

# **Impact of Gender and Culture on Audit Judgements**

A thesis in fulfillment of the requirement for the Degree of Master of Research

by

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## List of Acronyms

|       |   |
|-------|---|
| ASA   | Auditing Standards in Australia                       |
| AUASB | Auditing and Assurance Standards Board in Australia   |
| AASB  | Australian Accounting Standards Board                 |
| IFAC  | International Federation of Accountants               |
| FASB  | Financial Accounting Standards Board                  |
| IAASB | International Auditing and Assurance Standards Board  |
| ISA   | International Standards on Auditing                   |
| PwC   | PricewaterhouseCoopers                                |
| AICPA | American Institute of Chartered Public Accountants    |
| SEC   | Securities and Exchange Commission                    |
| CPA   | Certified Public Accountant                           |
| QMF   | Qualitative Materiality Factor                        |
| SAT   | Scholastic Aptitude Test                              |
| GRE   | Graduate Record Examination                           |
| TIMSS | Trends in International Mathematics and Science Study |
| PISA  | Programme for International Student Assessment        |
| US    | United States of America                              |
| OECD  | Organization for Economic Cooperation and Development |
| STEM  | Science, Technology, Engineering and Mathematics      |
| IFRS  | International Financial Reporting Standards           |
| UK    | United Kingdom  |
| MPA   | Master of Professional Accounting                     |
| ROA   | Return on Asset                                       |
| ANOVA | Analysis of Variance                                  |

## **Abstract**

New mandates issued by international auditing regulators call for an all-inclusive approach in making materiality judgements, which need to take into account both quantitative and qualitative information. Auditors are being directed away from the tendency to perform ‘check-the-box’ audits to more circumstance oriented audit judgements. This study examines the impact of the inherent factors of gender and national culture of auditors and how they affect audit judgements on materiality. In particular, this study provides an understanding of whether auditors are using both qualitative and quantitative evidence in their audit judgements regarding materiality, instead of solely using prescribed materiality percentages. A survey was conducted among final year undergraduate and postgraduate accounting students enrolled at Macquarie University. The results indicate substantial differences in the judgements made by male and female students. Males exhibit a higher preference for quantitative information as a primary basis for making materiality judgements while females show a greater preference for qualitative information. Furthermore, the results also provide strong support for the notion that materiality judgements vary due to culture. Differences in judgements between Chinese and Australian students were found, with Chinese students exhibiting higher preference for quantitative information as a primary basis for making materiality judgements and Australian students preferring more qualitative information. Lastly, Chinese students exhibited more conservatism in their materiality judgements than their Australian counterparts. Overall, our findings have implications for standard-setters, regulatory bodies, other policy makers and audit firms in their efforts to achieve improved audit quality through consistency in audit judgements.

## **Statement of Candidate**

The work completed in this thesis has not been submitted for a higher degree to any other university or institution. The source of information used and the extent to which the work of others' has been applied in this thesis has been fully acknowledged. This thesis meets the requirements of the National Statement on Ethical Conduct in Human Research and has obtained the approval of the Macquarie University Human Research Ethics Committee for the project (Ref: 5201700334).

A handwritten signature in black ink, appearing to read 'Batul Towfique Hasan', with a stylized, cursive script.

Batul Towfique Hasan

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## **CHAPTER 1: INTRODUCTION**

### **1.1 Overview**

Audit judgements are an integral component of the audit function. Wedemeyer (2010, p. 320) defines audit judgement as “any decision or evaluation made by an auditor, which influences or governs the process and outcome of an audit of financial statements”. Auditors need to make judgement calls throughout the audit process. In the context of a specific audit, judgements are required to: consider how clients have applied the relevant accounting rules and standards; assess the risk of material misstatements, including business and fraud risks; select audit procedures to assess those risks; evaluate the evidence gathered in terms of its quality and sufficiency, including the need for additional procedures if required; and, finally, form an audit opinion (Wedemeyer, 2010). Therefore, an audit cannot simply be a set of prescribed rules or a checklist. Audit judgements will be an integral part of any audit engagement, and investors and other participants of the capital market rely on the judgements made by auditors in the audit of company’s financial statements.

The importance of audit judgements can be surmised from the repeated references to auditors’ judgements in the Auditing Standards in Australia (ASA) issued by the Auditing and Assurance Standards Board in Australia (AUASB). The AUASB is the primary body in Australia responsible for developing auditing standards and related guidance for auditors. The majority of the ASAs refer to either audit judgements and/or professional judgements in the context of conducting an audit, and their relevance and application throughout the audit process. For example, ASA 102 refers to audit judgements in engagement control reviews, ASA 100 highlights the need for judgements in audit documentation, ASA 200 emphasises audit judgements in the consideration of materiality. The AUASB’s repeated references to audit judgements throughout the audit standards clearly demonstrate that audit judgement is a fundamental aspect of any audit engagement, and, thus, must be diligently understood and applied.

Audit judgements have an inherent problem – it lacks consensus. Given the same set of information, the application and outcomes of audit judgements have been found to

vary from one auditor to another (Bernstein, 1967; Joyce, 1976; Moriarity & Barron, 1976; Nolder & Riley, 2013). Provided with identical data, some auditors may find the client worthy of an unqualified opinion, while others may request further audit procedures or provide a qualified opinion. Inconsistencies in audit decision-making have significant implications for users of audited financial statements, as they implicitly rely on audit judgements for their investment decisions. Variations in audit decision-making have been attributed to several factors – some external and some inherent.

Research has shown that audit judgements are affected by both external and inherent factors. External factors, such as audit fees (Kelley & Margheim, 1990), audit experience (Abdolmohammadi & Wright, 1987; Meixner & Welker, 1988), and time pressure (Kelley & Margheim, 1987), significantly affect the decisions of auditors during an audit engagement. Inherent factors, such as personality traits, gender, and national culture, also affect audit judgements. For example, Chinese accountants have been found to be more conservative than Anglo-Celtic accountants (Chand, Cummings, & Patel, 2012), female auditors display stronger moral reasoning than male auditors (Ameen, Guffey, & McMillan, 1996), and complex audit tasks are inversely related to the confidence in one's judgement (Chung & Monroe, 2000). Hottegingdre, Loison, and Farjaudon (2017) demonstrated that disciplinary offences that tarnish the image of the audit profession, as a whole, are only committed by male auditors, whereas female auditors are more prone to committing disciplinary offences that relate to audit quality. Research in the area of inherent auditor characteristics affecting audit judgements is limited. Gul, Wu, and Yang (2013) propose further research in the area of personality traits in auditors and their judgement quality.

Materiality is another fundamental and all-encompassing aspect of auditing and is applied in multiple phases of any audit engagement. The exact definition of materiality varies with the accounting body or audit regulators defining it. However, the central theme of the definition focuses on the fact that any item whose omission or misstatement affects economic decisions by stakeholders is considered to be material. For example, the Australian Accounting Standards Board (AASB) 1031 defines materiality as follows:

“Omissions or misstatements of items are material if they could, individually or collectively, influence the economic decisions of users taken on the basis of the financial statements. Materiality depends on the size and nature of the omission or misstatement judged in the surrounding circumstances. The size or nature of the item, or a combination of both, could be the determining factor.”<sup>1</sup>

In recent years, major regulatory bodies, such as the International Federation of Accountants (IFAC), have cited concerns regarding the misapplication of materiality rules to manipulate earnings and its consequent effects on the users of financial information (Ancuța, Emil, Timea, & Atanasiu, 2010). Previously, materiality decisions were made simply in accordance with prescribed percentages, with little or no application of judgement (Messier, Martinov-Bennie, & Eilifsen, 2005). However, new rules issued by the international audit bodies now call for an all-inclusive approach to making materiality decisions, taking into account quantitative as well as qualitative information. The ASA 320 does not describe materiality decisions simply as prescribed quantitative rules, but rather that “judgements about materiality are made in light of surrounding circumstances”.

Audit judgements on materiality are also plagued by inconsistency, both in terms of the guidelines provided and the final judgements made. Various studies have found differences in materiality guidelines and their use (Martinov & Roebuck, 1998), variances in levels of materiality planning sets between Big 4 and Non-Big 4 audit firms (Blokdijs, Driehuisen, Simunic, & Stein, 2003), and variations in judgement due to age and experience (Estes & Reames, 1988). Given that materiality guidelines vary and that judgements diverge due to the personality characteristics of an auditor, materiality judgements will also differ between individual auditors.

The primary purpose of this study is to examine the impact of the inherent factors of gender and national culture of auditors and how they affect audit judgements on materiality. In particular, this study will provide an understanding of whether auditors

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<sup>1</sup> Financial Accounting Standards Board (FASB, 2017) also describes materiality as “omissions or misstatements of items ... if they could, individually or collectively, influence the economic decisions of users taken on the basis of the financial statements. Materiality depends on the size and nature of the omission or misstatement judged in the surrounding circumstances. The size or nature of the item, or a combination of both, could be the determining factor”.

are using qualitative and quantitative evidence in their audit judgements regarding materiality, instead of solely using prescribed percentages.

## 1.2 Background

Auditing's image as a public watchdog serving the public interest has been tarnished with the demise of Arthur Andersen and the spate of audit failures that followed the collapse of Enron in 2001. Public trust in audit judgements by external auditors has waned. Renowned audit firms, such as Arthur Andersen, Deloitte Touche Tohmatsu, and PricewaterhouseCoopers (PwC), have been found guilty of inappropriately providing undeserved, unqualified opinions for clients. Arthur Andersen was the ill-famed auditor of Enron, and they provided inappropriate, unqualified opinions for a number of years before Enron collapsed. They were also the external auditors for Waste Management Inc, Halliburton, WorldCom, and Sunbeam – companies that either collapsed or grossly misrepresented their financial statements. Deloitte Touché Tohmatsu were auditors for Nortel, Adelphia Communications, and Livent, while PwC were auditors for Bristol Myers Squibb, Kmart, and Swissair. All were well-known corporations who misrepresented their financial statements but were, nevertheless, given unqualified audit opinions by their respective auditors prior to their collapse. Similar audit failures around the world have resulted in increased scrutiny of the audit profession and significant reforms to audit standards, with a view to improving audit judgements and auditor conduct during audit engagements.

One such significant reform has been to the International Standards on Auditing (ISA) 450 *Evaluation of Misstatements Identified during the Audit* issued by the International Auditing and Assurance Standards Board (IAASB) – the international governing body for auditing standards. The ISA 450, under IAASB (2015), states that:

“Determining whether a classification misstatement is material involves the evaluation of qualitative considerations, such as the effect of the classification misstatement on debt or other contractual covenants, the effect on individual line items or sub-totals, or the effect on key ratios.”



The IAASB (2015, p. 388) also states that ‘qualitative aspects’ of an entity, such as indicators of possible bias, must be considered to ensure that the financial statements have been prepared in accordance with the prescribed rules and standards. This further extends the scope and application of audit judgements in conducting an audit. Instead of carrying out formulated audit procedures and applying prescribed decision rules, auditors will now have to consider both quantitative and qualitative evidence prior to making an audit judgement.

Audit judgements are applied in every step of the audit process, and their importance cannot be undermined. Judgement begins with the selection of new clients. In evaluating the inclusion of a client into the firm’s portfolio, auditors need to assess the risk of a new client, taking into consideration the client’s industry, history and profitability, as well as the audit firm’s existing expertise and any other relevant information. During the audit, audit judgements are applied to ensure an accurate application of the rules and standards governing the entity being audited. Checklists and prescribed rules are also not sufficient in the review of working papers to assess the adequacy and quality of the evidence collected. Auditor judgements are essential in determining the further need for, or redundancy of, additional procedures. Lastly, the audit opinion expressed is a culmination of auditor judgements from the evidence gathered during the audit. According to Wedemeyer (2010), the most significant audit judgement is the audit opinion and whether to issue an unqualified, qualified, or no opinion.

The significance of audit judgements can be better understood from the emphasis applied to them in the ASAs published by the AUASB. For example, the ASA Preamble highlights that auditors can use judgement where the standards allow them to use alternative approaches. It also highlights the areas where audit judgements are particularly relevant, such as determining and applying materiality, ethical compliance, selecting appropriate review procedures, assessing audit evidence, the extent of documentation, audit opinions, and communication with relevant parties – essentially, the entire audit process. Further examples of the relevance of audit judgements include ASA 102, which emphasises that the engagement control reviewer must objectively evaluate the significant judgements made by auditors. ASA 100 refers to the need for audit judgements pertaining to the form and content of the

audit documentation, which depends mainly on the size, nature, and complexity of the client's firm. ASA 701 refers to the necessity for audit judgements in identifying the Key Audit Matters relevant to the specific engagement, including the method and content of the communication to the relevant stakeholders. ASA 200 reiterates the need for audit judgements in the areas of materiality and throughout the planning and performance of the audit engagement. It makes particular reference to the audit judgements needed to decide reasonable accounting estimates, given the circumstances of the client's firm. Repeated reference to the application of audit judgements throughout the ASAs demonstrates the importance of audit judgements in any audit engagement and the need to apply them with care and diligence.

