected, this present study will focus on evidence selection. In this respect, the study by Trotman and Sng (1989) has been replicated and extended. Trotman and Sng (1989) is relevant as the study manipulated various "states"; hypothesis framing and prior expectation (Kida, 1984; Trotman & Sng, 1989, Tan, 1995) which could trigger sceptical behaviour. One major finding of the extant literature is that auditors exhibit disconfirming selection strategy, which can be considered unique to this profession. There is a considerable number of studies regarding confirming or disconfirming behaviour in psychology, but there is a shortage of research in the auditing context. More research is therefore advocated, to understand how hypothesis framing and prior expectation influence evidence selection in auditing contexts. Further, it can be said that, despite recognised importance of the concept of professional scepticism, there is a paucity of research involving the practical application of professional scepticism in a complex task, which warrants the need for research that further explores its application.

For this study's purpose the different situations are created by manipulating hypothesis framing and prior expectation, consistent with Trotman and Sng (1989). The present study extends Trotman and Sng (1989) in two ways; a) by introducing novice (i.e., student) subjects and b) inclusion of professional trait scepticism as a variable. The purpose of inclusion of students is to understand how their selection behaviour is influenced by different situations and also to understand the effect of pure trait scepticism on selection strategy as novice subjects do not have practical audit experience and are primarily driven by theoretical knowledge.

1.3 Research questions

The present study addresses the following questions:

a. What is the impact of hypothesis framing on external auditors' and novices' selection of evidence in a going concern assessment task?

b. What is the impact of prior expectation on external auditors' and novices' selection of evidence in a going concern assessment task?

c. What is the impact of professional trait scepticism on auditors' and novices' selection of evidence in a going concern assessment task?

Based on these research questions, the following conceptual model has been developed to highlight the influence of hypothesis framing, prior expectation and professional trait scepticism on a going concern assessment task shown in Figure 1.1.
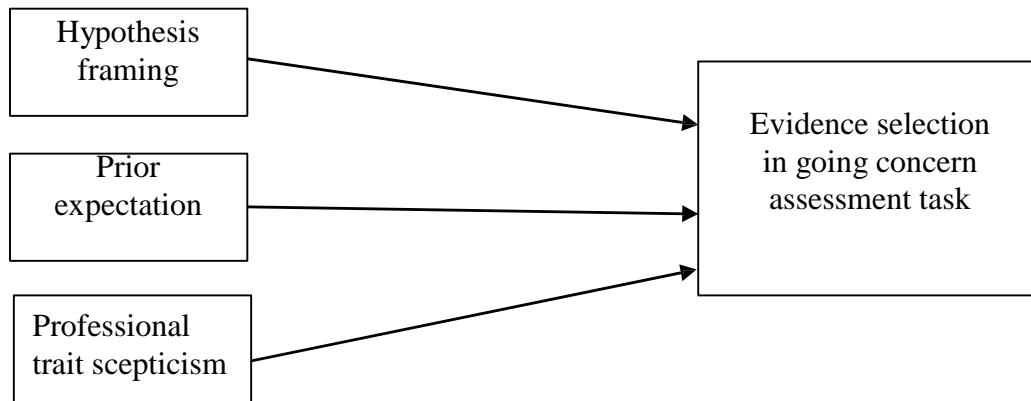
Figure 1.1: Conceptual model of factors affecting evidence selection in a going concern assessment task

1.4 Significance of the study

This study has the following implications for theoretical development, researchers and practitioners.

1.4.1 Theoretical development

The study will explore whether the professional trait scepticism measured by Hurtt (2010) scale has any potential impact on evidence selection behaviour. Furthermore, this study significantly departs from other studies in the task and the situations (i.e. states) to examine the effect of trait scepticism on auditor behaviour. Thus, this study will lead to greater understanding of the concept of professional scepticism and the contextual factors that may trigger sceptical behaviour.

1.4.2 Researcher

Hurtt (2010) mentioned that she developed the scale, assigning equal weight to the six constructs (further discussed in the literature review in Chapter 2 of this thesis) that constituted the scale. In actual practice, all the six constructs may or may not have equal impact on evidence selection strategies and judgment. The results of the present study may lead to modification of the scale.

1.4.3 Practitioners

This study also has implications for auditing practitioners. There are some mixed results regarding the effect of trait scepticism on auditors' behaviour. Some research found trait scepticism to have no or minimal effect on auditors' behaviour (Peytcheva, 2014; Quadackers et al., 2009, Carpenter & Reimers, 2011; Harding & Trotman, 2011). As this study examines

different states and a predominant task in auditing, the results may give a better understanding of what situations may trigger sceptical behaviour. Therefore, the accounting firms can design their training programmes to increase auditors' sceptical behaviour depending on context. Additionally, the audit firms could develop training programmes to raise awareness regarding potential bias in selection strategy associated with hypothesis framing and prior expectation and perhaps devise ways to counteract any potential biases.

1.5 Structure of thesis

The thesis is structured as follows: Chapter 2 will cover the terms used and literature review on auditors' and students' selection behaviour. Chapter 3 will present the research design and statement of hypotheses. Chapter 4 covers the research method used in the present study. The results and discussion are presented in Chapter 5. Chapter 6 summarises the overall findings of this study and highlights the key contributions of the thesis and the practical implications of the findings. Furthermore, the limitations of the study and future directions for research are discussed in this concluding chapter.

Chapter Two: Literature Review

2.1 Introduction

The key terms (i.e. variables) are explained in section 2.2. In this present study, the key variables examined are hypothesis framing, prior expectation, professional trait scepticism[2], and information[3] selection[4] strategy. As the selection strategy is closely interconnected and interdependent with the concepts of hypothesis framing and prior expectation, the literature review is structured in the following manner: section 2.3.1 discusses the effect of hypothesis framing on evidence selection, followed by a discussion on the effect of prior expectation on evidence selection in section 2.3.2. Section 2.3.3 reviews the literature on professional scepticism and its effect on auditor behaviour relating to evidence selection, followed by a brief discussion on the difference between experts' and novices' decision-making processes in section 2.4. Section 2.5 provides a summary of the chapter.

In section 2.3.1 of the literature review, psychological studies are reviewed first followed by auditing studies because the application of the concept of hypothesis framing on evidence selection in psychological studies closely resembles the way auditors behave in auditing studies. For other sections on the prior expectation and the professional scepticism factors, only auditing studies are reviewed as both the concepts in different disciplines like legal, consumer behaviour, medicine are examined in different contexts, which are outside the scope of this present study. For example, the concept of professional scepticism in a legal context (Cutler, Dexter, & Penrod, 1989; 1990) related to examination of the effect of expert testimony on jurors' belief in eyewitness evidence and the accuracy of the eyewitness identification of juror scepticism. In the consumer behaviour area, Ford, Smith, and Swasy (1990) found that consumers are "differentially sceptical" (scepticism is not defined) of advertising, depending on the cost of the item and verifiability of the advertising information. Research conducted in clinical psychology by Cormier and Thelen (1998), Dell (1988), and Hayes and Mitchell (1994) examined the implications of mental health professionals' scepticism about the existence of multiple personality disorder.

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[2] The words professional trait scepticism and trait scepticism are used interchangeably in this study.
[3] The words information, evidence and cues are used interchangeably in this study.
[4] The words search, selection, acquisition and choice are used interchangeably in this study.

2.2 Terms

The independent variables used in the present study are defined first, followed by definitions of the dependent variables.

2.2.1 Hypothesis framing

The Concise Oxford Dictionary (1999) defines a hypothesis as, "a supposition or proposed explanation made on the basis of limited evidence as a starting point for further investigation." It is a ubiquitous phenomenon that individuals make judgments based on a hypothesis framing of the objects or events of interest in social settings.

2.2.2 Prior expectation

The concept of "prior expectations" or "predictive expectations" is widely used in the consumer satisfaction (CS) literature. The prior expectation is conceptualised as the belief probabilities of the expected consequences of an event (Oliver, 1980). This expectation is not static and is continually changed over time by cumulative consumption experiences, alternatives, and marketing communication. (Johnson, Anderson, & Fornell, 1995).

2.2.3 Professional scepticism

The word scepticism originates from the Greek word "sceptics", meaning "inquiring or reflective". In a critique of the philosophical literature, Kurtz (1992, pp. 21-22) summarises:

They ask, "What do you mean?"- seeking clarification and definition- and "Why do you believe what you do?" - demanding reasons, evidence, justification, or proof. They say, "Show me." …Sceptics wish to examine all sides of a question; and for every argument in favour of a proposition, they can usually find one or more arguments opposed to it.

The word "professional" is prefixed before "scepticism" by standard setters and regulators in the auditing profession. Auditing is a profession whose principal function rests largely on the judgements of trained experts (Abdolmohammadi & Wright, 1987). For example, Statements on Auditing Standards (SAS) No.1 states that "Due professional care requires the auditor to exercise professional scepticism" by using "the knowledge, skill and ability called for by the profession of public accounting to diligently perform, in good faith and with integrity, the gathering and objective evaluation of evidence." (American Institute of Certified Public Accountants [AICPA], 1997 AU section 230.07).

2.2.4 Evidence selection strategy

Information or evidence selection strategy refers to the process adopted by individuals (for example external auditors and accounting students) regarding how they select evidence based on their belief or expectation. There are mainly two types of selection strategy: confirmatory strategy (i.e. choose information that supports his/her belief) or disconfirmatory strategy (i.e. choose information that contradicts or disapproves his/her belief). Normally, when individuals look for new information, their evidence selection strategies are influenced by their pre-occupied state of beliefs, expectations, or desired conclusions leading to a confirmatory search strategy where they select information that corroborates their beliefs. Another type selection strategy also exists which is a "balanced" selection strategy that allocates equal preferences to supporting and contradictory information and individuals tend choose both types of information.

2.3 Literature review

2.3.1 Hypothesis framing, evidence selection strategy and confirmation bias

When individuals select for information to make a decision, the evidence selection procedures are often biased by the individuals' previously held beliefs, expectations, or desired conclusions. A study conducted by Johnston (1996) showed that individuals favour information that supports their social stereotypes. Individuals, based on this biased evidence selection procedure, tend to hold their social stereotypes even if their belief regarding social stereotypes was not justified. In psychology, this kind of behaviour can be explained within the framework of Cognitive Dissonance Theory (hereafter, CDT) by Festinger (1957). According to this theory, individuals have a tendency to seek supporting (i.e. consonant) information compared with opposing (i.e. dissonant) information to avoid post-decisional conflicts (i.e. dissonance). This behaviour of preferring supporting information as opposed to conflicting information is known as confirmation bias. A considerable number of studies dating back to 1960s and 1970s were stimulated by Festinger's (1957) theory of cognitive dissonance (Adams, 1961; Brodbeck, 1956; Lowin, 1967, 1969; Mills, 1965; Mills, Aronson, & Robinson, 1959; Rhine, 1967; Rosen, 1961; Sears & Freedman, 1963, 1965) and these studies generally found that subjects had a preference for consonant information. Many empirical studies were also conducted over the period spanning from 1980 to 2000. For example, Frey (1986); Frey, Schulz-Hardt, and Stahlberg (1996) have shown that under conditions of free choice and commitment individuals show a preference for supporting information. A similar bias arises after preliminary judgements if the decision maker feels committed to the preferred alternative (Schulz-Hardt, 1997). Moreover, this confirmatory evidence selection can also be found in group decision making (Schulz-Hardt, Frey, Lüthgens, & Moscovici, 2000).

An important concept that creates one's belief or expectation is hypothesis framing which drives evidence selection in hypothesis testing strategies. The notion of hypothesis framing and its effect on evidence selection has been an area of interest among researchers in psychology and widely examined in a number of psychological studies particularly in the area of social perception (Snyder, 1984). Snyder and his associates. For example, Snyder (1981a, 1981b); Snyder and Gangestad (1981); Snyder and Skrypnek (1981); Snyder and Campbell (1980); Snyder and Cantor (1979); Snyder and Swann (1978) and Snyder and White (1981) conducted a series of empirical studies to examine the effect of hypotheses framing in evidence selection.

The research findings by Snyder and Gangestad (1981) have suggested that individuals test hypotheses about other people by preferentially selecting evidence that would confirm, rather than disconfirm their hypotheses. Another series of studies investigated how individuals select evidence when provided with hypotheses about the personalities of other people, (Snyder & Campbell, 1980; Snyder & Swann, 1978). In the studies, the participants were provided with hypotheses about personal attributes of other individuals; for example, whether the individual was an extrovert or an introvert. Then, the participants were asked to choose a series of questions that they would ask the individuals in an interview. The results of both the studies showed that participants chose to ask more extroverted (introverted) questions to individuals when they planned to test their extrovert (introvert) hypothesis. Based on the findings it can be said that individuals tested their hypotheses by preferentially choosing evidence, that is, the questions they chose to ask, that would confirm the hypotheses under scrutiny. In another series of an investigation by Snyder and Cantor (1979), individuals read a narrative account of events in the life of another individual. The subjects were then asked to use this historical (i.e. learned) knowledge to test hypotheses about the personal attributes of that individual. The result of the study showed that participants in these investigations remembered previously learned factual events that would confirm their hypotheses. Another study by Snyder and Skrypnek (1981) about one-self relating to job suitability, exhibited that the individuals preferentially reported those characteristics that would suggest their suitability rather than unsuitability for the job under consideration regardless of their sex role identity. However, interestingly another finding by Snyder and Swann (1978) suggested that if sufficient evidence is present that support introvert (i.e. contradictory evidence) behaviour when testing whether the individual is extrovert, then the participants selected disconfirming evidence to reject the extrovert hypothesis. The result showed that the decision makers not only adhere to their beliefs based on the hypothesis being tested but also selected disconfirming evidence and individual sometimes adopt a "balanced" selection strategy with an equal amount of effort to uncover both confirming as well as disconfirming facts. Motivated by the findings of the psychological literature, research in auditing started to investigate the use of confirmatory processes in auditing related tasks.

Libby (1981), noted that auditors often explicitly or implicitly frame hypotheses in making judgements. After the hypothesis has been brought forth, the auditor will start selecting for the evidence before making a judgement.

> In most decision-making situations, judgements about the environment must be made in the absence of direct contact with the object or event to be judged. In such circumstances, "most likely" judgements are formed on the basis of information or cues whose relationships to the object or event of interest are imperfect or probabilistic. That is, judgement and decisions are made under conditions of uncertainty about the relationships between cues and cases. (Libby, 1981, p. 4)

Libby (1981) provided an example of a banker evaluating a loan application to elucidate his above opinion. When a banker evaluates a loan application he/she must predict whether or not the customer will default on loan payments in the near future. The banker has to make his/her judgement on the basis of indicators such as financial statements, loan history, interviews, "which both individually and collectively are imperfectly related to the future default-non default" (Libby, 1981). Considering the findings of Snyder and Swann (1978) and following the suggestion of Libby (1981), Kida (1984) examined the effect of hypothesis framing on the selection for evidence in an auditing context. His experiments are designed to investigate whether auditors attend to more confirmatory evidence, disconfirmatory evidence or adopt a "balanced" approach, that is, attention to equal amounts of both evidence when testing a hypothesis. He divided his auditors into two groups known as the "failure hypothesis" and "viability hypothesis" and found that auditors in the failure firm treatment group selected more evidence connected with failure than the viability firm treatment group, which implies confirmatory behaviour. At the same time, auditors under the viability firm treatment group selected more evidence connected with failure than viable which implies disconfirmatory behaviour. Thus, in the auditing literature, a weak support for auditors' use of confirmatory selection strategy was first reported by Kida (1984) regarding the effects of hypothesis framing on evidence selection in a going concern assessment task. Kida (1984) found that while the initial framing of the hypothesis did have an effect on the evidence selection, his results showed only weak support for confirmatory behaviour. The findings of Butt and Campbell (1989) also indicated that the auditors did not use confirmatory strategies unless specifically instructed to do so. The research findings by Anderson (1989) and Anderson and Kida (1989) also did not support confirmatory strategies. Anderson (1989), examined the effect of source credibility, that is, bias and expertise on hypotheses testing strategies using information stored in memory. The result showed auditors did not recall significantly more confirming items, nor did they consider confirming information to be more relevant when testing hypotheses. There was greater attendance to negative

information irrespective of hypothesis direction or timing of hypothesis introduction. The auditors pervasively listed more negative than positive items. Furthermore, Trotman and Sng (1989), found that when auditors are provided with a hypothesis frame that is inconsistent with prior expectations (i.e. beliefs), they are likely to adopt a disconfirmatory strategy.

In another study by McMillan and White (1993) found that the frame of the hypothesis being tested has a significant effect on auditors' selection of confirming and disconfirming evidence. The authors conducted an experiment where the auditor subjects were asked to review preliminary audit information and indicate whether they favoured an error-free hypothesis (i.e. cause of fluctuation in economy, changes in the industry or geographic area in which company operates, changes in company policies regarding investment, marketing and financing strategies) or an error-framed hypothesis to explain an observed fluctuation in the financial ratios. The subjects had to do a likelihood assessment of the favoured hypothesis frame and were then asked to select the required information to test their initial hypothesis from a list of audit evidence (i.e. cues). After examining the cues, the auditor subjects updated their initial beliefs generated from favoured hypothesis and continued their evidence selection. The result of the study indicated that auditors who favoured the error-frame hypothesis reacted more strongly to both confirming as well as disconfirming evidence than those who favoured the error-free hypothesis. Furthermore, when belief revision was measured on an absolute scale, the result showed that the auditor subjects were more focused on disconfirming evidence than to confirming evidence. The findings also showed that the auditors' continued selection for evidence after their belief revisions were more influenced by conservative bias (i.e. equated as professional scepticism) than their favoured hypothesis frame (i.e. confirmation bias) which signifies the propensity to uncover potential material errors. Strong conservative bias is observed when auditors favoured the error-frame hypothesis. However, when the auditors favoured error-free hypothesis confirmation bias mitigated to some extent the effect of the conservative bias.

Based on the findings in audit judgment research, Smith and Kida (1991) concluded

> These findings indicate that confirmatory strategies were not nearly as evident as they had been in prior psychological studies. Furthermore, the more predominant evidence that auditors attended to more failure items than viable items across hypothesis-framing conditions suggests the use of conservatism. That is the pervasive attention to more failure than viability items by auditors implied a scepticism toward the positive hypothesis (or outcome) and acceptance of the negative hypothesis.

2.3.1.1 Presentation mode, selection strategy and confirmation bias

Although the effect of presentation mode of evidence in selection strategy is not examined in this study, the finding of a psychological experiment by Jonas, Schulz-Hardt, Frey, and Thelen (2001) is presented to elucidate the difference between the two presentation modes and show the effect of these modes on evidence selection. The result showed that confirmation bias can be demonstrated under both the simultaneous and sequential evidence selection mode, but the strength of the bias differs in both the modes. Jonas et al. (2001), conducted an experiment where the student subjects were asked to decide between two alternatives: whether health insurance should also cover alternative healing methods or whether health insurance should only cover traditional medical treatments. The first task for the subjects was to make preliminary a decision between the two alternatives and they were informed that the final decision would be made later on. Under sequential evidence selection, subjects received two main "theses" (i.e. articles written by experts on the topic) per sequence, one supporting and one conflicting with their prior preliminary decision. There were eight sequences, and the subject could choose one, both, or none of the presented articles per sequence. After the participant had made his or her choice, the researchers handed out the chosen article or articles. When the subjects had read the article or articles, the next sequence followed. In the simultaneous evidence selection, the subjects received a list of sixteen main "theses". Then they were asked to mark the titles of the articles that they would like to read for their final decision. After the subjects had finished their information selection, they received the requested articles. The result showed an overall confirmation bias occurred for both simultaneous as well as for sequential selection condition. Second, the most interesting finding was a significant interaction effect of the selection mode, and type of information was observed, the confirmation bias was significantly stronger in the sequential condition than in the simultaneous condition.

2.3.2 Prior expectation and evidence selection strategy

In this study, the discussion relating to the concept of prior expectation and its effect on evidence selection is limited to two studies; the first study by Trotman and Sng (1989) and the second is by Tan (1995) where the concept of prior expectation is operationalised in two different ways, respectively. Trotman and Sng (1989) used strong and weak ratios to establish expectation about the viability or failure of a company whereas Tan (1995) used conclusions recorded in prior years' working papers to establish expectation about the client's financial position.

The study by Trotman and Sng (1989) extended the Kida's study. Kida (1984) found that hypothesis framing does affect the relative number of failure, and viable items of evidence selected and also suggested that if the preliminary data led an auditor to a particular belief (i.e. prior expectation), this could reduce the effect of hypothesis framing. Kida (1984) concluded as follows:

> Perhaps confirmatory strategies would be more evident in auditing contexts in which judgments are made sequentially as information is received. For example, suppose that preliminary data lead the auditor to set a given belief about internal control or an account balance. That belief may have a stronger effect on the search for new data than alternative hypothesis framing, given that supporting and non-supporting data are potentially available.

As a result, following Kida's suggestion, Trotman and Sng (1989) introduced two sets of information, financial ratios (strong and weak) in addition to hypothesis framing (viability or failure) to construct the "preliminary data". The financial ratios were provided to create a prior expectation about the probability of failure or viability of the firm. By combining those two pieces of information, Trotman and Sng (1989) suggested that it would result in a sequential model of information processing where auditors form initial beliefs about the failure or viability of the firm. Moreover, analysing the financial condition of a firm through financial ratios is a universally accepted technique used by auditors in analytical review and is currently the most widely used analytical procedure (Auditing and Assurance Standards Board [AASB], 2005).

In that study, the combination of hypothesis framing and prior expectation resulted in four situations. The four situations are: viable hypothesis and strong ratios (VHSR), viable hypothesis and weak ratios (VHWR), failure hypothesis and strong ratios (FHSR) and lastly, failure hypothesis and weak ratios (FHWR).

Trotman and Sng (1989) considered the comparative number of failure to viable cues (i.e. failure cues minus viable cues) while examining the effect of hypothesis framing and prior expectation on evidence selection. In the present study, the same variable is used because in general, auditors tend to select more failure evidence as compared to viable evidence Kida (1984).

The major findings showed that when prior expectation indicated failure (i.e. weak ratios), hypothesis framing did not affect the selection of the relative number of failure and viable evidence, whereas when prior expectation indicated non-failure (i.e. strong ratios), hypothesis framing affected the selection of the relative number of evidence. It was found that the selection of failure minus viable evidence was significantly different for the subjects who were provided with "viable hypothesis and strong ratios" as compared to subjects who received the other three

conditions. The subjects who received one indication of failure (i.e. failure hypothesis or weak ratios) chose more failure than viable evidence because apparently, the subjects formed their initial beliefs as "weak" whereas the subjects showed reduced tendency to select more failure evidence than viable evidence under "viable hypothesis and strong ratios" because they formed initial beliefs as "strong" but interestingly, did not select more viable evidence than failure evidence as would be suggested by confirmation bias. In the auditing context, the main bias is to select more failure than viable evidence because of "implicit assessment of misclassification costs" for not identifying a failed firm (Kida, 1984).

In a different audit setting, Tan (1995) studied the effect of expectations (as one of the three factors examined on memory) on recall of audit evidence and judgment. The other two factors, prior involvement and review awareness, are not included in this literature review. Memory recall was measured by counting the number of positive and negative facts recalled. Auditors tend to rely on their memories due to the large volume of facts acquired over time. The expectation was manipulated as positive or negative. Conclusions recorded in prior years' working papers establish expectations about the client's financial viability or failure. Generally, it is expected that, if the current year's audit evidence is inconsistent with the expectations it would be better recalled than consistent evidence. To clarify, it can be said that the positive and negative cues are consistent and inconsistent respectively with a positive expectation (i.e. expectation of viability) and vice versa with a negative expectation (expectation of failure). The author suggested that the difference between the positive cues recalled over negative cues recalled (i.e. net recall) will be smaller with positive expectations than with negative expectations. The result confirmed that there was significant main effect for expectation on net recall, which means that subjects in the positive expectation condition exhibited a lower net recall than those in the negative expectation.

2.3.3 Professional scepticism and evidence selection

Evidence selection is considered the essence of auditing as reiterated in Auditing Standard 1105 on Audit Evidence. The standard requires that an "auditor must plan and perform audit procedures to obtain sufficient appropriate audit evidence to provide a reasonable basis for his or her opinion" (Public Company Accounting Oversight Board [PCAOB], 2010). The concept of sufficient and appropriate are subjective in nature and varies with each specific audit engagement but clearly failing to gather "sufficient appropriate audit evidence" can lead to either an inefficient or ineffective audit. Selecting unnecessary or irrelevant audit evidence will render the audit function to become inefficient (i.e. over-audit), whereas the inability to select adequate and relevant evidence will lead to premature closure (i.e. under-audit). Premature closure of an audit has serious consequence by failing to detect fraud or error as the audit will

become ineffective. Consequently, regulatory and standard setting bodies across the globe advocated the application of professional scepticism for conducting an effective audit. Recent developments in auditing standards have also elevated the need for applying professional scepticism in the audit. Recently, the report by the Centre for Audit Quality (2010) on Deterring and Detecting Financial Reporting Fraud highlighted the development of techniques to enhance the application of professional scepticism as one of the four areas for serious effort. A recent study by Glover and Prawitt (2013) conducted on behalf of the Global Public Policy Committee (GPPC) advocated a "professional scepticism continuum", that acknowledges the appropriate application of professional scepticism depending on the risk characteristics of a particular account and assertion being audited. That study focused on the key elements that auditors are required to understand to enable evaluation of the factors that either threatened or enhanced professional scepticism at different structural settings, that is, individual auditor level, firm engagement level and audit firm level.

The International Standards on Auditing [ISA] 200, developed by the International Auditing and Assurance Standards Board (IAASB) (2009) para 13(l), defined professional scepticism as "an attitude that includes a questioning mind, being alert to conditions which may indicate possible misstatement due to error or fraud, and a critical assessment of audit evidence". The definition provided by IAASB in ISA 200, indicates that professional scepticism revolves around two significant aspects. First, an attitude which implies a questioning mindset when selecting for appropriate evidence and forming opinions. Second, a critical assessment of audit evidence that brings into consideration both information that supports and corroborates management's assertions or any data that contradicts such statements.

As the definition of professional scepticism is not clear in the auditing literature, there has been considerable debate among academicians (Hurtt, 2010; Nelson, 2009) over the definition of professional scepticism. Two different perspectives of defining professional scepticism are prevalent; "presumptive doubt" and "neutrality". Nelson (2009) asserts that professional scepticism is "indicated by auditor judgements and decisions that reflect a heightened assessment of the risk that an assertion is incorrect, conditional on the information available to the auditor" which takes into account the "presumptive doubt" perspective. Shaub (1996), supports the "presumptive doubt" perspective and equates scepticism with suspicion (as opposed to faith). Under this perspective, the auditors approach the management assertions in the financial statements with suspicion and exhibit more scepticism to collect evidence to conclude there is no material misstatement.

Nelson viewed the judgement process as being dependent on evidential input, and this is depicted in Figure 2.1. According to him professional scepticism can affect initial audit planning when evidential input constitutes only background information about the client, or it can also affect the choice of audit opinion when the evidential input consists of all information collected and considered (i.e. audit evidence) together during the audit process.

Other inputs to the judgement process include the auditor's knowledge and auditor traits (i.e. non-knowledge attributes) and auditor incentives. Consistent with Libby and Luft (1993), Nelson (2009) viewed that auditor knowledge resulted from a combination of traits (link 6) and prior experience (link 7) which includes training. Traits are considered to be fixed by the time an auditor commences audit training and practice.
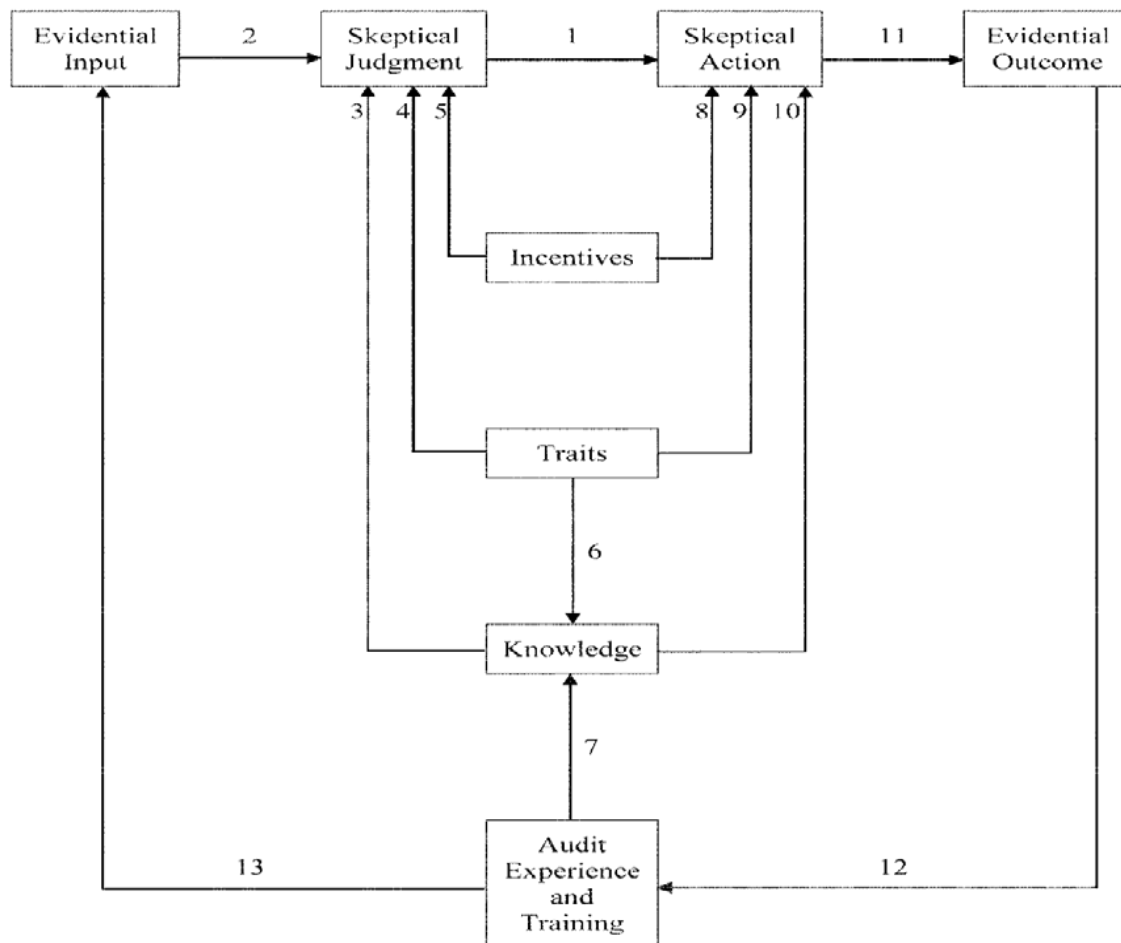
Figure 2.1: Model of determinants of professional scepticism in audit performance

(Source: Nelson 2009, p.5)

Hurtt (2010), defines professional scepticism as a multi-dimensional construct that characterises the inclination of an individual to defer judgement until sufficient and conclusive evidence is obtained that eliminates all other explanations. The focus is more about objectively assessing whether the management's assertion regarding the items of financial statements are "true and

fair" rather than casting doubt on management's assertion. Her definition of professional scepticism is based on "neutrality" perspective.

Hurtt's (2010) model in Figure 2.2 mainly focuses on the relation between traits of sceptical individuals and different sceptical behaviours.