However, the problem with audit judgements lies in the fact that they are a product of the human mind, and they may differ between auditors using the same information. Joyce (1976) reviews several studies on audit judgements and highlights that substantial differences exist among judgements made by auditors. The American Institute of Chartered Public Accountants (AICPA) conducted a study where eight auditors were provided with identical information but they formulated different audit plans (Joyce, 1976). Similarly, Aly and Duboff (1971) demonstrated variations in the judgements of their sample of 158 auditors given identical information.

In a more recent review study by Nolder and Riley (2013), the authors collated several studies that illustrate differences in audit judgements due to culture. Chen, Huang, and Barnes (2007) show that Taiwanese auditors rate control risk higher than the low uncertainty-avoiding Singaporean auditors. O'Donnell and Johnson (2001) illustrated differences in account-level risk assessment between British, French, and American auditors. Hughes, Sander, Higgs, and Cullinan (2009) find that the expected predictions of current year account balances for account receivables vary between United States (US) and Mexican auditors due to cultural differences. They also illustrate that the high uncertainty-avoiding Mexicans express a higher rate of risk of material misstatement compared to the low uncertainty-avoiding Americans. Sim (2009) demonstrated that the Taiwanese coming from a collectivist society rate control risk lower than the individualist Australians. Therefore, audit judgements are affected by an auditor's national culture, resulting in a lack of consensus in the decision-making process, even when provided with identical information.

Research illustrates that audit judgements are also affected by gender. Breesch and Branson (2009) find that female auditors are more risk averse and discover more potential misstatements than male auditors. According to Breesch and Branson (2009), women are more careful, well-reasoned and conservative, and these characteristics are reflected in their audit judgements as well. O'Donnell and Johnson (2001) find that females are more effective in processing complicated tasks and, consequently, it affects their audit decision-making efficiency compared to male auditors. In terms of moral reasoning, female auditors are expected to be more ethical than male auditors. Ameen et al. (1996) carried out a study among male and female accounting students and illustrate that females are less tolerant of unethical academic behaviour. Their findings suggest that newly recruited female accountants will demonstrate higher levels of moral strength than newly hired male accountants. Therefore, an auditor's gender plays a significant role in the quality of audit judgements made.

Furthermore, the individual auditor's inherent traits considerably affect the human mind's sway over audit judgements. Chung and Monroe (2000) illustrated that audit experience is positively related, and task difficulty is inversely related, to confidence in one's judgement. Malone and Roberts (1996) show that the need for approval and advancement in auditors leads to reduced audit quality behaviours in the profession. One of the most comprehensive studies carried out in the area of personality traits has been by Gul et al. (2013). In their study, Gul et al. (2013) examined a possible association between an auditor's education, gender, birth cohort, Big 4 job experience, political affiliation, and the quality of the audit performed. They find substantial differences in judgements based on the individual auditor characteristics chosen above, demonstrating that audit judgements are indeed affected by the demographic variables selected. The study was based on archival data of Chinese auditors.

This study explores the area of materiality. Materiality is applied in the audit planning phase, in the application of procedures, and in the review phase (Ancuța et al., 2010). Professional judgement determines what is considered to be material in an audit (Messier et al., 2005; Houghton, Jubb, & Kend, 2011). Materiality primarily influences the audit opinion, as well as the type and rigour of audit procedures to be

applied (Houghton et al., 2011). In 1988, Arthur Levitt, Chairman, Securities and Exchange Commission (SEC), commented that companies were abusing the concept of materiality for the purpose of managing earnings (Messier et al., 2005). Quantitative rule-of-thumb procedures were used to ascertain materiality judgements by a majority of auditors (Bernardi & Pincus, 1996). Materiality percentages as a proportion of income were found to be the most popular prescribed quantitative guidelines throughout various studies (Messier et al., 2005).

In a bid to improve the application of materiality, the revised standards direct practitioners to take a comprehensive approach to determining materiality, encompassing both qualitative and quantitative evidence. Brown (2002) demonstrated that auditor judgement on materiality is affected by qualitative factors and that judgement revisions on materiality are also affected by the order in which the qualitative information is provided. Ancuța et al. (2010) cite from the Staff Accounting Bulletin 99, arguing that “materiality cannot be reduced only to a numerical formula”. Ancuța et al. (2010) propose that in concurrence with IFAC, auditors need to consider the size of the client’s firm, the industry it operates in, and the calculus indicator for materiality. They suggest future research into the area of qualitative factors affecting materiality judgements (Ancuța et al., 2010).

This study intends to address the gaps in the existing literature. As accounting and auditing move towards principle-based standards and guidelines, the application of professional judgement and the combined use of both qualitative and quantitative information have gained significant interest. The importance of inherent auditor characteristics has also gained attention as factors influencing audit judgements, though research in this area is limited. There have been calls for further studies into this field (Gul et al., 2013). The importance of qualitative factors in affecting materiality judgements has also been established (Brown, 2002; Ancuța et al., 2010; Menezes-Montenegro & Bras, 2015). However, research examining the use of qualitative audit evidence in materiality decision-making is very limited. This study explores the inherent traits of gender and national culture as possible factors that cause differences in auditors’ materiality judgements due to the preference and utilisation of qualitative and quantitative audit information.

### 1.3 Aims and Objectives

The aim of this study is to establish whether the inherent characteristics of gender and national culture affect the materiality judgements of auditors, thereby adding to the lack of consensus that currently exists across audit judgements. The specific objectives of this study are as follows:

- To determine the influence of gender on the utilisation of quantitative and qualitative information in the materiality judgements of auditors;
- To determine the influence of national culture on the utilisation of quantitative and qualitative information in the materiality judgements of auditors; and
- To determine the influence of national culture on the level of conservatism expressed by auditors in their materiality judgements.

### 1.4 Motivation and Contributions

The primary motivation of this study is the IAASB's move to include both quantitative and qualitative information in audit judgements. Audit judgements were primarily based on quantitative factors, such as a prescribed materiality percentage, acceptable financial ratios and industry averages, and more so in the application of materiality judgements. The newly introduced ISA 450 *Evaluation of Misstatements Identified during the Audit* requires that auditors should now consider both quantitative and qualitative information in making audit judgements. In materiality judgements, where decisions are primarily based on quantitative percentages such as percentage of net income, totals assets or total revenue (Carpenter, Dirsmith, & Gupta, 1994; Messier et al., 2005), and the percentages being within prescribed limits have been misused to mask qualitative materiality issues, it is pivotal to ensure the consideration of the qualitative aspects of an audit engagement.

Second, existing research in the area of individual auditor characteristics as an antecedent to the lack of consensus in audit judgement is limited, particularly in the context of materiality. There have been calls for further studies into the role of inherent characteristics in audit judgements (Gul et al., 2013), as well as qualitative factors affecting materiality judgements (Ancuța et al., 2010). Hence, this research

adds to the literature in the area of inherent traits affecting audit judgement in the context of materiality.

This research is further motivated by the rising global interest in the effects of national culture on accounting and auditing. New reforms are being introduced in the audit profession due to the audit failures and corporate collapses of the past. Additionally, the role of culture in influencing audit judgements has attained global interest in tandem with the efforts towards accounting and auditing harmonisation. Given the recent emphasis on principle-based judgements and the incorporation of qualitative data into audit decision-making, it is worthwhile examining whether materiality judgements have actually shifted away from being solely percentage-based decisions to an all-inclusive application of both quantitative and qualitative evidence. Therefore, this research is motivated by the combination of the continuous reforms in the field of auditing, which are directing a move away from check-the-box audit practices, and the recent global interest in the inherent traits of individual auditors, which are affecting audit judgements.

The primary contribution of this thesis is that it provides a further understanding of the lack of consensus in audit judgements on materiality and, therefore, moving a step closer to better audit quality and consistency. This research is novel in that no previous studies have attempted to identify differences in materiality audit judgements due to variations in the utilisation of quantitative and qualitative information. The study also adds to the limited extant literature on the effects of gender and national culture on audit judgements in the context of materiality. Lastly, the findings from this research will help policy-makers coordinate with educators in the auditing profession to develop ways to reduce gender and cultural differences in the audit decision-making process. Incorporating the findings of this study, especially those related to culture, is even more important now, given the multicultural student cohort in tertiary accounting education due to significant migration trends in developed economies.

## **1.5 Organisation of the thesis**

The remainder of the thesis is organised as follows. Chapter 2 presents the literature review, and Chapter 3 develops the relevant hypotheses. Chapter 4 outlines the research methods used, and the results are presented in Chapter 5. The conclusion, implications, limitations, and avenues for further research are included in Chapter 6.

## **CHAPTER 2: OVERVIEW AND RELEVANT LITERATURE**

### **2.1 Audit Judgements**

Audit judgements encompass the entire audit process, from selecting the client to planning and executing the audit, evaluating the audit procedures, and, finally, issuing the audit opinion. Judgemental consideration is required in evaluating the client's application of accounting principles and standards. In terms of audit evidence, judgemental application is needed to apply the auditing principles and provided guidance in a manner applicable to the auditee's specific circumstance (Hatherly, 1999). As Hatherly (1999, p. 53) states, "auditing of financial statements should be seen inherently as a professional judgement".

Auditing can be a mechanical process based on quantitative and check-the-box measures or a judgemental application based on the audit clients and their circumstances (Smith, Fiedler, Brown, & Kestel, 2001). Auditors also fall into two separate groups – those who prefer quantitative benchmarks over professional judgement and those who deem quantification of audit practices is insufficient, as judgement will always be a significant part of any audit engagement (Smith et al., 2001). Some authors believe thorough quantitative evaluation will produce consistent auditor conclusions, while others believe that, given the complexity of financial reporting, quantitative measures alone are not sufficient to make audit decisions. Dirsmith and Haskins (1991, p. 62) state that an audit cannot be encompassed in mechanical steps as it is a "social enterprise that relies on language and certain imbedded perspectives". While structure in auditing brings about legitimacy and control, it does not necessarily result in effective and efficient auditing (Power, 2003). As accounting and auditing move towards a more principle-based approach, international bodies now emphasise the use of judgemental considerations. Hence, reforms now encourage and mandate the use of qualitative information alongside quantitative evidence in the judgement process.

Nearly all the major ASAs refer to the application of audit/professional judgement in the context of an audit engagement. The ASAs are a close reflection of the ISAs issued by IFAC through IAASB. ASA 100 extensively discusses the use and scope of



professional judgement application by the auditor throughout the audit engagement process, including areas of materiality, compliance, selection of audit procedures, the assessment of audit evidence, and final conclusions and communications. ASA 200.7 requires auditors to “exercise professional judgement and maintain professional scepticism throughout the planning and performance of the audit”, especially when identifying and evaluating risk in material misstatements and acquiring adequate audit evidence. Sec 200.A25 details the need for applications of judgement in making informed audit decisions in perspective of the auditee’s circumstances. In the planning of an audit, ASA 300 refers to the use of professional judgement in guiding the engagement team’s efforts in the proper direction. In the context of materiality, applications of judgement when determining, applying and evaluating materiality are discussed extensively in ASA 320 and ASA 720. The above are only a few examples of references to the application of professional judgement in the ASAs, emphasising that audit judgement cannot be a decision solely based on quantitative measures. Qualitative aspects regarding clients must also be considered in the audit decision-making process.

Several studies have illustrated the lack of consensus existing in audit judgements. Joyce (1976) conducted a study with 35 practising auditors who were asked to prepare summary audit programs for a given scenario. Significant variance was found in the judgement of the auditors. Joyce (1976) also demonstrated that the level of consensus decreased with audit experience and the emphasis given to the independent variables in terms of audit importance also varied, with the exception of bad debt expense/sales. Aly and Duboff (1971) surveyed 158 CPAs using a mail questionnaire. Participants were given a scenario regarding a retail store and were asked to record the number of account receivable confirmations required. The responses varied from 10 to 100 percent.

Brody, Golen, and Reckers (1998) conducted a study of 107 audit seniors centred on the audit judgements of a client’s internal control function. The study revealed that audit decisions are influenced by the conflict management style of the auditors and the communication barriers between internal and external audit functions. Depending on their conflict management styles, external auditors may or may not look for corroborative evidence regarding prior work done (Brody et al., 1998). Auditors with

high communication barriers spend extra audit hours looking for evidence instead of communicating to gain information from the internal audit function, resulting in unnecessary inefficiency in the audit judgement process (Brody et al., 1998). Allen and Elder (2005) demonstrated that audit judgements between firms vary and they change over time in the context of error projection rates. The study compared working papers on accounts receivable and inventory from three large audit firms for 1994 and 1999 and compared the error projection rates. Error rates varied between Big 5 and Non-Big 5 firms. The audit firms also addressed non-projected errors differently, illustrating differences in audit judgements.

A comprehensive study carried out by Gul et al. (2013) tested the role of individual auditor characteristics on audit judgements and decisions. Significant variations in audit judgements were illustrated due to differences in auditor education, experience in a big accounting firm, gender, and rank as an auditor (Gul et al., 2013). Gul et al. (2013) established that auditors who were exposed to Western education, worked in a Big 4/5 accounting firm, and were partners in the audit firm, were more conservative in their audit decisions. Similarly, auditors holding a Master's degree or having political affiliations were found to be more aggressive in their audit decision-making (Gul et al., 2013). Malone and Roberts (1996) surveyed auditors at 16 audit firms to ascertain the relationship between personality characteristics and reduced audit quality. They established that the 'need for approval' and the 'need for achievement' are inversely related to reduced audit quality (Malone & Roberts, 1996).

This study will examine whether gender and cultural differences in auditors are also responsible for causing differences in audit judgements. As accounting and auditing move towards principle-based standards and guidelines, the need for professional judgement and the combined use of both qualitative and quantitative data has gained significant interest. In an attempt to move a step closer to the elusive audit consensus regulators aspire to achieve, this study intends to establish an association between inherent auditor characteristics and audit decision-making regarding materiality.

## 2.2 Materiality

Kohler's (1970) *Dictionary for Accountants* terms materiality as "the characteristic attaching to a statement, fact, or item whereby its disclosure or the method of giving it expression would be likely to influence the judgement of a reasonable person". A more institutional definition of materiality by the FASB (2010, p. 17) states that,

"...information is material if omitting it or misstating it could influence decisions that users make on the basis of the financial information of a specific reporting entity. In other words, materiality is an entity-specific aspect of relevance based on the nature or magnitude or both of the items to which the information relates in the context of an individual entity's financial report."

The principle of the concept of materiality lies in whether the information being omitted or misstated is vital to the users of the financial information in their decision-making process.

Materiality is a fundamental aspect of audit practices applied in various phases of any audit. It is incorporated in the planning of the audit, in the application of the audit procedures, in the review of the results prior to forming an audit opinion and, finally, in forming an opinion (Messier et al., 2005; Ancuța et al., 2010). Materiality judgements should be based on the investors' need for quality accounting information regarding the company's operations, liquidity, and solvency. Such judgements should also consider both quantitative and qualitative information to determine the nature, timing, and depth of the audit procedures to be applied in the planning phase of an audit (Gist, Shastri, & Colson, 2003). In the past, materiality decisions were primarily based on quantitative thresholds, the most common being percentage of net income, total assets, and net assets (Carpenter et al., 1994; Messier et al., 2005).

A common problem with materiality judgements has been its dependence on quantitative benchmarks. Studies have shown that the most popular benchmark for making materiality judgements has been the magnitude of the misstatement as a percentage of net income (Robinson & Fertuck, 1985; Messier et al., 2005). Carpenter et al. (1994) found that materiality judgements are predominantly based on the size of

any misstatement relative to the current year's net income. They also concluded that materiality as a percentage of net assets or total assets is a secondary consideration (Carpenter et al., 1994). Friedberg, Strawser, and Cassidy (1989) show that the relationship between a misstatement of net income and the effect of a misstatement on earning trends was consistently referred to in audit guidelines on materiality. Robinson and Fertuck (1985) demonstrate that misstatements that are objectively verifiable are more likely to be classified as material, and misstatements as a percentage of net income significantly affect auditors' materiality judgements.

Regulatory agencies have also raised concerns regarding the misapplication of the predominant quantitative thresholds applied in making materiality audit judgements, in an attempt to manage company earnings (Messier et al., 2005). Firms have been found to record errors of magnitude simply because they are within the prescribed materiality thresholds (Levitt Jr, 1998), and errors are less likely to be adjusted if it results in earnings falling below analysts' forecasts (Libby & Kinney Jr, 2000). The Chairman of the SEC, Arthur Levitt, stated that the concept of materiality has been abused to manipulate financial statements to the detriment of the financial report users (Messier et al., 2005). A quantitatively immaterial misstatement, which may be qualitatively material, affects the audit quality of the financial statements because it only includes the immaterial quantitative misstatement but excludes the qualitative information that may have impacted a user's decision-making.

Attention is now being given to integrating qualitative information when making materiality judgements – a move away from primarily focusing on quantitative rules-of-thumb. IAASB, through ISA 320: 'Materiality in Planning and Performing an Audit', has repeatedly stressed the use of both quantitative and qualitative data in making materiality judgements. The ISA 320.6 in IAASB (2015, p. 328) states that:

“The materiality determined when planning the audit does not necessarily establish an amount below which uncorrected misstatements, individually or in the aggregate, will always be evaluated as immaterial. The circumstances related to some misstatements may cause the auditor to evaluate them as material even if they are below materiality. Although it is not practicable to design audit procedures to detect misstatements that could be material solely because of their nature, the

auditor considers not only the size but also the nature of uncorrected misstatements, and the particular circumstances of their occurrence, when evaluating their effect on the financial statements”.

The FASB (2010, p. 17) asserts that “the Board cannot specify a uniform quantitative threshold for materiality or determine what could be material in a particular circumstance”. In Australia, the ASA 200 and the AICPA in Audit (AU) section 320 state that materiality judgements should be made by auditors based on circumstance, not merely quantitative thresholds, keeping in mind the decision-making needs of the users. AU section 550.04 clearly points out that auditors must read the “other information” section of the financial statements to ensure it is consistent with the financial results of the statements. The AICPA (2006, p. 1660) explains that:

“As a result of the interaction of quantitative and qualitative considerations in materiality judgements, misstatements of relatively small amounts that come to the auditors’ attention could have a material effect on the financial statements” (AU 312.59).

Research in the area of qualitative considerations in materiality judgements has been limited. According to Ng and Tan (2007), increasing the salience of qualitative factors influences an auditor’s judgement to waive or book an adjustment depending on the auditor’s qualitative materiality threshold and the concern expressed by the client regarding the booking of the adjustment. The study shows that, for auditors with a low qualitative threshold, salient qualitative factors affect the tendency to book an adjustment, even though clients would prefer them not to (Ng & Tan, 2007). This tendency is reduced only when clients voice concerns about the unfavourable repercussions of booking the adjustment (Ng & Tan, 2007).

Brown (2002) carried out an extensive study on the qualitative factors affecting materiality judgement. He demonstrated that auditors might change their evaluative materiality thresholds based on qualitative factors, the presentation order and the level of inherent risk. According to Brown (2002), presentation of qualitative information significantly affects materiality decision-making; however, inherent risk does not influence the auditor’s willingness to revise their judgement after the qualitative

factors have been reviewed. Montoya-del-Corte, Martínez-García, and Fernández (2010) carried out a study among auditors and statement preparers in Spain. They find that both preparers and auditors agree that qualitative materiality factors (QMF) are necessary inputs for materiality decision-making. However, the major difference they found among auditors and preparers is that auditors are of the opinion that the effective use of QMF would jeopardise the auditor-client relationship. Montoya-del-Corte et al. (2010) also conclude that both preparers and auditors agree that qualified opinions should be given when misstatements fall within the quantitative threshold but are related to the QMFs stated in ISA 450. According to Gist et al. (2003), auditors need to recognise the need for incorporating qualitative evidence throughout the planning and execution phase, especially in certain areas, such as related party transaction and liquidity concerns. A study relating to the personality characteristics of auditors in materiality judgements was conducted by Estes and Reames (1988). Their study involved finding an association between the gender, age, experience, and education of auditors and materiality judgements. However, they were only able to establish an association between age and experience and materiality judgements.

Similar to overarching audit judgements, materiality judgements are also plagued by inconsistency. Moriarity and Barron (1976) referred to four sources of inconsistency in materiality judgements: the primary relevant variable in the decision, the thresholds of materiality, the forms of decision models, and the scale values of variables influencing the judgement. Differences in judgement consensus between Big audit firms and Non-Big firms have also been found in various studies. The materiality thresholds of Big 8 firms have been shown to be lower than their Non-Big counterparts (Chewning, Pany, & Wheeler, 1989). Blokdijs et al. (2003) reveal that planning materiality in the Big 5 audit firms is lower than the Non-Big 5 audit firms. Morris and Nichols (1988) demonstrate significant differences in materiality judgement consensus, even between the Big 8 firms. Holstrum and Messier (1982) find variances in the threshold of materiality applied by different auditors. Martinov and Roebuck (1998) find differences in materiality guidelines and application of the guidelines provided by audit firms. Friedberg et al. (1989) support the findings of Martinov and Roebuck (1998), recording differences in both quantitative and qualitative guidance between firms.

This study examines the basis of judgements on materiality by auditors. Given the mandate to move towards an all-inclusive approach of making audit judgements that consider both quantitative and qualitative information, this study examines whether both male and female auditors and auditors from various cultural backgrounds base their judgements primarily on qualitative or quantitative audit information.

### **2.3 Gender**

The seminal work of Maccoby and Jacklin (1974) states that males outperform females in mathematics across ages and the difference increases during the high school years. Several authors have supported their findings and have shown male superiority in quantitative abilities (Hilton & Berglund, 1974; Leahey & Guo, 2001; Skaalvik & Skaalvik, 2004; Marks, 2008). Males outperform females in the mathematics sections of college entrance examinations (Royer, Tronsky, Chan, Jackson, & Marchant, 1999). Using data between the years 1986-1988, the American College Testing and Scholastic Aptitude Test (SAT) both show significant differences in male and female performance, and this difference is greatest for the Graduate Record Examination (GRE) test results (Royer et al., 1999). In fact, if males and females who only applied for mathematical-based graduate programs are considered, males significantly outperformed females in GRE mathematics scores (Royer et al., 1999). Hyde, Fennema, and Lamon (1990a) illustrate that male adults, aged 19-25, have a significant advantage over women of the same age in mathematics performance. Marks (2008) carried out a cross-country study in the Organisation for Economic Cooperation and Development (OECD) countries and found that boys outperform girls in mathematics across countries except for Russia, Iceland, and New Zealand. The study also shows that on average, girls outperform boys in reading literacy (Marks, 2008). However, some authors have contradicted the above findings illustrating that the difference between males and females in mathematics has been decreasing and their performance is similar, especially in elementary and middle school (Fennema & Sherman, 1977a; Feingold, 1988; Lindberg, Hyde, Petersen, & Linn, 2010).

The difference in mathematics mainly arises in problem-solving tasks (Halpern & Wright, 1996) and, as problems gain complexity in high school, male performance is

found to be significantly better than females' (Hyde, Fennema, Ryan, Frost, & Hopp, 1990b; Halpern & Wright, 1996). Benbow and Stanley (1983) carried out a study among high-performing students in Grades 7 to 12. Their SAT scores revealed that males outperform females, even though the grade-point average for girls was higher. In a follow-up study among the top 1000 mathematics performers in the US, Benbow (1992) finds that in the top quartile, males outperform females in Grade 8 and the difference is greater when the same students take the exam in Grade 12. In the lower quartile, Benbow (1992) did not find any difference between males and females in Grade 8, but four years later, males outperformed females in the SAT scores for mathematics. Therefore, gender differences exist in mathematics performance, and the difference increases during high school as mathematics becomes more complex.

In verbal capabilities, females outperform males, in particular between Grades 8 to 12 (Maccoby & Jacklin, 1974; Skaalvik & Skaalvik, 2004). However, studies have also found that differences in verbal abilities are diminishing, with minimal differences between them (Hyde, 1981; Feingold, 1988; Hyde & Linn, 1988). Differences in verbal capabilities were lower in magnitude than those in mathematics performance.

Recent studies have also supported the findings of Maccoby and Jackelin (1974) on male superiority in quantitative skills and female advantage in language abilities. Contini, Tommaso, and Mendolia (2017) used data from an Italian national level learning assessment including students from Grade 2 until Grade 10. The study finds that girls underperform boys in mathematics score across grades and the difference increases with age. Wei, Liu, and Barnard-Brak (2015) demonstrate that gender differences in mathematics and reading begin as early as Grade 1. The study was conducted across 8503 students enrolled through Kindergarten till Grade 8. The results demonstrated that boys outperform girls in mathematics in their initial years as well as in their quantitative learning growth rate in later years of school. The study also found that girls outperform boys in reading literacy, both in the initial stages as well as with grade progression. Shafiq (2013) examines gender gaps in mathematics and reading across the Muslim countries of Azerbaijan, Jordan, the Kyrgyz Republic, Qatar, Tunisia, Turkey and Indonesia. The study finds that boys perform better in mathematics in all countries except Azerbaijan and Jordan. Shafiq (2013) also finds that girls across all of the above countries over achieve in reading compared to the



boys. Stoet and Geary (2013) used data collected by the Programme for International Student Assessment (PISA) in reading and mathematics of approximately 1.5 million 15-year-old students. The study revealed that boys scored higher than girls in mathematics but lower than girls in reading. Girls performed better than boys in reading across all nations in the study (Stoet & Geary, 2013). Thus, male superiority in quantitative abilities and the female advantage in language skills still exist across countries.

Research has illustrated that gender differences exist in various aspects of auditing. Differences have been investigated in the areas of audit quality, ethical perspectives, uncertainty expressions, auditor-client relationships, and other areas. Several studies have shown that gender differences affect audit quality. Menezes-Montenegro and Bras (2015) carried out a study among Portuguese audit firms to ascertain the role of gender on audit quality. They find that while the gender of an audit firm's partner does not affect audit quality, having female Certified Public Accountants (CPAs) in partner positions reduces aggressive accounting practices.

Breesch and Branson (2009) carried out a laboratory experiment among 20 male and female CPA students. They discovered that, in absolute terms, women auditors discover more potential misstatements than male auditors, both for simple and complex tasks, but their findings were not statistically significant. They also demonstrated that male students analyse potential misstatements more accurately than females (Breesch & Branson, 2009). Ittonen, Vähämaa, and Vähämaa (2013) established an association between accruals quality and female audit engagement partners. The study illustrated that audit clients' with female engagement partners have lower abnormal accruals in reported earnings, implying that female auditors restrict the application of income manipulating accruals (Ittonen et al., 2013). Hotteginde et al. (2017) demonstrate that only male auditors commit offences damaging the image of the profession, while female auditors commit more disciplinary offences relating to audit quality.