Independent variable   Mediator   Dependent variable

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┌─────────────────┐          ┌─────────────────┐          ┌─────────────────┐
│ Trait Scepticism│ ───────▶ │Sceptical Mindset│ ───────▶ │Sceptical Behaviour│
└─────────────────┘          └─────────────────┘          └─────────────────┘
        ▲                             ▲                             ▲
        │                             │                            ╱
  Scepticism Scale          ┌─────────────────┐                   ╱
                            │ State Scepticism│                  ╱
                            └─────────────────┘                 ╱
                                     ▲                         ╱
                            ┌───────────────────────────────┐
                            │      Moderating Variables      │
                            │ (e.g. engagement circumstances)│
                            └───────────────────────────────┘
```
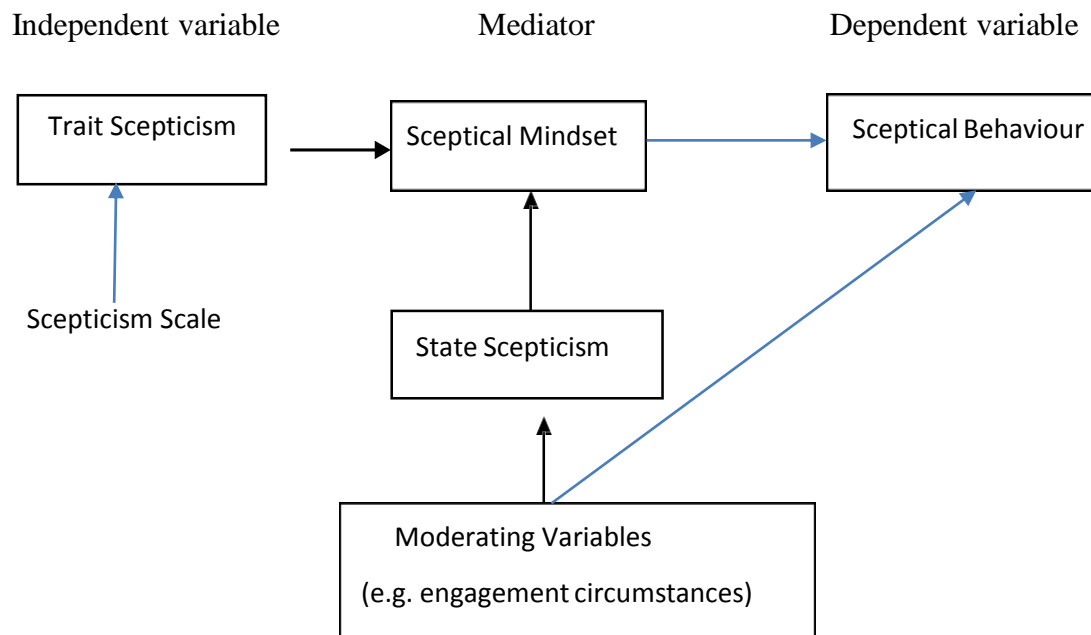
Figure 2.2: Professional scepticism framework
(Source: Hurtt 2010, p.150)

Accordingly, Hurtt (2010) developed a 30-item scale to measure the level of trait professional scepticism which consists of six attributes (i.e. characteristics): a questioning mind, suspension of judgement, the search for knowledge, interpersonal understanding, self- confidence and self-determining. The following is a brief discussion on the importance and the reason for the inclusion of those six attributes in the trait scepticism scale.

The author suggested that the questioning mind, suspension of judgement and search for knowledge characteristics relate to the procedure an auditor examines the evidence. The questioning mind characteristic can be referred as an ongoing questioning process to determine whether the evidence obtained suggested that a material misstatement due to fraud has occurred. The suspension of judgement characteristic refers to withholding of decisions until sufficient and appropriate level of evidence is collected on which conclusion can be drawn up. The search for knowledge can be referred to as interest in knowledge and is not simply directed towards verifying a specific conclusion. Hurtt (2010) suggested that the interpersonal characteristic considers the human aspects of an audit when verifying evidence. It can be said this characteristic is necessary to understand the motivation and integrity of individuals (i.e. clients) who provide evidence. Further, the self-confidence and self-determining characteristics address the ability of the individual to act on the information obtained. Self- confidence refers to belief in one's abilities and esteem required for successful inquiry whereas self-determining refers to evaluating evidence to determine whether the evidence is sufficient to render a judgement. Self-confidence and self- determining enable sceptics to value their perceptions, challenge other's assumptions, and ask for sufficient information to resolve any contradictions and errors presented by others.

Hurtt, Eining, and Plumlee (2003), identified four behaviours that are expected of sceptical auditors based on philosophical and auditing literature. A brief description of the four sceptical behaviours adapted from the working paper by Hurtt et al. (2003), is provided below:

a) Expanded evidence search: Chattopadhyaya (1991) indicated that a sceptical individual will engage in a search for information until that individual has gathered the required or sufficient amount of quality information required before forming a judgement. This evidence selection is consistent with the SAS 1 (AICPA, 1997) requirement that auditors should obtain a sufficient level of evidence before forming a judgement.

b) Increased contradiction detection: "Sceptics are able to detect contradictions… they discover hypocrisies, double standards, and disparities between what people profess and what they actually do" (Kurtz, 1992, p. 22). Further, McGinn (1989) indicated that the

sceptic will uncover assumptions underpinning belief framework as it is expected that sceptic can detect inconsistencies in actions or behaviours within situations.

c) Increased alternative(s) generation: Kurtz (1992, p.22) states that a sceptic wishes to examine all aspects of an issue; and for every argument in favour of the issue, they usually can find one or more arguments opposed to it. A sceptical individual can construct an alternative hypothesis regarding statements or claims. It is consistent with SAS 56 issued by the American Institute of Certified Public Accountants [AICPA] (1989) because the auditors are required to understand and explain differences.

d) Increased scrutiny of source reliability: Popkin (1979) indicated an individual must understand people before he or she can fully understand the assumptions that they make. It is highly likely that a sceptic can begin to understand the perceptions and assumptions made by an individual only when the sceptic is fully aware of the behaviour of that particular individual.

The following table shows the expected behaviours predicted from the philosophical literature and required by auditing standards.

Table 2.1: Expected behaviours of a sceptic

(Source: Hurtt 2010, p.165)

Philosophically Predicted Sceptical Behaviour	Behaviour Required by Auditing Standards
Expanded Information Search	"Sufficient competent evidential matter is to be obtained through inspection, observation, inquiries, and confirmations" SAS No.1. SAS No. 82 indicates that with an increased risk of material misstatement, the nature of audit procedures may need to be changed to obtain additional or more reliable information (i.e., expand test work).
Increased Contradiction Detection	AU 329 requires an auditor to develop specific expectations (before performing analytical review procedures) and compare those to recorded results to identify unexpected differences.

Increased Alternative Generation	AU 329 requires an auditor to develop specific expectations (before performing analytical review procedures) and compare those to recorded results to identify unexpected differences. Auditors are then required to understand or explain the differences. This requires an understanding of both the plausibility of management's explanations and corroborating evidence other than such explanations.
Increased Scrutiny of Source Reliability	"A sufficient understanding of the internal control structure is to be obtained…" SAS No. 1. SAS No. 82 paragraph 16, indicates that management's characteristics such as their abilities, pressures, style, and attitudes must be assessed.

2.3.3.1 Measures of professional scepticism

In a study by Shaub (1996, p. 155), the author defined sceptic as "one who instinctively or habitually doubts, questions or disagrees with assertions or accepted conclusions." He measured two characteristics of a sceptic regarding suspicion and independence using two scales namely; Kee and Knox (1970) model of trust and suspicion and Wrightsman (1974) instrument specifically measuring trustworthiness and independence. The result showed that neither trustworthiness nor independence was significant in evaluating client's trustworthiness and or taking action as a direct response to suspicion. Similarly, in a study by Shaub and Lawrence (1999), professional scepticism was defined as "…a choice to fulfil the professional auditor's duty to prevent or reduce the harmful consequences of another person's behaviour. In that study the authors identified two sceptical behaviours; disagreement with client assertions or accepted conclusions and perform additional work or confront client. The auditor's level of professional scepticism was measured by ethical, situational (i.e. client) and experience factors. The findings depicted that situational, ethical and experience factors were significant in determining the level of professional scepticism. In another study by Carcello and Neal (2000), the authors asserted that auditors with a long tenure on a client may have impaired professional scepticism and used tenure as a proxy to measure the level of professional scepticism. The study found no significant relationship exists between the deterioration in the level of professional scepticism and tenure when addressing financially distressed firm's going concern report.

2.3.3.2 Professional scepticism measured with Hurtt (2010) scale

As the present study uses the Hurtt (2010) scale to measure trait scepticism, this section of the literature review is primarily focused on auditing research analysing the effect of auditors' trait scepticism measured by Hurtt (2010) scale on their behaviours.

Researchers in the auditing discipline (Choo & Tan, 2000; Hurtt, 2003) emphasised the need for the development of a specific professional scepticism scale. Hurtt (2010) developed an instrument to measure trait (i.e. personality) scepticism among auditors based on her working paper Hurtt (2003). There are limited studies that used Hurtt (2010) scale to understand the effect of trait scepticism on auditors' judgements and decision making. A few studies demonstrated that there is some empirical evidence that the trait scepticism measured by Hurtt (2010) scale influences sceptical behaviour (Farag & Elias, 2012; Fullerton & Durtschi, 2004; Hurtt et al., 2012; Harding & Trotman, 2011; Popova, 2012; Peytcheva, 2014; Quadackers et al., 2009). A study by Carpenter and Reimers (2011) did not find any effect of trait scepticism measured by Hurtt (2010) scale on auditors' behaviour.

A study was conducted among internal auditors by Fullerton and Durtschi (2004) to examine whether trait scepticism measured by Hurtt (2003)[5] scale influences fraud detecting behaviour, specifically to understand whether higher levels of trait scepticism improve the desire to select more evidence relating to fraud detection. The fraud symptoms were divided into three categories mainly; symptoms relating to the corporate environment of the firm (e.g. management style, incentive systems), symptoms relating to the perpetrator, (e.g. any financial and work pressure, opportunities to commit fraud) and symptoms relating to financial records and accounting practices. For analysis purpose, the authors further divided these three categories of fraud symptoms into nine constructs such as high fraud corporate culture, high fraud industry environments, personal financial pressure, perpetrator opportunities, perpetrators' behaviour changes, perpetrator rationalisations, demographics of perpetrators, accounting practice indicators and financial statement indicators. The auditor subjects were provided with some statements measuring each of the nine constructs and were instructed to indicate to what the extent they would expand their evidence selection if confronted with a specific situation. The result showed that internal auditors who ranked higher on the professional trait scepticism scale demonstrated a significantly greater desire to increase their evidence selection related to fraud symptoms. Moreover, further analysis of the finding revealed that except for the self-determining characteristic, all other five characteristics of the trait scepticism scale have a significant effect on fraud detection skill. Internal auditors, who scored high on the questioning mind, search for knowledge and self- confidence characteristics desired to obtain significantly

more information in three of the nine constructs of fraud symptoms than auditors who scored low on those characteristics. Similarly, internal auditors who scored high on the suspension of judgement characteristic requested more information in six constructs of fraud symptoms and those who scored high on interpersonal understanding characteristic requested more information in five constructs of fraud symptoms than those who scored low on scepticism scale. Therefore, it can be concluded that information requested for the number of constructs relating to fraud symptoms were significantly higher for high sceptic auditors than those who scored low on the five scepticism characteristics. Finally, for the self- determination characteristic, there was no significant difference observed between internal auditors who scored high in this scepticism characteristic than those who scored low.

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[5] Based on published working paper by Hurtt in 2003

The authors suggested that "the reverse approach of these questions may have affected the results on this particular measure." Overall, it can be said when all scepticism measures are combined (i.e. total scepticism), internal auditors who are classified as high sceptics showed a statistically higher desire for more information from seven of the nine constructs of fraud symptoms provided. The results of this study lead to an interesting conclusion, "these results suggest that the more innate characteristics of scepticism that auditors have, the more likely they are to seek out the types of information that will lead to the discovery of fraud." However, after training, the differences between high and low scepticism groups were lessened for many of the scepticism characteristics. From a practical perspective, this professional trait scepticism scale can be used to develop training guidelines for auditors about how to detect fraud as well as "look for ways to develop more sceptical personalities." (Fullerton & Durtschi, 2004, pp. 19-20).

In an experimental investigation, Hurtt et al. (2012) studied an empirical link between auditors' behaviours and professional scepticism. The authors considered the professional scepticism as "a trait found in individual auditors, rather than strictly as a response to audit circumstances." The authors conducted an experiment examining the relationship between auditors' measured level of trait scepticism and two behaviours namely; evidence assessment and generation of alternative explanations. The authors further divided evidence assessment analysis into two categories; an analysis of search (i.e. selection) behaviour and an analysis of contradictions and errors. The selection behaviour was measured by the number of viewings of the working paper screens and the analysis of contradictions and errors were measured by the number of contradictions detected and the number of factual errors detected. Alternative generation was measured by the number of alternative explanations generated by the participants.

The experiment consisted of two distinct tasks: a working paper review and the generation of an alternative explanation for three post-audit scenarios. The subjects were asked to assume the role of supervisor reviewing a set of working papers consisting of a) the permanent engagement files b) a planning memo that included the financial statements and lead sheets and c) substantive test results for inventory, debt and subsequent events. The instructions also included information about the in-charge auditor who prepared the working papers and the audit firm's tenure as an auditor for the client. Moreover, some contradictions and factual errors were intentionally incorporated in the working papers. The subjects are required to write review notes along with his or her reason for raising each issue, followed by evaluation of post-audit scenarios where the auditor generates alternative explanations. The scenarios included ambiguous information about the client obtained outside the auditing context and after the conclusion of the audit.

The examples of scenarios are as follows; "a claim that the cost accounting system was inaccurate", "a claim that there were major problems with the outstanding invoices", and "concern about one of the employees who had been dismissed." The study incorporated two experimental conditions: control condition (i.e. not induced) and scepticism-inducing. The working papers in the control condition were set up in the following manner: the firm has audited the client for seven years, and the firm had trained the auditor-in-charge who created the working papers. In the scepticism-inducing condition, it was mentioned, "the client had been acquired in a merger last year when the firm merged with a well-respected regional firm and the acquired firm had trained the auditor-in-charge." The two versions were presented to auditor participants who were asked to rate their level of concern (i.e. "not concerned" and "very concerned") about the work of the auditor- in-charge and the length of time the firm has audited the client. Under the scepticism-inducing condition, the presumption is to express concern regarding the auditee's short tenure as a client. The result confirmed the presumption. There was no difference in the level of concern between the two groups when they were asked about the work of the auditor-in-charge. However, there was a significant difference between the two groups in level of concern regarding the length of time the client had been audited by the firm, with the level of concern being much higher in the induced condition.

The results regarding analysis of selection behaviour pertaining to total visits (i.e. viewing) to the working paper (i.e. substantive test) screens showed that under the control condition, there was no significant difference between auditors who scored high on scepticism scale than auditors who scored low, however, under scepticism inducing condition there was a significant increase in number of screens viewed for high scepticism group than low scepticism group. While analysing the contradiction and error detection behaviour, the results revealed that under the scepticism inducing condition, high sceptic auditors found more contradictions and mechanical errors than low sceptic auditors but under the control condition, although high sceptic auditors detected almost twice as many contradictions as compared to low sceptic auditors, the high sceptics detected fewer mechanical errors than low sceptics. Therefore, it can be inferred that high sceptic auditors engage in moderately more sceptical behaviours under ordinary (i.e. control) audit circumstance and generally react strongly to scepticism inducing conditions by substantively increasing sceptical behaviours than less sceptical auditors. For generation of alternatives, the result did not exhibit a significant effect for auditors' trait scepticism level under scepticism inducing condition whereas under control condition the high sceptic auditors generated moderately more alternative explanations.

Although the experiment showed mixed results, it can be concluded that auditors with high trait scepticism "behave differently from those who are less sceptical even when the engagement is not seen as particularly scepticism-inducing" (Hurtt et al., 2012). Moreover, auditors' sceptical behaviour is not always consistent with higher scepticism levels for example; high sceptic auditors detected fewer mechanical errors as compared to low sceptic auditors in control condition. Similarly, under scepticism inducing condition high sceptic auditors increased their sceptical behaviour including error detection; except for the generation of alternative explanations, which was unaffected by the audit circumstance. The authors' explanation for the results hinges on the concept of bounded rationality. Within auditing, the auditor needs to process information at two levels: a holistic view and a detailed view of the evidence presented. The high sceptic auditor tends to be better at "coherent conceptualisation" of the evidence and can detect contradictory evidence to this conceptualisation, but they also tend to neglect the details. However, low sceptic auditors may not perform as well as a high sceptic in possessing a holistic view but are better at detailed processing of evidence. Hence, in a complex task requiring the first level of information processing, high sceptics are expected to perform better than low sceptics.

Under a different context, an experimental study conducted by Popova (2012) using student subjects examined the relationship between trait scepticism measured by Hurtt scale (2010) and client-specific experience (CSE) on audit judgements. The subjects were required to form an initial expectation as to whether fraud or error is the cause for a revenue recognition misstatement in the financial statements. Participants were provided with eight pieces of evidence, out of which four items pointed toward a possibility of fraud and the other four items suggested an error. Further, the participants were asked to consider which of the eight items are relevant to their decision-making process. Finally, the participants were also asked to make a final decision as to whether the misstatement was due to fraud or error. The author argued that it is expected that high sceptic auditors are more likely to choose fraud as initial fraud/error expectation compared to low sceptic auditors. Although, the result showed that trait scepticism did not affect the initial expectation, the study found that more sceptical participants considered fraud evidence to be more important to their decision making than less sceptical participants. The result also showed that regardless of client specific experience, more sceptical participants are more likely to conclude that the misstatement was due to fraud. It should be noted that the study by Popova (2012) was conducted using undergraduate and graduate accounting students that may undermine the generalisability of the results to other populations. For the purpose of this current study, it can be argued that more focus on fraud cues by high sceptic participants

implies generation of alternative explanations which is consistent with the concept of expanded evidence selection as advocated by Hurtt (2010).

A recent comparative study by Peytcheva (2014) using audit students and practising auditors examined the effects of two different types of state scepticism prompts, namely, professional scepticism prompt and cheater-detection prompt and the effect of the professional trait scepticism on auditor cognitive performance in hypothesis testing tasks. The subjects were required to examine the accuracy of management's assertion in a Wason selection task. Wason selection tasks are logical tasks used in cognitive psychology to test reasoning performance. This selection task provides great reasoning difficulty to individuals and is subject to significant confirmation bias that leads to incorrect responses (Wason, 1966, 1968, 1969). The task involves testing the truthfulness of the hypothesis "if P the Q" (or, $P \longrightarrow Q$). The experimental task in Peytcheva (2014), consisted of the Wason evidence selection task, adapted to the auditing context, where the subjects were required to examine the truthfulness of the assertion made by the client. The instrument was designed in the following manner: "The client manager's statement of the company policies for using the work of biomedical experts from other divisions of the company was: 'If the work of a biomedical expert is used, a Form BXP-980 is attached to the job record'." The instrument showed four cards representing four jobs. One side of the card showed whether or not the work of biomedical expert was used on this specific job and the other side showed whether the Form BXP-980 was attached to the job record. The subjects were expected to determine which of the four card(s) they would turn over to see if the assertion "If the work of a biomedical expert is used, a Form BXP-980 is attached to the job record" was violated. The experiment exhibited mixed results. The presence of professional scepticism prompt was found to improve cognitive ability that is, the reasoning performance of students but not the performance of the auditors while the cheater-detection prompt did not improve reasoning capability of either students or auditors in the evidence selection task.

The author provided the following argument to justify the result for auditor performance.

> Experienced auditors are expected to consistently exhibit high levels of professional scepticism, and are constantly primed to be sceptical in the course of their day-to-day work, by auditing standards, codes of conduct, and training programmes. In virtue of their work, experienced auditors may already have internalised a certain level of professional scepticism, which may diminish the effectiveness of additional primes to behave sceptically. Peytcheva (2014)

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When the effect of trait scepticism on evidence selection task was examined, the result showed a more sceptical mind was associated with better cognitive performance among students but not in auditors although students and auditors did not differ in their overall levels of trait scepticism. Based on the result the author concluded that "increasing the states of scepticism or suspicion toward the client's management may do little to improve the normative hypothesis testing performance of audit professionals. However, actively encouraging sceptical mindsets in novice auditors may improve their performance" (Peytcheva, 2014).

Two studies conducted by Harding and Trotman (2011) examined the effect of partner attribution and sceptical orientation on auditors' judgement regarding three judgement tasks mainly: financial statement reliability task, susceptibility fraud task and evidence reliability task. The authors measured trait scepticism (i.e. considered as a control variable) and was used in the study as a covariate. The professional trait scepticism was measured using Hurtt (2010) scale. The results did not show any statistically significant effect of trait scepticism with any of the sceptical judgements with one exception observed in one of the studies; there was a significant effect between trait scepticism and evidence reliability judgement. Moreover, the authors examined the individual six components of trait scepticism mentioned in Hurtt (2010) scale and the potential relationship they may have with situation ("state") scepticism. The results did not find any association with state scepticism in both the studies. Similarly, Carpenter and Reimers (2011) examined partner's emphasis on professional scepticism (high or low) and the presence of fraud (fraud or no fraud) on auditors' fraud judgements (i.e. determining fraud risk factors and fraud risk assessments) and actions (i.e. conducting fraud risk procedures). The result showed although partner's emphasis on professional scepticism positively affects auditors' fraud risk assessment and choice of fraud risk factors and fraud procedures, it does not influence trait scepticism as measured by the Hurtt (2010) scale. There was no significant effect of trait scepticism on the number of fraud risk factors, fraud risk assessments and fraud procedures.

An exploratory study by Quadackers et al. (2009) examined the relationship between auditors' sceptical characteristics and behaviour involving an auditing task comprised of preliminary analytical procedures under weak and strong control environment. In the task, the management provided a non-error explanation for the increase in the gross margin percentage. The subjects were required to demonstrate possible alternative explanations as to whether the increase in gross margin percentage is due to non-error, unintentional error, intentional error or ambiguous unintentional/intentional error explanations. To understand the sceptical behaviour of auditors, variables such as the number of alternative explanations, the number of error explanations, and a number of budgeted hours consumed (signifies further testing) were used as proxies. The study

used four different scales to measure sceptical characteristics, one of which is the Hurtt (2010) scepticism scale. The result showed that the Hurtt (2010) scale was significantly related to a number of alternative explanations and marginally significant regarding the number of budgeted hours.

In a different context, Farag and Elias (2012) studied the relationship between ethical perception of earnings management and trait professional scepticism among undergraduate and graduate accounting students. The result revealed that students who scored high on trait scepticism viewed earnings management situations as more unethical than students who scored low on trait scepticism.

The following study is based on simultaneous examination of trait and state scepticism as suggested by Hurtt (2010). In that study Robinson, Curtis, and Robertson (2013) examined the effect of both trait and state scepticism on auditor behaviour involving substantive testing for accounts receivable bad debt expense. They measured both the trait and state components (time pressure and goal framing) of professional scepticism to understand the effect on three sceptical behaviours; the number of envelopes opened consisting evidence, a number of budgeted hours utilised and the number of contradictions detected. The authors developed a scale of state scepticism by modifying 12 questions in the Hurtt (2010) scale. The authors included phrases such as "in this case" and "while working on this case", at the start of each question (e.g. "While working on this case, I took my time when making decisions"). Further, their state scale includes the items that related to three of Hurtt's (2010) six attributes; search for knowledge, suspension of judgement and questioning mind. The result indicated that trait scepticism is not significantly correlated with any sceptical behaviours. However, state scepticism did impact the number of evidence envelopes opened and the number of budgeted hours but did not affect the number of contradictions detected. Further, time pressure was positively correlated while goal framing did not relate to state scepticism. In addition, they found an interaction between state and trait components of professional scepticism. The interaction indicated that auditors with a low level of trait scepticism respond to high state professional scepticism with a greater increase in sceptical behaviours than auditors with a high level of trait scepticism. The findings suggest that state scepticism has the more influence than trait scepticism for professionals because traits are less malleable.

From the above discussion, it can be said the published studies examined the effect of trait scepticism on auditors' behaviour using different tasks and situations. Moreover, each of the situation and tasks varies in its features and mode of conduct. Apparently the results of most

studies revealed the level of individual auditors' scepticism is dependent more on the situations or context (i.e. rather than on personality of the auditor. Hence, it can be said the application of Hurtt (2010) scale is still in its early stages. Further, the researcher is unaware of any studies that explored the relationship between trait scepticism measured by Hurtt (2010) scale, hypothesis frame and prior expectation regarding evidence selection involving a going concern assessment task.

2.4 Experts' versus Novices' decision-making process

As the present study examines the auditors' (i.e. experts) as well as accounting students' (i.e. novices) behaviour, the researcher provides a brief discussion regarding the nature of decision-making process between experts and novices. Bouwman (1984), conducted a study involving financial analysis task employing protocol analysis method. The result showed there is considerable difference in the decision-making processes between the two groups. According to Bouwman (1984), experts employ a "directed search" as well as develop a feeling for the company that provides a platform to compare individual observations against it whereas novices employ a passive, inductive strategy to collect data. Choo (1989) provided a comprehensive review of studies involving expert-novice differences in the decision-making process. The following table summarises the difference in decision-making process regarding information acquisition in auditing/ accounting contexts:

Table 2.2: Summary of the main findings of expert versus novice regarding information acquisition behaviour

(Source: Choo, 1989)

Expert	Novice
Relies on hypotheses, rules of thumb, structured checklists, or standard lists of questions to guide evidence selection. (Bouwman, 1982; 1984); (Bouwman, Frishkoff, and Frishkoff, 1987)	Relies on a simple, passive, undirected, sequential evidence selection.
Builds an overall picture, or develops a 'feeling' for the task based on prior knowledge. (Bouwman, 1982; 1984); (Biggs and Mock, 1983); (Biggs, Mock, and Watkins, 1988).	Lacking among novices.
Searches for contradictory evidence and consistently focuses on potential contradictions (Bouwman, 1982; 1984).	Ignores contradictory evidence.

2.5 Summary

This chapter has examined the existing literature on hypothesis framing, prior expectation and professional scepticism and their association with evidence selection. A brief comparison between novices and experts is also provided. The key variables discussed in this chapter contribute to the development of hypotheses in Chapter 3.

Chapter 3: Research Design and Development of Hypotheses

3.1 Introduction

This chapter includes a discussion of research design (Section 3.2) and development of hypotheses (Section 3.3) based on the literature review presented in Chapter 2.

3.2 Research design

3.2.1 Definition and level

Research design can be considered the overall work plan (including the purpose of inquiry) which enables the conceptual research questions to be answered, through the conduct of empirical research in a particular study. It specifies the variables involved, how they relate to each other, what data to collect and the statistical techniques to be used to analyse the data. The aim of the research design is to ensure that the evidence obtained enables the researcher to answer the research questions as unambiguously as possible. Based on the purpose of the inquiry, Bennett (1991) identified four basic levels of research: description, classification, explanation and prediction.

1) Description relates to collecting, analysing and presenting the collected data in the form of reports to identify the nature of the data collected by reporting the means and standard deviations of individual variables, and correlations among pairs of variables.

2) Classification is a part of the descriptive analysis to emphasise similarities through grouping and classifying the data to ease the reporting process.

3) Explanation attempts to create meaningful inferences from the observations under consideration through explaining the relationships observed and also identifying the causal relationship based on relevant theory.

4) Prediction involves modelling of observations that will enable the researcher to predict behaviour.

This study falls mainly under the category of "explanation" and to some extent "prediction" as the primary purpose is to explore (i.e. confirmatory behaviour is expected among students) and reconfirm (i.e. disconfirmatory behaviour is expected of auditors) the relationship between hypothesis framing and prior expectation relating to evidence selection. Furthermore, the researcher will attempt to predict whether trait scepticism affects evidence selection after hypothesis framing and prior expectations are controlled for.

3.2.2 Research design in this study