Gender differences were also recorded with respect to audit fees. Cahan and Sun (2015) carried out a study with almost 57,773 firm observations in Belgium, including 599 male auditors and 93 female auditors. They illustrated that female auditors were

paid about 7 percent more than male auditors, presumably due to differences in knowledge skills and supply-side factors (Cahan & Sun, 2015). Ittonen and Peni (2012) find that audit fees for firms with female engagement partners are significantly higher. They were cautious of the fact that no theories or strong explanations were available to support their findings (Ittonen & Peni, 2012). The only contradicting study, by Ting-Chiao, Jeng-Ren, Hua-Wei, and Jeng-Fang (2015) in Taiwan, shows that female audit engagement partners earn less than male engagement partners.

In the area of ethical judgement, most research shows that female auditors are more ethical than male auditors. Pierce and Sweeney (2010) carried out a study among trainee accountants attending a professional education program at the Institute of Chartered Accountants, Ireland to establish a relationship between the demographic variables of age, education, gender, and experience, and ethical judgement. The study reveals that female auditors show a much higher degree of ethical reasoning than men and that men face more pressure from the tone-at-the-top to indulge in unethical behaviour (Pierce & Sweeney, 2010). Beu, Buckley, and Harvey (2003) find that females are more prone to reporting ethical intentions than men. In contrast, Ballantine and McCourt (2011) illustrate no significant relationship between gender and ethical judgement. They researched final year undergraduate student auditors in the United Kingdom (UK). The findings show that males were just as likely as females to be idealistic in their ethical judgements (Ballantine & McCourt, 2011).

The literature shows that gender differences exist in various aspects of auditing. In addition, gender theories have established that males are superior to females in quantitative abilities at higher levels. This study examines the effect of gender but in the context of information use in the process of materiality judgements. The purpose of this research is to determine whether gender affects the choice of information – quantitative or qualitative – which, in turn, primarily influences audit decisions on materiality.

## **2.4 Culture**

The concept of culture as an impediment to accounting and auditing harmonisation has recently gained significant attention. Numerous studies have dealt with the effect

of culture using various cultural theories. In accounting and auditing, one of the most popular cultural frameworks is Hofstede's five-dimensional framework and Gray's accounting values (1988).

Hofstede (1984, p. 82) defined culture as the "the collective programming of the mind which distinguishes the members of one group or category of people from another". Hofstede (1980) examined the work-related value patterns of a sample of employees at the International Business Machines Corporation, more commonly known as IBM. Hofstede developed four cultural dimensions: Uncertainty Avoidance, Individualism, Power Distance, and Masculinity. In addition to the original four, Hofstede and Bond (1988) developed the fifth cultural dimension of Long-Term Orientation in the Chinese Value Survey, and, finally, Minkov and Hofstede (2011) developed Indulgence/Restraint.

To establish a closer link between culture and accounting, Gray (1988) applied Hofstede's cultural dimensions to develop four accounting values - Professionalism, Uniformity, Conservatism, and Secrecy. Professionalism is described as a preference for the application of individual professional judgement, as opposed to given rules and regulations. Uniformity refers to the use of standard accounting practices instead of considering variations in circumstances. Secrecy denotes a restrictive approach to the dissemination of business information, and, lastly, Conservatism refers to a non-risk-taking approach to measurement. In this study, the Gray (1988) framework has only been applied with respect to Conservatism values.

Conservatism or prudence, as defined by the AASB (2015, p. 19) "is the inclusion of a degree of caution in the exercise of the judgements needed in making the estimates required under conditions of uncertainty, such that assets or income are not overstated and liabilities or expenses are not understated". In the context of this study, conservatism refers to the tendency to be cautious in booking/not booking material audit information. Gray (1988) hypothesises that Conservatism is most closely related to Hofstede's dimension of Uncertainty Avoidance. Companies with high Uncertainty Avoidance are expected to prefer a more conservative measure of profit. Therefore, the relationship between Uncertainty Avoidance and Conservatism is positive. Long-Term Orientation is also positively linked with Conservatism since businesses

adopting a short-term outlook are expected to be less conservative in their approach. Individualism and Masculinity are negatively related to Conservatism. Thus far, no association between Conservatism and Power Distance has been established.

The Hofstede-Gray framework has been expansively applied in international accounting and audit research, with mixed findings. In the context of interpreting and applying International Financial Reporting Standards (IFRS) expressions, Chand et al. (2012) find that Chinese students are more conservative than Australian students. Hu, Chand, and Evans (2013) show that Chinese students, due to their culture, are more conservative than Australian students in assigning probabilities to in-context IFRS uncertainty expressions. Chand and White (2006), on the contrary, find no significant difference between Fijian and Indo-Fijian professional accountants in interpreting and applying the IFRS. This study aims to show that individuals from a more conservative culture will reflect their conservatism through their audit judgements on materiality. Given the above findings, it is expected that Chinese auditors, who have been brought up in a more close-knit society, will provide more conservative judgements about materiality than their Anglo-Celtic counterparts, who are less conservative.

This study also draws upon the findings from the education literature that refers to the emphasis on mathematics and quantitative analyses in the Chinese culture as opposed to the Australian culture. The Chinese culture is known worldwide for its emphasis on education and learning. They believe in education as a pillar for the nation's development, as well as one's advancement (Lau, 1996). In various international surveys, such as the "Trends in International Mathematics and Science Study" (TIMSS) and the "Programme for International Student Assessment" (PISA), Chinese students have been found to score in the top tier. In China, significant emphasis is placed on children to excel in their education, especially in mathematics. Studies have shown that this requirement may be a result of their Confucian heritage, the Chinese education system, which is vastly different from Western countries, and the involvement of parents' in their children's education.

Several studies have illustrated Chinese superiority in academic achievement, especially in mathematics. Dandy and Nettelbeck (2002) conducted an extensive study among 160 middle school students of Chinese, Vietnamese, and Anglo-Celtic

origin in Australia. The Chinese students received considerably better scores than their Australian counterparts, and both the Vietnamese and the Chinese students performed better than the Anglo-Celtic students in mathematics, although there were differences in achievement depending on socio-economic background (Dandy & Nettelbeck, 2002). Both Asian groups reported long hours of study and expressed high aspirations in terms of future careers, regardless of the socio-economic status of their parents (Dandy & Nettelbeck, 2002). Royer et al. (1999) undertook an extensive study in the US using participants from Grades 2 to 8 and revealed that Chinese-Americans perform significantly better than Anglo-Americans in mathematics but are surpassed in performance by Hong Kong Americans. Jensen and Whang (1994) carried out a study among children in Grades 4 to 6 in the US using Raven's Progressive Matrices. They aimed to illustrate that faster recall of mathematical concepts is one possible reason behind Chinese superiority in mathematics. The results demonstrated that Chinese-Americans are significantly better than Anglo-Americans in recalling elementary mathematical facts and in responding to the mathematical variables presented (Jensen & Whang, 1994).

Some studies, however, contradict the findings of Chinese superiority in academics. Zhao and Qiu (2009), reporting on research conducted by Cornell University in 2004, find that Asian and Asian-Americans need more remedial classes in English, and they have poor public speaking and writing abilities. The study also claims that Asian/Asian-Americans suffer from a higher degree of anxiety and stress. At Cornell University, 13 out of the 21 students that have committed suicide since 1996 were of Asian descent (Zhao & Qiu, 2009). The study also claims that, while superior academic performance allows Asians/Asian-Americans entry into prestigious educational institutions, they lack creativity and independent thinking, and this affects their success in the real world (Zhao & Qiu, 2009). Chand, Cheung, and Cummings (2015) conducted a study among undergraduate students in an Australian university to ascertain whether student origin played a role in accounting performance. They found that local students perform better than Asian students in both recall-based and application-based questions, though the difference in application-based questions was higher. While Chinese excellence in verbal abilities has been contended, studies have yet to convincingly show that Chinese superiority in quantitative abilities is questionable.

Differences in the teaching methods between Asian and Western cultures also contribute to the differences in academic learning between Chinese and Anglo-Celtics. While the Chinese education system, on par with a Confucian approach, applies memorisation and repetition (Hui, 2005), Western culture emphasises the conceptual development of a student, encouraging creativity and exploration prior to learning (Ramburuth & Tani, 2009). Western cultures encourage students to think critically and question instructors if need be, in contrast to the Chinese culture of deference towards the teacher and their teachings. Stigler, Lee, and Stevenson (1987) found that US schools spent less time on homework and academic activities, and teachers provided less information to students compared to Chinese schools.

Excellence in quantitative skills is ingrained in the Chinese culture, and, from childhood, Chinese children are expected to excel in quantitative abilities (Lau, 1996; Leung, Graf, & Lopez-Real, 2006). Chinese supremacy in quantitative skills has been established by numerous authors (Jensen & Whang, 1994; Royer et al., 1999; Dandy & Nettelbeck, 2002). Studies have also shown that skills learnt at early ages are carried forward and applied in future years of education (Alcock, Cockcroft, & Finn, 2008). Therefore, given the Chinese excellence in quantitative skills and their disadvantage in language proficiency, it is expected that Chinese auditors will apply more quantitative information when making audit judgements on materiality, contrary to their Anglo-Celtic counterparts who are more critical minded and face no language barriers.

### **CHAPTER 3: THEORY AND HYPOTHESES DEVELOPMENT**

The primary purpose of this study is to establish whether a relationship exists between the gender and culture of individual auditors and their tendency to choose quantitative or qualitative accounting information in making audit judgements when determining materiality levels during the audit process. Quantitative information refers to mathematical information, such as volumes, ratios, percentages, and other relevant mathematical computations. Qualitative information refers to additional data regarding the client, such as upcoming industry regulations that may affect the client, new technological breakthroughs, or changes to the supply of raw materials. Quantitative information provides the basic platform of data, while qualitative information helps in “interpreting, clarifying, describing and validating quantitative result” (Johnson, Onwuegbuzie, & Turner, 2007, p. 115). Qualitative audit information will now include data on materiality judgements, critical audit matters, and accounting estimates. This implies the necessity for a quick and logical understanding of non-numeric information to better evaluate the underpinnings of the audit client. Hence, along with numerical excellence, reading and oral comprehension have also become necessary qualities that an auditor needs to possess and apply during the audit.

#### **3.1 Influence of gender on the preference for using quantitative data and its effect on auditors’ materiality judgements**

To analyse the application of quantitative and qualitative information on audits, this study has drawn extensively upon gender and education theories in sociology, as well as literature on the culture/ethnicity of accountants and its effects. Prior research in the areas of educational performance and preference concentrates on mathematical and verbal abilities among males and females across different age groups. Numerous studies have shown that gender differences exist in mathematical and verbal aptitudes (Hilton & Berglund, 1974; Maccoby & Jacklin, 1974; Benbow & Stanley, 1983; Leahey & Guo, 2001; Skaalvik & Skaalvik, 2004). Males outperform females in quantitative skills, while females perform better in verbal abilities (Maccoby & Jacklin, 1974; Skaalvik & Skaalvik, 2004; Marks, 2008). Females are found to be less confident and less inclined than males in applying quantitative skills (Fennema &

Sherman, 1977b; Catsambis, 1994). A similar phenomenon is expected to exhibit itself in audit judgements on materiality, with males preferring to rely more on quantitative audit information and females favouring qualitative audit information, though not ignoring quantitative information entirely.

Verbal skills usually refer to language proficiency, which, in the context of this study, would signify the comprehension of qualitative data regarding the client. Verbal abilities do not simply mean grammar and speech but would include “higher level components like reading comprehension of complex written text, understanding logical relationships and creativity” (Maccoby & Jacklin, 1974, p. 84). Halpern (2013, p. 119) defines verbal abilities as encompassing “word fluency, grammar, spelling, reading, verbal analogies, vocabulary, word naming, language production, generation of synonyms, vocabulary recognition, and oral comprehension”. A significant number of academics have used SAT scores to determine gender differences in verbal abilities. The SAT includes reading comprehension, analogies, and vocabulary tests. Leathers (1972) established a high correlation between SAT scores, both maths and verbal, and CPA exam performance. He examined the prior education of over 11,000 CPA examinees and concluded that a significant and positive correlation existed between their SAT scores and their CPA exam performance. Therefore, although most gender studies have examined the school years, it can be assumed that this phenomenon will also apply in the later years of life. In the context of this study, it demonstrates that high school performance in mathematics and verbal skills are very much linked to future performance in accounting and auditing.

Mathematics abilities include computations, problem-solving, trigonometry, geometry, and calculus (Halpern & Wright, 1996, p. 6). In audit judgements, problem-solving is a fundamental skill for understanding and deciphering the quantitative information accumulated throughout the audit process. Problem-solving is considered to be a complex mathematical task (Maccoby & Jacklin, 1974; Hyde et al., 1990a) and is defined as a problem that requires thinking, as well as a systematic calculation to solve. Sherman (1979, p. 243) defines problem-solving as the use of mathematical ideas to solve a problem that has no standard solution. The latter definition aptly explains the work of auditors, who need to employ a variety of procedures to the myriad of issues each audit client brings on board. Auditors must apply various



mathematical techniques to test, re-perform, and check the relationships between variables prior to making judgements. All of the above require sound knowledge of mathematics. Furthermore, depending on the business model and type of business, the methods and techniques applicable to every audit client will significantly differ. Accounting programs are now trying to instil innovative problem-solving skills in students (Wolk & Cates, 1994). Tan and Kao (1999) contend that, with complex audit tasks, developed knowledge and problem-solving abilities will lead to improved auditor performance.

In addition, prior performance in mathematics is also correlated to success in tertiary accounting courses. Several studies have shown that good mathematics performance in high school affects success in introductory tertiary accounting courses (Mitchell, 1988; Alcock et al., 2008; Stenberg, Varua, & Yong, 2010a). Performance in the CPA examination is correlated to mathematics performance in the SATs (Leathers, 1972). Evidently, sound mathematical knowledge, the ability to apply mathematics, and problem-solving abilities are mandatory skills for auditors. In the context of this study, mathematical skills represent the quantitative skills applied by auditors when making audit judgements about materiality.

Prior literature also shows that females exhibit lower confidence and less preference for quantitative subjects. Females hold more adverse attitudes towards mathematics (Gunderson, Ramirez, Levine, & Beilock, 2012), and this is more evident during secondary school and high school (Hyde et al., 1990b). Gunderson et al. (2012), Catsambis (1994), and Hyde et al. (1990b) describe female attitudes toward maths as negative. According to Catsambis (1994), all female students exhibit less interest and confidence in mathematics. According to Eccles (1985), there is a significant decrease in female confidence in mathematics in high school. As soon as the selection of mathematics subjects become elective, females choose the minimum amount of mathematics required (Catsambis, 1994), as opposed to males, who choose a greater number of mathematics electives in high school.

Females are less confident in quantitative skills, avoid mathematics when possible and perform worse than males in quantitative problems. Stressful experiences in mathematics are more pronounced in females (Tobias, 1980). Hyde et al. (1990b)

concluded that female anxiety levels are much higher than males in samples undertaking remedial mathematics. Similarly, Catsambis (1994) states that women have limited involvement in mathematics learning, leading to lower levels of achievement and, thus, a preference for choosing alternative career paths away from mathematics. According to Gunderson et al. (2012), fewer females pursue a mathematics-based career despite similar achievement scores compared to males. Fennema and Sherman (1977b) also agree that while gender differences in mathematics are decreasing, the number of females electing to study mathematics in high school and universities is much lower than males.

Numerous social factors have been held responsible for the female lack of preference towards quantitative skills. One of the most cited reasons for women choosing non-quantitative areas of study has been the stereotype that mathematics is a male domain. Females identify mathematics as masculine; hence, they lack motivation in the subject (Fennema & Sherman, 1977b). The parental influence that encourages sons toward more mathematical achievements is another reason for the lack of female preference towards quantitative skills. Parents purchase more mathematical toys for boys (Hilton & Berglund, 1974) and provide more reinforcement to boys than girls in learning mathematics (Fennema & Sherman, 1977b). According to Jacobs (1991), parents' stereotypes regarding mathematics as a male domain is often conveyed to children, sometimes unwittingly, resulting in less preference in girls towards quantitative skills. Studies have also shown that teachers' stereotype mathematics as a male domain, which consequently affects their behaviour towards male and female students. Teachers have varying expectations of male and female students and overrate male abilities in mathematics (Li, 1999). In addition, some female students reported that their teachers seem to convey problem-solving in mathematics as not useful to them (Li, 1999). Some studies have even pointed out that the male inclination for mathematics, and the female lack of preference towards quantitative areas, is biological and innate, though this is widely contested.

The female tendency towards language skills and the male tendency towards numeracy continues through tertiary education and after. Fennema and Sherman (1977b) found that males outperformed females from the age of 17 until the age of 35 in quantitative skills. The literature illustrates that due to the selection of more

mathematics subjects in high school, males choose careers in science and engineering and women move towards the humanities. Fennema (1976) states that when the study of mathematics becomes elective, the ratio of male to female enrolment increases sharply. Eccles (1989) shows that women are less likely to enter professions related to mathematics than men. For example, in 1983, females received only 27 percent of undergraduate degrees in Physical Sciences compared to 75 percent in Education (Eccles, 1989). The decision to avoid mathematics electives in high school is an indication of preference for other goals and subjects (Eccles, 1989). According to Webster, Ellis, and Bryan (2004, p. 90), “this gender difference in self-confidence seems to perpetuate itself through the educational process and then is carried into the professional world”. In choosing their professional careers, women avoid areas that involve quantitative applications, (Webster & Ellis, 1996) unlike males. Therefore, the preference for mathematics by males and avoidance of mathematics by females is not limited to school years but transcends into tertiary education and their chosen career paths.

It can be surmised from the above literature that, in general, males are superior to females in mathematics, females avoid mathematics, and this preference towards non-quantitative fields transcends into their chosen career paths. Therefore, it is anticipated that females will prefer to apply more qualitative information in their decision-making compared to males, who will prefer to apply more quantitative information. Hence, the first hypothesis is as follows:

H1a: Females will prefer to apply more qualitative information in decision-making than males, while males will prefer to apply more quantitative information in decision-making than females.

While the application of gender studies in the context of audit judgements is very limited, Webster and Ellis (1996) found gender differences in the area of financial analyses. They researched business analysts and accounting professors and found that participants associate financial analysis with quantitative skills and problem-solving. Webster et al. (2004) find that, although the financial analysis of firms is not affected by gender, male analysts show greater self-confidence than their female counterparts, providing support for the literature that indicates males have higher self-confidence in

quantitative skills.

Research has also illustrated the presence of gender differences in various other aspects of auditing. Female auditors have been found to be more ethical than males (Beu et al., 2003; Pierce & Sweeney, 2010). Audit quality improves when audit engagement partners are female, through less aggressive practices (Menezes-Montenegro & Bras, 2015) and lower abnormal accruals (Ittonen et al., 2013), and audit fees are higher when the engagement partner is female (Ittonen & Peni, 2012; Cahan & Sun, 2015).

Consistent with the predominant finding that males outperform females in mathematics (Maccoby & Jacklin, 1974; Leahey & Guo, 2001; Skaalvik & Skaalvik, 2004), it is anticipated that the female avoidance of mathematics and superiority in language skills (Skaalvik & Skaalvik, 2004) will exhibit itself in audit judgements in the context of materiality. Gender differences in mathematics decrease when the questions are too “wordy” (Marks, 2008), illustrating the female tendency towards reading literacy and quantitative avoidance. Therefore, it is expected that in the context of an audit judgement, females will prefer to utilise qualitative information when making a materiality judgement, unlike males, who will prefer to utilise quantitative information. Hence, the following hypothesis is formulated:

H1b: Female auditors will apply more qualitative analysis in audit judgements related to materiality than male auditors, while male auditors will apply more quantitative analysis in audit judgements related to materiality than female auditors.

According to Breesch and Branson (2009), women process information more comprehensively, reading all or most of the information provided. They are more likely to use elaborate information processing strategies, regardless of the complexity of the task (Breesch & Branson, 2009). Some studies contend that women are less likely to make risky judgements than males, and this is attributable to their comprehensive information processing strategies (Breesch & Branson, 2009). Men, by contrast, have tunnel vision (Pease & Pease, 2004). They are selective processors of information and focus on single cues, especially when the task is simple (Breesch

& Branson, 2009). Women use intricate information processing strategies for both simple and complex tasks, time permitting, unlike men, who use simple information processing strategies for simple tasks. Therefore, women are more accurate and efficient at complex task completion, while men tend to be more efficient and accurate at simple tasks (Breesch & Branson, 2009).

Females avoid mathematics (Catsambis, 1994; Gunderson et al., 2012) and are comprehensive processors of information, reading all the information provided (Breesch & Branson, 2009). Males outperform females in quantitative skills (Maccoby & Jacklin, 1974; Leahey & Guo, 2001; Skaalvik & Skaalvik, 2004) and are more accurate and efficient at processing simple tasks, focusing on a single cue where applicable (Breesch & Branson, 2009). This study provides participants with a case study containing both qualitative and quantitative information relevant for making an audit decision on materiality. Since males tend to prioritise quantitative information more than females due to their superior quantitative skills, it is expected that males will base their judgements mainly on quantitative cues, thereby biasing their audit judgement. Conversely, it is anticipated that, since females have superior language skills and they evaluate most or all available information, they will consider both qualitative and quantitative aspects of the case provided, thereby providing an unbiased materiality judgement. Hence, the following hypothesis is formulated:

H1c: Female auditors will provide a more unbiased audit judgement related to materiality than male auditors.

### **3.2 Influence of culture on the preference for using quantitative data and its effect on auditors' materiality judgements**

Cultural differences have been cited as a possible reason for variations in the performance of quantitative analyses by males and females. The US National Assessment of Educational Progress finds that cultural differences account for variances in quantitative performance more than gender differences (Hall, Davis, Bolen, & Chia, 1999). Similarly, Lockheed, Thorpe, Brooks-Gunn, Casserly, and McAloon (1985) also found cultural differences to be more pervasive in quantitative achievement than gender differences. Some cultures emphasise the development of

quantitative skills from an early age more than others. Chinese teachers, for example, have higher expectations of students in mathematics than their US counterparts. While US teachers expect the use of equations to solve problems in the 7<sup>th</sup>/8<sup>th</sup> grade, Chinese teachers expect students in Grade 6 to be proficient in the application of equations (Cai, 2007). Chinese teachers also introduce abstract mathematical concepts to students at an earlier age compared to the US (Cai & Wang, 2010). Evidently, Chinese emphasis on quantitative skills begins at an early age, in contrast to the US. In the context of this study, it is expected that differences in pre-tertiary quantitative learning across cultures will affect the quantitative skills acquired by individuals. Consequently, this expertise in quantitative abilities will then pervade into the audit judgements on materiality made by Chinese and Australian auditors.

The Chinese believe that a basic mathematics education is like the pillars on which a skyscraper is built. Thus, in Chinese schools, a primary objective is to build a strong quantitative foundation among students for future success in education (Leung et al., 2006). Lianghuo, Ngai-Ying, Jinfa, and Shiqi (2004) accumulated the results of large-scale international comparative studies by the Educational Testing Services, the OECD, and TIMSS. They concluded that Chinese students, whether from China P.R., Hong Kong, or Taiwan, were among the top performers in international quantitative examinations in most areas. Lau (1996) corroborate their findings through a number of studies carried out in urban schools around China and Taiwan from kindergarten to Grade 11. Chinese students studying abroad, especially in the US and Canada, also topped achievement lists in school (Lau, 1996). According to Jensen (2012), Hong Kong, Korea, Shanghai, and Singapore are four out of the five highest performing countries in education as per the OECD's 2009 assessments. A 15-year-old child in Shanghai performs at a level two to three years higher than their counterparts in Australia, the UK, and the US (Jensen, 2012). Sun (1998) refers to this as the "Asian effect" on student performance in mathematics and science. However, a few studies also contend that the Chinese outperform students in computation and basic mathematics but not open-ended problems (Lianghuo et al., 2004; Leung et al., 2006). Excellence in quantitative skills by the Chinese has been attributed to several factors, but the two principal elements highlighted are the Confucian influence and parental involvement (Chand et al., 2015).

Chinese principles in life are greatly influenced by the teachings of Confucius. Confucius believed that everyone can be educated and that education is a function of effort and diligence (Leung et al., 2006). Therefore, a central tenet of Confucianism is education and learning (Wong, Wong, & Wong, 2012). The Chinese people believe that education is the way to climb the social ladder and create a better life for themselves (Lau, 1996; Wong et al., 2012), and this provides adequate motivation for them to excel in their studies. It is ingrained in Chinese children that attaining a good education is central to their lives (Lau, 1996).

Hard work is another Confucian tenet describing the Chinese way of life. The Chinese people believe achievement is always possible with effort (Lau, 1996). Students, in interviews, state that the best student works the hardest to achieve success regardless of innate ability (Lau, 1996). Chinese students spend a significant time outside of school performing homework tasks (Chen & Stevenson, 1989). Beijing first-graders, for example, spend about 65 minutes each day performing homework tasks (Lau, 1996).

Chinese parents have high aspirations for their children in terms of education, and Chinese mothers, also known as “tiger mothers” (Ainley, Kos, & Nicholas, 2008), expect their children to complete at least a college degree (Lau, 1996). To ensure that children are successful in education and life, in general, Chinese parents provide a significant amount of support and guidance (Chand et al., 2015). Parents spend a considerable amount of time helping their children with their school tasks (Lau, 1996). Children are also conscious of their parent's expectations and try to comply with their parents' wishes (Lau, 1996), in true agreement to the Confucian principle of deference.

Research shows that excellence in high school quantitative subjects is necessary for success in tertiary education, especially in quantitative fields of study. Rylands and Coady (2009) show that a student's background in high school quantitative subjects is a better indicator of their preparedness for university mathematics and other quantitative-based subjects than their overall entrance score. Mitchell (1988) found a significant positive relationship between quantitative accounting assessments of university students and their high school mathematics grade. Mitchell (1988) also

found that students receiving an 'A' grade in high school accounting demonstrated superior grades in high school mathematics. Stenberg, Varua, and Yong (2010b) demonstrate that the quality of quantitative ability in high school affects the success or failure of quantitative business units at university level. Alcock et al. (2008) find that students with more advanced quantitative subjects in high school perform better in business courses like economics and financial accounting. Therefore, quantitative education in school forms the foundation for students enrolled in quantitative fields in tertiary education.