This study will use a 2X2 factorial design, the independent variables being hypothesis framing (i.e. failure versus viable) and prior expectation (i.e. financial ratios- strong versus weak). A third independent variable, trait professional scepticism was measured for each subject. This variable is not manipulated.

The dependent variables examined in the study are the comparative number of failure (F) to viable (V) evidence (i.e. F-V) and total evidence selected (F+V).
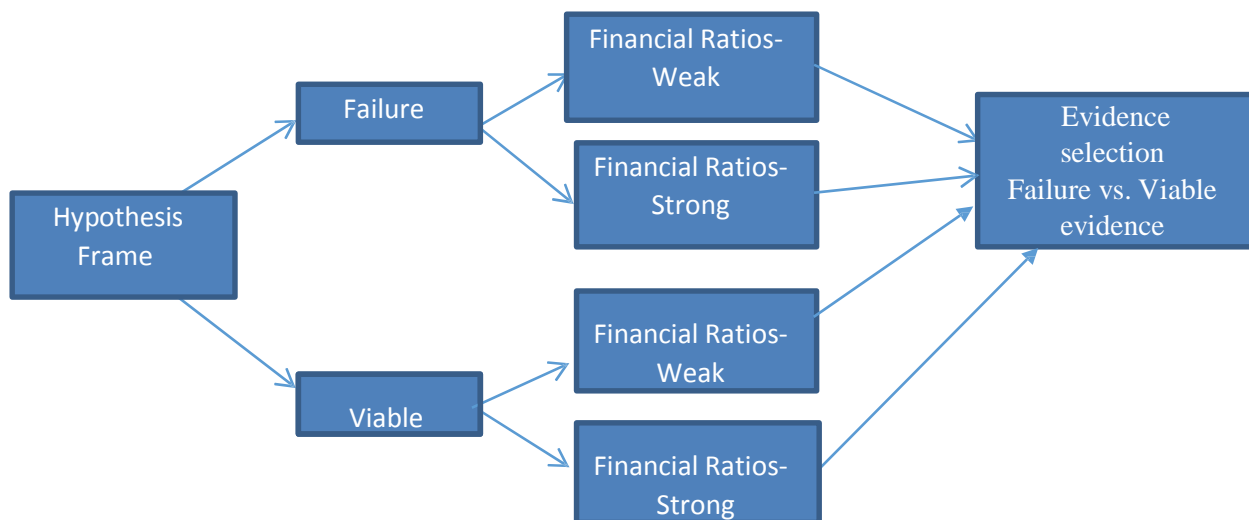
Figure 3.1: Research design

3.3 Development of hypotheses

3.3.1 Hypothesis framing, prior expectation and evidence selection

3.3.1.1 Auditor subjects

Kida (1984) found that auditors' initial hypothesis framing did have an impact on evidence selection but the results were inconsistent with findings by Snyder and Associates (Snyder, 1981a; Snyder & Campbell, 1980; Snyder & Cantor, 1979; Snyder & Swann, 1978; Snyder & White, 1981). It seems that in auditing tasks, the main bias of auditors is to select more failure evidence than viable evidence. The result showed that the auditors selected more failure evidence than viable evidence even in the viable hypothesis frame condition. Therefore, it can be said that there is weak support for confirmatory bias under the viability frame.

Based on the result of auditors' evidence selection strategy, Kida (1984) argued that due to the implicit assessment of the high cost of not identifying a failed firm, disconfirming behaviour is prevalent in the auditing context. Apparently the selection failure evidence under viable hypothesis is consistent with the professional and legal environment of auditing and is labelled as "conservative" selection strategy (Smith & Kida, 1991).

Based on the results of his study, Kida (1984) also concluded that "perhaps confirmatory strategies would be more evident in auditing contexts in which judgements are made sequentially as information is received." Following Kida's (1984) suggestion, Trotman and Sng (1989) introduced financial ratios in addition to hypothesis framing. According to them, the sequential selection mode is formed when auditors combine these two pieces of information (i.e. hypothesis framing and prior expectation) to form an initial belief about the viability or failure of the organisation. The results showed a significant main effect of hypothesis framing as well as marginally significant interaction effect between hypothesis framing and prior expectation on evidence selected. The further analysis of interaction main effect showed that when the prior expectation is strong (i.e. strong financial ratios) the hypothesis framing effect is significant but when the prior expectation is weak (weak financial ratios), the hypothesis framing is not significant. Therefore, it can be concluded that when prior expectation indicated failure (i.e. weak financial ratios), hypothesis framing did not affect the selection of a comparative number of failure and viable evidence but when the prior expectation is non- failure (i.e. strong financial ratios), hypothesis framing did have a significant effect on the selection of evidence. The above result was also consistent with Kida's (1984) findings. To elaborate further, Kida (1984) found that although auditors under viable hypothesis frame showed a reduced tendency to select failure evidence than under failure hypothesis frame (i.e. the selection of failure evidence became almost half under the viable frame as compared to failure frame) they still selected more failure evidence than viable evidence and under failure hypothesis frame the auditor subjects chose more failure evidence than viable evidence. The same result was noted by Trotman & Sng (1989), when some indication of failure was provided to the subjects; they chose more failure than viable evidence suggesting confirmatory behaviour whereas the subjects who received the treatment condition "viable hypothesis and strong ratios" showed tendency to select more viable than failure evidence but selected more failure than viable evidence suggesting disconfirmatory behaviour. Therefore, Trotman and Sng (1989) concluded that there was a weak indication of confirmatory bias. It can also be argued that although the direction of the selection strategy is consistent with the notion of confirmation bias, the degree of bias towards selection of failure evidence is affected by the

initial belief generated from the combinations of hypothesis framing and prior expectation. Hence, based on the discussion the following hypotheses are constructed:

H1a: When strong ratios form the prior expectation, hypothesis framing will have an effect on auditors' selection of failure to viable evidence that will exhibit a disconfirmatory strategy in a going concern assessment task.

H1b: When weak ratios form the prior expectation, hypothesis framing will not have an effect on auditors' selection of failure to viable evidence that will exhibit a confirmatory strategy in a going concern assessment task.

3.3.1.2 Student subjects

While exploring novices' (i.e. students') behaviour it is expected that disconfirmatory behaviour may not be exhibited because the novices may not be aware of or are less sensitive to the legal consequences of not identifying the failed firms. Hence, there will be a high probability that the student subjects will adhere to confirmatory behaviour consistent with the research findings in psychology. Most of the psychological studies conducted by Snyder and Associates involved student subjects, for example, Snyder (1981b); Snyder and Gangestad (1981); Snyder and Skrypnek (1981); Snyder and Campbell (1980); Snyder and Cantor (1979) and Snyder and Swann (1978). The adoption of confirmatory behaviour is consistent with the theory of cognitive dissonance by Festinger (1957), where the tendency is for the individual to hold (i.e. confirm) rather than disconfirm their beliefs. Even if individuals encounter evidence which does not confirm their beliefs (i.e. dissonance), the tendency is to avoid the contradicting or conflicting evidence and achieve consonance persistently (Adams, 1961; Brodbeck, 1956; Lowin, 1967, 1969; Mills, 1965; Mills et al., 1959; Rhine, 1967; Rosen, 1961; Sears & Freedman, 1963, 1965). The students have not been professionally trained to be aware of the loss function, although this concept is alluded to, at most, in auditing classes. Therefore, the tendency of the novices will be to adhere to his/her belief or expectation.

Moreover, when students combine hypothesised statements and financial ratios to form initial beliefs, it is expected that the financial ratios (i.e. prior expectation) will have a greater influence than hypothesised statements (i.e. hypothesis framing) because the students are generally taught in their course curriculum about the significance of various financial ratios for analysing financial conditions of a business. Hence, financial ratios are more salient in their minds. Accordingly, hypothesis framing may not have any effect on students' evidence selection because the students will not concentrate and give attention to the hypothesised statements mainly due to lack of awareness of loss function. As a result, it is expected that the "weak ratios" and "strong ratios"

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will lead to their initial beliefs as "failure" and "viability" respectively. Hence, the tendency of the students would be to select more failure evidence than viable evidence when provided with "weak ratios" and more viable evidence than failure evidence when provided with "strong ratios". Moreover, to the knowledge of the researcher, there is no study involving student subjects involving hypothesis framing and prior expectation in auditing context. Hence, the following hypothesis is constructed in the null form:

H2: When either strong or weak ratios form the prior expectation, hypothesis framing will not have an effect on students' selection of failure to viable evidence that will exhibit a confirmatory strategy in a going concern assessment task.

3.3.2 Professional trait scepticism and evidence selection

Nelson's (2009) model recognises that auditor's personality traits can affect judgements. Hurtt (2010) developed a scale that measures auditor's individual level of trait scepticism. Furthermore, Hurtt (2010) also mentioned four sceptical behaviours that are expected to be exhibited by sceptics: expanded evidence selection, increased contradiction detection, increased alternative explanation, and expanded scrutiny of interpersonal information.

3.3.2.1 Auditor subjects

Limited research has been conducted using the Hurtt (2010) professional trait scepticism scale (HPSS) and the results showed auditors who scored higher on HPSS are able to identify more contradictions, greater alternative explanations (Hurtt et al., 2012), and are more sensitive to fraud evidence (Popova, 2012).

Hurtt et al. (2012), examined two sceptical behaviours: evidence assessment, which includes selection of audit evidence and detection of contradictions and errors, and the generation of alternative explanations. The findings showed that auditors with higher levels of professional trait scepticism detected more contradictions and generated moderately more alternative explanations, but detected fewer mechanical errors in the control condition than those with lower levels. However, the result did not show a significant main effect for auditor's scepticism level on their evidence selected. A study conducted by Fullerton and Durtschi (2004) also found that when fraud symptoms are present, internal auditors with high scores on Hurtt (2003) scale, had a greater desire to increase evidence selection than less sceptical auditors. The authors used the Hurtt scale which was in the development stages (working paper) in 2003. Similarly, an experimental study by Quadackers et al. (2009) also found that auditors' scores on trait scepticism scale are significantly associated with some sceptical behaviours like the number of

error explanations generated and desire to perform further testing but is not significantly associated with the generation of a greater number of alternative explanations. Harding and Trotman (2011), found a significant effect between trait scepticism and evidence reliability judgement regarding the assessment of fraud during brainstorming sessions. However, the findings by Carpenter and Reimers (2011) found that auditors' behaviour regarding assessments of fraud risks, identification of risk factors and selection of appropriate procedures are not affected by professional trait scepticism, as measured by Hurtt scale. Peytcheva (2014), also found no relationship between auditors' professional trait scepticism and cognitive performance. Cognitive performance can be related to the reasoning capability required to select appropriate evidence. Auditors are expected not only to view management's assertions with a sceptical attitude but also explicitly consider management's motives to commit fraud. It can be argued that to understand management's motives or incentives, auditors need to select for additional evidence which is consistent with the concept of expanded information search, as mentioned by Hurtt (2010).

In the present study, expanded evidence selection, as one of the four sceptical behaviour identified by Hurtt (2010), is examined. It is also the requirement of SAS No.1 that auditors should obtain a sufficient level of evidence (i.e. expanded evidence selection) before forming an audit opinion. For this study's purpose the expanded evidence selection is determined by the number of total evidence selected under each of the four situations. Selection of a higher total number of both viable and failure evidence signifies expanded evidence selection.

However, based on mixed results of the studies mentioned above, it can be said that the research is not conclusive enough as to whether trait scepticism affects evidence selection. Moreover, there is no study to the knowledge of the researcher that has examined whether trait scepticism measured by Hurtt (2010) scale would impact evidence selection in a going concern assessment task under different situations formed by the combinations of hypothesis framing and prior expectation. Hence, the following research hypothesis is developed in the null form:

H3a: Irrespective of situations, professional trait scepticism will have no influence on auditors' selection of the total number of failure and viable evidence in a going concern assessment task.

3.3.2.2 Student subjects

Popova (2012), conducted a study using student subjects to understand whether more sceptical subjects (i.e. those who scored high on the Hurtt, 2010 scale) are more likely to generate alternative explanations as compared to less sceptical students. In that study, the subjects were

required to make a decision regarding the likely cause of the misstatement, whether due to fraud or unintentional error. The result showed that the sceptical subjects focused more on fraud evidence implying they were less likely to accept the client's explanation of the unintentional error which resembles alternative explanations. Peytcheva (2014), also found that professional trait scepticism affected student subjects' cognitive performance.

Only a few studies have examined the effect of trait scepticism involving student subjects. Moreover, to the knowledge of the researcher, there is no study using student subjects in a going concern assessment task involving evidence selection and professional trait scepticism under different situations formed by the combinations of hypothesis framing and prior expectation. Hence, the following hypothesis is phrased in the null form:

H3b: Irrespective of situations, professional trait scepticism will have no influence on students' selection of the total number of failure and viable evidence in a going concern assessment task.

In addition, the researcher will present two further analyses in conjunction with the above hypothesis relating to trait scepticism. Prior research findings suggest that trait scepticism predominantly influence students' behaviour but not auditors' (Peytcheva, 2014). Moreover, auditors are more influenced by situational factors which give rise to "state" scepticism (Robinson, Curtis, and Robertson, 2013) than trait scepticism. Situational factors such as accountability (Kim & Trotman, 2013) incentives (Awasthi & Pratt, 1990) client risk characteristics (Quadackers et al., 2009), independence (Kim & Cheong, 2009) influence sceptical behaviour. Although this study does not develop a scale to measure the level of state scepticism, the researcher will control for the situations and examine the effect of state and trait scepticism on selection behaviour. It is expected that the effect of the situations on evidence selection will be significantly more as compared to trait scepticism among auditors whereas situations will not affect students' selection behaviour.

3.4 Summary

This chapter discusses the research design adopted in the study and hypotheses generated from the literature review. Chapter 4 will discuss the methodology adopted to test the hypotheses.

Chapter 4: Research Methods

4.1 Introduction

This chapter discusses the research method used in the present study, including the research approach, the data collection procedures, and the development and measurement of variables. This chapter is organised into ten sections. It describes the research approach, that is, philosophical orientation in section 4.2 followed by the rationale for choosing going concern task in section 4.3, the data collection procedures in section 4.4 and sample population including sample frame and sample size in section 4.5. Variables development and measurement along with the questionnaire are presented in section 4.6. The next section 4.7 discusses the methods of distributing the surveys to auditors and students. Sections 4.8 outlines the data cleaning procedures and techniques used for validating Hurtt (2010) scale. Section 4.9 discusses the diagnostic/assumptions tests to be considered for using statistical tools like, factorial ANOVA and linear regression. Section 4.10 summarises the chapter.

4.2 Research approach

"Research approaches are the plans and the procedures for research that span the steps from broad assumptions to detailed methods of data collection, analysis and interpretation" (Creswell, 2014, p. 389). According to Creswell (2014), the plan involves several decisions that are based on philosophical "worldview" (i.e. 'a basic set of beliefs that guide action') or assumptions that the researcher brings to the study. The "worldview" influences the research design and the way data is collected and analysed. He highlighted four types of "worldview" or belief researchers adhere to in their studies mainly; post-positivism, constructivism, transformative, and pragmatism.

The philosophical worldview proposed in this study is post-positivism. The term connotes "the thinking after positivism, challenging the traditional notion of the absolute truth of knowledge and recognising that we cannot be positive about our claims of knowledge when studying the behaviour and actions of humans" (Creswell, 2014). A deterministic philosophy drives post-positivist where problems studied reflect the need to identify and assess the causes that influence outcomes. It is worthwhile to mention that the post-positivist assumptions hold true for quantitative research rather than qualitative research. For the post-positivist, knowledge creation is through careful observation and measurement of the objective reality that exists "out there" in the world. Hence, development of numeric measures of observations and study of individual behaviour is of paramount importance in a post-positivist approach.

4.3 Rationale for choosing going concern assessment task

In this context, it should be mentioned that most of the corporate failures (i.e. organisations judged to be non-going concerns) occurred because auditors failed to detect fraud, intentional errors and aggressive financial reporting committed by management. However, in the real world, few external auditors experience fraud or carefully concealed irregularities committed by the management in their entire careers. Hence, in the present study to understand auditors' behaviour a task involving fraud or error is not considered instead a going concern task is chosen because, for every audit engagement, it is mandatory for the auditors to assess the going concern status of the business and most of the auditors perform this task on a routine basis. Moreover, a corporate failure is considered the most serious form of non-going concern. Assessing going concern status is viewed as a complex task because substantial judgment is required to assess the financial health of an organisation.

Furthermore, going concern assessment is considered as complex because of its "component" complexity (Wood, 1986). According to Wood (1986), "Component complexity of a task is a direct function of a number of distinct acts that need to be executed in the performance of the task and the number of distinct information cues that must be processed in the performance of those acts." In other words, "component" complexity depends on the use of a number of the distinct information cues (i.e. evidence) by individuals. These cues have to be configured to draw inferences. Wood (1986) suggested that as "the number of cues that an individual must attend to and integrate when making a judgment increase, perceptual and information processing requirements for performance of that act of judgment also increase." Similarly, in a going concern task, there is much of financial and non-financial information to be integrated to make an assessment about failure or non-failure of an organisation. Moreover, it is also a legal requirement in Australia that auditors are required to assess the risk of going-concern problems as part of the audit planning process mentioned in Auditing Standard 570, Going Concern issued by the Auditing and Assurance Standards Board (2013). Furthermore, financial statements are prepared on the assumption that on the date of the financial statement the entity is a going concern, which means that the company intends to and can continue its operation for the foreseeable future (i.e. next twelve months). The assumption of going concern is important and justifies the use of generally accepted accounting standards; otherwise, when the going concern assumption does not hold true, the financial statement has to be recasted to indicate that the accounting methods using historical cost may not apply.

Apart from the above explanations, it is also important to consider the familiarity of task among subjects to examine behaviour. Smith and Kida (1991) reviewed numerous psychological studies and noted that selection of task is an important criterion for examining human decision making especially in the area of judgments made by experts. Fischoff (1982) pointed out that responsibility for biased judgments can be attributed to faulty tasks, faulty judges, or a judge-task mismatch. Therefore, it is important to develop tasks that are readily understood by subjects or to find subjects who readily understand the tasks (Fischoff, 1987). A going concern assessment task is appropriate for this study as auditors are highly familiar with the nature of the task. Moreover, accounting students who have studied the "Auditing and Assurance" unit are also familiar with the concept of going concern assessment and use of ratios to examine the financial condition of a business organisation.

4.4. Data collection procedures

The research method used in this study is an experiment which was conducted through survey questionnaires designed in Qualtrics. The surveys were administered online through Qualtrics to external auditors and distributed to undergraduate and postgraduate accounting students in their respective classrooms.

4.4.1 Survey

The survey technique is the most widely used data gathering technique in sociology and business research. According to Groves (1996, p. 389), "surveys produce information that is inherently statistical in nature. Surveys are quantitative beasts." Further, Neumann (2003) emphasised that surveys are considered appropriate for research questions about self-reported beliefs or behaviours. Therefore, employing survey method in this study is appropriate. However, according to Smith (2015, p. 128) "survey methods are often criticised as being the 'poor man's experiment' because of their inability to assign subjects randomly to treatments, and their consequent inability to rule out rival hypotheses." Similarly, Brownell (1995, p. 31) recognised the internal validity threats but suggested that survey studies can be designed to minimise such threats while maximising their external validity attributes. He suggested the need for good theory to determine the specification of the casual relationships.

4.4.1.1 Online survey

Low-cost computing and the rapid growth of the internet have created a new environment for conducting survey research. The online survey can be e-mail based or web based. According to Ritter and Sue (2007) the online survey, mainly web-based, reduces data entry errors as it facilitates direct data entry, thus reducing the researcher's time for data entry. Moreover, online surveys are feasible for large sample sizes where subjects are dispersed geographically. Furthermore, web-based online surveys have the potential to maintain confidentiality and anonymity. Another benefit of web-based online surveys is that it works best where respondents have an e-mail account or internet access, for example, employees of a company, students at a university, or a group of professionals, (Ritter & Sue, 2007). Since this study targets external auditors; members of a profession working in audit firms and students studying in a university, this method is considered appropriate.

4.5 Study population

A population is a group of many cases from which a researcher draws a sample and to which results from a sample are generalised (Neuman, 2011). The auditor population for this study's purpose is external auditors employed in public practice accounting firms in Australia and across the globe. The student population is undergraduate and postgraduate accounting students who have studied the "Auditing and Assurance" class in Australia and worldwide.

4.5.1 Sampling frame

Sampling is the process by which a representative subset of the total population is selected such that the results of analysis can be used to make conclusions about the population (Altinay & Paraskevas, 2008). A search of a representative sample is considered as a crucial factor for any study purpose.

For this study, initially external auditors from the "Big 4" and mid-tier firms which have both national and international presence were included, and small size firms were excluded. The rationale for choosing the big and mid-tier firms is because these firms perform a majority of the audits for public traded companies, as well as, large private companies. Further corporate collapses have involved mainly the large organisations for which audit is mandatory and auditors have been contributory to their collapse; but, due to difficulty in recruiting subjects from "Big 4" and mid-tier firms, small sized accounting firms were also considered.

4.5.2 Sample size

The current study incorporates factorial design with manipulation of two conditions or treatments across two levels which give four different possible combinations. In this context, according to Mead (1988), each condition group should have a minimum of 10 respondents to draw a valid inference. Moreover, the study conducted by Trotman and Sng (1989) employed 10 samples per treatment group. Therefore, for the purpose of this study a sample of at least 80 subjects (i.e. 10 per treatment group for both auditors and students) was considered adequate based on the earlier study by Trotman and Sng (1989).

4.6 Variables development and measurement

4.6.1 Study task

Studies by Kida (1984), Trotman and Sng (1989), Choo and Trotman (1991), Simnett (1996) and Lehmann and Norman (2006) have considered the going concern assessment task to analyse auditor behaviour and judgement.

In this study, the task is broken down into three parts. In the first part, subjects were asked three questions. First, after reading the case description and examining the financial ratios, the subjects were asked whether the financial condition of the company is "strong" or "weak", second, the subjects were asked to list at least three ratios that they consider most relevant in evaluating the financial condition and third, the subjects were asked to determine the probability of the firm's failure within one year or viability for the next one year on a 5-point Likert type scale. This first part of the task comprising three questions was not analysed. The purpose is to ensure the subjects have understood the company description, hypothesised statements and the financial ratios and were able to form an expectation as to whether the company would fail or remain viable, consistent with Trotman and Sng (1989). In the second part of the task, after reading information on viable and failure evidence, the subjects were required to select the pieces of evidence that they considered relevant in deciding on the failure or viability of the firm. In the third part, the subjects were required to complete the Hurtt (2010) professional scepticism scale.

It is important to mention that, to be considered as valid response, the subjects were required to answer all the questions in the survey questionnaire.

4.6.2 Instruments

In the present study, the research instrument administers to test the impact of hypothesis framing on evidence selected is similar to Kida (1984). The research instrument contains a brief description of the company along with 22 additional pieces of information (i.e. evidence); 11 pieces are pointing to viability and the remaining 11 pieces, pointing to failure. However, no single piece of information is conclusive to determine failure or viability.

It is important to note that the twenty pieces of evidence were originally tested by Kida (1984). An additional two items, one relating to competition from a rival company (i.e. failure) and another relating to infusion of funds in the form of stake-holding (i.e. viable) are included in this study. These two pieces of evidence were introduced after considering the examples mentioned in the "Auditing and Assurance" candidate study guide of the Institute of Chartered Accountant of Australia. These items were included for the first time. The viable item was included because the participants were provided information about a hypothetical company consisting of a parent-subsidiary relationship. Raising stake-holding in the parent company is considered an important area for auditors to assess going concern. The failure item about the products to be launched by a rival company is another crucial area to be assessed as it may cause loss of revenue for the company in question.

Kida (1984) used the following twenty pieces of information pointing towards viability and failure of a firm respectively:

Table 4.1: List of viable evidence (dependent variable)

1. The technology of the company is competitive with other firms in the industry.
2. The company's major product is generally considered to be of good quality.
3. Management states that it is possible that a key patent may be obtained in the near future.
4. The debt to equity ratio of the company is around the industry average.
5. Management believes that additional equity capital can be raised through the issue of shares if needed.
6. This year the company reported a positive cash flow from operations.
7. In general, suppliers of the firm indicate that usual trade credit to the firm will be available.
8. The economic outlook for the industry is stable.
9. Management has indicated that there is no chance of losing a major supplier.
10. An analysis of accounts receivable revealed the collection time to be around the industry average.

Table 4.2: List of failure evidence (dependent variable)

1. Management has indicated that there is a good chance of losing a major customer.
2. The competence of the company's management has been questioned by outside observers.
3. The company has significantly less working capital than the average firm in the industry.
4. Discussions with management indicate that a material liability from litigation is likely this year.
5. This year the firm reported a significant loss from operations.
6. Management and labour representatives indicate that there is a chance that labour will strike this year.
7. Management indicated that new legislation may make it difficult to market one of the firm's major products.
8. It appears that if needed, it will be difficult to obtain additional debt capital.
9. The company has not paid its preferred stockholder dividends in recent years.
10. The market share of the firm is below average for the industry.

The two additional items of information resembling viable evidence and failure evidence respectively are as follows:

Viable item: The management of HealWorld agreed to raise the stake in the company by another 10%. It is anticipated that a significant amount of funds will be injected by HealWorld as a part of the deal.

Failure item: There is a strong rumour that the main competitor of the company has invented a new drug with significant low cost and is likely to launch the product in November this year.

Hypothesis frame (independent variable): The hypothesis frame will be manipulated at two levels: failure versus viability. The hypothesis frame is operationalised consistent with Kida's (1984) failure and viable conceptualisation. Kida (1984) conceptualised as follows:

> We are interested in a number of issues concerning failed (viable) firms, i.e. firms that entered bankruptcy (remain viable) proceedings. As part of our project, we would like informed decision-makers to judge whether a given firm is likely to fail (remain viable) within two years. We have selected a sample of 100 firms. Fifty of these firms failed within two years, and the remaining fifty remained viable for at least two more years. A description of each firm was developed. We have selected one of these firms at random. Its description follows. We would like you to read the description carefully, concentrating on

its factual details, in order to determine if the firm is one that is going to fail (or continue operation) within the two years.

The present study operationalised the failure and viable concept as follows:

CureWorld (CW) Ltd is an Australian multinational pharmaceutical company that was incorporated in Australia in 1991. The company exports its products to 100 countries. The company has also established manufacturing facilities in 10 countries with ground operations in 25 countries. The company went public in 2000 and in 2005, an American pharmaceutical company HealWorld (HW) Inc. has acquired a 25% share of CureWorld making the conglomerate the world's tenth largest specialty generic pharmaceutical company.

Your firm has been being appointed as auditor since July 2011. You are a part of the current year's audit team, and your team has almost completed the financial audit for the year ended 30 June 2014. The manager of your team has requested your informed judgment on whether the company is likely to fail (i.e. enter insolvency proceeding) or remain viable (i.e. continue its operation unaided) within the next one year.

Prior expectation (independent variable): The prior expectation is manipulated at two levels: a set of strong financial ratios and set of weak financial ratios over a 3-year period. The prior expectation is operationalised consistent with Trotman and Sng's (1989) strong or weak ratios conceptualisation. Strong ratios indicate the firm will continue its operation in the foreseeable future and weak ratios, potential failure. The ratios chosen have been shown to result in fairly accurate predictions in the previous study by Libby, Trotman, and Zimmer (1987). The same set of ratios were also used in the study by Trotman and Sng (1989).

The financial ratios are:
a) Earnings (before interest and taxes) to total tangible assets
b) Cash flow (profits plus depreciation) to total liabilities
c) Current assets to current liabilities
d) Total liabilities to shareholders' funds
e) Retained earnings to total tangible assets

The weak ratios in this study were computed using financial information of an Australian company which went into insolvency proceeding in 2001 and for strong ratios' financial information of an ongoing Australian company that is, a going concern, was taken into

consideration. For the failed firm, the "weak" ratios were computed based on the 3-year of financial information before insolvency whereas, for the non-failed firm, the "strong" ratios were computed for three consecutive years chosen randomly from a 10-year period prior to the financial year 2014-2015. The financial information was chosen from the financial database of an investment research company, Morningstar for the computation of financial ratios. The financial information was taken from profit and loss statements, balance sheets and cash flow statements of the failed and on-going firms, respectively.