According to George, Neale, Van Horne, and Malcolm (2001), high-intensity quantitative skills in high school are a necessity for improved performance in science, technology, engineering, and mathematics (STEM) subjects, and it is in these fields that the Chinese are found to excel. According to Hune and Chan (1997), East Asian Americans excel at quantitative skills and outnumber Caucasians in attaining their Bachelor degrees in engineering and computer science disciplines. In 2002, a study compiled by the National Science Foundation showed that 52.1 percent of the STEM degrees awarded in the US went to Chinese students (Kuenzi, 2008). This illustrates that the Chinese emphasis on, and excellence in, quantitative skills in high school is carried forward to their tertiary education.

Conversely, international quantitative performance of Australian students has been lower than the Chinese. TIMSS assessments (2002/3) ranked Australia 14<sup>th</sup> in quantitative performance, significantly outperformed by Hong Kong (Ainley et al., 2008). PISA figures for the year 2006 indicated that Australia ranked 9<sup>th</sup> in mathematical literacy, well behind China (Ainley et al., 2008). PISA states that many students in Australia complete school with the minimal amount of compulsory quantitative education, and 13 percent of Australian students are below the basic required level of proficiency in mathematics as defined by PISA (Ainley et al., 2008). It was discovered that Australian students in Grade 8 were not sufficiently challenged and were restricted to performing problems they had done before, with less emphasis on quantitative reasoning and high problem-solving areas (Ainley et al., 2008). Between 1991 and 2000, there was a decrease in the percentage of students registering for advanced quantitative subjects in Australian high schools, a prerequisite for university education in the sciences (Ainley et al., 2008).



Quantitative education in Australia differs significantly from the Chinese. Some of the primary elements that may explain these variations are differences in cultural background, learning methods, and parental expectations. Chinese education, which is deeply influenced by Confucian principles, is characterised by memorisation and repetitive work that is later used as a tool for interpretation (Chand et al., 2015), whereas Western countries, like Australia, follow the approach of exploration prior to skill development. Instead of repetitive work, Australian students are encouraged to think critically and analytically (Chand et al., 2015). Teachers in Australia are satisfied if students mention the route to solving the problem rather than completing the problem as a whole (Ainley et al., 2008). Western cultures, such as Australia, prioritise the values of equality and democracy (Leung et al., 2006). In such cultures, education is student-centric and is characterised by group discussions and cooperative learning (Leung et al., 2006), instead of one-way teacher-student instruction, as in the case of China. In terms of parental influence, Australia significantly differs from China. Australian parents do not impose high expectations on children in terms of educational achievement, and children are free to develop according to their existing potential (Chand et al., 2015).

The Chinese exhibit superior performance in quantitative skills throughout school (Sun, 1998; Leung et al., 2006; Jensen, 2012) compared to Australians. Excellence in pre-tertiary quantitative education is an aspect that an individual carries throughout their academic life and after (Mitchell, 1988; Alcock et al., 2008). The Chinese are found to excel in STEM-based tertiary education (George et al., 2001). Therefore, consistent with the literature demonstrating Chinese superiority in quantitative skills, it is expected that the natural tendency of Chinese auditors will be to analyse quantitative information more than the qualitative information, in contrast to the Australians who will apply more critical thinking to a given scenario, including both qualitative and quantitative information into their decision-making process. Hence, the following hypothesis is stated:

H2a: Chinese auditors will prefer to apply more quantitative information in decision-making than Australian auditors, while Australian auditors will prefer to apply more qualitative information in decision-making than Chinese auditors.

While the Chinese superiority in quantitative areas is predominant, they underperform in areas requiring verbal skills. The Chinese face a significant language barrier in English-based tertiary institutions. According to Zhao and Qiu (2008), Asians and Asian-Americans need more effort in remedial English classes, and tend to be weak in public speaking and writing abilities. English is of concern to the Chinese, as weak language skills affect academic performance regardless of their strength in mathematics (Chand et al., 2015). Tang (2000) points out that, in many cases, Asian engineers are not considered management material due to their hesitancy in public speaking, deference to authority, and reserved nature. According to Zhao and Qiu (2008), while high academic performance allows East Asians admission to prestigious universities, their lack of creativity and independent thinking means they lose their edge in college.

Materiality judgements require auditors to consider both the qualitative and quantitative aspects of the client. Mandates by international auditing bodies have been aimed at diverting auditors away from making materiality judgements purely based on numerical percentages and encourages them to consider the circumstances of the client. While the Chinese are characterised as having superior quantitative skills, it is expected that their lack of verbal skills will make it difficult for them to incorporate qualitative data into their decision-making process. It is, therefore, anticipated that the Chinese, having superior quantitative skills, will apply more quantitative analysis in their materiality judgements than their Anglo-Celtic counterparts, who do not face a language barrier and have the advantage of being taught from a young age to think critically (Chand et al., 2015). Hence, the following hypothesis is formulated:

H2b: Chinese auditors will apply more quantitative analysis in audit judgements related to materiality than Australian auditors, while Australian auditors will apply more qualitative analysis in audit judgements related to materiality than Chinese auditors.

Chinese education is characterised by acceptance, memorisation, and absorption of information as delivered by the instructors, with little or no critical approach or analyses (Ramburuth, 2000). As students from a collectivist country, the Chinese are

more prone to listening to their teacher instead of speaking up or asking questions (Chand et al., 2015). By contrast, Ramburuth (2000) illustrates that Australians are independent learners, and they apply a critical thought approach to solving problems because they have been taught to do so from childhood. In addition, students who speak English as their first language, such as Australian students, usually perform better in open-ended theoretical questions than those whose first language is not English (Chand et al., 2015).

Since materiality judgements use a combination of both quantitative and qualitative information, it is expected that the Chinese, who have superior quantitative skills, language barriers in English, and limitations in verbal skills and critical thinking, will produce a biased judgement in the context of the case provided. It is anticipated that they will prioritise the quantitative information provided in the case due to their quantitative superiority and put less emphasis on the qualitative information. Australians, who have the advantage of language and critical thinking, are expected to provide a more unbiased judgement on the scenario provided. Hence, the following hypothesis is stated:

H2c: Australian auditors will provide a more unbiased audit judgement related to materiality than Chinese auditors.

### **3.3 Influence of national culture on the judgement of auditors**

Every society has a core set of values, and these values are moulded into every individual in the society. While human beings have their innate personalities, they are also greatly influenced by their parents, peers, and society in general. These individual characteristics develop by the age of 10, after which personality changes are very limited (Cowperthwaite, 2010). The influence of culture on the implementation of audit standards in different countries is pervasive (Cowperthwaite, 2010) and is viewed as a significant impediment to the achievement of a global set of standards. In conducting any audit engagement, auditors have to use their faculties of intelligence, moral strength, prior education, and cultural values, both in making judgements and communicating with relevant parties (Cowperthwaite, 2010). Hence, Cowperthwaite (2010, p. 182) states, “a primary reason for the effect that an auditor’s

culture has on the process lie in the very nature of auditing”. Therefore, even though the same set of rules and standards are applied, auditors from two countries may form varied conclusions simply as a result of their cultural upbringing.

A principal factor that influences accounting practices and judgements is culture (Chand et al., 2012). Numerous studies have successfully established that accounting and auditing practices are influenced by the various dimensions of culture. Research indicates that culture ingrained in individuals’ causes significant differences in the application of accounting and auditing practices worldwide (Doupnik & Richter, 2004; Chand & White, 2006; Doupnik & Riccio, 2006; Chen et al., 2007; Cowperthwaite, 2010; Chand et al., 2012). Doupnik and Riccio (2006) find that conservatism, as a cultural dimension, plays a significant role in the interpretation of probability expressions in thresholds for recognising income increases. Chand et al. (2012) reveal that Chinese students are more conservative and secretive than their Australian counterparts when interpreting and applying uncertainty expressions from the IFRS.

One of the most common cultural theories applied to cultural studies in accounting and auditing has been Hofstede’s five cultural dimensions (1980) and Gray’s theory on the influence of culture on accounting values (1988). This study attempts to establish that Conservatism, as a cultural attribute, also affects the level of conservatism shown by auditors in their audit judgements on materiality.

Gray (1988, p. 8) defines Conservatism as “a preference for cautious approach to measurement”. According to Gray (1988), the cultural value closest to Conservatism is Uncertainty Avoidance, i.e., a country’s accounting system is more likely to be characterised by high Conservatism, when a country rank’s high in terms of Uncertainty Avoidance. Individualism and Masculinity also affect Conservatism (Gray, 1988). Gray (1988) illustrates that low Individualism and low Masculinity in a country leads to high Conservatism in accounting values. Radebaugh, Gray, and Black (2006) illustrate that high Long-Term Orientation in a country will also, more likely, result in the country ranking high in terms of Conservatism.

Several studies have applied Hofstede and Gray’s concept of conservatism in the area

of accounting and auditing. Chan, Lin, and Mo (2003) studied culturally-varied foreign enterprises in China. They illustrate that Power Distance and Individualism affect the differentiation of material accounting errors in organisations. Patel, Harrison, and McKinnon (2002) applied Hofstede and Gray's model to auditor-client conflict resolution. Their study reveals that Australian auditors, in lieu of their individualistic and equalitarian nature, are less likely to accept or accede to the clients during conflict situations compared to Indian or Malay auditors who are strongly influenced by the constructs of Hinduism and Confucianism, respectively. Chen et al. (2007) applied Uncertainty Avoidance to compare the Chinese-cultured Taiwanese auditors with Singaporean auditors. The study revealed that Taiwanese auditors assigned higher audit risk assessments compared to the Singaporeans in lieu of their high Uncertainty Avoidance. Evidently, culture affects audit decisions.

Table 3.1 illustrates the cultural indices for Australia and China. As already mentioned, Conservatism is characterised by low Masculinity, low Individualism, high Uncertainty Avoidance, and high Long-Term Orientation (Gray, 1988; Radebaugh et al., 2006). With the exception of Uncertainty Avoidance, Table 3.1 illustrates that Chinese culture is more conservative than Australian culture. Chinese culture is low on Indulgence - meaning individuals cannot do as they please, have pragmatic values, look to the future, and are collectivist in nature – all aspects of a conservative society. The roots of Chinese conservatism lie in its Confucian beliefs, which dominates every aspect of the Chinese way of life (Wong et al., 2012). The central tenet of Confucian education is deference to one's superiors, parents, and elders and the meticulous observance of prescribed rules (Chand et al., 2012). Complete subservience is expected not only among high public officials but within common people as well (Chand et al., 2012). In addition, in China, it is accepted as a social norm to maintain harmonious interpersonal relationships inside and outside the family and behave according to one's hierarchical position in society (Chand et al., 2012).

**Table 3.1 Cultural indices for China and Australia**

| Country   | Uncertainty Avoidance | Individualism | Long-Term Orientation | Masculinity | Indulgence |
|-----------|-----------------------|---------------|-----------------------|-------------|------------|
| China     | 36 (low)              | 10 (low)      | 97 (high)             | 50 (low)    | 24 (low)   |
| Australia | 51                    | 90 (high)     | 31 (low)              | 61 (high)   | 71 (high)  |

Source: <https://geert-hofstede.com/australia.html>

Lin and Chan (2000) refer to the conservative culture in China in relation to information disclosure in auditing. According to Chow, Chau, and Gray (1995, p. 43), “China adopts a conservative approach in accounting measurement and in adopting new accounting practices”. They further characterise China as having an unquestioned hierarchical order with a large Power Distance and high Collectivism with a “strong sense of belonging to the group” (Chow et al., 1995, p. 38). According to Gray (1988, p. 10), “preference for more conservative measures of profits and assets is consistent with strong Uncertainty Avoidance, stemming from a concern with security and a perceived need to adopt a cautious approach to cope with the uncertainty of future events”, as in the instance of the Chinese. Similarly, Patel et al. (2002) have also characterised the Chinese culture as conservative, highlighting the Confucian principles it is based on where hierarchical deference is of primary importance.

In contrast, applying the indices of Hofstede’s and Gray’s theory to Australia, the values are opposite to those of China, illustrating that Australia is less conservative compared to China. The core of Australian identity is a sense of freedom and openness (Chand et al., 2012). Australia is characterised by individualism and independence; which are of principal importance to develop oneself into a competent being, contrary to the feeling of being controlled by hierarchy and conformance to a set of rules (Patel et al., 2002). In addition, Australians believe that individuals are equal regardless of status, again in contrast to the Chinese culture of hierarchy (Patel et al., 2002). According to Nolder and Riley (2013, p. 145), “that collectivist societies cushion in-group members against the consequences of negative outcomes and, therefore, members of collectivist societies (e.g., Chinese) perceive financial risks to be lower than members of an individualist society”, such as Australia. Hence, Australia is characterised by high Individualism, low Power Distance, and Short-Term Orientation – all contrary to the Confucian principles that China is based on.

Therefore, Australia is expected to have an accounting subculture that is less conservative than that of China.

Several studies have tested the association between accounting and audit judgements and Conservatism as a national cultural attribute. Schultz and Lopez (2001) carried out a comparative cross-cultural study among French, German, and American accountants. The French were considered to be the most conservative and the Americans were deemed to be the least conservative cultures among the three countries. The study illustrates that American accountants were more liberal than their conservative European counterparts in their accounting judgements regarding warranty estimates. Chen et al. (2007), in their study of Singaporean and Taiwanese auditors, applied Uncertainty Avoidance, Individualism, and Power Distance and conclude that culture affects audit judgements related to risk assessments across countries. They show that risk assessment is influenced by culture, with the Singaporeans more concentrated on individual risks than group-level risks. The study also reveals that the Taiwanese, scoring high on Uncertainty Avoidance and being conservative, apply higher control risks contrary to the low Uncertainty Avoidance Singaporean auditors. O'Donnell and Prather-Kinsey (2010) conducted a cross-cultural study in the US, the UK, and France. They revealed that even though overall risk assessments across auditors did not vary, risk attributed to different accounts varied across auditor nationality.

Studies in the context of conservatism and its effect on materiality judgements are few in number. Predominantly, the only dimension of Hofstede's cultural theory applied in association with materiality judgements has been Uncertainty Avoidance, the most influential dimension of Conservatism as per Gray (1988). While it is expected that high Uncertainty Avoidance will lead to low-level materiality estimates, studies have found mixed results, leaving the relationship between Uncertainty Avoidance and materiality estimates ambiguous. Arnold, Bernardi, and Neidermeyer (2001) carried out an extensive cross-cultural study encompassing six countries in Western Europe and the US. Applying Hofstede's dimension of Uncertainty Avoidance, the study illustrates that materiality judgements are affected by the level of Uncertainty Avoidance. As Uncertainty Avoidance increases, so do the materiality estimates on which judgements are based. Therefore, materiality estimates increase in cultures that

are more conservative (Arnold et al., 2001). Ganguly and Turner (2001) criticised the above study on the basis of the weak explanation given for the positive relationship between Uncertainty Avoidance and materiality estimates. In addition, Ganguly and Turner (2001) commented that, while the study establishes an association between cultural variables and materiality thresholds, it fails to provide insights into how and why the cultural variables influence materiality judgements.

In agreement with Ganguly and Turner (2001), Heidhues (2012) conducted a study among German and Italian accountants to determine the influence of Uncertainty Avoidance on the conservatism of materiality judgements on evaluations and thresholds. The study first established that the Germans were more conservative than the Italian accountants. However, though the study posited a positive relationship between Uncertainty Avoidance and Conservatism in materiality evaluations and thresholds, the results were not as expected. At the individual level, German accountants reveal an association between Uncertainty Avoidance and materiality evaluation but not thresholds. In the Italian sample, no significant relationship was found in materiality evaluation or thresholds. At the cross-cultural level as well, the study only provides partial support for an association between Uncertainty Avoidance and conservatism in materiality judgements.

Consistent with the above research illustrating the effect of culture on audit judgements, it is reasoned that auditors from a more conservative culture will display higher conservatism in materiality judgement decisions. Based on the implications of Gray (1988) and Radebaugh et al. (2006), Chinese auditors are expected to demonstrate a higher level of conservatism compared to Australians because China exhibits a more conservative culture with low Individualism and Masculinity and high Long-Term Orientation. Hence, the following hypothesis is formulated:

H3: Chinese auditors will demonstrate a higher level of conservatism in making audit judgements related to materiality than Australian auditors.



## **CHAPTER 4: RESEARCH METHODS**

### **4.1 Participants**

The participants in this study were final year undergraduate and postgraduate accounting students enrolled at Macquarie University in 2017. The postgraduate sample included final year Master of Professional Accounting (MPA) students enrolled in ACCG 925, ACCG 926, and ACCG 927 – the financial accounting and auditing courses in the MPA program. The undergraduate sample consisted of students enrolled in ACCG 399, ACCG 308, and ACCG 340 – the final year courses of the undergraduate accounting program. Given this research concentrates on audit judgements and materiality, the sample had to be comprised of students who were well versed in accounting and audit concepts and terminology. Hence, only students with the relevant knowledge were selected to participate in the survey. In all cases, the respondents had been exposed to the basic tenets of auditing, such as materiality judgements, and were familiar with the ASA.

The first segment of the questionnaire collected demographic information about the participants. Section 2 consisted of a case study followed by structured questions to ascertain the participants' audit judgements. Section 3 measured the participants' preference towards quantitative information using the 20-item Preference for Quantitative Scale (PQI) developed by Viswanathan (1993).

### **4.2 Survey Design**

The survey research method was adopted in this study. Survey research is considered to have three main characteristics. According to Singleton and Straits (2010), it is a quantitative research method used to analyse relationships between variables by acquiring standardised information from subjects. Dane (1990) surmised that survey methods mainly rely on the collection of information from participants through structured and predefined questions. Pinsonneault and Kraemer (1993) stated that the survey method used sampling, but the data was collected in a manner such that the conclusions based on the data could be generalised to the population. According to Pinsonneault and Kraemer (1993, p. 79), survey methods are most appropriate when the topic of study focused on questions like 'what is happening?' and 'how and why is

it happening?’ and when it is not practical or desirable to control the dependent and independent variables.

The above-mentioned characteristics of survey research made this method particularly suitable for this study. Since the topic of this study was to examine relationships between various independent and dependent variables, survey research was the most appropriate research method to use.

Pinsonneault and Kraemer (1993, pp. 79-80) outlined the three most appropriate purposes for a survey research method: description – “distribution of some phenomena in a population”; explanation – “to test theory and causal relationships”; and exploration – “discover and raise new possibilities in the population of interest”. The survey method was applied to serve all three purposes in this study. Demographic information about the participants was obtained in Section 1 of the questionnaire, and descriptive information regarding preference for data was obtained in Section 3. Section 2 of the questionnaire attempted to test a theory and examined the presence of an association between the dependent and independent variables. Through this questionnaire, possible relationships between information preference and utilisation were explored in relation to the independent variables of gender and culture of auditors. In addition, the survey also explored possible associations between materiality judgements and the gender and culture of auditors.

### **4.3 Task**

The questionnaire was developed in consultation with accounting academics at Macquarie University, Australia.

The case study in the research instrument included information about an audit client, Legacy Furniture, which was a publicly traded company that manufactured premium furniture. Legacy Furniture was a former market leader in the furniture market. In the face of intense competition and deteriorating performance, it was trying to boost retail sales by easing credit terms and targeting lower segments of the market. This background information was held constant across the instrument. Participants were told that, while performing the audit, they evaluated the company’s estimates of

warranty expenses in previous years, payments of warranty liabilities, management explanations of reduction in warranty expenses and the general economic conditions. Based on their evaluations, they estimated warranty liability to be \$650,000 over and above what the client had recorded. Furthermore, participants were informed that the company's management were made aware of the misstatement but had refused to adjust the financial reports. The participants were asked to provide a judgement on whether they would record the proposed adjustment or opt to waive the adjustment.

'Quantitative information', commonly used to make materiality judgements, was presented to the participants. Prior literature illustrated that the most commonly used quantitative information to assess materiality were percentages of the amount of misstatement in relation to profit, total assets, total revenue and net assets (Carpenter et al., 1994; Messier et al., 2005). The case included extracts of Legacy Furniture's financial reports, which allowed the relevant ratios to be calculated.

'Qualitative information', deemed as useful to materiality judgements as per ISA 450, were also provided to participants to complete the task. First, participants were informed that Legacy Furniture had been granted a credit line by the bank but with debt covenants. The bank had imposed that Legacy maintain a debt-to-equity ratio below 2.5:1 and a return on asset (ROA) of above 10 percent. If the misstatement of \$650,000 was corrected, the firm would be in breach of both conditions set by the bank. Second, Legacy Furniture had been consistently reporting profits and outperforming analysts' consensus forecasts over the last five years. If the firm corrected the misstatement, they would fail to meet the analysts' consensus forecast for the current year. Third, participants were informed that the senior management would only receive a performance bonus if the ROA remained above 10 percent. If the misstatement of \$650,000 was corrected, the ROA would fall below 10 percent and senior management would not receive their performance bonus. Fourth, participants were informed about the influence the misstatement would have on the financial ratios used in measuring Legacy Furniture's performance. Lastly, information was provided about the importance of the misstatement in the context of previous communications to the users of the financial reports. The participants were asked to rate the usefulness of each of the 10 pieces of quantitative and qualitative

information presented in the case on a 10-point Likert scale (1 to 10; where 1 denoted “not useful at all” and 10 denoted “very useful”).

#### **4.4 Procedures**

All participants were provided with the same set of instructions and background, and in the same format. It was ensured that all relevant information was presented in the cover letter of the questionnaire. The research instrument consisted of three sections.

Section 1 of the questionnaire consisted of demographic information regarding the participants. This section provides information regarding the independent variables of gender and culture of the participants.

Section 2 consisted of a case study with related questions to ascertain audit judgements applied by the participants. The task required the participants to exercise their professional judgement and determine the extent of materiality of the proposed adjustment to the financial reports of the firm, given that a misstatement had been identified during the audit. The materiality judgement was based on principles contained in the ISA 450 *Evaluation of Misstatements Identified during the Audit* and ISA 320 *Materiality in Planning and Performing an Audit*. The case study provided both quantitative and qualitative evidence necessary for an auditor to make an informed audit judgement regarding materiality. An extract from ISA 450 was provided to remind participants about the importance of using both quantitative and qualitative information in making an audit judgement.

Section 3 measured the preference of participants towards quantitative information. This measure was adopted from the personality psychology literature and was developed and extensively tested by Viswanathan (1993). The PQI scale consisted of 20 questions evaluating a diverse set of elements, including the extent to which people enjoyed using quantitative information, perceived need for quantitative information, usefulness, importance, perceived relevance, satisfaction, and attention in using quantitative information. The response was in the form of a 7-point Likert scale (1 to 7; where 1 denoted “strongly disagree” and 7 denoted “strongly agree”).

## 4.5 Dependent Variables

The first dependent variable was the preference for using quantitative information. This was calculated using the PQI scale developed by Viswanathan (1993). Participants were asked to rate each of the 20 constructs on a 7-point Likert scale, and the scores were then aggregated. Higher PQI scores signified higher preference for quantitative information, while lower scores signified a higher preference for qualitative information. This variable was relevant to H1a and H2a.

The second dependent variable was information utilisation. Respondents were asked to rate the usefulness of each of the 10 pieces of quantitative and qualitative information presented in the task on a 10-point Likert scale (1 to 10; where 1 denoted “not useful at all” and 10 denoted “very useful”). The participants’ scores were calculated by aggregating their responses to the five quantitative cues and the five qualitative cues presented. A net utilisation score (NetScore) was determined by deducting the qualitative aggregate score from the quantitative aggregate score. The minimum possible value for the utilisation of quantitative versus qualitative information was -45 and the maximum possible value was 45. A higher NetScore signified greater utilisation of quantitative information, while a lower score signified greater utilisation of qualitative information. This variable was relevant to H1b and H2b.

The third dependent variable was auditors’ judgements on materiality. The participants were asked to provide a ‘waive’ or ‘book’ response to the materiality of the \$650,000 misstatement. Participants who based their decision on quantitative information were expected to provide a more biased judgement by waiving the adjustment. Participants who based their decision on qualitative information provided in the case were expected to provide a more unbiased judgement by recording the adjustment.<sup>2</sup> The five qualitative cues presented in the case provided additional

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<sup>2</sup> In the context of this study, the materiality of the misstatement of \$650,000 could be evaluated using five quantitative cues and five qualitative cues. All five quantitative cues were presented in the questionnaire at lower thresholds than those applied as per auditing pronouncements and standard audit practices (Eilifsen & Messier, 2014). In addition, auditors predominantly evaluated the materiality of a misstatement using ratios of the misstatement most commonly to net assets or net income (Carpenter et al., 1994). Therefore the misstatement would appear smaller than if it was evaluated in absolute amounts.

insights into the effects of the misstatement. All five qualitative information cues signified that the misstatement was material. Therefore, accounting students who utilised more qualitative than quantitative information when making their materiality judgement would provide an unbiased judgement compared to accounting students who utilised more quantitative than qualitative information cues. This variable was relevant to H1c and H2c.

The fourth dependent variable was the level of conservatism expressed by the respondents on the extent of materiality of the misstatement. The participants were asked to provide a judgement on the extent of materiality of the misstatement by providing a response on a 7-point Likert scale, (1 to 7; where 1 denoted “not material at all” and 7 denoted “extremely material”). Selecting higher levels of materiality represented greater levels of conservatism in respondents.

## CHAPTER 5: RESULTS

### 5.1 Demographic details of respondents

A summary of the demographic details of the 217 respondents follows.<sup>3</sup> The mean age of the respondents is 23.65 years. On average, the number of years of formal education attained by the respondents is 16.45 years. Of the 217 respondents, 47 percent are males and 53 percent are females. In terms of cultural backgrounds, 35.02 percent are Australians, 40.09 percent are Chinese, and the rest are from other countries.<sup>4</sup> Two independent samples were combined, comprising 125 undergraduate students (57.6 percent) and 92 postgraduate students (42.4 percent).<sup>5</sup> The demographic data of the respondents is shown in Table 5.1.