In the survey, the following information is provided relating to the financial ratios:

The manager provided you with three years' financial ratios and asked you to examine the financial ratios, in order to determine if the company is going to fail (remain viable) within the next one year.

The financial ratios provided to the auditor and student subjects are as follows:

"Weak" financial ratios	Jun-12	Jun-13	Jun-14
Earnings before interest and taxes to total liabilities	0.17	0.07	(0.55)
Cash flow (profits plus depreciation) to total liabilities	0.21	0.14	(0.48)
Current assets to current liabilities	1.34	3.49	1.67
Total liabilities to shareholders' funds	1.78	0.45	0.52
Retained earnings to total tangible assets	0.37	0.01	(0.32)

"Strong" financial ratios	Jun-12	Jun-13	Jun-14
Earnings before interest and taxes to total liabilities	0.22	0.23	0.25
Cash flow (profits plus depreciation) to total liabilities	0.40	0.39	0.41
Current assets to current liabilities	0.87	0.93	1.05
Total liabilities to shareholders' funds	2.08	2.38	1.99
Retained earnings to total tangible assets	0.24	0.21	0.25

Professional trait scepticism (independent variable):

In this study to measure trait scepticism, the six-point Hurtt (2010) scale is administered which assigns each subject a score ranging from 30 to 180. On this scale, a higher score indicates a higher level of scepticism. The internal consistency coefficient for this 30-item scale using Cronbach alpha is 0.86. Hurtt (2010) deliberately used an even number Likert-type scale to avoid the issue of subjects selecting the mean value. She indicated using an even number is consistent with the recommendation by Converse and Presser (1986) to avoid losing information about the direction in which the opinion leans toward a neutral point of view. In

this study, a six-point scale will likewise be used. The subjects were asked to select the appropriate point ranging from "Strongly Disagree" to "Strongly Agree" resembling one point and six points respectively. The Hurtt (2010) scale was selected because to date this is the only scale available that is specifically designed to measure trait scepticism among auditors. Further, the Hurtt (2010) scale is based on a neutrality perspective. The external auditors should not doubt the management representation unless they have reasons to be suspicious. There is another scale which is known as the inverse of Rotter Interpersonal Trust (RIT) scale, but this reflects presumptive doubt. Therefore, for this study the use of Hurtt (2010) scale is appropriate.

The following table lists the six attributes along with the statements measuring each of the attributes.

Table 4.3: Statements measuring attributes in Hurtt (2010) scale (Source: Hurtt, 2010)

A. Questioning Mind
01. My friends tell me that I often question things that I see or hear.
02. I frequently question things that I see or hear.
03. I often reject statements unless I have proof that they are true.
B. Suspension of Judgment
04. I take my time when making decisions.
05. I don't like to decide until I've looked at all of the readily available information.
06. I dislike having to make decisions quickly.
07. I like to ensure that I've considered most available information before making a decision.
08. I wait to decide on issues until I can get more information.
C. Search for Knowledge
09. I think that learning is exciting.
10. I relish learning.
11. Discovering new information is fun.
12. I like searching for knowledge.
13. The prospect of learning excites me.
14. I enjoy trying to determine if what I read or hear is true.
D. Interpersonal Understanding
15. I like to understand the reason for other peoples' behaviour.
16. I am interested in what causes people to behave the way that they do.
17. The actions people take and the reasons for those actions are fascinating.
18. I seldom consider why people behave in a certain way.
19. Other peoples' behaviour doesn't interest me.

E. Self-Confidence
20. I have confidence in myself.
21. I don't feel sure of myself.
22. I am self-assured.
23. I am confident of my abilities.
24. I feel good about myself.
F. Self-Determining
25. I tend to immediately accept what other people tell me.
26. I usually accept things I see, read or hear at face value.
27. I often accept other peoples' explanations without further thought.
28. It is easy for other people to convince me.
29. Most often I agree with what the others in my group think.
30. I usually notice inconsistencies in explanations.

Out of 30 statements, eight statements are reverse coded. For computing the total professional trait scepticism score, the score of the eight statements is subtracted from seven and then the reversed number is used in deriving the total score. The following statements are reverse coded:

(A) Interpersonal understanding
(i)   I seldom consider why people behave in a certain way.
(ii) Other peoples' behaviour does not interest me.

(B) Self-confidence
(iii) I do not feel sure of myself.

(C) Self-determining
(iv) I tend to immediately accept what other people tell me.
(v)   I usually accept things I see, read or hear at face value.
(vi) I often accept other peoples' explanations without further thought.
(vii) It is easy for other people to convince me.
(viii) Most often I agree with what the others in my group think.

Selection strategy: To examine the selection strategy, given hypothesis framing and prior expectation, failure minus viable evidence is the dependent variable consistent with Trotman and Sng (1989) whereas to understand the effect of trait scepticism, total cues selected (sum of viable and failure cues) as the dependent variable is taken into account. Total cues represent expanded evidence selection as mentioned by Hurtt (2010).

4.6.3 Incentive to subjects

As the auditor subjects were recruited through Qualtrics, a fee was paid to the company for providing 40 valid responses from auditor subjects. For student subjects, an Ipad Air 2 (16 GB) was provided to the winner of the lucky draw. The e-mails of the student subjects were collected separately to determine the lucky draw and were discarded after the draw. No participant was identifiable in the study.

4.7 Administration of survey

4.7.1 External Auditors

The tasks are administered through Qualtrics software authorised by Edith Cowan University, and the web-links are distributed through Panel Management of Qualtrics LLC. Qualtrics LLC is a private research software company, based in Provo, Utah in the USA. The Panel Management of the company has a database of external auditors across the United States. The four survey links were sent randomly to the external auditors by Qualtrics. The approximate time for completion of one survey is set at 20 minutes for auditors.

In the preliminary stage of data collection, the human resource department of 20 accounting firms including "Big 4" was contacted to seek approval for participation of auditors in this study. Owing to non-participation by the audit firms in Australia, external auditors were then recruited through Qualtrics LLC. Therefore, the external auditor subjects in this study are from graduate to partner level auditors employed in Big 4, mid- sized and small-sized public practice accounting firms in the United States.

4.7.2 Students

The questionnaires were distributed to the subjects in their respective classrooms. The researcher was physically present and conducted the survey among undergraduate students whereas, for postgraduate students, the class instructor conducted and administered the survey. The approximate time for completion of one survey is set at thirty minutes for the students. All the responses were collected by the researcher and the instructor at the end of 30 minutes. Students were allowed an extra 10 minutes as they may need time to understand the questionnaire due to lack of practical experience whereas the auditors perform the going concern assessment as a part of their day to day auditing responsibilities. The student subjects are undergraduate and postgraduate accounting students who have completed the "Auditing and Assurance Services" subject recruited from an Australian university. At the initial stage, the web-links were uploaded to their respective blackboards (i.e., learning platform) but because of poor response to the online survey, physical distribution of the

survey questionnaires were considered. The student subjects completed the questionnaires under the supervision of the researcher and the class instructors.

4.8 Screening of data

For results to be accurate, a "clean" data set is highly desirable. Data screening is recommended as part of the data analytic process. In any survey research, two important issues are considered: missing values and careless or inattentive responses. In the current study, missing value analysis (i.e. MCAR or MAR) in SPSS was not performed because all questionnaires with missing values were deleted from the dataset. The careless or inattentive responses were identified first and then deleted from the data set and was not included in statistical analysis.

Data screening is carried out to check the quality of data so that valid results can be drawn and is a critical step in inferential statistics. According to Meade and Craig (2012), "in any type of survey research, inattentive or careless responses are a concern. Accordingly, it is important for researchers to be able to screen such data for careless, partially random, or otherwise inattentive responses." Such data lead could lead to spurious within-group variability and lower reliability (Clark, Gironda, & Young, 2003), which may tend to "attenuate correlations, and potentially create Type II errors in hypothesis testing" (Meade & Craig, 2012).

4.8.1 External auditor responses

As the responses from external auditor subjects were collected through an Internet-based survey, it is important to filter out the responses from professionals other than external auditors. Therefore, a control mechanism was put in place to determine the respondents are currently working as external auditors. Hence, in the Qualtrics, a question was inserted regarding the current role of the potential respondent. Eight type of roles were mentioned in the question, for example, internal auditor, tax accountant, payroll accountant, management accountant, financial accountant, external auditor and other (see Appendix F, page 131). If the potential respondent selected any role other than external auditor, the survey would terminate at that point. Moreover, there is high chance of careless or inattentive responses. Basically, two types of screening methods are used to identify potential careless or inattentive responses. The first method requires special items or scales to be inserted into the survey before administration. For example, bogus items Beach (1989) and lie scales (i.e. MMIP L). The second method requires special analysis, such as examining the response patterns, after the data collection is completed (i.e. posthoc). In the current study, a 'bogus' item was inserted

almost in the middle of the 30-item Hurtt (2010) scale to identify careless response. The statement is constructed as "Please select 'Strongly Disagree for quality purposes." (see Statement 22 in Appendix F, page 136). The bogus statement was deliberately inserted between two statements; "I have confidence in myself" and "I don't like to decide until I have looked at all of the readily available information" of the Hurtt scale to determine whether the subjects are concentrating while answering the questions. If the subjects clicked other than "Strongly Disagree", the response was identified as careless response and the subject data was deleted from further consideration.

The researcher attempted to collect 10 responses for each condition totalling 40 responses. In the first stage, web-links of two cases (VHSR and FHWR) were sent to Qualtrics for distribution among auditors. In the first stage a total of 51 responses (VHSR= 28, FHWR=23) were received. Then in the second stage, the web-links of the remaining two cases (VHWR and FHSR) were sent. In the second stage only a total of 23 responses were received (VHWR=

18, FHSR= 5) from Qualtrics. Therefore, a total of 74 responses were collected from external auditors. The breakdown of the 74 total responses is provided in Table 4.4 below:

Table 4.4: Total responses collected from external auditors

VHSR	VHWR	FHSR	FHWR	Total
28	18	05	23	74

After scrutinising the responses, it was observed only 40 responses were considered usable (i.e. 54% of total responses). It was noted from examining the internet protocol (IP) addresses that 8 subjects filled out the questionnaire after initially choosing other profession and later clicked the 'external auditor' button to proceed with the survey. It seemed they were not working as external auditor. Moreover, the IP addresses also revealed 5 respondents filled out the questionnaire for the second time. Therefore, those 13 responses were deleted from the data set. In the next cleaning process 21 responses were discarded because it was considered as careless or inattentive responses as the subjects did not select "Strongly Disagree" when answering the bogus statement in the Hurtt scale. Further, it was observed that a considerable number of rejection was due to non-external auditors. From the rejection list, it was noted most of professionals were working as internal auditor, tax accountant and financial accountant. The researcher attempted to collect another 5 responses for the case FHSR to have a total of at least 10 responses but Qualtrics notified there were no more external auditors in their database. The following table details the useable responses:

Table 4.5: Useable responses from external auditors

Case	Response collected (A)	Careless response (B)	Duplicate and Non-external auditor response	Valid response (D)=(A)-(B)-(C)
VHSR	28	9	4	15
VHWR	18	5	3	10
FHSR	05	-	-	05
FHWR	23	7	6	10
Total	74	21	13	40

4.8.2 Student responses

Initially, a total of 79 responses were collected from student subjects. The breakdown of the total 79 responses is provided in Table 4.6.

Table 4.6: Total responses collected from postgraduate and undergraduate accounting students

Case	Postgraduate	Undergraduate	Total
VHSR	10	8	18
VHWR	10	7	17
FHSR	10	12	22
FHWR	10	12	22
Total	40	39	79

After scrutinising the 79 responses, it was observed only 44 (i.e. 56%) responses were considered usable. Out of 35 responses which were discarded, 23 subjects did not fully complete the selection of 22 pieces of evidence and the remaining 12 subjects did not complete the 30 item Hurtt (2010) scale. The following table details the useable responses:

Table 4.7: Useable responses from postgraduate and undergraduate accounting students

Case	Postgraduate	Undergraduate	Total
VHSR	3	6	9
VHWR	7	5	12
FHSR	6	6	12
FHWR	6	5	11
Total	22	22	44

4.9 Techniques for statistical analysis

4.9.1 Reliability and Validity of Hurtt (2010) scale

The estimates of reliability and validity are critical for the application of Hurtt (2010) scale. If an instrument has poor reliability or validity, the operationalisation of the construct is likely to be inadequate.

4.9.1.1 Reliability

Reliability is defined as the degree of consistency between two measures of the same thing (Coakes, 2005). The measurement that does not contain a random or unstable error is considered reliable. A reliable instrument is stable across time and contexts. This distinction of time and condition is the basis for frequently used perspectives on stability- reliability, equivalency reliability and internal consistency. Stability-reliability (also known as re-test reliability) refers to the agreement or consistency of results produced by the measuring instruments over time. To determine stability, a measure is repeated on the same subjects at a future date. Then the results are compared and correlated with the initial test to provide a measure of stability. Equivalence reliability is the degree to which two items measure same concepts at a same level of difficulty. Equivalence reliability can be measured by relating two sets of results to another to highlight the degree of relationship. Internal consistency measures the degree to which instrument items are homogeneous and reflect the same underlying construct(s).

For the purpose of the present study only, internal consistency is measured because the Hurtt (2010) scale is administered only once among the subjects. One of the ways to measure internal consistency estimates is to determine Alpha Coefficients. Furthermore, to measure Alpha Coefficients, specialised correlation formulas are used, for example, Cronbach's Alpha and Kuder- Richardson Formula [20] (KR20). In this

study Cronbach's Alpha is used to measure the Alpha Coefficient. A Cronbach's Alpha above 0.7 is considered highly reliable for measure for internal consistency.

For the present study, with a sample of 84 subjects the Cronbach's Alpha for the 30 item Hurtt (2010) scale is 0.869, which is considered highly reliable.

Table 4.8: Cronbach's Alpha for 30 item Hurtt scale

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.869	.889	30

However, it should be noted that Panayides (2013), argued that high alpha values may not necessarily mean higher reliability and better quality of scale because alpha can be influenced by the number of items and the inclusion of parallel items which may indicate item redundancy that relates weakly to the construct. The construct validity of the original Hurtt (2010) scale consisting of 30 items scale was then examined, and the result showed that good model fit values are obtained when the scale was reduced to 16 items (see section 4.8.1.2.2). Therefore, to check the internal consistency of the 16 item scale, Cronbach's Alpha was calculated for the second time. The below table shows the Cronbach's alpha is .844 which is still considered highly reliable. Thus, it can be concluded that reduction in items did not reduce the alpha value to a large extent.

Table 4.9: Cronbach's Alpha for 16 item Hurtt scale

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.844	.866	16

4.9.1.2 Validity

The term validity refers to whether or not an instrument measures what it intends to measure. Internal validity is discussed because the focus of this present study is to confirm whether the instrument measures what its designer claims it does. To confirm whether the instrument measures what it is designed for, the study considers the content validity and construct validity.

4.9.1.2.1 Content validity

Content validity refers to the extent to which the scale provides adequate coverage of the investigative questions guiding the study. Determination of content validity is judgmental and can be approached in a panel evaluation using a content validity ratio. According to De Vellis and Dancer (1991) and DeVellis (2012), experts' review of the scale should be considered for content validity. Therefore, two accounting faculty members, an Associate Professor from Malaysian university, University of Teknologi, Mara, with a teaching experience in auditing and assurance subject of more than 10 years and a Chartered Accountant from Malaysia with professional audit experience of 10 years who formerly worked as a visiting lecturer in University of Teknologi, Mara, and is currently employed as a sessional lecturer in Edith Cowan University, Australia, served as experts and reviewed the Hurtt (2010) scale. The details of their review are presented in tabular form:

Table 4.10: Relevance of six characteristics of trait scepticism in Hurtt (2010) scale

Faculty Members	Questioning Mind	Suspension of Judgment	Search for Knowledge	Interpersonal Understanding	Self-Confidence	Self-Determining
Expert 1	High relevance	Moderate relevance	High relevance	High relevance	Moderate relevance	High relevance
Expert 2	High relevance	Moderate relevance	High relevance	Moderate relevance	Moderate relevance	High relevance

The two experts agreed in their ranking of each attribute or characteristic in the professional trait scepticism scale except for interpersonal understanding. Out of the six characteristics, four and three characteristics were ranked as high relevance by the first and second expert respectively. Both of them agreed that questioning mind, search for knowledge and self-determining are the more important characteristics that determine the level of professional trait scepticism as these are expressly stated in auditing guidelines. Attributes like

suspension of judgement and self-confidence are considered to be of moderate relevance. There was a difference in ranking regarding the attribute interpersonal understanding. The first expert rated it as high relevance whereas the second, as moderate relevance. Nevertheless, all the six attributes are rated as moderate to high relevance. Hence, it can be concluded all the characteristics identified by Hurtt (2010) for measuring the level of trait professional scepticism are valid.

The following tables summarise the experts' view on each statement related to the six attributes mentioned in the Hurtt (2010). The experts were asked whether the statements should be included, excluded or modified and if modified then how the statement is to be modified.

Table 4.11: Experts' review on statements measuring questioning mind

Faculty Members	My friends tell me that I often question things that I see or hear. **(S1)**	I frequently question things that I see or hear. **(S2)**	I often reject statements unless I have proof that they are true. **(S3)**	How to modify
Expert 1	Included	Included	Modified	Classify what type of "statements."
Expert 2	Excluded	Modified*	Modified**	*remove word "frequently." ** remove word "often."

It is observed that there is considerable difference in the opinions of the two experts regarding the statements measuring questioning mind attribute. Expert 1 would include both statements S1 and S2 whereas the Expert 2 suggested S1 should be excluded and S2 to be modified. Both agreed that S3 should be modified.

Table 4.12: Experts' review on statements relating to suspension of judgement

Faculty Members	I take my time when making decisions. **(S4)**	I don't like to decide until I've looked at all of the readily available information. **(S5)**	I dislike having to make decisions quickly. **(S6)**	I like to ensure that I've considered most available information before making a decision. **(S7)**	I wait to decide on issues until I can get more information. **(S8)**	How to modify
Expert 1	Included	Included	Excluded	Included	Included	
Expert 2	Included	Excluded	Excluded	Modified	Included	Remove word "like to."

By comparing both the experts' suggestions regarding statements measuring suspension of judgment, it can be observed that there is a consensus that S4 and S8 should be included, and S6 should be excluded. For S5, Expert 1 suggested to include the statement, whereas Expert 2 held the opposite view. For S7, both experts held the almost same opinion that the statement should be included (Expert 1) with a minor modification (Expert 2).

Table 4.13: Experts' review on statements measuring search for knowledge

Faculty Members	I think that learning is exciting. **(S9)**	I relish learning. **(S10)**	Discovering new information is fun. **(S11)**	I like searching for knowledge. **(S12)**	The prospect of learning excites me. **(S13)**	I enjoy trying to determine if what I read or hear is true. **(S14)**	How to modify
Expert 1	Included	Excluded	Included	Included	Included	Included	
Expert 2	Included	Excluded	Excluded	Included	Included	Included	

It can be said that both the experts agreed on their opinion regarding statements measuring the attribute search for knowledge except for S11. According to them, S10 should be excluded and for S11 the first expert suggested to include while the second expert

suggested to exclude. For all the remaining statements both experts agreed to include.

Table 4.14: Experts' review on statements measuring interpersonal understanding

Faculty Members	I like to understand the reason for other peoples' behaviour. **(S15)**	I am interested in what causes people to behave the way that they do. **(S16)**	The actions people take and the reasons for those actions are fascinating. **(S17)**	I seldom consider why people behave in a certain way. **(S18)**	Other peoples' behaviour doesn't interest me. **(S19)**	How to modify
Expert 1	Included	Included	Included	Excluded	Excluded	
Expert 2	Included	Included	Included	Excluded	Excluded	

It can be said that both experts agreed on their opinion regarding statements measuring the attribute interpersonal understanding. According to them, except for S18 and S19, all other remaining statements are to be included.

Table 4.15: Experts' review on statements measuring self-confidence

Faculty Members	I have confidence in myself. **(S20)**	I don't feel sure of myself. **(S21)**	I am self-assured. **(S22)**	I am confident of my abilities. **(S23)**	I feel good about myself. **(S24)**	How to modify
Expert 1	Included	Excluded	Included	Included	Included	
Expert 2	Included	Excluded	Included	Included	Included	

It can be observed that there is consensus between both the experts regarding inclusion and exclusion of the statements measuring the self-confidence attribute. Both experts agreed that, except for S21, all the remaining statements are to be included.

Table 4.16: Experts' review on statements measuring self-determining

Faculty Members	I tend to immediately accept what other people tell me. **(S25)**	I usually accept things I see, read or hear at face value. **(S26)**	I often accept other peoples' explanations without further thought. **(S27)**	It is easy for other people to convince me. **(S28)**	Most often I agree with what the others in my group think. **(S29)**	I usually notice inconsistencies in explanation. **(S30)**	How to mod ify
Expert 1	Excluded	Modified	Excluded	Excluded	Included	Excluded	Must be with evide
Expert 2	Included	Included	Included	Included	Included	Included	

There is considerable difference in opinion regarding inclusion and exclusion of statements measuring the self-determining attribute. Both the experts differ in their opinions except S29. For S25, S27, S28 and S30, Expert 2 suggested that the statements are to be included, but Expert 1 held the opposite view, all the four statements are to be excluded. For S26, Expert 1 suggested modifying the statement while Expert 2 suggested to include the statement.

Confirmatory factor analysis (CFA) enables the researcher to test how well the measured variables represent the construct. According to Hair, Black, Babin, Anderson, and Tatham (2006, p. 770); "the key advantage is that the researcher can analytically test a conceptually grounded theory explaining how different measured items represent important psychological, sociological, or business measures. When CFA results are combined with construct validity tests, a better understanding of the quality of the measures can be established.

4.9.1.2.2 Construct validity

Construct validity relates to how well the construct is measured. It can be evaluated by judgmental correlation of the proposed test with established, convergent-discriminant techniques, factor analysis and multitrait-multimethod analysis. In the present study, the researcher ran a confirmatory factor analysis (CFA) with 30 item Hurtt (2010) scale in AMOS to determine the model fit and check the construct validity using convergent-discriminant technique and to corroborate the experts' opinion on each group of statements

representing the six constructs.

Convergent validity refers to the "extent to which indicators of a specific construct converge or share a high proportion of variance in common" whereas discriminant validity refers to the "extent to which a construct is truly distinct from other constructs" (Hair et al., 2006).

There are a few measures that are used for establishing validity and reliability: Composite Reliability (CR), Average Variance Extracted (AVE), Maximum Shared Variance (MSV), and Average Shared Variance (ASV). The thresholds of the values adopted from Hair, Black, Babin, and Anderson (2010) are summarised in the following table:

Table 4.17: Threshold values for CR, AVE, MSV and ASV

Reliability	CR> 0.7
Convergent Validity	AVE > 0.5
Discriminant Validity	MSV < AVE ASV < AVE Square root of AVE greater than inter-construct correlations

4.9.1.2.3 Model fit

Model fit refers to how well the proposed model accounts for the correlations between variables in the dataset. If all the major correlations inherent in the dataset are accounted for then the model will have a good fit; if not, then there is a significant "discrepancy" between the correlations proposed and the correlations observed, and thus the model will be a poor fit. The following table adapted from Hu and Bentler (1999) depicts the thresholds for measures of goodness of fit.

Table 4.18: Thresholds for measures of goodness of fit

Measure	Threshold
Chi-square/df (cmin/df)	< 3 good; <5 sometimes permissible
p-value for the model	>.05
Comparative Fit Index (CFI)	>.95great; >.90 traditional; >.80 sometimes permissible
Goodness of Fit Index (GFI)	>.95
Standardised Root Mean Square Residual (SRMR)	<.09
Root Mean Square Error Approximation (RMSEA)	<.05 good; .05-.10 moderate; >.10 bad
p of Close Fit (PCLOSE)	>.05

4.9.1.3 Results of Confirmatory Factor Analysis (CFA)

4.9.1.3.1 CFA results- 30- item Hurtt (2010) scale

In the current study, confirmatory factor analysis (CFA) was conducted on 84 samples (40 external auditors and 44 students). It is noted that a minimum of 150 (i.e. five responses per 30 item) samples are required for conducting CFA as a rule of thumb. Hence, the CFA result of the current study should be read with caution. Initially standardised loadings estimate was calculated for each construct. According to Hair et al. (2006) standardised loadings estimates should be .5 or higher, and ideally .7 or higher. The following table shows the standardised loading estimates:

Table 4.19: Standardised loading estimates of 30 items measuring six constructs
Values below 0.5 are bolded.

Constructs/Attributes	Statements measuring constructs	Standardised loadings
Questioning Mind	01. My friends tell me that I often question things that I see or hear.	.96
	02. I frequently question things that I see or hear.	**.49**
	03. I often reject statements unless I have proof that they are true.	**.45**
Suspension of Judgment	04. I take my time when making decisions.	.69
	05. I don't like to decide until I've looked at all of the readily available information.	.84
	06. I dislike having to make decisions quickly.	**.29**
	07. I like to ensure that I've considered most available information before making a decision.	.68
	08. I wait to decide on issues until I can get more information.	.73
Search for Knowledge	09. I think that learning is exciting.	.87
	10. I relish learning.	.65
	11. Discovering new information is fun.	.65
	12. I like searching for knowledge	.80
	13. The prospect of learning excites me.	.83
	14. I enjoy trying to determine if what I read or hear is true.	**.47**

Interpersonal Understanding	15. I like to understand the reason for other peoples' behaviour.	.84
	16. I am interested in what causes people to behave the way that they do.	.72
	17. The actions people take and the reasons for those actions are fascinating.	.73
	18. I seldom consider why people behave in a certain way.	**-.14**
	19. Other peoples' behaviour doesn't interest me.	**-.03**
Self-Confidence	20. I have confidence in myself.	.96
	21. I don't feel sure of myself.	**.28**
	22. I am self-assured.	.63
	23. I am confident of my abilities.	.75
	24. I feel good about myself.	.79
Self-Determining	25. I tend to immediately accept what other people tell me.	.84
	26. I usually accept things I see, read or hear at face value.	.65
	27. I often accept other peoples' explanations without further thought.	.70
	28. It is easy for other people to convince me.	.79
	29. Most often I agree with what the others in my group think.	.63
	30. I usually notice inconsistencies in explanations.	**-.10**

From the above table, it can be observed that there are eight statements bolded whose values are below the minimum acceptable loading of .5. It is noted that two statements in each questioning mind (S02, S03) and interpersonal understanding (S18, S19) and one statement each from the remaining fours attributes are below .5. For example, S06 in suspension of judgment, S14 in

search for knowledge, S21 in self-confidence and S30 in self-determining.

The following tables shows the measures and values of good model fit along with the results of convergent-discriminant validity:

Table 4.20: Model fit values for 30-item scale

Measure	Values	Threshold	Result
Chi-square/df (cmin/df)	2.093	<3 good; <5 sometimes permissible	good
p-value for the model	.000	>.05	bad
CFI	.696	>.95 great; >.90 traditional; >.80 sometimes permissible	bad
GFI	.626	>.95	bad
SRMR	.226	<.09	bad
RMSEA	.115	<.05 good; .05-.10 moderate; >.10 bad	bad
PCLOSE	.000	>.05	bad

Table 4.21: Results of CR, AVE, MSV and ASV for 30-item Hurtt scale

	CR	AVE	MSV	ASV	Quest_M	S_Deter	S_Judge	Interper_U	S_Confi	S_Know
Quest_M	0.653	0.387	0.567	0.387	0.622					
S_Deter	0.822	0.462	0.103	0.034	0.242	0.680				
S_Judge	0.788	0.449	0.682	0.394	0.698	-0.048	0.670			
Interper_U	0.672	0.353	0.599	0.331	0.702	0.321	0.547	0.594		
S_Confi	0.776	0.519	0.545	0.308	0.576	0.058	0.705	0.404	0.721	
S_Know	0.867	0.527	0.682	0.479	0.753	0.020	0.826	0.774	0.738	0.726

Table 4.22: Validity concerns for 30-item scale

Discriminant Validity: the square root of the AVE for S_Judge is less than one the absolute value of the correlations with another factor.
Discriminant Validity: the square root of the AVE for Interper_U is less than one the absolute value of the correlations with another factor.
Discriminant Validity: the square root of the AVE for S_Confi is less than one the absolute value of the correlations with another factor.
Discriminant Validity: the square root of the AVE for S_Know is less than one the absolute value of the correlations with another factor.
Reliability: the CR for Quest is less than .70
Discriminant Validity: the AVE for Quest_M is less than the MSV.
Discriminant Validity: the AVE for Quest_M is less than the ASV.
Convergent Validity: the AVE for S_Deter is less than .50.
Convergent Validity: the AVE for S_Judge is less than .50.
Discriminant Validity: the AVE for S_Judge is less than the ASV.
Reliability: the CR for Interper_U is less than .70.
Convergent Validity: the AVE for Interper_U is less than .50.
Discriminant Validity: the AVE for Interper_U is less than the MSV.
Discriminant Validity: the AVE for S_Confi is less than the MSV.
Discriminant Validity: the AVE for S_Know is less than the MSV.

Based on the results summarised in Table 4.19, it can be concluded that the model is not a good model, and there are multiple validity issues (Table 4.21). The composite reliability for questioning mind and interpersonal understanding is below 0.7 which is below the threshold value. Moreover, the AVE, which is a measure of convergent validity, is below the threshold of .5 for questioning mind, self-determining, suspension of judgment and interpersonal understanding.

When the experts' reviews and the result generated by AMOS on individual standardised loadings were compared and analysed, it is observed that some of their recommendations corroborated with results generated by AMOS although some were not supported. The following table provides a summary of the comparison.

Table 4.23: Comparison of experts' review and result from AMOS for 30-item scale

Attributes	Statements	Expert 1	Expert 2	Factor Loads	Support view
Questioning mind	My friends tell me that I often question things that I see or hear.	Included	Excluded	0.96	Although there is a difference in their opinion regarding the inclusion (50%) or exclusion (50%) of this statement, the higher loading (>.7) confirms the view of Expert 1 and the item should be included.
	I frequently question things that I see or hear.	Included	Modified	0.49	One of the experts stated the statement should be included, and another has to be modified as the loading is just under .5. It confirms with their views to some extent, and the item will be retained for this study.
	I often reject statements unless I have proof that they are true	Modified	Modified	0.45	Both the experts agreed that the statement should be modified, and the loading also confirmed that it is below acceptable limit of .5. Hence, the item is discarded.
	I take my time when making decisions	Included	Included	0.69	Both the experts' views supported the factor loading, although it would be better if the factor loading is .7 or more. Initially, the item it will be retained but can be discarded later.

Suspension of Judgement	I don't like to decide until I've looked at all of the readily available information.	Included	Excluded	0.84	Although there is a difference in their opinion regarding the inclusion (50%) or exclusion (50%) of this statement, the higher loading (>.7) confirms view of Expert 1 and the item should be included
	I dislike having to make decisions quickly.	Excluded	Excluded	0.29	Both the experts recommended to exclude the statement, and also, the factor loading being well below .5 confirmed their views. Hence, the item is to be discarded
	I like to ensure that I've considered most available information before making a decision	Included	Modified	0.68	One of the experts stated the statement should be included, and another has to be modified as the loading is under .7. It confirms with their views to some extent and the item will be initially retained but could be discarded later.
	I wait to decide on issues until I can get more information	Included	Included	0.73	Both the experts' views supported the factor loading, and the item should be retained.
Search for Knowledge	I think that learning is exciting.	Included	Included	0.87	Both the experts' views supported the factor loading, and the item should be retained.
	I relish learning.	Excluded	Excluded	0.65	Although both experts recommended this item to be excluded and the factor loading is below .7, it supported their views to some extent but initially the item will be retained and could be discarded later.

	Discovering new information is fun.	Included	Excluded	0.65	Although there is a difference in their opinion regarding the inclusion (50%) or exclusion (50%), the loading is below .7 and confirms the view of Expert 2. Initially, the item will be retained but can be discarded later.
	I like searching for knowledge	Included	Included	0.80	Both the experts' views supported the high factor loading, and the item should be retained.
	The prospect of learning excites me.	Included	Included	0.83	Both the experts' views supported the high factor loading, and the item should be retained
	I enjoy trying to determine if what I read or hear is true.	Included	Included	0.47	Both the experts' views did not support the factor loading which is below .5. Hence, the item is to be discarded.
	I like to understand the reason for other peoples' behaviour.	Included	Included	0.84	Both the experts' views supported the high factor loading, and the item should be retained
Interpersonal Understanding	I am interested in what causes people to behave the way that they do.	Included	Included	0.72	Both the experts' views supported the factor loading of >.7, and the item should be retained
	The actions people take and the reasons for those actions are fascinating.	Included	Included	0.73	Both the experts' views supported the factor loading of >.7, and the item should be retained

	I seldom consider why people behave in a certain way	Excluded	Excluded	-0.14	Both the experts' views supported the factor loading is <.5 and the item should be excluded
	Other peoples' behaviour doesn't interest me.	Excluded	Excluded	-0.03	Both the experts' views supported the factor loading of <.5 and the item should be excluded.
Self-confidence	I have confidence in myself	Included	Included	0.96	Both the experts' views supported the high factor loading, and the item should be retained
	I don't feel sure of myself.	Excluded	Excluded	0.28	Both the experts' views supported the factor loading of <.5 and the item should be excluded
	I am self-assured.	Included	Included	0.63	Although both experts recommended the item to be included, the factor loading is below .7, it supported their views to some extent and initially the item to be retained but can be discarded later.
	I am confident of my abilities.	Included	Included	0.75	Both the experts' views supported the factor loading of >.7, and the item should be retained.
	I feel good about myself.	Included	Included	0.79	Both the experts' views supported the factor loading of >.7, and the item should be retained.
	I tend to immediately accept what other people tell me.	Excluded	Included	0.84	Although there is a difference in their opinion regarding the inclusion (50%) or exclusion (50%) of this statement but higher loading (>.7) confirms view of Expert 2 and the item should be included

Self-Determining	I usually accept things I see, read or hear at face value.	Modified	Included	0.65	One of the experts stated the statement should be included, and another has to be modified as the loading is under .7. It confirms with their views to some extent and the item to be retained initially but can be discarded later.
	I often accept other peoples' explanations without further thought.	Excluded	Included	0.70	Although there is a difference in their opinion regarding the inclusion (50%) or exclusion (50%) of this statement higher loading confirms the view of Expert 2 and the item should be included.
	It is easy for other people to convince me.	Excluded	Included	0.79	Although there is a difference in their opinion regarding the inclusion (50%) or exclusion (50%) of this statement higher loading is .7 confirms the view of Expert 2 and the item should be included.
	Most often I agree with what the others in my group think.	Included	Included	0.63	Although both experts recommended the item to be included the factor loading is below .7, it supported their views to some extent. Hence, the item will be retained initially and can be discarded later.

	I usually notice inconsistencies in explanations.	Excluded	Included	-0.10	Although there is a difference in their opinion regarding the inclusion (50%) or exclusion (50%) of this statement very low loading confirms the view of Expert 1 and the item should be excluded.

It is noted that there are 8 statements with a standardised loading of below .5, including one statement (i.e. I frequently question things that I see or hear) under "questioning mind" where the standardised loading is .49. Because there are only three statements measuring the construct, if two statements are deleted then, CFA could not be run. Therefore, for the current study, except for statement S2, all the other 7 statements were deleted, leaving twenty- three statements in the Hurtt (2010) scale. Another CFA was run to check whether the values for good model fit was achieved or not.

4.9.1.3.2 CFA results- 23-item Hurtt (2010) scale

The following table summarises the model fit values for 23 items of Hurtt scale.

Table 4.24: Model fit values for 23-item scale

Measure	Values	Threshold	Result
Chi-square/df (cmin/df)	1.730	<3 good; <5 sometimes	Good
p-value for the model	.000	>.05	Bad
CFI	.855	>.95great; >.90 traditional; >.80 sometimes permissible	Sometimes permissible
GFI	.738	>.95	Bad
SRMR	.096	<.09	Bad
RMSEA	.094	<.05 good; .05-.10 moderate; >.10 bad	moderate
PCLOSE	.000	>.05	Bad

Table 4.25: Result of CR, AVE, MSV and ASV for 23-item scale

	CR	AVE	MSV	ASV	I_Under	S_Know	S_Deter	S_Confi	S_Judg	Q_Mind
I_Under	0.806	0.581	0.576	0.326	0.762					
S_Know	0.872	0.581	0.650	0.450	0.759	0.762				
S_Deter	0.859	0.550	0.066	0.022	-0.257	0.001	0.742			
S_Confi	0.870	0.631	0.536	0.303	0.406	0.732	-0.064	0.794		
S_Judg	0.825	0.542	0.650	0.366	0.555	0.806	0.071	0.709	0.736	
Q_Mind	0.644	0.475	0.514	0.342	0.717	0.699	-0.187	0.555	0.605	0.689

Table 4.26: Validity concerns for 23-item scale

Discriminant Validity: the square root of the AVE for S_Know is less than one the absolute value of the correlations with another factor.
Discriminant Validity: the square root of the AVE for S_Judg is less than one the absolute value of the correlations with another factor.
Discriminant Validity: the square root of the AVE for Q_Mind is less than one the absolute value of the correlations with another factor.
Discriminant Validity: the AVE for S_Judg is less than the MSV.
Reliability: the CR for Q_Mind is less than 0.70.
Convergent Validity: the AVE for Q_Mind is less than 0.50.
Discriminant Validity: the AVE for Q_Mind is less than the MSV.

With the 23 items scale, the results showed the model improved to some extent but could still be improved if standardised factor loadings of below .7 are eliminated. So, another eight statements with factor loadings below .7 were identified, but only seven statements were deleted except for statement, "I frequently question things that I see or hear" under the construct questioning mind with a loading of .49. The CFA was run for the third time with the 16 item scale.

4.8.1.3.3 CFA results- 16-item Hurtt (2010) scale

The following table summarises the model fit values for 16 items of Hurtt (2010) scale

Table 4.27: Model fit values for 16-item scale

Measure	Values	Threshold	Result
Chi-square/df (cmin/df)	1.427	<3 good; <5	good
p-value for the model	.005	>.05	bad
CFI	.945	>.95 great; >.90 traditional; >.80 sometime	traditional, very close to great
GFI	.843	>.95	bad
SRMR	.082	<.09	good
RMSEA	.072	<.05 good; .05-.10 moderate;	moderate
PCLOSE	.112	>.05	good

Table 4.28: Result of CR, AVE, MSV and ASV for 16-item scale

	CR	AVE	MSV	ASV	I_Unders	S_Know	S_Deter	S_Confi	S_Judg	Q_Mind
I_Unders	0.807	0.582	0.542	0.305	0.763					
S_Know	0.876	0.703	0.593	0.426	0.736	0.838				
S_Deter	0.822	0.613	0.062	0.019	-0.248	0.032	0.783			
S_Confi	0.880	0.711	0.536	0.287	0.386	0.732	-0.009	0.843		
S_Judg	0.771	0.627	0.593	0.356	0.513	0.770	0.155	0.697	0.792	
Q_Mind	0.643	0.474	0.508	0.331	0.713	0.677	-0.100	0.512	0.644	0.689

Table 4.29: Validity concerns for 16-item scale

Discriminant Validity: the square root of the AVE for Q_Mind is less than one the absolute value of the correlations with another factor.
Reliability: the CR for Q_Mind is less than 0.70.
Convergent Validity: the AVE for Q_Mind is less than 0.50.
Discriminant Validity: the AVE for Q_Mind is less than the MSV.

The results showed values regarding the goodness of fit for the model improved considerably except for the questioning mind attribute. The validity concerns were related to the questioning mind attribute probably because of inclusion of the item with a factor loading of .49. The following 16 items were finally retained and used to measure trait scepticism among auditors and students for testing hypothesis 3a and 3b.

Table 4.30: Final retention of 16 items from the original Hurtt (2010) scale

The statement number in brackets represent the manner in which the statements appeared in the survey questionnaire.

Constructs	Statements measuring constructs
A. Questioning Mind	01. My friends tell me that I often question things that I see or hear. **(Statement 12_13)**
	02. I frequently question things that I see or hear. **(Statement 12_24)**
B. Suspension of Judgment	03. I don't like to decide until I've looked at all of the readily available information. **(Statement 12_22)**
	04. I wait to decide on issues until I can get more information. **(Statement 12_3)**
C. Search for Knowledge	05. I think that learning is exciting. **(Statement 12_15)**
	06. I like searching for knowledge **(Statement 12_23)**
	07. The prospect of learning excites me. **(Statement 12_4)**
D. Interpersonal Understanding	08. I like to understand the reason for other peoples' behaviour. **(Statement 12_14)**
	09. I am interested in what causes people to behave the way that they do. **(Statement 12_5)**
	10. The actions people take and the reasons for those actions are fascinating. **(Statement 12_30)**
E. Self-Confidence	11. I have confidence in myself. **(Statement 12_21)**
	12. I am confident of my abilities. **(Statement 12_6)**
	13. I feel good about myself. **(Statement 12_2)**
F. Self-Determining	14. I tend to immediately accept what other people tell me. **(Statement 12_10)**
	15. I often accept other peoples' explanations without further thought. **(Statement 12_1)**
	16. It is easy for other people to convince me. **(Statement 12_25)**

4.9.1.4 Assumption/Diagnostic tests:

It is important to perform assumption or diagnostic tests on the sample data before applying any inferential statistical technique. The two important diagnostic tests are: a) normality and b) outliers. Also, other assumptions relating to statistical techniques were carried out on the sample data.

4.9.1.4.1 Normality

The assumption of normality is a pre-requisite for many inferential statistical techniques and is the most fundamental assumption in statistical analysis. Normality refers to the shape of the data distribution for an individual metric variable. There are a number of different ways to explore this assumption graphically: histogram, stem-and-leaf plot, boxplot, normal probability plot and detrended normality plot. A reliable graphical analysis of normality is the normal probability plot, which compares the cumulative distribution of actual data with that of a

normal distribution. If a distribution is normal, the line representing the actual data distribution follows the straight diagonal line formed by the normal distribution Hair et al. (2006).

Skewness and Kurtosis are also two statistical measures that describe the shape of any distribution. The skewness refers to the symmetry of the distribution, and a skewed variable means that the variable is not in the centre of the distribution. A positive skew reflects a distribution shifted to the left whereas a negative skew denotes a shift towards the right. The Kurtosis deals with the "peakedness" or "flatness" of the distribution of the variables compared to the normal distribution. Hair et al. (2006). When a distribution is normal, the values of the skewness and kurtosis are zero. Furthermore, a number of statistics are available to test normality: Kolmogorov-Smirnov statistics with a Lilliefors significance level and the Shapiro-Wilks statistic. The effects of sample size should be considered to test the normality of data. Generally, larger sample size reduces the detrimental effects of non-normality (Hair et al., 2006). According to the Central Limit Theorem (CLT), a large sample size consists of normally distributed data regardless of the shape of distribution (Field, 2013). A sample size of over 30 is considered a large sample size where the presence of outliers is a more pressing concern than normality (Field, 2013).

If after screening the data, normality is not achieved, transformation techniques (e.g. log, reciprocal, square root) can be used to make the data normal. If variable distributions deviate dramatically, then this may affect the validity of the results that are produced. Kinnear and Gray (1999), mentioned that sometimes it is necessary to transform the values of a variable in order to satisfy the distribution requirements for the use of a particular statistic. In the present study, Shapiro-Wilks is used because it is considered more appropriate for smaller samples (Shapiro, Wilk, & Chen, 1968). Moreover, the transformation of data may not be applied for small-to-moderate departures from normality are usually not of concern. Non- normality does not affect Type I error rate substantially, and the one-way ANOVA can be considered robust to non-normality (see Maxwell & Delaney, 2004 for review). The assessment of normality along with the results of the statistical tests is presented in Chapter 5.

4.9.1.4.2 Outliers

An outlier is a case with an extreme value of a variable or a unique combination of values across several variables that the observation stands out from the others Hair et al. (2006). Values more than three standard deviations away from the mean are considered potential outliers (Field, 2013). Outliers may also be detected from boxplot analysis. If an outlier affects the assumption, it is advisable to discard that particular outlier. Another way to deal with

outliers are either modify the outlier by replacing the outlier's value with one that is less extreme. To replace outlier with less extreme values is known as winsorising. It is a method to assign the next highest or lowest value found in the sample that is not an outlier. A typical winsorising strategy is to set outliers to a specific percentile of data. In this method, the outliers are replaced, but the sample size remains the same, and the power is unaffected (Lusk, Halperin, & Heilig, 2011).

In this study, the outliers are detected by boxplot graphs and Casewise Diagnostics in SPSS are presented in Chapter 5 along with the statistical results.

4.9.1.4.3 Statistical analysis

SPSS software is used mainly to conduct ANOVA and simple linear regression for testing the hypotheses. To understand the effect of two categorical predictor variables, hypothesis framing and prior expectation, each with two levels, on evidence selection, a factorial ANOVA (2X2 design) was run. The factorial between groups ANOVA is used to test hypotheses about means when there are two or more independent variables. The results along with assumptions are discussed in Chapter 5. Trotman (1996, pp. 18-19), identified some important advantages of factorial designs:

a) The interaction effects of independent variables on dependent variables can be examined. It is advantageous when competing for alternative explanations for the observations are available.

b) Such designs are useful to control confounding variables that can be held constant within a cell so that their influence can be evaluated.

c) A factorial design can increase the external validity of a study that demonstrates similar effects across a number of subject characteristics.

d) Designs of this kind are more economical regarding subjects required, than conducting two separate experiments which is an important consideration in auditing where professional auditor subjects' time is scarce.

To understand the effect of professional trait scepticism on evidence selection, a simple linear regression was run. Evidence selection behaviour is the dependent variable based while the professional trait scepticism is the independent variable. Two multiple regressions were run to understand the effect of the six constructs of professional trait scepticism on evidence selection behaviour among auditors and students. The results and assumptions are discussed in Chapter 5. In the further analysis, a hierarchical multiple regression was run to understand the effect of trait scepticism after controlling for the four conditions on evidence selection.

4.10 Summary

A quantitative approach is employed using questionnaire survey to collect data from external auditors and accounting students. This chapter discusses the research method used in this study, variables used, data collection survey instrument and statistical tests to be run. This chapter also discusses the method used to validate the proposed relationships among the constructs in the Hurtt (2010) scale. Chapter 5 presents the results and findings of the data analysis.

Chapter 5: Results and Discussion

5.1 Introduction

This chapter presents and discusses the results based on the survey questionnaires. Section 5.2 outlines the profile of respondents by using descriptive statistics techniques. The following sections 5.3 and 5.4 present the preliminary analysis of outliers, normality and other assumptions required to run factorial ANOVA, results and discussion to understand the effect of hypothesis framing and prior expectation on evidence selection for external auditor and student subjects respectively. Sections 5.5 and 5.6 present the preliminary analysis of outliers, normality, linearity and other assumptions required to run a simple linear regression, results and discussion to understand the effect of professional trait scepticism on evidence selection for external auditors and students respectively. Multiple regression results comprising of six components are also presented. Further, in section 5.7 results of the hierarchical multiple regression are presented to understand the effect of professional trait scepticism after controlling for the conditions formed by the combination of hypothesis framing and prior expectation. Section 5.8 presents the results of the ANCOVA on the effect of professional trait scepticism as a covariate on hypothesis framing and prior expectation. This chapter ends with a summary of the results from hypotheses testing.

5.2 Profile of respondents

Using descriptive statistics in SPSS, the profile of participants regarding gender, educational qualifications including membership in professional accounting bodies, position in the firm and audit experience for external auditors are summarised in Tables 5.1, 5.2, 5.3 and 5.4. For student participants, the distribution of gender and courses were undertaken are summarised in the following Tables 5.5 and 5.6.

Table 5.1: Distribution of gender- auditors

Gender	Frequency	Percent (%)
Male	26	65
Female	14	35
Total	40	100

From the above table it can be observed that out of 40 auditor subjects, male and female subjects constitute 65% and 35% of the total sample, respectively.

It can be noted from the below two tables that among auditor subjects, 43% have an undergraduate degree while 57% hold a postgraduate degree. In addition to that, 60% of the subjects are members of a professional accounting body and the remaining 40% is not affiliated to any professional accounting body.

Table 5.2: Distribution of educational qualification - auditors

Education Qualification	Frequency	Percent (%)
Undergraduate	17	43
Postgraduate	23	57
Total	40	100

Table 5.3: Distribution of professional membership - auditors

Member of Professional Accounting Body	Frequency	Percent (%)
Yes	24	60
No	16	40
Total	40	100

The following table shows the breakdown of the positions held by auditor subjects. Partner, senior manager, manager, senior and junior staff constitute 20%, 23%, 17%, 25% and 15% auditors, respectively.

Table 5.4: Distribution of position in organisation

Position	Frequency	Percent (%)
Partner	8	20
Senior Manager/Director	9	23
Manager/Asst. Manager	7	17
Senior Staff	10	25
Junior Staff	6	15
Total	40	100

The following table shows that 27% of the total auditor subjects had 11 years or more of external auditing experience while a majority of the subjects (i.e. 53%) had 5 to 10 years of experience and the remaining 20% had less than five years of auditing experience.

Table 5.5: Distribution of years of experience in auditing

Years of experience	Frequency	Percent (%)
1-4 years	8	20
5-10 years	21	53
11-15 years	6	15
15+ years	5	12
Total	40	100

The student subjects constitute 41% male and 59% female participants.

Table 5.6: Distribution of gender-students

Gender	Frequency	Percent (%)
Male	18	41
Female	26	59
Total	44	100

The following table shows that student subjects studying undergraduate and postgraduate accounting courses are evenly distributed (i.e. 50%).

Table 5.7: Distribution of courses undertaken-students

Courses	Frequency	Percent (%)
Undergraduate	22	50
Postgraduate	22	50
Total	44	100

5.3 Preliminary data analysis for auditor subjects (H1a and H1b)

5.3.1 Outliers

An inspection of the boxplots in Figure 5.1 and Figure 5.2 show no univariate outliers in the data under weak and strong financial ratios (i.e. conditions for prior expectation) as well as failure and viable hypothesis frame (i.e. conditions for hypothesis framing) respectively.
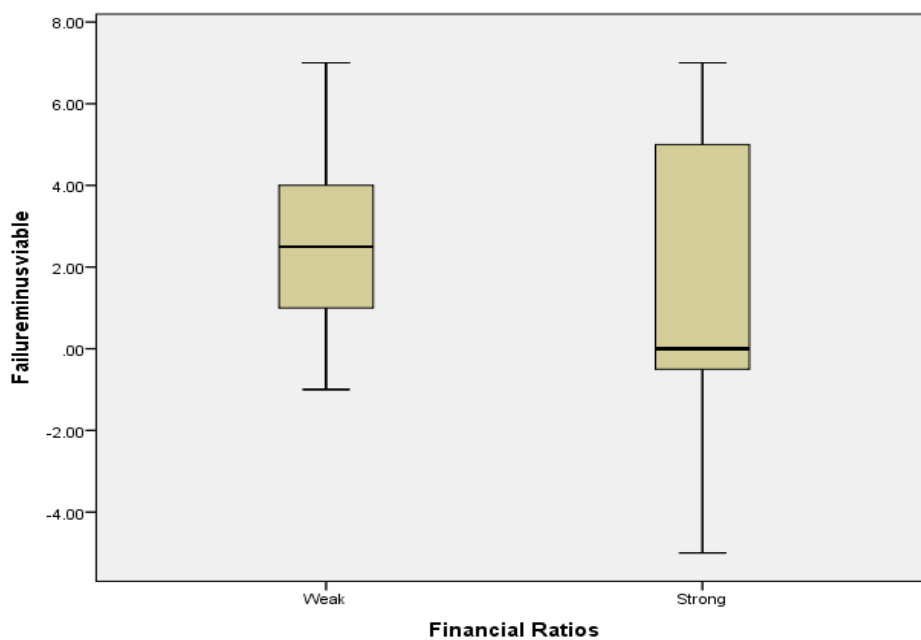
Figure 5.1: Outliers under conditions for weak and strong financial ratios - auditors
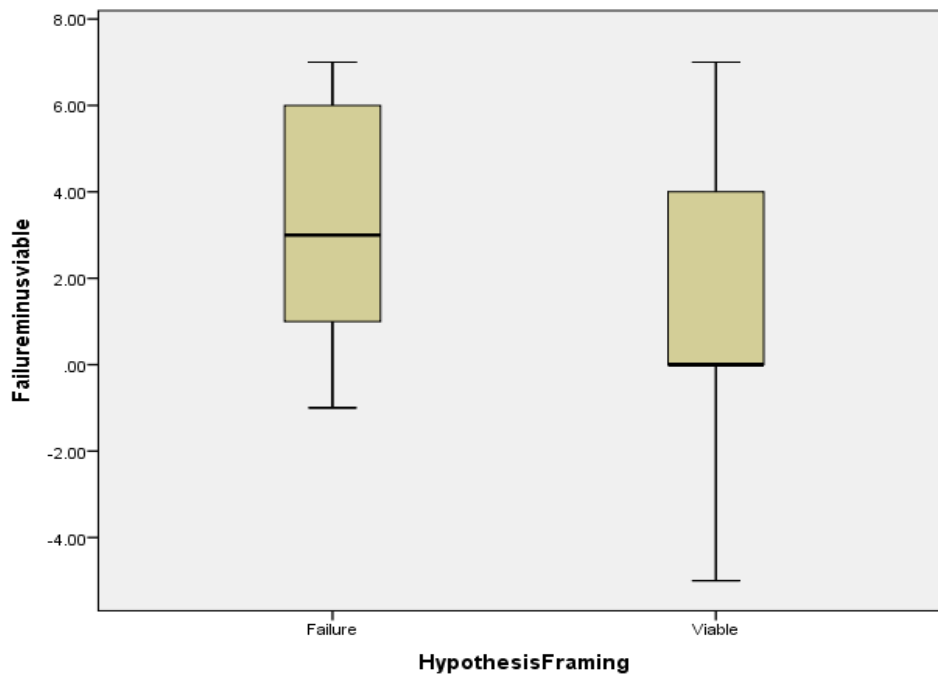
Figure 5.2: Outliers under conditions for failure and viable hypothesis frame - auditors

5.3.2 Normality

Table 5.8 and Table 5.9 summarise the normality test results for the dependent variable; failure minus viable cues for each group of the independent variable. The dependent variable was normally distributed under weak financial ratios, as assessed by Shapiro-Wilk's test ($p > 0.5$) but under strong financial ratios, it was marginally deviated ($p=.046$). The researcher did not attempt to transform the data for this present study as ANOVA is considered quite "robust" against moderate violations of normality assumptions.

Table 5.8: Normality results under weak and strong financial ratios - auditors

Tests of Normality

	Financial Ratios	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Failureminusviable	Weak	.150	20	.200[*]	.954	20	.439
	Strong	.234	20	.005	.902	20	.046

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Moreover, the dependent variable score was normally distributed in the failure and viable hypothesis frame respectively, as assessed by Shapiro-Wilk's test ($p>0.5$).

Table 5.9: Normality results under failure and viable hypothesis frame - auditors

Tests of Normality

	HypothesisFraming	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Failureminusviable	Failure	.183	15	.191	.909	15	.133
	Viable	.168	25	.068	.943	25	.177

a. Lilliefors Significance Correction

5.3.3 Independence of observation

The independence of observation means each participant should participate only once in the study, and should not influence the participation of others. In this study, participants filled up the questionnaire once and there was no chance to influence other participants.

5.3.4 Homogeneity of variances

The assumption of homogeneity of variances states that the population variance for each group of the independent variable is the same. There was homogeneity of variances, as assessed by Levene's Test of Homogeneity of Variance (p>0.5) in Table 5.10.

Table 5.10: Result of Levene's test of equality of error variances - auditors

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Failureminusviable

F	df1	df2	Sig.
1.442	3	36	.247

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + HypothesisFraming + PriorExpectation + HypothesisFraming * PriorExpectation

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5.3.5 Results and Discussion

A factorial between-group analysis of variance (ANOVA) was used to investigate the effects of hypothesis frame and prior expectation on auditors' evidence selection.

The mean and standard deviation for failure minus viable (F-V) evidence for each condition is summarised in Table 5.11.

Table 5.11: Summary of mean and standard deviation for evidence selected - auditors

Hypothesis Framing	Prior Expectation	Mean (S.D.) F-V	Mean (S.D.) Failure	Mean (S.D.) Viable
Viable	Strong	-.27 (2.99)	8.73 (2.52)	9.00 (3.07)
Viable	Weak	3.50 (2.27)	8.10 (2.18)	4.60 (2.41)
Failure	Strong	6.00 (.71)	8.80 (1.48)	2.80 (1.79)
Failure	Weak	1.7 (2.21)	7.60 (1.90)	5.90 (2.23)

From the results summarised in Table 5.11, it can be seen that when strong ratios form the prior expectation, the comparative number of selected failure to viable evidence will be less under the viable hypothesis (M= -0.27, SD=2.99) than the failure hypothesis (M= 6.00 SD=0.71) in a going concern task, which implies, disconfirmatory strategy adopted by the auditors for those two conditions. That is to say, under condition "strong ratios failure hypothesis" auditor subjects selected more failure evidence than viable evidence instead of selecting more viable evidence than failure evidence. It is an indication that hypothesis framing did have a significant effect on evidence selection.

Furthermore, from the above-mentioned results, it can be observed that when weak ratios form the prior expectation, the comparative number of selected failure to viable evidence is M=3.50, SD=2.27 under the viable hypothesis whereas the comparative number of selected failure to viable evidence is M=1.7, SD=2.38 under failure hypothesis in a going concern task. It is expected that the auditor subjects will select more failure evidence than viable evidence when weak ratios form the prior expectation that implies confirmatory strategy adopted by the auditors for those two conditions, which apparently indicates hypothesis framing did not impact auditors' evidence selection. However, the mean value of F-V should have been greater under "weak ratios failure

hypothesis" than "weak ratios viable hypothesis" but the result showed the opposite. The mean value of F-V was greater under viable hypothesis than failure hypothesis. It seems the when auditor subjects faced with the condition "weak ratios viable hypothesis" they became overtly sceptical about the company's inability to continue as a going concern and chose more failure than viable evidence. It is also an indication that hypothesis framing has marginal influence on the selection strategy under weak ratios.

The ANOVA revealed a statistically significant main effect for hypothesis framing, $F(1,36)=7.08$, $p=.012$, $\eta^2=.164$. However, there was no significant main effect for prior expectation. (See Table 5.11). Both Kida (1984) and Trotman and Sng (1989) found that initial framing of hypothesis did have an impact on the types of evidence selected by the auditors. Moreover, Trotman and Sng (1989) also did not find a significant main effect for prior expectation.

Table 5.12: Summary of ANOVA results: F-V - auditors

	df	SS	F	p	η^2
Hypothesis Framing (HF)	1	42.75	7.08	.012*	.164
Prior Expectation (PE)	1	.610	.101	.753	.003
HF * PE	1	139.44	23.08	.000**	.391
Error	36	217.53			

*p<.05 **p<.01

A statistically significant interaction was found, indicating that the effects of hypothesis framing on evidence selection depend on financial ratios (i.e. prior expectation), $F(1,36)=23.08$, $p<.001$, $\eta^2=.391$. The interaction effect is depicted in Figure 5.3. Simple effects analyses were used to examine further the interaction between hypothesis framing and prior expectation. These analyses indicate that hypothesis framing has a statistically significant (positive) effect on evidence selection when the financial ratios are strong, $F(1,36)=3.46$, $p<.01$. Furthermore from the result it can be argued that hypothesis framing also marginally influenced evidence selection when financial ratios are weak, $F(1,36)=2.68$, $p=.09$. It is to be noted that this result differs from the result of previous study by Trotman and Sng (1989). However, it is difficult to interpret the exact cause of the result. This behaviour can be associated with theory of dual processing of information in psychology. Dual processing theory suggests, that individuals' behaviour is governed by implicit, unconscious process and an explicit, conscious process. Generally, the

explicit process is more dominant than implicit process. In this case the impact of financial can be considered as explicit process and framing of hypothesis can be considered as implicit process. Financial ratios should have a more dominant influence than hypothesis framing. However, under "weak ratios and viable hypothesis" condition it seems that the hypothesis framing effect, resulted in more dominant implicit evidence processing than financial ratios.
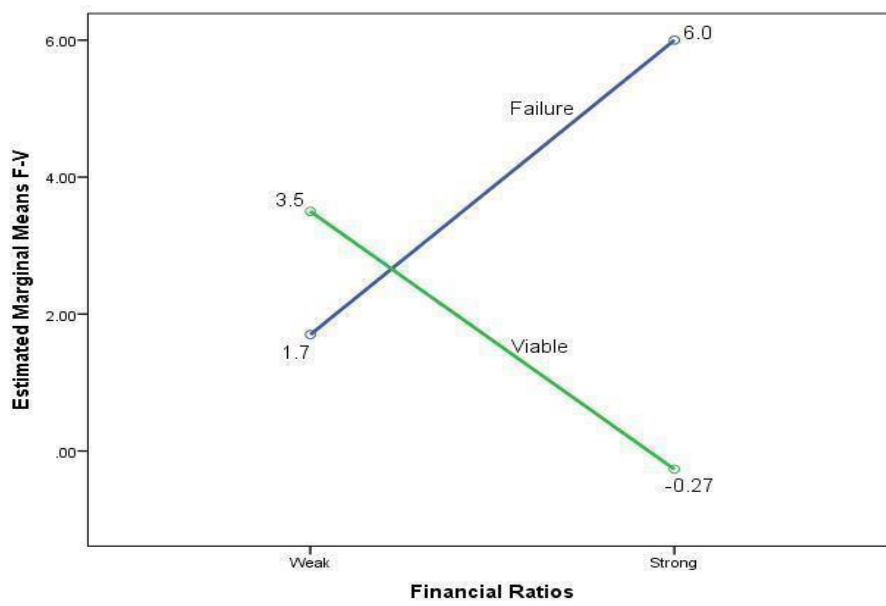
Figure 5.3: The interaction effect of hypothesis framing and prior expectation - auditors

The result supports the hypothesis H1a and weak support for hypothesis H1b is observed. H1a states that when strong ratios form the prior expectation, hypothesis framing will have an effect on the selection of failure to viable evidence in a going concern assessment task and H1b states that when weak ratios form the prior expectation, hypothesis framing will not have an effect on the selection of evidence.

This result is consistent with Trotman and Sng (1984) except for one condition where subjects provided with "viable hypothesis and strong ratios" listed more viable evidence than subjects in other three groups, where at least one failure signal is received (i.e. failure hypothesis or weak ratios). However, the extent of this bias is affected by different combinations of the hypothesis framing and prior expectation. Those subjects with "viable hypothesis and strong ratios" not only exhibited a reduced tendency to select more failure than viable but also selected more viable than failure evidence (i.e. the mean of failure minus viable evidence is negative). It is, therefore, suggested that in this particular situation, there is some support for confirmatory bias as it is dominated by the consistent selection of more viable cues.

For the other three conditions, those subjects given some indication of failure, chose more failure than viable evidence. Kida (1984) also found that the main bias of subjects is to select more failure than viable evidence which can be termed as disconfirmatory behaviour which is predominant in auditing. It can also be discussed in the light of how experts make decisions in the real world. Bouwman (1984), highlighted the decision-making process employed by experts' (i.e. external auditors). According to him, experts employ a directed search and develop a "feeling for the company" that leads to a persistent emphasis on potential contradictions to identify the underlying problem. Further, from a different perspective, Kahneman (2011), argued that a number of considerable decisions are made on intuition under uncertainty when the rational human mind fails to establish a logical argument. The intuition prompts a "sixth sense of danger" and in those situations, individuals make decisions based on "gut feeling." It can be observed from the result under "failure hypothesis and strong ratios" that the auditors chose more failure evidence than viable evidence when apparently there is almost zero risk of non- failure of the business. The reason for this may be that evidence selection procedure that is clearly biased in favour of a preferred alternative may not be effective because potential risks and warning signals may be overlooked and, thus, decision ignominies can occur (Janis, 1982). Furthermore, if the decision maker fails to consider disconfirming pieces of information, it is difficult for him or her to reverse the faulty decision to avoid loss escalations (Brockner & Rubin, 2012). However, from the results, it can also be inferred that when there is no warning or negative signals, auditors tend to exhibit confirmatory behaviour. This implies when the auditors are relatively sure that if a business

entity did not show any signs of distress or going concern problem (i.e. condition of "viable hypothesis and strong ratios") the fear of loss function is considerably reduced.

5.4 Preliminary data analysis for student subjects (H2)

Before performing the factorial ANOVA analysis, an independent samples t-test was conducted to compare the number of failure to viable evidence selected by undergraduate students (n=22) to postgraduate students (n=22) to examine whether there is the difference in selection of evidence among both groups. The t- test was not statistically significant, with the undergraduate group (M=.23, SD=1.77) and the postgraduate group (M=.73, SD=2.16), t(42)= -.839, p=.406, two-tailed.

Moreover, for each treatment condition, independent sample t-tests were run to examine whether there is any difference between undergraduate and postgraduate selection pattern of failure to viable evidence. For the condition, "failure hypothesis and weak ratios", the t-test was not statistically significant, with the undergraduate group (M=.40, SD=1.52) and the postgraduate group (M=1.83, SD=1.60), t(9)= -1.51, p=.165, two tailed. For the condition, "failure hypothesis and strong ratios", the t-test was not statistically significant, with the undergraduate group (M= -1.00, SD=1.79) and the postgraduate group (M=.17, SD=1.17), t(10)= -1.34, p=.211, two tailed. For the condition, "viable hypothesis and weak ratios", the t- test was not statistically significant, with the undergraduate group (M= .60, SD=.89) and the postgraduate group (M=1.29, SD=2.63), t(10)= -.640, p=.540, two tailed. Finally, for the condition, "viable hypothesis and strong ratios", the t-test was not statistically significant, with the undergraduate group (M=1.00, SD=2.19) and the postgraduate group (M=-1.67, SD=2.08), t(7)= 1.75, p=.124, two tailed. Hence, as there is no difference in selection pattern, data for both groups are combined for hypothesis testing.

5.4.1 Outliers

An inspection of the boxplots in Figure 5.4 and Figure 5.5 show no univariate outliers in the data under weak and strong financial ratios (i.e. conditions for prior expectation) as well as failure and viable hypothesis frame (i.e. conditions for hypothesis framing) respectively.
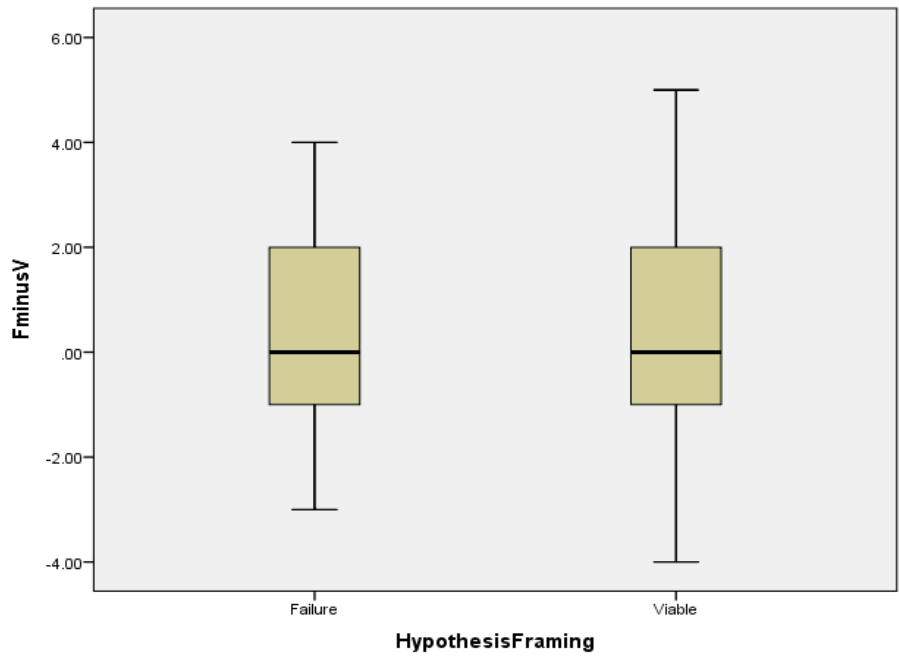
Figure 5.4: Outliers under conditions for weak and strong financial ratios - students
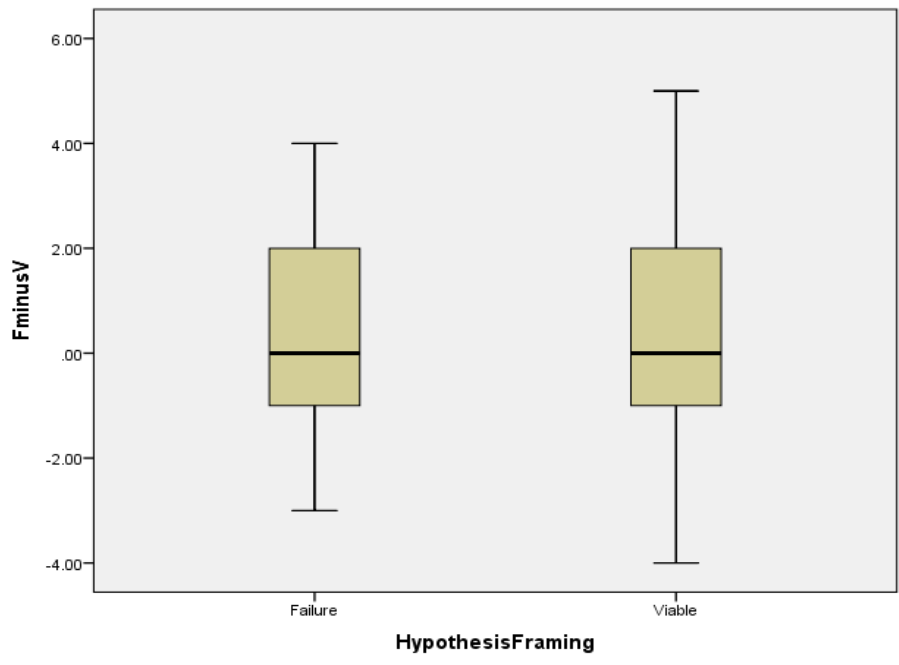
Figure 5.5: Outliers under conditions for failure and viable hypothesis frame – students

5.4.2 Normality

Table 5.13 and Table 5.15 summarises the normality test results of the dependent variable; failure minus viable score for each group of the independent variable. The dependent variable was normally distributed under strong financial ratios, as assessed by Shapiro-Wilk's test (p> 0.5) but under weak financial ratios, it was considerably deviated (p=.007). The researcher transformed the data using Log10 but the result reversed. After transformation, the dependent variable under weak ratios became normal but under strong ratios it did not become normal as shown in Table 5.14. Hence, the researcher did not adopt the transformed data for this present study.

Table 5.13 Normality results under weak and strong financial ratios – students

Tests of Normality

	Financial Ratios	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
FminusV	Weak	.245	23	.001	.873	23	.007
	Strong	.148	21	.200[*]	.967	21	.657

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Table 5.14: Normality results after Log 10 transformation - students

Tests of Normality

	Financial Ratios	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Log_FminusV	Weak	.236	11	.086	.887	11	.127
	Strong	.300	8	.033	.798	8	.027

a. Lilliefors Significance Correction

The failure minus viable score was normally distributed under both viable as well as failure hypothesis framing, as assessed by Shapiro-Wilk's test (p> 0.5).

90

Table 5.15: Normality results under failure and viable hypothesis frame - students

Tests of Normality

	HypothesisFraming	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
FminusV	Failure	.143	23	.200[*]	.951	23	.305
	Viable	.182	21	.067	.935	21	.172

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

5.4.3 Independence of observation

In this study, the student participants filled up the questionnaire once and there was no chance to influence other participants.

5.4.4 Homogeneity of variances

There was homogeneity of variances, as assessed by Levene's Test of Homogeneity of Variance (p>0.5) in Table 5.16.

Table 5.16: Result of Levene's test of equality of error variances - students

Levene's Test of Equality of Error Variances[a]

Dependent Variable: FminusV

F	df1	df2	Sig.
.644	3	40	.591

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + HypothesisFraming + PriorExpectation + HypothesisFraming * PriorExpectation

5.4.5 Results and Discussion

A factorial between-group analysis of variance (ANOVA) was used to investigate the effects of hypothesis frame and prior expectation on students' evidence selection.

The mean and standard deviation for failure minus viable (F-V) evidence for each condition is summarised in Table 5.17.

Table 5.17: Summary of mean and standard deviation for evidence selected - students

Hypothesis Framing	Prior Expectation	Mean (S.D.) F-V	Mean (S.D.) Failure	Mean (S.D.) Viable
Viable	Strong	.11 (2.42)	9.00 (2.00)	8.89 (2.93)
Viable	Weak	1.00 (2.04)	9.42 (1.24)	8.42 (2.43)
Failure	Strong	-.42 (1.56)	9.00 (2.17)	9.42 (1.08)
Failure	Weak	1.18 (1.66)	9.55 (1.69)	8.36 (2.73)

From the results depicted above in Table 5.15, it is observed that the comparative number of failure to viable evidence selected under "viable hypothesis and strong ratios" (M= .11, SD=2.42) is marginally less than "failure hypothesis and strong ratios" (M= -.42, SD=1.56) in evidence selection, which implies hypothesis framing did not have a significant effect on evidence selection. When subjects were presented with weak ratios, the comparative number of failure to viable evidence is almost same, (M=1.00, SD=2.04) under "viable hypothesis and weak ratios" whereas (M=1.18, SD=1.66) which confirms that hypothesis framing did not have a significant effect on evidence selection. Therefore, from the results it can be concluded that the subjects, when provided with strong ratios, were inclined to choose more viable evidence (although marginally less in "viable hypothesis and strong ratios") than failure evidence and when provided with weak ratios, the subject tended to select more failure evidence than viable evidence. This selection strategy signifies confirmatory behaviour to prior expectation (i.e. financial ratios).
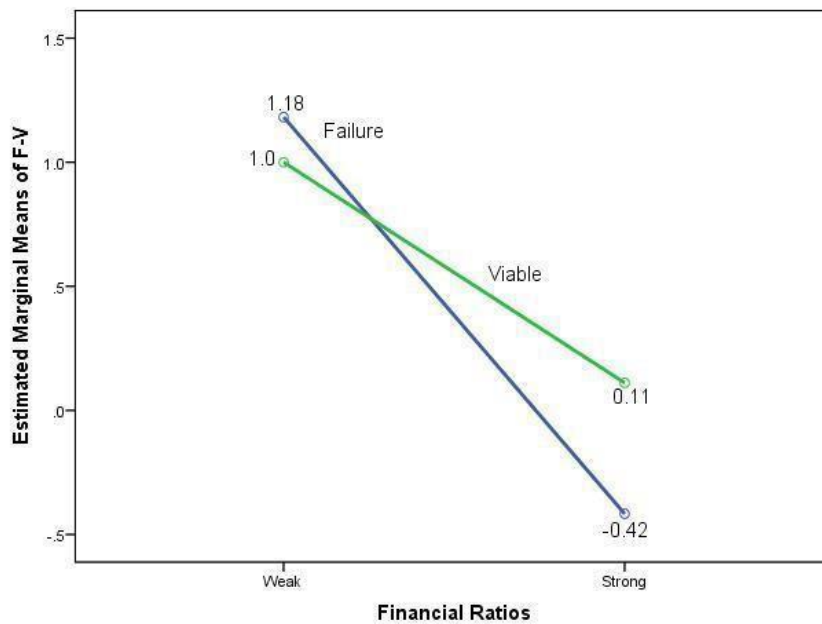
Figure 5.6: The interaction effect of hypothesis framing and prior expectation - students

The ANOVA revealed a statistically significant main effect of prior expectation, $F(1,40)= 4.55$, $p=.039$, $\eta^2 =.102$ (See Table 5.16). The main effect of hypothesis framing, as well as interaction effect, were not statistically significant (See Figure 5.6).

Table 5.18: Summary of ANOVA results: F-V - students

	df	SS	F	p	η^2
Hypothesis Framing (HF)	1	.325	.088	.768	.002
Prior Expectation (PE)	1	16.78	4.55	.039*	.102
HF * PE	1	1.37	.371	.546	.009
Error	40	147.44			

*p<.05

The result supports the second hypothesis (H2) which states that when either strong or weak ratios form the prior expectation, hypothesis framing will not have an effect on selection of number of failure to viable evidence in a going concern assessment task.

Numerous research findings in psychology (Snyder & Campbell, 1980; Snyder & Cantor, 1979; Snyder & Swann, 1978; Snyder & White, 1981), involving student subjects have reported that individuals engage pervasively in confirmatory strategies when selecting information. The current findings support the previous psychological findings but in audit judgement research involving professional auditors, weaker support for confirmatory bias is observed. The difference in selection strategy between auditors and students may be because the student subjects concentrated more on the prior expectation as they are familiar with the concept of financial ratios as it is taught in their course curriculum rather than the concept of hypothesis framing. Although the concept of the loss function is covered in the auditing curriculum, due to lack of experience the subjects may not be sensitised enough to be aware of potential legal costs associated with not identifying failed firms.

Bouwman (1984), highlighted the characteristics of how novices makes a decision. He mentioned that novices employ an undirected search, that is, if the observations or information do not explain each other, the novices fail to link those information (i.e. evidence). As a result, potential contradictions are ignored. Moreover, novices follow passive and sequential search strategy (Bouwman, 1984). It may be argued that if sequential search strategy is followed by the student subjects, the recency effect may have occurred as the financial ratios were provided to them after the hypothesised conditions. Therefore, the students predominantly focused on financial ratios. Furthermore, selection of evidence strategy is an adaptive process (Klayman & Ha, 1987, 1989). Klayman and Ha (1987, 1989) argued that confirmatory strategy can be considered as a general positive test strategy unless information identifying other strategies as preferable is present. Unless prompted with contradictory information in the audit setting, it is highly likely that students will consider confirmatory strategy as preferable.

5.5 Preliminary data analysis for auditor subjects using linear regression (H3a)

One of the behaviours of a sceptical individual is that he or she will continue to search for information until he/she has obtained sufficient amount of information to form a judgement (Chattopadhyaya, 1991). Hurtt (2010) identified increased or expanded evidence search (i.e. selection) as one of the behaviours expected from a sceptic. Thus, auditors and students with higher levels of professional trait scepticism are expected to exhibit more extensive evidence selection than by less sceptical auditors and students. As a result, to estimate the proportion of variance in evidence selection that can be accounted for by professional trait scepticism, a linear regression analysis was performed to test hypotheses 3a and 3b. As was noted in Chapter 4 the original Hurtt (2010) scale comprised of 30 items. After evaluating the

results of the validation of the 30 item Hurtt scale, the scale was reduced to 16 item scale. The total score for the 16 item scale is 96 as opposed to 180 in Hurtt (2010) scale. It is noted the ranges of scepticism measured by16 the item Hurtt scale are 39-91 (M= 72.45, SD= 10.25) and 48-94 (M=74.73, SD=9.78) for auditors and students, respectively. An independent sample t test was conducted to examine whether any difference exists between overall levels of trait scepticism among auditors and students. The result showed there is no significant difference in overall level between the two groups, t(82)= -1.042, p= .301, two-tailed. Consistent with the theory the level of trait scepticism between auditors and students did not differ in overall levels as trait scepticism is a relatively stable personal characteristic (Nelson, 2009; Hurtt, 2010; Peytcheva, 2014).

5.5.1 Outliers

There was no table produced by the SPSS, Casewise Diagnostics to identify univariate outlier which signifies that all the standardised residuals are less than ±3. Hence, no outlier was present.

5.5.2 Linearity, Normality and Homoscedasticity of Residuals

The differences between the observed and predicted values on the criterion variable (referred to as "residuals") should be normally distributed and also their relationship with the predicted values on the criterion should be linear. Furthermore, the variance in the residuals is homogeneous across the full range of predicted values. By the inspection of the normal probability plot of standardised residuals in Figure 5.7, the histogram in Figure 5.8 as well as the scatterplot of standardised residuals against standardised predicted values in Figure 5.9, it can be said that the assumptions of normality, linearity, and homoscedasticity of residuals were met. Further, the scatter plot in Figure 5.10 showing independent variable professional "trait" scepticism score on the X-axis and the dependent variable total number of evidence selected on the Y-axis, clearly shows a linear relationship.
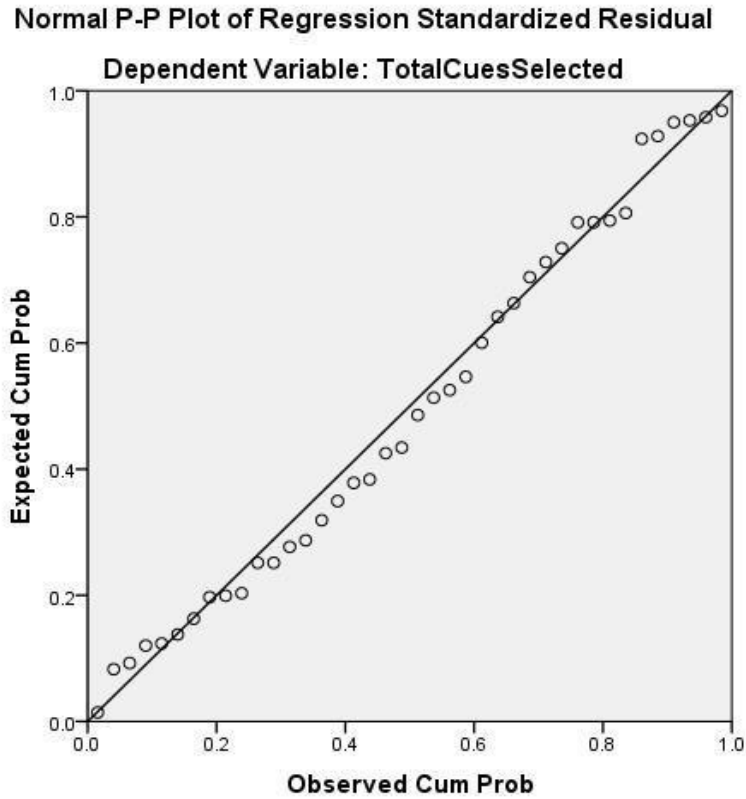
Figure 5.7: Normal probability plot of standardised residuals - auditors
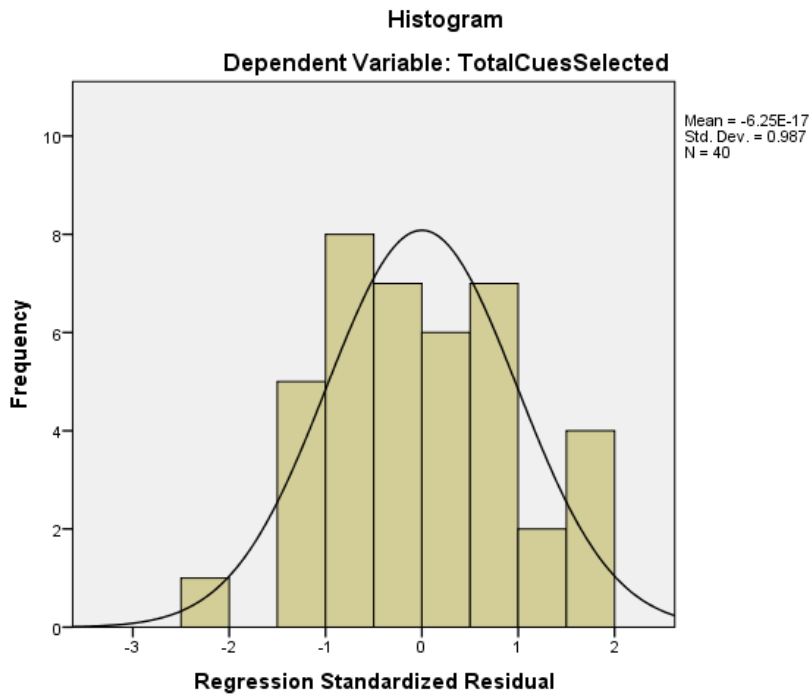
Figure 5.8: Normality of residuals - auditors
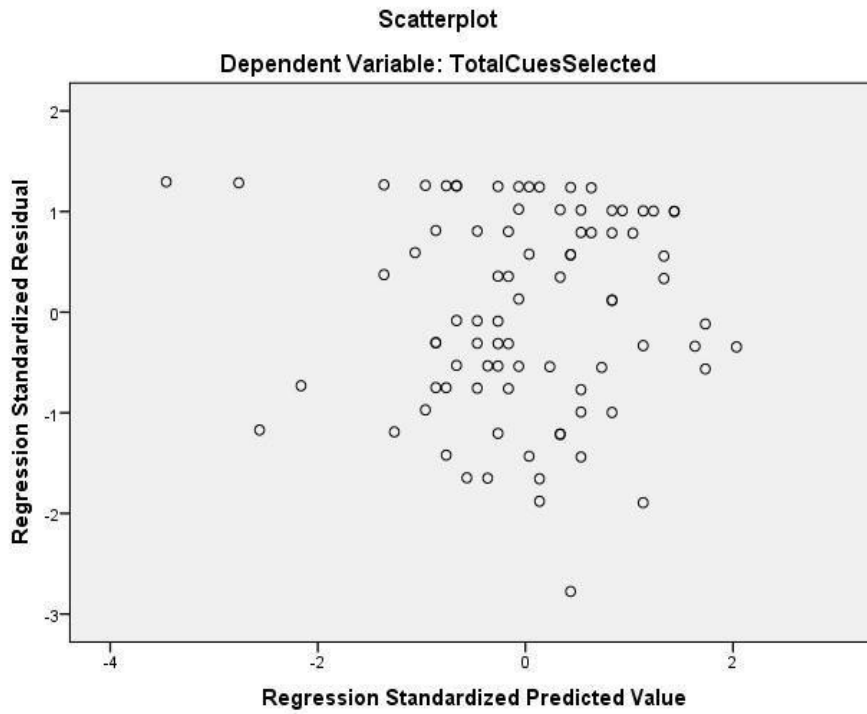
Figure 5.9: Scatterplot of standardised residuals against standardised predicted values - auditors
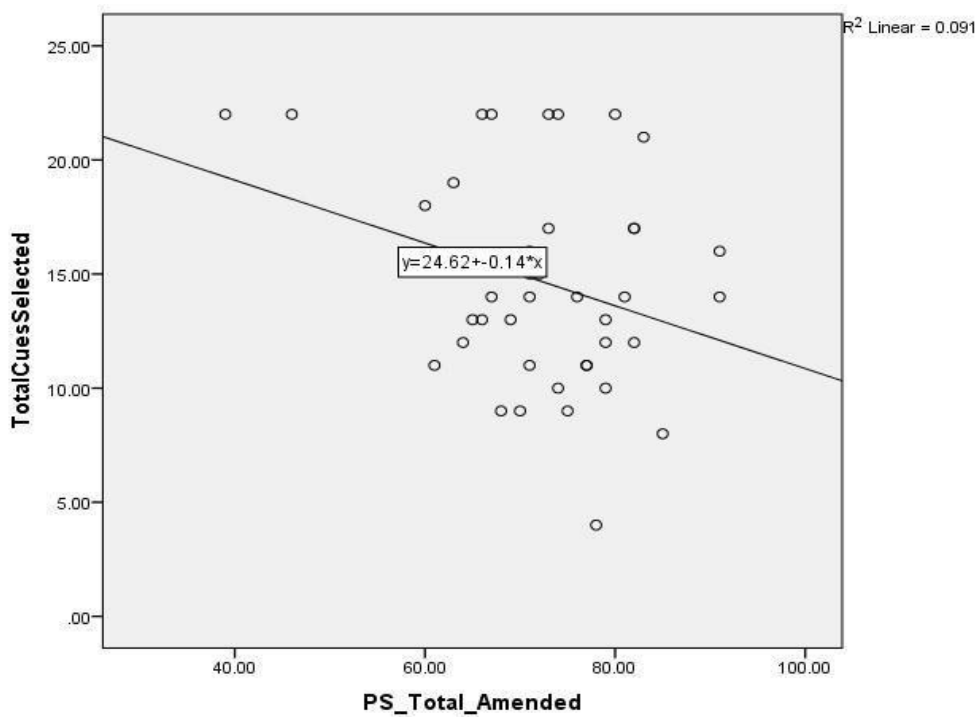
Figure 5.10: Scatterplot of professional trait scepticism and total cues selected - auditors

5.5.3 Results and Discussion

The result showed that trait scepticism is marginally significant, $F_{(1,38)}=3.801$ $p=.059$. However, it accounted for only 9.1% of the variability in evidence selection, $R^2=.091$, adjusted $R^2=.067$. The result provided weak support for the third hypothesis (3a) which states: irrespective of situations, the professional trait scepticism will have no influence on auditors' selection of failure and viable evidence in a going concern assessment task.

Furthermore, the researcher divided the auditor subjects into two groups: high sceptic and low sceptic based on the mean trait scepticism level (i.e. 72.45). Subjects who scored more than the mean value are considered as high sceptics and the subjects who scored less than the mean value as low sceptics. An independent sample t test was run between high sceptic group (n=21) and low sceptic (n=19) to understand whether there is any difference in selection of total number of evidence. The result showed that there is no significant difference, $t(38)= -.785$, $p=.43$, two tailed.

Nelson (2009) defined trait as the auditor's non-knowledge attribute that can influence sceptical behaviour and he viewed traits as individual characteristics that are stable by the time an auditor commences audit training and practice. The effect of professional trait scepticism on evidence selection is non-significant because auditors rely more on their practical knowledge and skills acquired from experience in selecting evidence. Experience allows auditors to develop domain knowledge and knowledge of patterns that enable them to determine whether evidence is relevant or not. As stated by Nelson (2009, 7), professional scepticism is facilitated if auditors' experiences have given them the knowledge of the frequencies of errors and non-errors and the pattern of evidence that suggest a heightened risk of misstatements. Research finding by Peytcheva (2014) also confirmed that the professional trait scepticism did not influence cognitive performance among auditors. According to her, auditors are expected to exhibit consistently sufficient level of professional scepticism and are constantly primed to be sceptical in their day-to-day work by auditing standards and training programmes. Experienced auditors may have already internalised a certain level of professional scepticism, which may diminish the effectiveness of additional primes to behave sceptically. Other situational factors such as accountability (Kim & Trotman, 2015) incentives, (Awasthi & Pratt, 1990) client risk characteristics (Quadackers et al., 2009), independence (Kim & Cheong, 2009) influences sceptical behaviour. It can be concluded that trait scepticism on its own cannot influence sceptical behaviour among auditors. Conditions that trigger "state" scepticism appear to play a greater role in auditor behaviour.

Additional analysis with six components of the Hurtt (2010) scale: Auditor subjects

As trait scepticism is comprised of six attributes, a standard multiple regression analysis was performed to understand the effect of each of the six components of professional trait scepticism on auditors' evidence selection. In combination, search for knowledge, suspension of judgement, self-determining, interpersonal understanding, self-confidence and questioning mind accounted for a non-significant 18.4% of the variability in evidence selection, R^2=.184, adjusted R^2= .035, $F(6,33)$=1.237, p=.313. Unstandardised (B) and standardised (β) regression coefficients, and squared semi-partial correlations (sr^2) for each predictor in the regression model are reported in Table 5.19.

Table 5.19: Unstandardised (B) and standardised (β) regression coefficients, and squared semi-partial correlations (sr^2) for each predictor in a regression model predicting evidence selection - auditors

Variable	B [95% of CI]	B	sr^2	P
Search for knowledge	.258[-.788, 1.304]	.159	.008	.620
Suspension of judgment	-.696[-1.876, .484]	-.288	.042	.239
Self-determining	-.075[-.486, .337]	-.068	.004	.714
Interpersonal understanding	-.114[-.643, .870]	.075	.003	.761
Self-confidence	-.529[-1.514, .456]	-.308	.035	.282
Questioning Mind	-.006[-1.153, 1.142]	-.002	.000	.992

Note. N=40. CI=confidence interval.

5.6 Preliminary data analysis for student subjects using linear regression (H3b)

Before performing the linear regression analysis, an independent samples t-test was conducted to compare the total (i.e. failure and viable) evidence selected by undergraduate (n=22) students to postgraduate students (n=22) to examine whether there is the difference in selection of evidence among both groups. The t- test was not statistically significant, with the undergraduate group (M=11.23, SD=3.42) and the postgraduate group (M=18.82, SD=3.67), t(42)= -1.487, p=.142, two-tailed.

Further, for each treatment condition, independent sample t-tests were run to examine whether there is any difference in the total cues selected between undergraduate and postgraduate students. For the condition, "failure hypothesis and weak ratios", the t-test was not statistically significant, between the undergraduate group (M=18.00, SD=3.54) and the postgraduate group (M=17.83, SD=5.08), $t(9)=.062$, $p=.952$, two tailed. For the condition, "failure hypothesis and strong ratios", the t-test was not statistically significant, between the undergraduate group (M=17.00, SD=3.10) and the postgraduate group (M=19.83, SD=2.48), $t(10)=-1.75$, $p=.111$, two tailed. For the condition, "viable hypothesis and weak ratios", the t-test was not statistically significant, between the undergraduate group (M=17.40, SD=2.41) and the postgraduate group (M=18.14, SD=3.93), $t(10)=-.372$, $p=.717$, two tailed. Finally for the condition, "viable hypothesis and strong ratios", the t-test was not statistically significant, between the undergraduate group (M=16.67, SD=4.89) and the postgraduate group (M=20.33, SD=2.08), $t(7)=-1.21$, $p=.265$, two tailed. Hence, as there is no difference in total cues selected, data for both groups are combined for hypothesis testing.

5.6.1 Outliers

Casewise Diagnostics is used to determine univariate outliers. If all the cases have standardised residuals less than ±3, the table will not be produced as part of the SPSS output. In this case, no table was produced which signified no outlier was present.

5.6.2 Linearity, Normality and Homoscedasticity of Residuals

An inspection of the normal probability plot of standardised residuals in Figure 5.11, a histogram of normality of residuals in Figure 5.12 as well as the scatterplot of standardised residuals against standardised predicted values in Figure 5.13, shows that the assumptions of normality, linearity and homoscedasticity of residuals were met. Further, by observing the scatter plot in Figure 5.14 showing independent variable professional trait scepticism score on the X-axis and the dependent variable total number of evidence selected on the Y-axis, it is clear a linear relationship exists between the two variables.
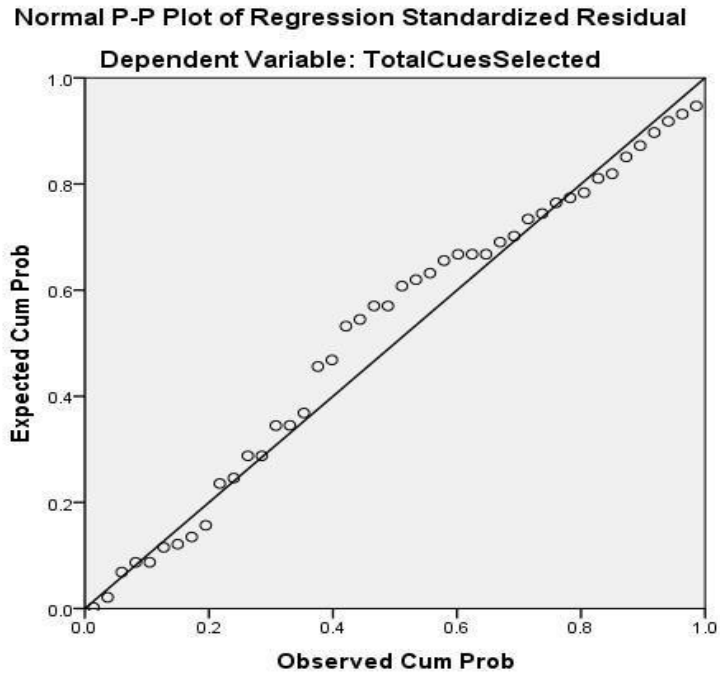
Figure 5.11: Normal probability plot of standardised residuals - students
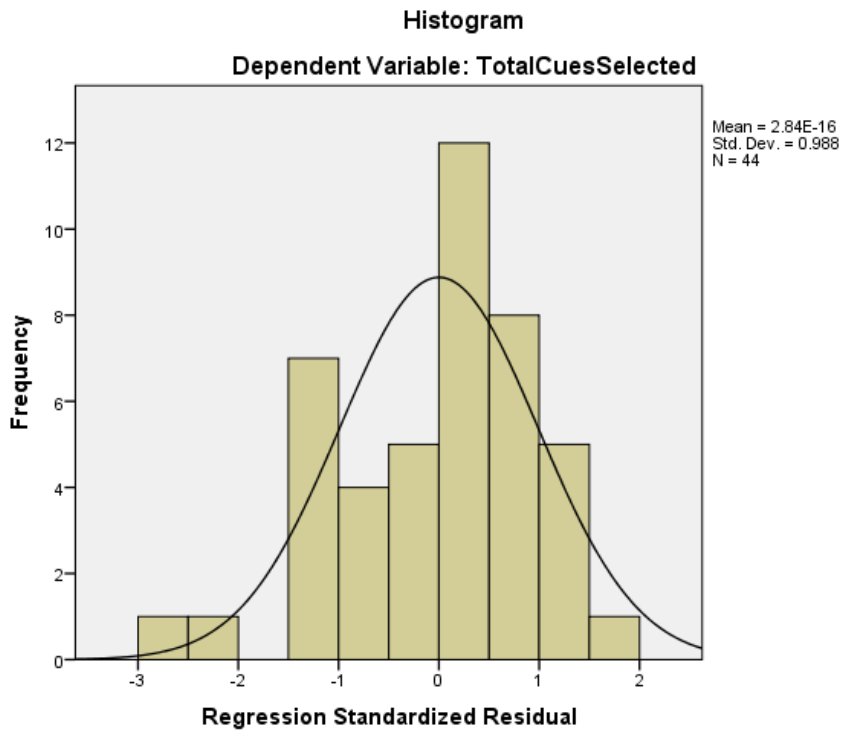
Figure 5.12: Normality of residuals - students
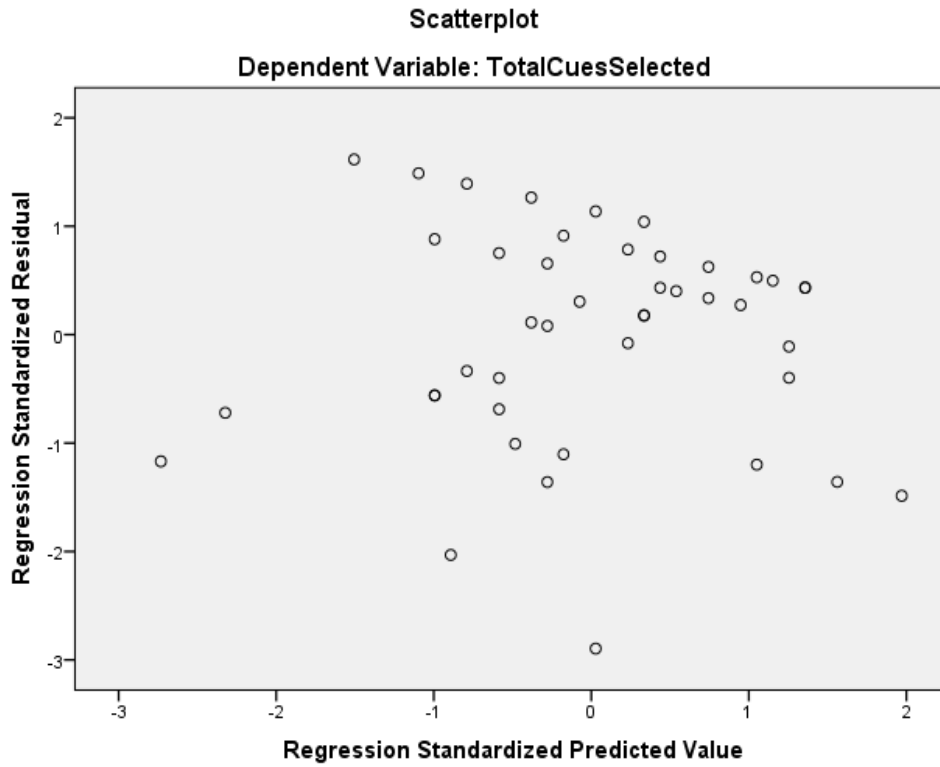
Figure 5.13: Scatterplot of standardised residuals against standardised predicted values - students
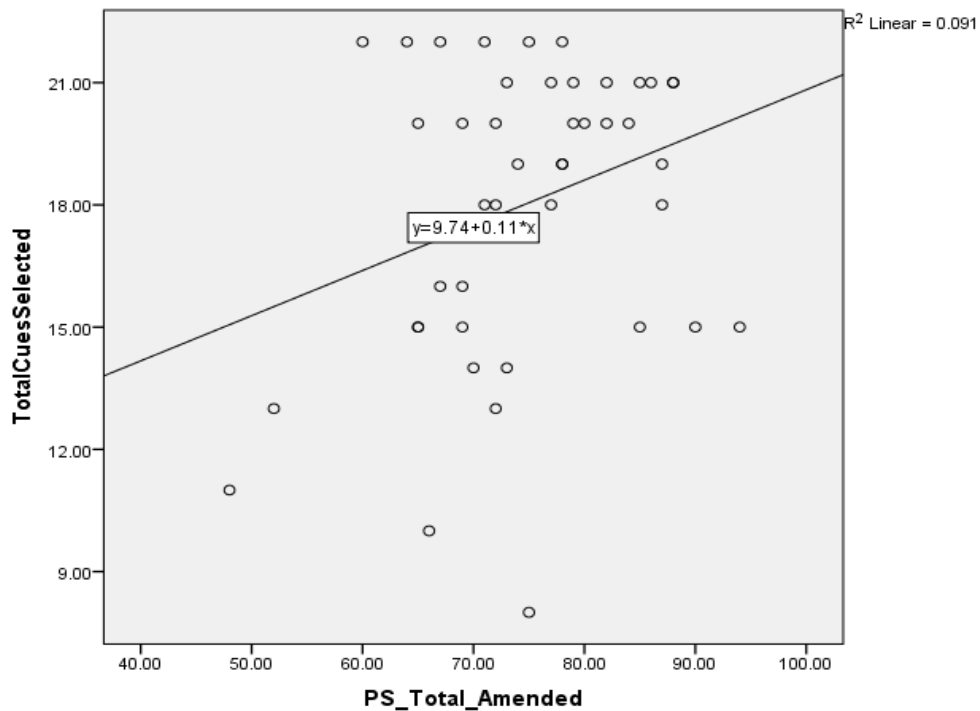
Figure 5.14: Scatterplot of professional trait scepticism and total cues selected - students

5.6.3 Results and Discussion (H3b)

The result showed that trait scepticism is significant $F(1,42)=4.196$, $p=.047$ and accounted for only 9.1% of the variability in evidence selection, $R^2=.091$, adjusted $R^2=.069$ similar to the auditor sample. The results provide weak support for the third hypothesis (H3b) which states; irrespective of situations, professional trait scepticism will have no influence on students' selection of failure and viable evidence in a going concern assessment task.

Similar to auditor subjects, the researcher divided the student subjects into two groups: high sceptic and low sceptic based on the mean trait scepticism level (i.e. 74.43). Subjects who scored more than the mean value are considered as high sceptics and the subjects who scored less than the mean value as low sceptics. An independent sample t test was run between high sceptic group (n=23) and low sceptic (n=21) to understand whether there is any difference in selection of total number of evidence. The result showed that there is no significant difference $t(42)=1.851$, $p=.071$, two tailed.

Student subjects were used to understand the effect of pure trait scepticism as they are unaffected by audit experience. The effect of trait scepticism on evidence selection among students is marginally significant; that means a more sceptical mindset may be associated with more evidence selection. This sceptical mindset may be triggered due to the fact the students are familiar with the concept of professional scepticism and its application in auditing tasks as the concept is taught in their auditing unit. It seems they were primed about the concept of professional scepticism and going concern assessment.

The result is consistent with the findings by Peytcheva (2014) who found that trait scepticism is a significant predictor of cognitive performance. Similarly, Popova (2012) found that when no specific client experience is present, initial expectation is driven by trait scepticism. Moreover, the result by Popova (2012) also showed that more sceptical participants are more sensitive to fraud evidence.

Additional analysis with six components of the Hurtt (2010) scale: Student subjects

As trait scepticism is comprised of six attributes, a standard multiple regression analysis was performed to understand the effect of each of the six components of professional trait scepticism on students' evidence selection. In combination, search for knowledge, suspension of judgement, self-determining, interpersonal understanding, self-confidence and questioning mind accounted for a non-significant 17.9% of the variability in evidence search, $R^2=.179$, adjusted $R^2= .045$, $F(6,37)=1.341$, $p=.264$.

Unstandardised (B) and standardised (β) regression coefficients, and squared semi-partial correlations (sr^2) for each predictor in the regression model are reported in Table 5.20.

Table 5.20: Unstandardised (B) and standardised (β) regression coefficients, and squared semi-partial correlations (sr^2) for each predictor in a regression model predicting evidence selection- students

Variable	B [95% of CI]	β	sr^2	p
Search for knowledge	.203 [-.395, .800]	.163	.013	.496
Suspension of judgment	.521[-1.406, .364]	-.242	.037	.240
Self-determining	-.058[-.448, .332]	-.047	.002	.765
Interpersonal understanding	.069[-.402, .539]	.057	.002	.770
Self-confidence	.281[-.221, .783]	-.209	.033	.265
Questioning Mind	.579[-.170, 1.327]	.292	.062	.126

Note. N=44. CI=confidence interval.

5.7 Additional Analysis: Hierarchical Multiple Regression

5.7.1 Auditors subjects

A hierarchical multiple regression was run, after controlling for the conditions formed by the combination of hypothesis framing and prior expectation (i.e. financial ratios). This improved the prediction of total evidence selected over and above trait scepticism alone. See Table 5.21 for full details on each regression model.

The first stage of hierarchical multiple regression is Model 1 which shows the effect of hypothesis framing and prior expectation taken together on total evidence selected; then Model 2 takes into account all three variables. The main predictor variable is trait scepticism and is incorporated at the second stage after hypothesis framing and prior expectation.

The full model of hypothesis framing, prior expectation and trait scepticism to predict total evidence selected (Model 2) was statistically significant, $R^2 = .220$, $F(3, 36) = 3.39$, p=.028; adjusted $R^2 = .025$ After controlling for hypothesis framing and prior expectation, the predictor variable trait scepticism led to a non-significant increase in $R^2 = .059$, $F(1,36)= 2.735$, p= .107 in the prediction of total evidence selected. The effect of controlled variables; hypothesis framing and prior expectation in predicting total evidence selected is also statistically significant $R^2= .161$, $F(2, 37) = 3.550$ p=.039.

The findings confirm the notion that situations or "states" influence sceptical behaviour to a greater extent than personality or trait among auditors. The result is also consistent with Robinson et al. (2013), which showed state scepticism has more influence than trait scepticism among auditors. It may be that knowledge and skills acquired through experience play a dominant role to act sceptically.

Table 5.21: Hierarchical multiple regression predicting total evidence selected after controlling hypothesis framing and prior expectation - auditors

	Total Evidence Selected			
	Model 1		Model 2	
Variable	B	B	B	B
Constant	12.014		20.449	
Hypothesis framing	2.171	0.228	2.24	0.235
Prior expectation	2.557	0.277	2.063	0.223
Total trait scepticism			-0.114	-0.249
R^2	0.161		0.22	
F	3.55*		3.39*	
ΔR^2	0.161		0.059	
ΔF	3.55		2.735	

Note. N=40. *p<.05

5.7.2 Student subjects

A hierarchical multiple regression was run, after controlling for the conditions formed by the combination of hypothesis framing and prior expectation (i.e. financial ratios). It improved the prediction of total evidence selected over and above total trait scepticism alone. See Table 5.22 for full details on each regression model.

The full model of hypothesis framing, prior expectation and trait scepticism to predict total evidence selected (Model 2) was not significant, $R^2 = .093$, $F(3,40) = 1.375$, p=.265; adjusted $R^2 = .025$. After controlling for hypothesis framing and prior expectation, the predictor variable trait scepticism led to marginally significant increase in $R^2 = .090$, $F(1,40) = 3.960$, p= .053 in the prediction of total evidence selected. The effect of controlled variables; hypothesis framing and prior expectation in predicting total evidence selected is not significant $R^2 = .004$, $F(2, 41) = .075$ p=.927.

The result for students did not show any effect of trait scepticism on evidence selection after controlling for the conditions. The result confirms the fact that situations do not influence behaviour mainly because of lack of real auditing experience.

Table 5.22: Hierarchical multiple regression predicting total evidence selected after controlling hypothesis framing and prior expectation - students

| | Total Evidence Selected | | | |
| | Model 1 | | Model 2 | |
Variable	B	B	B	B
Constant	18.021		9.873	
Hypothesis framing	-0.289	-0.041	-0.348	-0.049
Prior expectation	0.294	0.041	0.069	0.01
Total trait scepticism			0.111	0.301
R^2	0.004		0.093	
F	0.075		1.374	
ΔR^2	0.004		0.09*	
ΔF	0.075		3.96	

Note. N=44. *p<.05

5.9. Conclusion

This study has provided empirical evidence of a link between trait scepticism and evidence search among auditors and students which can influence sceptical behaviour and also re-examined the effect of hypothesis framing and prior expectation on evidence selection. Three hypotheses were tested on a direct effect. The results are summarised in Table 5.23.

Table 5.23: Summary of results

H1a	When strong ratios form the prior expectation, hypothesis framing will have an effect on the selection of failure to viable evidence in a going concern assessment task.	Supported
H1b	When weak ratios form the prior expectation, hypothesis framing will not have an effect on the selection of failure to viable evidence in a going concern assessment task.	Weak Support
H2	When either strong or weak ratios form the prior expectation, hypothesis framing will not have an effect on selection of number of failure to viable evidence in a going concern assessment task.	Supported
H3a	Irrespective of situations, professional trait scepticism will have no influence on auditors' selection of total number of failure and viable evidence in a going concern assessment task.	Weak support
H3b	Irrespective of situations, professional trait scepticism will have no influence on students' selection of total number of failure and viable evidence in a going concern assessment task.	Weak support

This study verifies that external auditors' exhibit disconfirmatory behaviour but the result also highlights in specific circumstance, the auditors tend to show confirmatory behaviour. For student subjects, confirmatory behaviour is more dominant. Further, trait scepticism influences behaviour to a certain extent among both auditors and students. However, when the conditions are controlled for, it is observed that trait scepticism influences auditors' behaviour only. Practical implications and limitations of this study as well as recommendations for future research are presented in Chapter 6.

Chapter 6: Conclusion

6.1 Introduction

In this chapter, the main conclusions from the study are drawn and the key results are summarised in Section 6.2. In addition, the remaining sections discuss the implications of research and practice (Section 6.3), research limitations (Section 6.4) and suggestions for future academic research (Section 6.5). Section 6.6 provides a summary of the chapter.

6.2 Research questions and key results

The present study re-examined the results of two previous studies on hypothesis framing and prior expectation among external auditors and also extended the subjects to include accounting students (i.e. novices) to understand the effect of those two factors on evidence selected in a going concern assessment task. Furthermore, this study explored whether professional trait scepticism as measured by Hurtt (2010) scale influenced evidence selection among external auditors and accounting students in a going concern assessment task. Additionally, the Hurtt (2010) scale was validated using recommendations by experts and confirmatory factor analysis (CFA) in AMOS.

This study was guided by the following research questions:

a. *What are the impact of hypothesis framing and prior expectation on external auditors' selection of evidence in a going concern assessment task?* (***H1a*** *and* ***H1b***)
b. *What are the impact of hypothesis framing and prior expectation on novices' selection of evidence in a going concern assessment task?* (***H2***)

c. *What is the impact of professional trait scepticism on auditors' and novices' selection of evidence in a going concern assessment task?* (***H3a and H3b***)

The key results are summarised as follows:

H1 addressed the first question, and the results from external auditor subjects confirmed that hypothesis framing does have an impact on evidence selection.
There was no impact on evidence selection for prior expectation (i.e. financial ratios).
There was an interaction effect between hypothesis framing and prior expectation. The result confirmed previous research findings that auditors are inclined to search more failure (i.e.

negative) evidence compared to viable (i.e. positive) evidence when they receive any kind of negative signal concerning solvency of a business organisation but the result of this present study differed in one aspect from the findings by Trotman and Sng (1989), in that when the auditor subjects received no negative signal (i.e. viable hypothesis frame and strong ratios) they chose more viable evidence than failure evidence. Prior findings suggested that disconfirmatory behaviour is more prevalent among auditors but the current finding shows confirmatory behaviour can be observed under specific situations, for example when low risk is assessed.

H2 addressed the second question and the results showed that prior expectation affected students' evidence selection while hypothesis framing did not. There was also no interaction effect for hypothesis framing and prior expectation. The findings showed students mostly exhibited confirmatory behaviour because they may be more familiar with using financial ratios to assess the solvency or insolvency of an entity. Moreover, the subjects may not be sensitive to the negative consequences of not identifying a failing firm.

H3 addressed the third question, and the findings showed that trait scepticism influences selection behaviour of students (H3b) but only marginally influences auditor selection behaviour (H3a).

However, additional analysis showed the result reversed when conditions were controlled for; trait scepticism influenced the evidence selection of auditors but not of students. It may be that situational factors more than personality influenced auditors' behaviour whereas there is no effect for students. Furthermore, the findings showed when hypothesis framing is examined and professional trait scepticism is used as a covariate, there is a marginal influence on total evidence selected for auditors. However, when prior expectation is examined with professional trait scepticism as a covariate, there is no influence on total evidence selected for auditors. For student subjects, the results showed when hypothesis framing and prior expectation are examined with professional trait scepticism as a covariate, there is a significant influence on total evidence selected.

6.3 Implications of the study

The findings from the study have some theoretical as well as practical implications for audit practice.

6.3.1 Theoretical implication

This study provides greater insight into the effect of trait scepticism among professionals and novices relating to evidence selection in a complex but routine task. Furthermore, this study differs from other research in the task and the situations (i.e. states) in examining the effect of trait scepticism on auditor behaviour under different situations. As Hurtt (2010) suggested, "our understanding of professional scepticism will remain incomplete, however, until we begin to address the issues of professional state scepticism and sceptical behaviours." It can be concluded from the findings that a combination of trait and state scepticism is required to exhibit sceptical behaviour among professionals. In addition to that, this study also confirmed that auditors typically exhibit disconfirmatory behaviour under situations where any sort of negative signal is received that creates doubt about a firm's future existence as a going concern. The study also explored the behaviour of student subjects where confirmatory behaviour was observed consistently with psychological research findings. Thus, the present study contributes to enhancing theoretical knowledge in auditing literature.

6.3.2 Researcher

The validation of the 30 item Hurtt (2010) scale provided a clearer picture of the items representing the constructs mentioned in the Hurtt (2010) scale. Validation results suggest some items in the six sub-constructs be removed for a good model fit. As a result, the scale was reduced and a good model fit was obtained. The 30 item scale was reduced to 16 items. The results for the auditor subjects showed that none of the six sub-constructs, individually, had any impact on selection behaviour, attributes such as suspension of judgement and self- confidence appear to have a greater impact relative to the other attributes; questioning mind, search for knowledge, self-determining and interpersonal understanding. Similarly, for the student subjects, suspension of judgement and self-confidence had a greater impact. Additionally, questioning mind attribute also have a greater impact relative to the other attributes. Therefore, in actual practice, all the six sub-constructs are unlikely to have equal impact on evidence selection strategy. The findings of this study indicate there is a need for revision of the scale. Some sub-constructs are more useful in predicting behaviour of auditor and student. However, since the sample size is small, more validation should be carried out in other studies.

6.3.3 Practitioners

The findings also have implications for auditing practitioners. There are some mixed results regarding the effect of trait scepticism on auditor behaviour. Some researchers found trait scepticism to have no or minimal effect on auditors' behaviour. As this study examined different conditions and a predominant task in auditing, the results indicate that personality and situations or conditions trigger sceptical behaviour to different degrees. Therefore, based on the level of individual trait scepticism and the risk associated with task under different situations, accounting firms could design appropriate training programmes tailored to the need of individual auditors that could enhance the overall level of professional scepticism in their work. Additionally, the audit firms could develop training programmes to raise awareness regarding potential bias in selection strategy associated with hypothesis framing and prior expectation and perhaps devise ways to counteract any potential biases. In this context, it may be said the disconfirmatory behaviour is not always desirable; it may lead to "over audit" which render the audit function to be inefficient. It can be argued that where audit risk is high, auditors should sceptically expand evidence selection that is, a disconfirming behaviour may be recommended but in case of low risk situations, expanded evidence selection may lead to "over audit". Therefore, based on the individual level of trait scepticism, accounting firms can form audit groups to include a mix of high sceptic and low sceptic auditors to carry out an effective and efficient audit. There should be a more balanced approach undertaken by auditors while selecting evidence. Hurtt (2010, p. 150) suggested that

> With a scale capable of measuring trait scepticism, researchers can begin to pursue critical issues such as identifying whether an auditor can be too sceptical and reach a level where over- auditing or inefficient audits might occur. Research could similarly examine whether there is an optimal level of trait scepticism and whether all members of an audit team need to measure as 'highly sceptical'.

For novices, audit firms could potentially use the Hurtt (2010) scale to recruit graduate auditors based on their trait scepticism scores and design training programmes according to their level of trait scepticism. In fact, several researchers (Farag & Elias, 2012) have suggested using the Hurtt (2010) scale to screen suitable candidates for audit work. Encouraging sceptical mindsets among novices may influence and improve their decision making.

6.4 Limitations

Experimental designs are frequently contrived circumstances that do not often reflect the real world completely. The degree to which results can be generalised to other situations and real world applications is limited. Findings from the present study are subject to the following limitations and should, therefore, be interpreted with caution.

First, the validation of the Hurtt (2010) scale was conducted with 84 observations in the sample only which is considered not sufficient for a 30 item scale. The validation result and comparisons with other studies using Hurtt's (2010) original scale should, therefore, be made with caution.

Second, the sample size is small with unequal cell size for the auditor sample which may hamper the generalizability of the result. Hence, the result of factorial ANOVA showing the effect of hypothesis framing and prior expectation should be read with caution. The difference in cell sizes mainly exists for auditor subjects under conditions "viable hypothesis strong ratios" and "failure hypothesis strong ratios" where the number of respondents is 15 and 5 respectively. Unequal cell sizes result in a confounding problem that means, the sum of squares total is not equal to the sum of the sums of squares for all the other sources of variation. This is because the confounded sums of squares are not apportioned to any source of variation. Trotman (1996, p. 29), also pointed out that "as sample sizes become unequal, the independent variables become dependent and correlated. In this situation, it becomes difficult to determine the independent effects of each of the independent variables as they are confounded with each other."

Third, the Hurtt scale uses a six-point scale which is considered as "forced choice". There is considerable debate in psychology as to whether the respondents should be forced to make a choice with respect to their attitudes (Krosnick & Fabrigar, 1997). Since a neutral midpoint is not provided in this study, the result will not be able to capture participants who have neutral opinions.

Fourth, the auditor subjects were recruited through a third party service provider (i.e. Qualtrics panel management) by an online survey. The researcher did not have control of the quality of the data although attempts were made to filter out inattentive responses. Non-serious responses and dropouts are especially associated with web-based designs (Gosling, Vazire, Srivastava, & John, 2004; Reips, 2002). Moreover, it is also possible for respondents to affect the quality of the results by deceptively answering questionnaire items (Nosek, Banaji, & Greenwald, 2002). Further, online surveys often do not have a defined sampling frame hence, it is impossible to calculate the response rate from the study. Hence, in this study non-response bias is not

accounted for.

Fifth, this study did not control for order effects in the presentation of failure and viable cues as that requires a large sample. All subjects received the same order of cues.

Last, in this study, although the task is quite representative of actual going concern assessment, it is limited by the information given to participants whereas, in real world complex audit environment, the participants may search for different information from those provided in the experiment.

6.5 Future Research

Hurtt (2010) mentioned that the professional trait scepticism scale was developed assuming equal importance and equal weighting of all the sub-constructs, which may not be a valid assumption as specific sub-constructs may be more useful than others in predicting behaviour. Further, she also stated that the scale assumed a compensatory model (i.e. scoring higher on one aspect of the scale compensates for scoring lower on the scale) which may not be a correct assumption to measure trait scepticism among auditors because all the six sub- constructs may not have the same influence in the real world. Future studies are warranted to modify the scale with a different weighting of sub-constructs and determine whether the scale is compensatory in nature. The modified scale should be further validated with a bigger sample of participants to provide greater assurance as to whether the scale is accurately measuring trait scepticism.

Researchers are interested to know whether various audit situations elicit state scepticism in auditors. At present, researchers rely on experimental manipulation or behavioural changes to make assumptions about the existence or non-existence of state professional scepticism. Hence, more research should be undertaken to understand "whether an auditor's state scepticism is aroused by situational variables and how that arousal influences his/her behaviour." Recently, research found evidence of interaction between state and trait scepticism in explaining sceptical behaviours in auditors (Robinson et al., 2013). Perhaps disconfirmatory strategy may be reflective of trait scepticism but more research must be done as to the situational factors and subject characteristics, for example, experience, expertise and situations where the selection strategy occurs. It is important that future research should be directed towards examining the relative importance of state versus trait scepticism on auditors' judgements about evidence search involving different tasks. Given the prime importance of professional scepticism in the auditing profession, continuous research in this area is warranted.

Evaluation of selected evidence is also considered an important area for future research. The evaluation can be affected by presentation mode (simultaneous versus sequential) of the evidence. Evaluation can be measured by the assignment of weight (for example, high relevance, moderate relevance or low relevance) to the selected evidence. Future research should explore how state versus trait scepticism influences the evaluation of evidence.

6.6 Summary

This chapter highlights the hypotheses examined to address the research questions in this study to understand experts' and novices' evidence selection behaviour. In addition, the potential implications, limitations and potential future research are discussed in this chapter.

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Appendix A- Standardised loadings for self-determining, search for knowledge and questioning mind
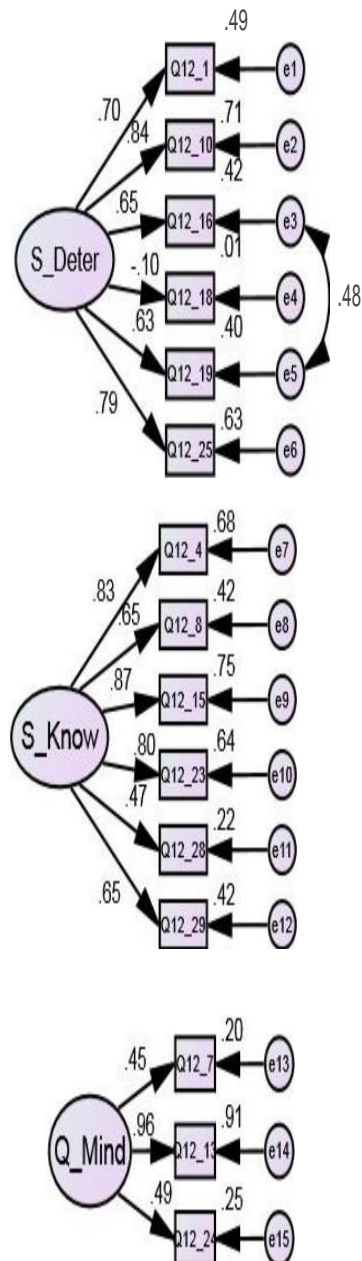
Appendix B- Standardised loadings for self-confidence, interpersonal understanding and suspension of judgement
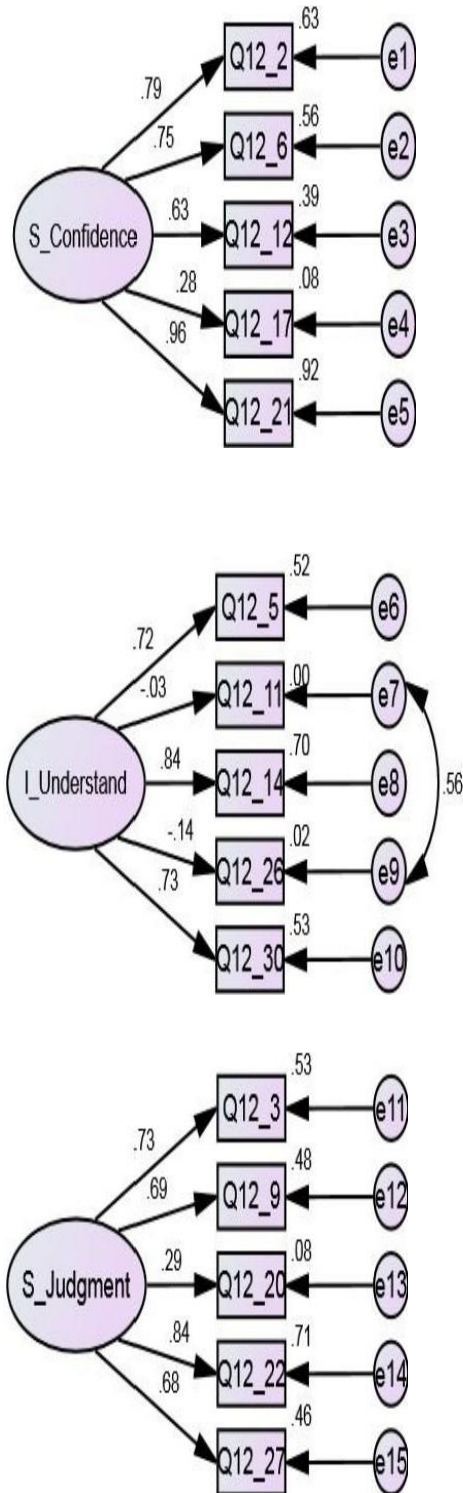
Appendix C- AMOS result for 23- item scale
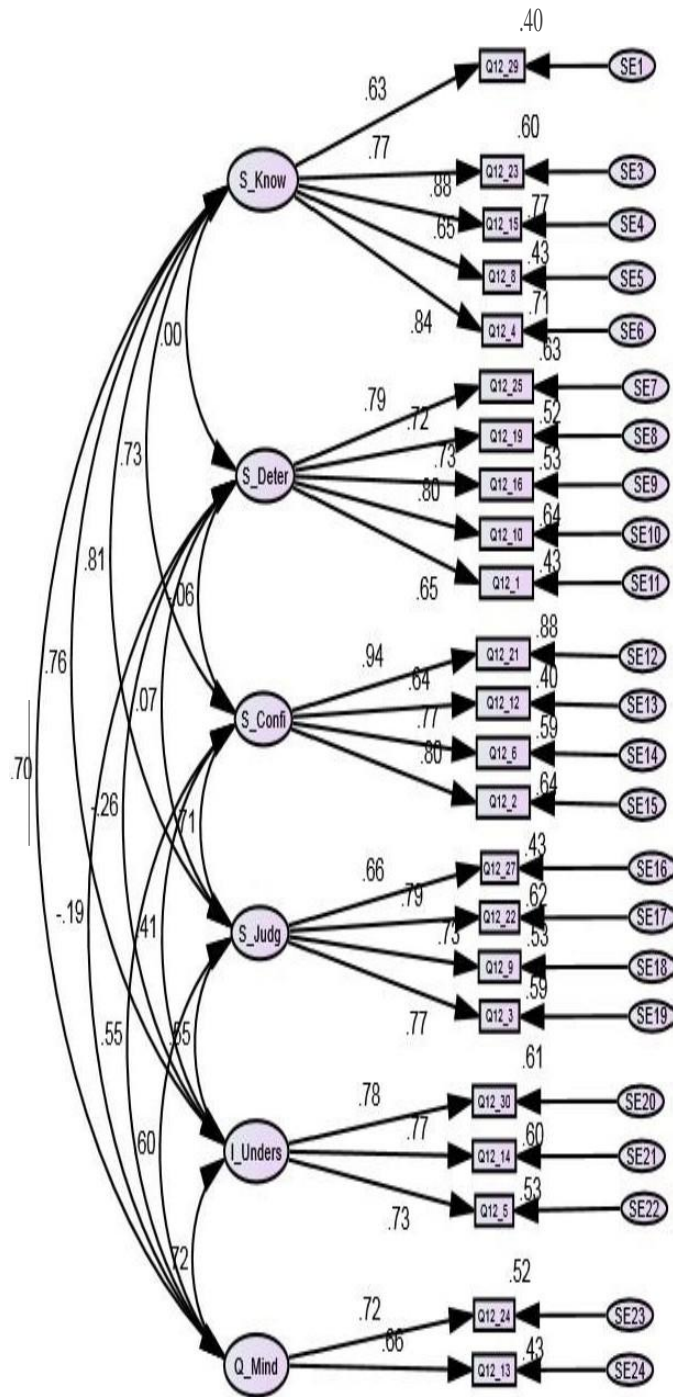
Appendix D- AMOS result for 16- item scale
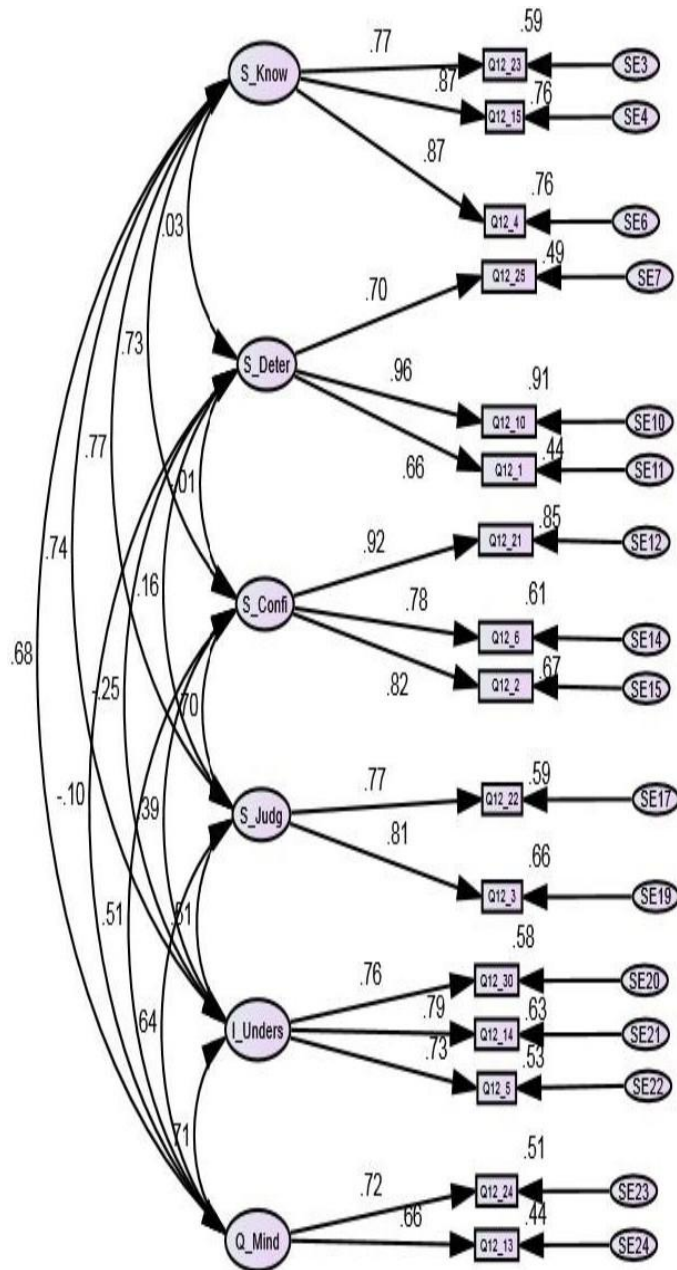
Appendix E- Sample questionnaire for expert review

My name is Abhijit Das, a Master in Accounting by Research candidate in the Faculty of Business and Law at Edith Cowan University (ECU), Perth, Australia, under the supervision of Dr. Zubaidah Ismail. I am undertaking a study on going concern assessment among auditors and the potential impact of professional scepticism on the assessment.

Professional scepticism is an increasingly vital issue in audit practice, as evidenced by its mention in the auditing standards and auditing literature. This concept is widely accepted but to date there has been little agreement on what comprises professional scepticism, and how it can be measured. In 2010, an American researcher, Kathy Hurtt developed an instrument to measure the level of trait scepticism. My study will incorporate this scale hence I request your opinion on the scale in order to validate it.

Please respond to the following questions:
What is your understanding of the term "professional scepticism" in auditing?

How is your firm applying "professional scepticism" in audit work?

How is your firm developing "professional scepticism" among your auditors?

The Hurtt scale measures individual level of trait professional scepticism in the following six different personal characteristics:

a) Questioning Mind- It refers to an ongoing questioning of whether the information and evidence obtained suggests that a material misstatement due to fraud has occurred.

b) Suspension of Judgment- It refers to withholding judgment until there is an appropriate level of evidence on which to base a conclusion.

c) Search for Knowledge- It refers to interest in knowledge and are not necessarily motivated to search simply to verify a specific conclusion or obtain specific information.

d) Interpersonal Understanding- It refers to understand the motivation and integrity of individuals who promote evidence.

e) Self-Confidence- It refers to belief in one's own abilities and esteem required for successful inquiry.

f) Self-Determining- It refers to evaluating an evidence to determing whether the evidence is sufficient to render judgment.

For each of the characteristics, click one column to rate the relevance of each of the characteristics.

	No Relevance	Low Relevance	Moderate Relevance	High Relevance
a) Questioning Mind	O	O	O	O
b) Suspension of Judgment	O	O	O	O
c) Search for Knowledge	O			
d) Interpersonal Understanding	O	O	O	O
e) Self-Confidence				
f) Self-Determining	O	O	O	O

In your opinion, are there **other** personal characteristics you would include, other than those six characteristics mentioned above in the Hurtt scale?

There are 30 statements measuring the six attributes (characteristics) in the Hurtt scale.

Please click whether the following statements representing the "**Questioning Mind**" attribute should be **"Included"**, **"Excluded"** or **"Modified"**. If you click **"Modified"** please state how to modify.

	Questioning Mind			Questioning Mind
	Included	Excluded	Modified	If to be modified then state how to modify
01. My friends tell me that I often question things that I see or hear.	O	O	O	
02. I frequently question things that I see or hear.				
03. I often rejects statements unless I have proof that they are true.	O	O	O	

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Please click whether the following statements representing the "**Suspension of Judgement**" attribute should be **"Included"**, **"Excluded"** or **"Modified"**. If you click **"Modified"** please state how to modify.

	Suspension of Judgement			Suspension of Judgement
	Included	Excluded	Modified	If to be modified then state how to modify
04. I take my time when making decisions.	○	○	○	
05. I don't like to decide until I've looked at all of the readily available information.	○	○		
06. I dislike having to make decisions quickly.	○	○	○	
07. I like to ensure that I've considered most available information before making a decision.	○	○		
08. I wait to decide on issues until I can get more information.	○	○	○	

Please click whether the following statements representing the "**Search for Knowledge**" attribute should be **"Included"**, **"Excluded"** or **"Modified"**. If you click **"Modified"** please state how to modify.

	Search for Knowledge			Search for Knowledge
	Included	Excluded	Modified	If to be modified then state how to modify
09. I think that learning is exciting.	○	○	○	
10. I relish learning	○	○	○	
11. Discovering new information is fun.	○	○	○	
12. I like searching for knowledge.	○	○	○	
13. The prospect of learning excites me.	○	○	○	
14. I enjoy trying to determine if what I read or hear is true.	○	○	○	

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Please click whether the following statements representing the **"Interpersonal Understanding"** attribute should be **"Included"**, **"Excluded"** or **"Modified".** If you click "Modified" please state how to modify.

	Interpersonal Understanding			Interpersonal Understanding
	Included	Excluded	Modified	If to be modified then state how to modify
15. I like to understand the reason for other people's behaviour.	○	○	○	
16. I am interested in what causes people to behave the way that they do.	○	○	○	
17. The actions people take and the reasons for those actions are fascinating.	○	○	○	
18. I seldom consider why people behave in a certain way.	○	○	○	
19. Other peoples' behaviour doesn't interest me.	○	○	○	

Please click whether the following statements representing the **"Self-Confidence"** attribute should be **"Included"**, **"Excluded"** or **"Modified"**. If you click **"Modified"** please state how to modify.

	Self-Confidence			Self-Confidence
	Included	Excluded	Modified	If to be modified then state how to modify
20. I have confidence in myself.	○	○	○	
21. I don't feel sure of myself.	○	○	○	
22. I am self-assured.	○	○	○	
23. I am confident of my abilities.	○	○	○	
24. I feel good about myself.	○	○	○	

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Please click whether the following statements representing the **"Self-Determining"** attribute should be **"Included"**, **"Excluded"** or **"Modified"**. If you click **"Modified"** please state how to modify.

	Self-Determining			Self-Determining
	Included	Excluded	Modified	If to be modified then state how to modify
25. I tend to immediately accept what other people tell me.	○	○	○	
26. I usually accept things I see, read or hear at face value.	○	○	○	
27. I often accept other peoples' explanation without further thought.	○	○	○	
28. It is easy for other people to convince me.	○	○	○	
29. Most often I agree with what the others in my group think.	○	○	○	
30. I usually notice inconsistencies in explanations.	○	○	○	

This is the end of the questions. Thank you for your cooperation.

Survey Powered By
Qualtrics

Appendix F- Sample questionnaire for auditor- failure hypothesis and weakratios

Default Question Block

My name is Abhijit Das, a Master in Accounting by Research candidate in the Faculty of Business and Law at Edith Cowan University (ECU), Perth, Australia, under the supervision of Dr. Zubaidah Ismail. I am currently undertaking a study on going concern assessment, among auditors, and the impact of information search, evaluation of information and professional scepticism in the assessment.

The survey will comprise three sections to collect data on:

-Demographic information about educational/ professional qualifications, audit experience and position within the firm.
-The going concern assessment: Hypothetical company information and a list of five financial ratios for a period of three years will be given.
-Questions pertaining to professional scepticism

The estimated time to complete the survey will be **twenty minutes or less.**

Individual responses will be kept strictly confidential and can only be accessed by the researcher (Abhijit Das) and my supervisor (Dr. Zubaidah Ismail). In addition to that no individual response will be identified in any report. Individual participation is voluntary and anyone can withdraw from the survey at any time. If you have any questions regarding the study, please free to contact Abhijit Das at abhijitd@our.ecu.edu.au or Dr. Zubaidah Ismail at z.ismail@ecu.edu.au

The study has been approved by the Edith Cowan University Human Research Ethics Committee. If you have any concerns or complaints about the project and would like to speak with an independent person, please contact:Research Ethics Officer at research.ethics@ecu.edu.au

Thank you very much for your participation!

I have read and understood the purpose of the survey and give my free consent to participate in this study.

○ Agree

○ Disagree

Please select your current role within your firm?

○ Internal Auditor

○ Tax Accountant

○ Payroll Accountant

○ Management Accountant

○ Financial Accountant

○ External Auditor

○ Budget Analyst

○ Other

Demographic information

What is your gender?

○ Male

○ Female

What is the highest level of education you have completed? (Click appropriate box)

⊔ Undergraduate degree

[.] Postgraduate degree

Are you member of any professional accounting body?

○ Yes

○ No

If yes, please provide the name/names of the professional body/bodies you are member of. **(This information will be kept confidential and anonymous and will only be used for research purposes)**

What is your position within the firm?

○ Partner

○ Senior Manager/Director

○ Manager/Assistant Manager

○ Senior staff

○ Junior staff

Please provide the name of your firm. **(This information will be kept confidential and anonymous and will only be used for research purposes)**

Please state the number of years of audit experience you have graduation.

CureWorld (CW) Incorporated is an Australian multinational pharmaceutical that was incorporated in Australia in 1991. The company exports its products to 100 countries. The company also established manufacturing facilities in 10 countries with ground operations in 25 countries. The company went public in 2000 and in 2005, an American pharmaceutical company HealWorld (HW) Inc. has acquired 25% share of CureWorld making the conglomerate the world's tenth largest specialty generic pharmaceutical company.

Your firm has been appointed as auditor since July 2011. You are a part of the current year audit team and your team has almost completed the financial audit for the year ended 30 June 2014. The manager of your team has requested your informed judgment on whether the company is likely to fail (i.e. enter insolvency proceeding) within the next one year.

The manager provided you with three years' financial ratios and asked you to examnie the financial ratios, in order to determine if the company is going to fail within the next one year.

Financial Ratios	Jun-12	Jun-13	Jun-14
Earnings before interest and taxes to total liabilities	0.17	0.07	(0.55)
Cash flow (profits plus depreciation) to total liabilities	0.21	0.14	(0.48)
Current assets to current liabilities	1.34	3.49	1.67
Total liabilities to shareholders funds	1.78	0.45	0.52
Retained earnings to total tangible assets	0.37	0.01	(0.32)

How would you rate the financial condition of the company? (Click one of the options)

○ Strong

○ Weak

Choose at least **three** ratios from the list of five ratios which you considered important in deciding whether the financial condition of the company is strong or weak

☐ Earnings (before interest and taxes) to total liabilities

☐ Cash flow (profits plus depreciation) to total liabilities

☐ Current assets to current liabilities

☐ Total liabilities to shareholders funds

☐ Retained earnings to total tangible assets

Do you think the company will be insolvent within the next one year? (Click one of the options)

○ Definitely not

○ Probably not

○ Maybe

○ Probably yes

○ Definitely yes

In addition to the financial ratios provided, you collected other pieces of information from various internal and external sources such as discussions with management, reports from media, industry experts, financial analysts, views of economists and government publications.

The following is the list of twenty two pieces of information. Please read carefully the following information and prepare yourself for a discussion with your manager.

1. Management has indicated that there is a good chance of losing a major customer.

2. The technology of the company is competitive with other firms in the industry.

3. The competence of the company's management has been questioned by outside observers.

4. The company's major product is generally considered to be of good quality.

5. The company has a significantly less working capital than the average firm in the industry.

6. Management states that it is possible that a key patent may be obtained in the near future.

7. Discussions with management indicate that a material liability from litigation is likely this year.

8. The debt to equity ratio of the company is around the industry average.

9. Management believes that additional equity capital can be raised through the issue of shares if needed.

10. This year the firm reported a significant loss from operations.

11. Management and labour representatives indicate that there is a chance that labour will strike this year.

12. This year the company reported a positive cash flow from operations.

13. Management indicated that new legislation may make it difficult to market one of the firm's major products.

14. In general, suppliers of the firm indicate that usual trade credit to the firm will be available.

15. It appears that if needed, it will be difficult to obtain additional debt capital.

16. The economic outlook for the industry is stable.

17. The company has not paid its preferred stockholder dividends in recent years.

18. The market share of the firm is below average for the industry.

19. Management has indicated that there is no chance of losing a major supplier.

20. An analysis of accounts receivable revealed the collection time to be around the industry average.

21. There is a strong rumour that the main competitor of the company has invented a new drug with significant low cost and is likely to launch the product in November this year.

22. The management of HealWorld agreed to raise the stake in the company by another 10%. It is anticipated that a significant amount of funds will be injected by HealWorld as a part of the deal.

When you presented all the information, your manager asked you to select the appropriate items of information to make the going concern judgment and rank them in order in relevance.

So as per your manager's suggestion, please select and rank the items of the information that you would consider relevant in deciding whether the firm would fail.

Select the items of information by clicking the appropriate buttons on the right. If you select **Yes**, then rank the items from highly relevance to low relevance by clicking the appropriate buttons on the right. If you select **No**, then click the **Not applicable** button on your right.

	Is item selected?		Rate relevance of the item			
	Yes	No	Not applicable	Highly relevance	Moderate relevance	Low relevance
1.Management has indicated that there is a good chance of losing a major customer.	○	○	○	○	○	○
2. The technology of the company is competitive with other firms in the industry.	○	○	○	○	○	○
3. The competence of the firm's management has been questioned by outside observers.	○	○	○	○	○	○
4. The firm's major product is generally considered to be of good quality.	○	○	○	○	○	○
5. The company has significantly less working capital than the average firm in the industry.	○	○	○	○	○	○
6. Management states that it is possible that a key patent may be obtained in the near future.	○	○	○	○	○	○
7. Discussions with management indicate that a material liability from litigation is likely this year.	○	○	○	○	○	○
8. The debt to equity ratio of the company is around the industry average.	○	○	○	○	○	○
9. Management believes that additional equity can be raised through the issue of shares if needed.	○	○	○	○	○	○
10. This year the firm reported a significant loss from the operations.	○	○	○	○	○	○
11. Management and labour representatives indicate that there is a chance that labour will strike this year.	○	○	○	○	○	○
12. This year the company reported a positive cash flow from operations.	○	○	○	○	○	○
13. Management indicated that new legislation may make it difficult to market one of the firm's major products.	○	○	○	○	○	○
14. In general, suppliers of the						

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firm indicate that usual trade credit to the firm will be available.	○	○	○	○	○	○
15. It appears that if needed, it will be difficult to obtain additional debt capital.	○	○	○	○	○	○
16. The economic outlook for the industry is stable.	○	○	○	○	○	○
17. The company has not paid its preferred stockholder dividends in recent years.	○	○	○	○	○	○
18. The market share of the firm is below average for the industry.	○	○	○	○	○	○
19. Management has indicated that there is no chance of losing a major supplier.	○	○	○	○	○	○
20. An analysis of accounts receivable revealed the collection time to be around the industry average.	○	○	○	○	○	○
21.There is a strong rumour that the main competitor of the company has invented a new drug with significant low cost and is likely to launch the product in November this year.	○	○	○	○	○	○
22. The management of HealWorld agreed to raise the stake in the company by another 10%. It is anticipated a significant amount of funds will be injected by HealWorld as a part of the deal.	○	○	○	○	○	○

Your opinion about the following statements may help us to understand the decision you made during the going concern assessment in the previous sections. This section is a crucial part of the study so please respond to every question.

Please click the response that indicates how you generally feel. There is no right and wrong answers. Do not spent too much time on any one statement.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
1. I often accept other peoples' explanations without further thought.	○	○	○	○	○	○
2. I feel good about myself.	○	○	○	○	○	○
3. I wait to decide on issues until I can get more information.	○	○	○	○	○	○
4. The prospect of learning excites me.	○	○	○	○	○	○
5. I am interested in what causes people to behave the way that they do.	○	○	○	○	○	○
6. I am confident of my abilities.	○	○	○	○	○	○
7. I often reject statements unless I have proof that they are true.	○	○	○	○	○	○
8. Discovering new information is fun.	○	○	○	○	○	○
9. I take my time when making decisions.	○	○	○	○	○	○
10. I tend to immediately accept what other people tell me.	○	○	○	○	○	○
11. Other peoples' behaviour doesn't interest me.	○	○	○	○	○	○
12. I am self-assured.	○	○	○	○	○	○
13. My friends tell me that I usually question things that I see or hear.	○	○	○	○	○	○

14. I like to understand the reason for other peoples' behaviour.	○	○	○	○	○	○
15. I think that learning is exciting.	○	○	○	○	○	○
16. I usually accept things I see, read or hear at face value.	○	○	○	○	○	○
17. I don't feel sure of myself.	○	○	○	○	○	○
18. I usually notice inconsistencies in explanations.	○	○	○	○	○	○
19. Most often I agree with what the others in my group think.	○	○	○	○	○	○
20. I dislike having to make decisions quickly.	○	○	○	○	○	○
21. I have confidence in my self.	○	○	○	○	○	○
22. Please select "Strongly Disagree" for quality purposes.	○	○	○	○	○	○
23. I don't like to decide until I have looked at all of the readily available information.	○	○	○	○	○	○
24. I like searching for knowledge.	○	○	○	○	○	○
25. I frequently question things that I see or hear.	○	○	○	○	○	○
26. It is easy for other people to convince me.	○	○	○	○	○	○
27. I seldom consider why people behave in a certain way.	○	○	○	○	○	○
28. I like to ensure that I have considered most available information before making a decision.	○	○	○	○	○	○
29. I enjoy trying to determine if what I read or hear is true.	○	○	○	○	○	○
30. I relish learning.	○	○	○	○	○	○
31. The actions people take and the reasons for those actions are fascinating.	○	○	○	○	○	○

This is the end of the survey. Thank you once again for the participation.

Appendix G- Sample questionnaire for auditor- viable hypothesis and strongratios

Default Question Block

My name is Abhijit Das, a Master in Accounting by Research candidate in the Faculty of Business and Law at Edith Cowan University (ECU), Perth, Australia, under the supervision of Dr. Zubaidah Ismail. I am currently undertaking a study on going concern assessment, among auditors, and the impact of information search, evaluation of information and professional scepticism in the assessment.

The survey will comprise three sections to collect data on:

- Demographic information about educational/ professional qualifications, audit experience and position within the firm.

-The going concern assessment: Hypothetical company information and a list of five financial ratios for a period of three years will be given.
- Questions pertaining to professional scepticism

The estimated time to complete the survey will be **twenty minutes or less.**

Individual responses will be kept strictly confidential and can only be accessed by the researcher (Abhijit Das) and my supervisor (Dr. Zubaidah Ismail). In addition to that no individual response will be identified in any report. Individual participation is voluntary and anyone can withdraw from the survey at any time. If you have any questions regarding the study, please free to contact me at abhijitd@our.ecu.edu.au or Dr. Zubaidah Ismail at z.ismail@ecu.edu.au

The study has been approved by the Edith Cowan University Human Research Ethics Committee. If you have any concerns or complaints about the project and would like to speak with an independent person, please contact:Research Ethics Officer at research.ethics@ecu.edu.au

Thank you very much for your participation!

I have read and understood the purpose of the survey and give my free consent to participate in this study.

○ Agree

○ Disagree

Please select your current role within your firm?

○ Internal Auditor

○ Tax Accountant

○ Payroll Accountant

○ Management Accountant

○ Financial Accountant

○ External Auditor

○ Budget Analyst

○ Other

Demographic information

What is your gender?

○ Male

○ Female

What is the highest level of education you have completed?

○ Undergraduate degree

○ Postgraduate degree

Are you member of any professional accounting body?

○ Yes

○ No

If yes, please provide the name/ names of the professional body/ bodies you are member of. **(This information will be kept confidential and anonymous and will only be used for research purposes)**

What is your position within the firm?

○ Partner

○ Senior Manager/Director

○ Manager/Assistant Manager

○ Senior staff

○ Junior staff

Please provide the name of your firm. **(This information will be kept confidential and anonymous and will only be used for research purposes)**

Please state the number of years of audit experience you have since graduation.

CureWorld (CW) Ltd is an Australian multinational pharmaceutical company that was incorporated in Australia in 1991. The company exports its products to 100 countries. The company also established manufacturing facilities in 10 countries with ground operations in 25 countries. The company went public in 2000 and in 2005, an American pharmaceutical company HealWorld (HW) Inc. has acquired 25% share of CureWorld making the conglomerate the world's tenth largest specialty generic pharmaceutical company.

Your firm has been appointed as auditor since July 2011. You are a part of the current year audit team and your team has almost completed the financial audit for the year ended 30 June 2014. The manager of your team has requested your informed judgment on whether the company is likely to remain viable (i.e. continue its operation unaided) in the next one year.

The manager provided you with three years' financial ratios and asked you to examine the financial ratios, in order to determine if the company is going to remain viable in the next one year.

Financial Ratios	Jun-12	Jun-13	Jun-14
Earnings before interest and taxes to total liabilities	0.22	0.23	0.25
Cash flow (profits plus depreciation) to total liabilities	0.40	0.39	0.41
Current assets to current liabilities	0.87	0.93	1.05
Total liabilities to shareholders funds	2.08	2.38	1.99
Retained earnings to total tangible assets	0.24	0.21	0.25

How would you rate the financial condition of the company? (Click one of the options)

○ Strong

○ Weak

Choose at least **three** ratios from the list of five ratios which you considered important in deciding whether the financial condition of the company is strong or weak.

☐ Earnings (before interest and taxes) to total liabilities

☐ Cash flow (profits plus depreciation) to total liabilities

☐ Current assets to current liabilities

☐ Total liabilities to shareholders funds

☐ Retained earnings to total tangible assets

Do you think the company will remain viable in the next one year? (Click one of the options)

○ Definitely not

○ Probably not

○ Maybe

○ Probably yes

○ Definitely yes

In addition to the financial ratios provided, the audit team collected other information from various internal and external sources such as discussions with management, reports from media, industry experts, financial analysts, view's of economists and government publications.

The following is the list of twenty two items of information. Please read carefully the following information and prepare yourself for a discussion with your manager.

1. Management has indicated that there is a good chance of losing a major customer.

2. The technology of the company is competitive with other firms in the industry.

3. The competence of the company's management has been questioned by outside observers.

4. The company's major product is generally considered to be of good quality.

5. The company has significantly less working capital than the average firm in the industry.

6. Management states that it is possible that a key patent may be obtained in the near future.

7. Discussions with management indicate that a material liability from litigation is likely this year.

8. The debt to equity ratio of the company is around the industry average.

9. Management believes that additional equity capital can be raised through the issue of shares if needed.

10. This year the firm reported a significant loss from operations.

11. Management and labour representatives indicate that there is a chance that labour will strike this year.

12. This year the company reported a positive cash flow from operations.

13. Management indicated that new legislation may make it difficult to market one of the firm's major products.

14. In general, suppliers of the firm indicate that usual trade credit to the firm will be available.

15. It appears that if needed, it will be difficult to obtain additional debt capital.

16. The economic outlook for the industry is stable.

17. The company has not paid its preferred stockholder dividends in recent years.

18. The market share of the firm is below average for the industry.

19. Management has indicated that there is no chance of losing a major supplier.

20. An analysis of accounts receivable revealed the collection time to be around the industry average.

21. There is a strong rumour that the main competitor of the company has invented a new drug with significant low cost and is likely to launch the product in November this year.

22. The management of HealWorld agreed to raise the stake in the company by another 10%. It is anticipated that a significant amount of funds will be injected by HealWorld as a part of the deal.

When you presented all the information, your manager asked you to select the appropriate items of information to make the going concern judgment and rank them in order of relevance.

So as per your manager's advice, please select and rank the items of the information that you would consider relevant in deciding whether the firm would remain viable.

Select the items of information by clicking the appropriate buttons on the right. If you select **Yes**, then rank the items from highly relevance to low relevance by clicking the appropriate buttons on the right. If you select **No**, then click the **Not applicable** button on your right.

	Is item selected?		Rate relevance of the item			
	Yes	No	Not applicable	Highly relevance	Moderate relevance	Low relevance
1.Management has indicated that there is a good chance of losing a major customer.	O	O	O	O	O	O
2. The technology of the company is competitive with other firms in the industry.	O	O	O	O	O	O
3. The competence of the firm's management has been questioned by outside observers.	O	O	O	O	O	O
4. The firm's major product is generally considered to be of good quality.	O	O	O	O	O	O
5. The company has significantly less working capital than the average firm in the industry.	O	O	O	O	O	O
6. Management states that it is possible that a key patent may be obtained in the near future.	O	O	O	O	O	O
7. Discussions with management indicate that a material liability from litigation is likely this year.	O	O	O	O	O	O
8. The debt to equity ratio of the company is around the industry average.	O	O	O	O	O	O
9. Management believes that additional equity can be raised through the issue of shares if needed.	O	O	O	O	O	O
10. This year the firm reported a significant loss from the operations.	O	O	O	O	O	O
11. Management and labour representatives indicate that there is a chance that labour will strike this year.	O	O	O	O	O	O
12. This year the company reported a positive cash flow from operations.	O	O	O	O	O	O
13. Management indicated that new legislation may make it	O	O	O	O	O	O

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difficult to market one of the firm's major products.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
14. In general, suppliers of the firm indicate that usual trade credit to the firm will be available.	○	○	○	○	○	○
15. It appears that if needed, it will be difficult to obtain additional debt capital.	○	○	○	○	○	○
16. The economic outlook for the industry is stable.	○	○	○	○	○	○
17. The company has not paid its preferred stockholder dividends in recent years.	○	○	○	○	○	○
18. The market share of the firm is below average for the industry.	○	○	○	○	○	○
19. Management has indicated that there is no chance of losing a major supplier.	○	○	○	○	○	○
20. An analysis of accounts receivable revealed the collection time to be around the industry average.	○	○	○	○	○	○
21.There is a strong rumour that the main competitor of the company has invented a new drug with significant low cost and is likely to launch the product in November this year.	○	○	○	○	○	○
22. The management of HealWorld agreed to raise the stake in the company by another 10%. It is anticipated that a significant amount of funds will be injected by HealWorld as a part of the deal.	○	○	○	○	○	○

Your opinion about the following statements may help us to understand the decision you made during the going concern assessment in the previous sections. This section is a crucial part of the study so please respond to every question.

Please click the response that indicates how you generally feel. There is no right and wrong answers. Do not spent too much time on any one statement.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
1. I often accept other peoples' explanations without further thought.	○	○	○	○	○	○
2. I feel good about myself.	○	○	○	○	○	○
3. I wait to decide on issues until I can get more information.	○	○	○	○	○	○
4. The prospect of learning excites me.	○	○	○	○	○	○
5. I am interested in what causes people to behave the way that they do.	○	○	○	○	○	○
6. I am confident of my abilities.	○	○	○	○	○	○
7. I often reject statements unless I have proof that they are true.	○	○	○	○	○	○
8. Discovering new information is fun.	○	○	○	○	○	○
9. I take my time when making decisions.	○	○	○	○	○	○
10. I tend to immediately accept what other people tell me.	○	○	○	○	○	○
11. Other peoples' behaviour doesn't interest me.	○	○	○	○	○	○

12. I am self-assured.	○	○	○	○	○	○
13. My friends tell me that I usually question things that I see or hear.	○	○	○	○	○	○
14. I like to understand the reason for other peoples' behaviour.	○	○	○	○	○	○
15. I think that learning is exciting.	○	○	○	○	○	○
16. I usually accept things I see, read or hear at face value.	○	○	○	○	○	○
17. I don't feel sure of myself.	○	○	○	○	○	○
18. I usually notice inconsistencies in explanations.	○	○	○	○	○	○
19. Most often I agree with what the others in my group think.	○	○	○	○	○	○
20. I dislike having to make decisions quickly.	○	○	○	○	○	○
21. I have confidence in my self.	○	○	○	○	○	○
22. Please select "Strongly Disagree" for quality purposes.	○	○	○	○	○	○
23. I don't like to decide until I have looked at all of the readily available information.	○	○	○	○	○	○
24. I like searching for knowledge.	○	○	○	○	○	○
25. I frequently question things that I see or hear.	○	○	○	○	○	○
26. It is easy for other people to convince me.	○	○	○	○	○	○
27. I seldom consider why people behave in a certain way.	○	○	○	○	○	○
28. I like to ensure that I have considered most available information before making a decision.	○	○	○	○	○	○
29. I enjoy trying to determine if what I read or hear is true.	○	○	○	○	○	○
30. I relish learning.	○	○	○	○	○	○
31. The actions people take and the reasons for those actions are fascinating.	○	○	○	○	○	○

This is the end of the survey. Thank you once again for the participation.

Appendix H- Sample questionnaire for students- failure hypothesis and weakratios

Default Question Block

My name is Abhijit Das, a Master in Accounting by Research candidate in the Faculty of Business and Law at Edith Cowan University (ECU), Perth, Australia, under the supervision of Dr. Zubaidah Ismail. I am currently undertaking a study on going concern assessment and the impact of information search, evaluation of information and professional scepticism in the assessment.

I am inviting you to participate in this online survey.

This survey will comprise three sections to collect data on:
a) Demographic information about gender, course currently studying and major(s).
b) The going concern assessment: Hypothetical company information and a list of five financial ratios for a period of three years will be given.
c) Questions pertaining to professional scepticism

The estimated time to complete the survey will be **thirty minutes or less.**

Individual responses will be kept strictly confidential and can only be accessed by the researcher (Abhijit Das) and his supervisor (Dr. Zubaidah Ismail). In addition to that, no individual will be identified in any report. Participation is voluntary and you can withdraw from the survey at any time. There will be no penalty to your unit for not participating in the survey.In order to maintain confidentiality, Edith Cowan University will include your views in aggregate with other participants in any report. If you have any questions regarding the study, please free to contact Abhijit Das at **abhijitd@our.ecu.edu.au** or Dr. Zubaidah Ismail at **z.ismail@ecu.edu.au**

The study has been approved by the Edith Cowan University Human Research Ethics Committee. If you have any concerns or complaints about the project and would like to speak with an independent person, please contact Research Ethics Officer at **research.ethics@ecu.edu.au**

In addition, in appreciation for your participation, an **Ipad Air 2 (16 GB)** will be awarded to a randomly selected participant who has supplied his/ her e-mail address. Be assured that the email will not be linked to your responses from the survey.

The data collected during the study may be used for future study.

Some remarks in advance:
- Please answer all the questions

- You are asked to **work independently** on the survey

Thank you very much for your participation!

I have read and understood the purpose of the survey and give my free consent to participate in this study. Click on agree to proceed with the survey.

○ Agree

○ Disagree

Demographic information

What is your gender?

○ Male

○ Female

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Did you graduate? (Click appropriate box)

○ Yes

○ No

What course are you undertaking / have completed? (Click relevant box)

☐ Undergraduate course

☐ Post graduate course (including Graduate Certificate and Graduate Diploma)

What is your major(s) or concentration? (Click appropriate box/boxes)

☐ Accounting

☐ Finance

☐ Other

If for the previous question you clicked "Other", please specify your major/concentration in the following text box provided.

CureWorld (CW) Ltd is an Australian multinational pharmaceutical company that was incorporated in Australia in 1991. The company exports its products to 100 countries. The company also established manufacturing facilities in 10 countries with ground operations in 25 countries. The company went public in 2000 and in 2005, an American pharmaceutical company HealWorld (HW) Inc. has acquired 25% share of CureWorld making the conglomerate the world's tenth largest specialty generic pharmaceutical company.

Your firm has been appointed as auditor since July 2011. You are a part of the current year audit team and your team has almost completed the financial audit for the year ended 30 June 2014. The manager of your team has requested your informed judgment on whether the company is likely to fail (i.e. enter insolvency proceeding) within the next one year.

The manager provided you with three years' financial ratios and asked you to examine the financial ratios, in order to determine if the company is going to fail within the next one year.

Financial Ratios	Jun-12	Jun-13	Jun-14
Earnings before interest and taxes to total liabilities	0.17	0.07	(0.55)
Cash flow (profits plus depreciation) to total liabilities	0.21	0.14	(0.48)
Current assets to current liabilities	1.34	3.49	1.67
Total liabilities to shareholders funds	1.78	0.45	0.52
Retained earnings to total tangible assets	0.37	0.01	(0.32)

How would you rate the financial condition of the company? (Click one of the options)

○ Strong

○ Weak

Choose atleast **three** ratios from the list of five ratios which you considered important in deciding whether the financial condition of the company is strong or weak

☐ Earnings (before interest and taxes) to total liabilities

☐ Cash flow (profits plus depreciation) to total liabilities

☐ Current assets to current liabilities

☐ Total liabilities to shareholders funds

☐

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⊔ Retained earnings to total tangible assets

Do you think the company will be insolvent within the next one year? (Click one of the options)

○ Definitely not

○ Probably not

○ Maybe

○ Probably yes

○ Definitely yes

In addition to the financial ratios provided, the audit team collected other information from various internal and external sources such as discussions with management, reports from media, industry experts, financial analysts, views of economists and government publications. You collated all the information and presented to your manager for a discussion.

The following is the list of twenty two pieces of information. Please read carefully the following information and prepare yourself for a discussion with your manager.

1. Management has indicated that there is a good chance of losing a major customer.

2. The technology of the company is competitive with other firms in the industry.

3. The competence of the company's management has been questioned by outside observers.

4. The company's major product is generally considered to be of good quality.

5. The company has significantly less working capital than the average firm in the industry.

6. Management states that it is possible that a key patent may be obtained in the near future.

7. Discussions with management indicate that a material liability from litigation is likely this year.

8. The debt to equity ratio of the company is around the industry average.

9. Management believes that additional equity capital can be raised through the issue of shares if needed.

10. This year the firm reported a significant loss from operations.

11. Management and labour representatives indicate that there is a chance that labour will strike this year.

12. This year the company reported a positive cash flow from operations.

13. Management indicated that new legislation may make it difficult to market one of the firm's major products.

14. In general, suppliers of the firm indicate that usual trade credit to the firm will be available.

15. It appears that if needed, it will be difficult to obtain additional debt capital.

16. The economic outlook for the industry is stable.

17. The company has not paid its preferred stockholder dividends in recent years.

18. The market share of the firm is below average for the industry.

19. Management has indicated that there is no chance of losing a major supplier.

20. An analysis of accounts receivable revealed the collection time to be around the industry average.

21. There is a strong rumour that the main competitor of the company has invented a new drug with significant low cost and is likely to launch the product in November this year.

22. The management of HealWorld agreed to raise the stake in the company by another 10%. It is anticipated that a significant amount of funds will be injected by HealWorld as a part of the deal.

When you presented the pieces of information, your manager asked you to select the appropriate items to make the going

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concern judgment and rank them in order of relevance.

So as per your manager's suggestion, please select and rank the items that you would consider relevant in deciding whether the firm would fail.

Select the items of information by clicking the appropriate buttons on the right. If you select **Yes**, then rank the items from highly relevance to low relevance by clicking the appropriate buttons on the right. If you select **No**, then click the **Not applicable** button on your right.

	Is item selected?		Rate relevance of the item			
	Yes	No	Not applicable	Highly relevance	Moderate relevance	Low relevance
1. Management has indicated that there is a good chance of losing a major customer.	○	○	○	○	○	○
2. The technology of the company is competitive with other firms in the industry.	○	○	○	○	○	○
3. The competence of the firm's management has been questioned by outside observers.	○	○	○	○	○	○
4. The firm's major product is generally considered to be of good quality.	○	○	○	○	○	○
5. The company has significantly less working capital than the average firm in the industry.	○	○	○	○	○	○
6. Management states that it is possible that a key patent may be obtained in the near future.	○	○	○	○	○	○
7. Discussions with management indicate that a material liability from litigation is likely this year.	○	○	○	○	○	○
8. The debt to equity ratio of the company is around the industry average.	○	○	○	○	○	○
9. Management believes that additional equity can be raised through the issue of shares if needed.	○	○	○	○	○	○
10. This year the firm reported a significant loss from the operations.	○	○	○	○	○	○
11. Management and labour representatives indicate that there is a chance that labour will strike this year.	○	○	○	○	○	○
12. This year the company reported a positive cash flow from operations.	○	○	○	○	○	○
13. Management indicated that new legislation may make it difficult to market one of the firm's major products.	○	○	○	○	○	○
14. In general, suppliers of the firm indicate that usual trade credit to the firm will be available.	○	○	○	○	○	○
15. It appears that if needed, it will be difficult to obtain additional debt capital.	○	○	○	○	○	○
16. The economic outlook for the industry is stable.	○	○	○	○	○	○
17. The company has not paid its preferred stockholder	○	○	○	○	○	○

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dividends in recent years.

18. The market share of the firm is below average for the industry.	○	○	○	○	○	○
19. Management has indicated that there is no chance of losing a major supplier.	○	○	○	○	○	○
20. An analysis of accounts receivable revealed the collection time to be around the industry average.	○	○	○	○	○	○
21.There is a strong rumour that the main competitor of the company has invented a new drug with significant low cost and is likely to launch the product in November this year.	○	○	○	○	○	○
22. The management of HealWorld agreed to raise the stake in the company by another 10%. It is anticipated that a significant amount of funds will be injected by HealWorld as a part of the deal.	○	○	○	○	○	○

Your opinion about the following statements may help us to understand the decision you made during the going concern assessment in the previous sections. This section is a crucial part of the study so please respond to every question.

Please click the response that indicates how you generally feel. There is no right and wrong answers. Do not spent too much time on any one statement.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
1. I often accept other people's explanations without further thought.	○	○	○	○	○	○
2. I feel good about myself.	○	○	○	○	○	○
3. I wait to decide on issues until I can get more information.	○	○	○	○	○	○
4. The prospect of learning excites me.	○	○	○	○	○	○
5. I am interested in what causes people to behave the way that they do.	○	○	○	○	○	○
6. I am confident of my abilities.	○	○	○	○	○	○
7. I often reject statements unless I have proof that they are true.	○	○	○	○	○	○
8. Discovering new information is fun.	○	○	○	○	○	○
9. I take my time when making decisions.	○	○	○	○	○	○
10. I tend to immediately accept what other people tell me.	○	○	○	○	○	○
11. Other people's behaviour doesn't interest me.	○	○	○	○	○	○
12. I am self-assured.	○	○	○	○	○	○
13. My friends tell me that I usually question things that I see or hear.	○	○	○	○	○	○
14. I like to understand the reason for other people's behaviour.	○	○	○	○	○	○
15. I think that learning is exciting.	○	○	○	○	○	○
16. I usually accept things I see, read or hear at face value.	○	○	○	○	○	○
17. I don't feel sure of myself.	○	○	○	○	○	○
18. I usually notice inconsistencies in explanations.	○	○	○	○	○	○
19. Most often I agree with what the others in my group think.	○	○	○	○	○	○

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20. I dislike having to make decisions quickly.	○	○	○	○	○	○
21. I have confidence in my self.	○	○	○	○	○	○
22. I don't like to decide until I have looked at all of the readily available information.	○	○	○	○	○	○
23. I like searching for knowledge.	○	○	○	○	○	○
24. I frequently question things that I see or hear.	○	○	○	○	○	○
25. It is easy for other people to convince me.	○	○	○	○	○	○
26. I seldom consider why people behave in a certain way.	○	○	○	○	○	○
27. I like to ensure that I have considered most available information before making a decision.	○	○	○	○	○	○
28. I enjoy trying to determine if what I read or hear is true.	○	○	○	○	○	○
29. I relish learning.	○	○	○	○	○	○
30. The actions people take and the reasons for those actions are fascinating.	○	○	○	○	○	○

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Appendix I- Sample questionnaire for students- viable hypothesis and strong ratios

Default Question Block

My name is Abhijit Das, a Master in Accounting by Research candidate in the Faculty of Business and Law at Edith Cowan University (ECU), Perth, Australia, under the supervision of Dr. Zubaidah Ismail. I am currently undertaking a study on going concern assessment and the impact of information search, evaluation of information and professional scepticism in the assessment.

I am inviting you to participate in this online survey.

This survey will comprise three sections to collect data on:
a) Demographic information about gender, course currently studying and major(s).
b) The going concern assessment: Hypothetical company information and a list of five financial ratios for a period of three years will be given.
c) Questions pertaining to professional scepticism

The estimated time to complete the survey will be **thirty minutes or less.**

Individual responses will be kept strictly confidential and can only be accessed by the researcher (Abhijit Das) and his supervisor (Dr. Zubaidah Ismail). In addition to that, no individual will be identified in any report. Participation is voluntary and you can withdraw from the survey at any time. There will be no penalty to your unit for not participating in the survey. In order to maintain confidentiality, Edith Cowan University will include your views in aggregate with other participants in any report. If you have any questions regarding the study, please free to contact Abhijit Das at **abhijitd@our.ecu.edu.au** or Dr. Zubaidah Ismail at **z.ismail@ecu.edu.au**

The study has been approved by the Edith Cowan University Human Research Ethics Committee. If you have any concerns or complaints about the project and would like to speak with an independent person, please contact Research Ethics Officer at **research.ethics@ecu.edu.au**

In addition, in appreciation for your participation, an **Ipad Air 2 (16 GB)** will be awarded to a randomly selected participant who has supplied his/ her e-mail address. Be assured that the email will not be linked to your responses from the survey.

The data collected during the study may be used for future study.

 Some remarks in advance:
- Please answer all the questions
.
- You are asked to **work independently** on the survey

Thank you very much for your participation!

I have read and understood the purpose of the survey and give my free consent to participate in this study. Click on agree to proceed with the survey.

○ Agree

○ Disagree

Demographic information

What is your gender? (Click appropriate box)

○ Male

○ Female

Did you graduate? (Click appropriate box)

○ Yes

○ No

What course are you undertaking / have completed? (Click appropriate box)

☐ Undergraduate course

☐ Post graduate course (including Graduate Certificate and Graduate Diploma)

What is your major(s) or concentration? (Click appropriate box/boxes)

☐ Accounting

☐ Finance

☐ Other

If for the previous question you clicked "Other", please specify your major/concentration in the following test box provided.

CureWorld (CW) Ltd is an Australian multinational pharmaceutical company that was incorporated in Australia in 1991. The company exports its products to 100 countries. The company also established manufacturing facilities in 10 countries with ground operations in 25 countries. The company went public in 2000 and in 2005, an American pharmaceutical company HealWorld (HW) Inc. has acquired 25% share of CureWorld making the conglomerate the world's tenth largest specialty generic pharmaceutical company.

Your firm has been being appointed as auditor since July 2011. You are a part of the current year audit team and your team has almost completed the financial audit for the year ended 30 June 2014. The manager of your team has requested your informed judgment on whether the company is likely to remain viable (i.e. continue its operation unaided) in the next one year.

The manager provided you with three years' financial ratios and asked you to examnie the financial ratios, in order to determine if the company is going to remain viable in the next one year.

Financial Ratios	Jun-12	Jun-13	Jun-14
Earnings before interest and taxes to total liabilities	0.22	0.23	0.25
Cash flow (profits plus depreciation) to total liabilities	0.40	0.39	0.41
Current assets to current liabilities	0.87	0.93	1.05
Total liabilities to shareholders funds	2.08	2.38	1.99
Retained earnings to total tangible assets	0.24	0.21	0.25

How would you rate the financial condition of the company? (Click one of the options)

○ Strong

○ Weak

Choose at least **three** ratios from the list of five ratios which you considered important in deciding whether the financial condition of the company is strong or weak

☐ Earnings (before interest and taxes) to total liabilities

☐ Cash flow (profits plus depreciation) to total liabilities

☐ Current assets to current liabilities

☐ Total liabilities to shareholders funds

☐ Retained earnings to total tangible assets

Do you think the company will remain viable in the next one year? (Click one of the options)

○ Definitely not

○ Probably not

○ Maybe

○ Probably yes

○ Definitely yes

In addition to the financial ratios provided, the audit team collected other information from various internal and external sources such as discussions with management, media, reports from industry experts, financial analysts, views of economists and government publications.
The following is the list of twenty two items of information. Please read carefully the following information and prepare yourself for a discussion with your manager.

1. Management has indicated that there is a good chance of losing a major customer.

2. The technology of the company is competitive with other firms in the industry.

3. The competence of the company's management has been questioned by outside observers.

4. The company's major product is generally considered to be of good quality.

5. The company has significantly less working capital than the average firm in the industry.

6. Management states that it is possible that a key patent may be obtained in the near future.

7. Discussions with management indicate that a material liability from litigation is likely this year.

8. The debt to equity ratio of the company is around the industry average.

9. Management believes that additional equity capital can be raised through the issue of shares if needed.

10. This year the firm reported a significant loss from operations.

11. Management and labour representatives indicate that there is a chance that labour will strike this year.

12. This year the company reported a positive cash flow from operations.

13. Management indicated that new legislation may make it difficult to market one of the firm's major products.

14. In general, suppliers of the firm indicate that usual trade credit to the firm will be available.

15. It appears that if needed, it will be difficult to obtain additional debt capital.

16. The economic outlook for the industry is stable.

17. The company has not paid its preferred stockholder dividends in recent years.

18. The market share of the firm is below average for the industry.

19. Management has indicated that there is no chance of losing a major supplier.

20. An analysis of accounts receivable revealed the collection time to be around the industry average.

21. There is a strong rumour that the main competitor of the company has invented a new drug with significant low cost and is likely to launch the product in November this year.

22. The management of HealWorld agreed to raise the stake in the company by another 10%. It is anticipated that a significant amount of funds will be injected by HealWorld as a part of the deal.

When you presented all the information, your manager asked you to select the appropriate items of information to make the going concern judgment and rank them in order of relevance.

So as per your manager's suggestion, please select and rank the items that you would consider relevant in deciding whether

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the firm would remain viable.

Select the items of information by clicking the appropriate buttons on the right. If you select **Yes**, then rank the items from highly relevance to low relevance by clicking the appropriate buttons on the right. If you select **No**, then click the **Not applicable** button on your right.

	Is item selected?		Rate relevance of the item			
	Yes	No	Not applicable	Highly relevance	Moderate relevance	Low relevance
1.Management has indicated that there is a good chance of losing a major customer.	○	○	○	○	○	○
2. The technology of the company is competitive with other firms in the industry.	○	○	○	○	○	○
3. The competence of the firm's management has been questioned by outside observers.	○	○	○	○	○	○
4. The firm's major product is generally considered to be of good quality.	○	○	○	○	○	○
5. The company has significantly less working capital than the average firm in the industry.	○	○	○	○	○	○
6. Management states that it is possible that a key patent may be obtained in the near future.	○	○	○	○	○	○
7. Discussions with management indicate that a material liability from litigation is likely this year.	○	○	○	○	○	○
8. The debt to equity ratio of the company is around the industry average.	○	○	○	○	○	○
9. Management believes that additional equity can be raised through the issue of shares if needed.	○	○	○	○	○	○
10. This year the firm reported a significant loss from the operations.	○	○	○	○	○	○
11. Management and labour representatives indicate that there is a chance that labour will strike this year.	○	○	○	○	○	○
12. This year the company reported a positive cash flow from operations.	○	○	○	○	○	○
13. Management indicated that new legislation may make it difficult to market one of the firm's major products.	○	○	○	○	○	○
14. In general, suppliers of the firm indicate that usual trade credit to the firm will be available.	○	○	○	○	○	○
15. It appears that if needed, it will be difficult to obtain additional debt capital.	○	○	○	○	○	○
16. The economic outlook for the industry is stable.	○	○	○	○	○	○
17. The company has not paid its preferred stockholder dividends in recent years.	○	○	○	○	○	○
18. The market share of the firm is below average for the	○	○	○	○	○	○

industry.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
19. Management has indicated that there is no chance of losing a major supplier.	○ ○	○	○	○	○	
20. An analysis of accounts receivable revealed the collection time to be around the industry average.	○ ○	○	○	○	○	
21. There is a strong rumour that the main competitor of the company has invented a new drug with significant low cost and is likely to launch the product in November this year.	○ ○	○	○	○	○	
22. The management of HealWorld agreed to raise the stake in the company by another 10%. It is anticipated that a significant amount of funds will be injected by HealWorld as a part of the deal.	○ ○	○	○	○	○	

Your opinion about the following statements may help us to understand the decision you made during the going concern assessment in the previous sections. This section is a crucial part of the study so please respond to every question.

Please click the response that indicates how you generally feel. There is no right and wrong answers. Do not spent too much time on any one statement.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
1. I often accept other peoples' explanations without further thought.	○	○	○	○	○	○
2. I feel good about myself.	○	○	○	○	○	○
3. I wait to decide on issues until I can get more information.	○	○	○	○	○	○
4. The prospect of learning excites me.	○	○	○	○	○	○
5. I am interested in what causes people to behave the way that they do.	○	○	○	○	○	○
6. I am confident of my abilities.	○	○	○	○	○	○
7. I often reject statements unless I have proof that they are true.	○	○	○	○	○	○
8. Discovering new information is fun.	○	○	○	○	○	○
9. I take my time when making decisions.	○	○	○	○	○	○
10. I tend to immediately accept what other people tell me.	○	○	○	○	○	○
11. Other peoples' behaviour doesn't interest me.	○	○	○	○	○	○
12. I am self-assured.	○	○	○	○	○	○
13. My friends tell me that I usually question things that I see or hear.	○	○	○	○	○	○
14. I like to understand the reason for other peoples' behaviour.	○	○	○	○	○	○
15. I think that learning is exciting.	○	○	○	○	○	○
16. I usually accept things I see, read or hear at face value.	○	○	○	○	○	○
17. I don't feel sure of myself.	○	○	○	○	○	○
18. I usually notice inconsistencies in explanations.	○	○	○	○	○	○
19. Most often I agree with what the others in my group think.	○	○	○	○	○	○

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20. I dislike having to make decisions quickly.

21. I have confidence in my self.

22. I don't like to decide until I have looked at all of the readily available information.

23. I like searching for knowledge.

24. I frequently question things that I see or hear.

25. It is easy for other people to convince me.

26. I seldom consider why people behave in a certain way.

27. I like to ensure that I have considered most available information before making a decision.

28. I enjoy trying to determine if what I read or hear is true.

29. I relish learning.

30. The actions people take and the reasons for those actions are fascinating.

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