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<sup>3</sup> A total of 1080 questionnaires were distributed among final year postgraduate and undergraduate accounting students at Macquarie University; 217 valid responses were received, equating to a response rate of 20.1 percent. The majority of the discarded questionnaires were invalid either because they were incomplete or the participants had not provided valid responses. Studies conducted among students using survey questionnaires have shown similar response rates (Elias, 2002).

<sup>4</sup> For the purpose of this study, 'Australian' students include students who were either born in Australia or had completed their secondary education in Australia. 'Chinese' students include students who are currently in Australia to complete their tertiary education but had completed their secondary education in China. This classification is appropriate because when people migrate, individual cultural values may alter as cultures converge due to common education, and in the attempt to adjust to a foreign culture (Hofstede & Hofstede, 2005). For example, Chand et al. (2012) provided evidence that the process of acculturation might allow Chinese-Australian students (Chinese students who had migrated to Australia at an early age and completed their secondary education in Australia) to hold cultural values more akin to Anglo-Celtic Australian students than the Chinese students, who were born and brought up in China, and had come to Australia only for their tertiary education. Completing their secondary education in Australia also allows Chinese students to improve their language skills and overcome the language barrier (Chand et al., 2012, p. 163).

<sup>5</sup> Analysis of Variance (ANOVA) tests were conducted to assess whether there was any significant difference in the audit judgements between the postgraduate and undergraduate students in the sample. No significant difference in judgement was found between the two cohorts (at  $p < 0.05$ ). Hence, both the undergraduate and postgraduate student samples have been combined for the purposes of reporting the results for all the hypotheses.

**Table 5.1 Demographic data of the respondents**

| Demographic data                          | Male  | Female |
|---|-------|--------|
| Sample size                               | 102   | 115    |
| Culture:                                  |       |        |
| Australians                               | 46    | 30     |
| Chinese                                   | 33    | 54     |
| Others                                    | 23    | 31     |
| Cohort:                                   |       |        |
| Undergraduate students                    | 59    | 66     |
| Postgraduate students                     | 43    | 49     |
| Age (Mean)                                | 23.78 | 23.53  |
| Level of formal education in years (mean) | 16.57 | 16.34  |

The first step in the analysis was to test whether there were variations in the judgements of respondents that could be explained by demographic variables other than gender and culture. Studies investigating the judgements of professional auditors have shown that variables such as age, level of education, and years of professional experience might also affect the judgements of auditors. Analysis of these variables revealed that age, level of education, and years of professional experience did not significantly influence the judgements of the respondents (untabulated results =  $p < 0.05$ ).

## **5.2 Test of Hypotheses**

### ***5.2.1 Influence of gender on the preference for using quantitative information in decision-making (H1a)***

H1 is tested using a one-way analysis of variance (ANOVA) with gender (male and female) as the independent variable and preference for quantitative information (aggregate PQI score) as the dependent variable. This study employed a 20-item inventory from Viswanathan's (1993) PQI scale to measure each participant's preference towards the use of quantitative information. The response format was a 7-point Likert scale, (1 to 7; where 1 denoted "strongly disagree" and 7 denoted "strongly agree"). For each participant in this study, the preference for quantitative information was calculated by aggregating his or her respective responses to all 20



questions. A higher aggregate score indicates a higher preference for quantitative information, while a lower score indicates preference for qualitative information. The descriptive statistics and ANOVA results are presented in Table 5.2.

**Table 5.2 Descriptive statistics and ANOVA results for the influence of gender on the preference for using quantitative information**

| <b>Gender</b>     | <b>Mean</b> | <b>Standard deviation</b> | <b>F</b> | <b>p-value</b> |
|-------------------|-------------|---------------------------|----------|----------------|
| Male<br>n = 102   | 100.69      | 13.83                     | 4.351    | 0.038**        |
| Female<br>n = 115 | 97.09       | 11.58                     |          |                |

\*\*Denotes significance at 5 percent

H1a predicts that male accounting students will exhibit a higher preference for quantitative information while female accounting students will demonstrate a higher preference for qualitative information as the primary basis for decision-making. In the context of this study, it is expected that male accounting students will have a higher aggregate PQI score than their female counterparts.

The results reported in Table 5.2 are consistent with this expectation. Male accounting students had higher aggregate PQI scores (mean = 100.69) in comparison to their female counterparts (mean=97.09, F=4.351, p=0.038, one-tailed). This shows that male accounting students are more likely to have a higher preference for quantitative information, while female accounting students are more likely to have a higher preference for qualitative information as the primary basis for decision-making. This result, therefore, provides strong support for H1a.

### ***5.2.2 Influence of gender on the utilisation of quantitative information in materiality judgements (H1b)***

H1b is tested using a one-way ANOVA with gender (male and female) as the independent variable and the utilisation of quantitative information in materiality judgements as the dependent variable. Respondents were asked to rate the usefulness of each of the 10 pieces of quantitative and qualitative information presented in the case on a 10-point Likert scale (1 to 10; where 1 denoted “not useful at all” and 10 denoted “very useful”). The utilisation score of respondents was calculated by first aggregating the responses of the five quantitative cues and the five qualitative cues presented. The net utilisation score (NetScore) was calculated by deducting the qualitative aggregate score from the quantitative aggregate score. A higher NetScore denotes greater utilisation of quantitative information, while lower scores indicate higher utilisation of qualitative information. The descriptive statistics and ANOVA results are presented in Table 5.3.

**Table 5.3 Descriptive statistics and ANOVA results for the influence of gender on the utilisation of quantitative information in materiality judgements**

| <b>Gender</b>     | <b>Mean</b> | <b>Standard deviation</b> | <b>F</b> | <b>p-value</b> |
|-------------------|-------------|---------------------------|----------|----------------|
| Male<br>n = 102   | -4.32       | 10.10                     | 5.754    | 0.017**        |
| Female<br>n = 115 | -7.51       | 9.48                      |          |                |

\*\*Denotes significance at 5 percent

H1b predicts that male accounting students, who exhibit a higher preference for quantitative information as shown in H1a, will utilise more quantitative than qualitative audit information when making materiality judgements. In contrast, female accounting students will utilise more qualitative audit information. In the context of this study, it is expected that male accounting students will have a higher NetScore while female accounting students will have a lower NetScore.

The results reported in Table 5.3 are consistent with this expectation. The results show that male accounting students utilise more quantitative cues than qualitative cues provided in the case (mean = -4.32) in comparison to the female accounting students (mean=-7.51,  $F=5.754$ ,  $p=0.017$ , one-tailed).<sup>6</sup> This indicates that male accounting students are more likely to utilise quantitative audit information in making materiality judgements than female accounting students, who are more likely to utilise qualitative audit information in making materiality judgements. This result, therefore, provides support for H1b.

### ***5.2.3 Effect of gender on auditors' materiality judgement (H1c)***

H1c is tested using a one-way ANOVA with gender (male and female) as the independent variable and auditors' materiality judgement (waive and book) as the dependent variable. Participants were asked whether they would waive or book the proposed adjustment on warranty obligations (where 1 denotes 'waive' and 2 denotes 'book'). Higher mean values denote a higher tendency to book the proposed adjustment, while lower values signify a tendency to waive the adjustment. The descriptive statistics and ANOVA results are presented in Table 5.4.

**Table 5.4 Descriptive statistics and ANOVA results for the effect of gender on auditors' materiality judgement**

| <b>Gender</b>     | <b>Mean</b> | <b>Standard deviation</b> | <b>F</b> | <b>p-value</b> |
|-------------------|-------------|---------------------------|----------|----------------|
| Male<br>n = 102   | 1.82        | 0.383                     | 4.650    | 0.032**        |
| Female<br>n = 115 | 1.94        | 0.404                     |          |                |

\*\*Denotes significance at 5 percent

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<sup>6</sup> The mean value of -7.51 denotes that female accounting students rated the qualitative audit information provided in the case as more useful than the quantitative information in making materiality judgements. The mean value of -4.32 indicates that male accounting students rated the qualitative audit information presented in the case as less useful than the female students in making materiality judgements.

H1c predicts that the materiality judgements of male accounting students who utilise more quantitative than qualitative information will be biased compared to the judgements of the female accounting students who utilise more qualitative information. All five quantitative cues presented in the questionnaire are below the materiality thresholds prescribed by the auditing pronouncements and standard audit practice. All five qualitative information cues imply that the misstatement is material. Therefore, an unbiased judgement will be one where the student considers the qualitative cues and opts to book the adjustment, even though it is below the quantitative thresholds of materiality. In the context of this study, it is expected that female accounting students will choose to book the proposed materiality adjustment and have higher mean values than their male counterparts, who will opt to waive the adjustment and, thus, have lower mean values.

The results reported in Table 5.4 are consistent with this expectation. The results show that female accounting students provide more unbiased materiality judgements (mean = 1.94) in comparison to male accounting students (mean=1.82,  $F=4.650$ ,  $p=0.032$ , one-tailed). This indicates that female respondents, who utilised more qualitative audit information, are more likely to record the proposed adjustment and provide a more unbiased materiality judgement compared to the male respondents, who are more likely to waive the adjustment. This result, therefore, provides strong support for H1c.

#### ***5.2.4 Influence of culture on the preference for using quantitative information in decision-making (H2a)***

H2a is tested using a one-way ANOVA with culture (Australian and Chinese) as the independent variable and preference for quantitative information (aggregate PQI score) as the dependent variable. Recall that the PQI score is calculated by aggregating the participants' responses in the Viswanathan's (1993) PQI Scale. Higher scores denote a preference for quantitative information, and lower scores signify a preference for qualitative information. The descriptive statistics and ANOVA results are presented in Table 5.5.

**Table 5.5 Descriptive statistics and ANOVA results for the influence of culture on the preference for using quantitative information**

| <b>Culture</b>       | <b>Mean</b> | <b>Standard deviation</b> | <b>F</b> | <b>p-value</b> |
|----------------------|-------------|---------------------------|----------|----------------|
| Australian<br>n = 76 | 94.21       | 11.48                     | 14.763   | 0.000**        |
| Chinese<br>n = 87    | 100.93      | 10.84                     |          |                |

\*\*Denotes significance at 5 percent

H2a predicts that Chinese accounting students will exhibit a higher preference for quantitative information, while Australian accounting students will demonstrate a higher preference for qualitative information as the primary basis for decision-making. In the context of this study, it is expected that Chinese accounting students will have a higher aggregate PQI score than their Australian counterparts.

The results reported in Table 5.5 are consistent with this expectation. Chinese accounting students had higher aggregate PQI scores (mean =100.93) in comparison to their Australian counterparts (mean=94.21, F=14.763, p=0.000, one-tailed). This shows that Chinese accounting students are more likely to have a higher preference for quantitative information, while Australian accounting students are more likely to have a higher preference for qualitative information as the primary basis for decision-making. This result, therefore, provides strong support for H2a.

#### ***5.2.5 Influence of culture on the utilisation of quantitative information in materiality judgements (H2b)***

H2b is tested using a one-way ANOVA with culture (Australian and Chinese) as the independent variable and the utilisation of quantitative information (NetScore) in materiality judgements as the dependent variable. Recall that higher NetScores denote greater utilisation of quantitative information, while lower scores signify higher

utilisation of qualitative information. The descriptive statistics and ANOVA results are presented in Table 5.6.

**Table 5.6 Descriptive statistics and ANOVA results for the influence of culture on the utilisation of quantitative information in materiality judgements**

| Culture              | Mean  | Standard deviation | F      | p-value |
|----------------------|-------|--------------------|--------|---------|
| Australian<br>n = 76 | -9.04 | 9.81               | 10.143 | 0.002** |
| Chinese<br>n = 87    | -4.23 | 9.44               |        |         |

\*\*Denotes significance at 5 percent

H2b predicts that Chinese accounting students, who exhibit a higher preference for quantitative information as shown in H2a, will utilise more quantitative than qualitative audit information when making materiality judgements, in contrast to Australian accounting students, who will utilise more qualitative audit information. In the context of this study, it is expected that Chinese accounting students will have a higher NetScore, while Australian accounting students will have a lower NetScore.

The results reported in Table 5.6 are consistent with this expectation. The results show that Chinese accounting students utilise more quantitative cues than qualitative cues provided in the case (mean = -4.23) in comparison to Australian accounting students (mean=-9.04, F=10.143, p=0.002, one-tailed). This indicates that Chinese accounting students are more likely to utilise quantitative audit information in making materiality judgements than Australian accounting students, who are more likely to utilise qualitative audit information in making materiality judgements. This result, therefore, provides strong support for H2b.

### 5.2.6 Effect of culture on auditors' materiality judgement (H2c)

H2c is tested using a one-way ANOVA with culture (Australian and Chinese) as the independent variable and auditors' materiality judgement (waive and book) as the dependent variable. Participants were asked whether they would waive or book the proposed adjustment on warranty obligations (where 1 denotes 'waive' and 2 denotes 'book'). Higher mean values denote a higher tendency to book the proposed adjustment, while lower values signify a tendency to waive the adjustment. The descriptive statistics and ANOVA results are presented in Table 5.7.

**Table 5.7 Descriptive statistics and ANOVA results for the effect of culture on auditors' materiality judgement**

| Culture              | Mean | Standard deviation | F     | p-value |
|----------------------|------|--------------------|-------|---------|
| Australian<br>n = 76 | 1.99 | 0.416              | 5.044 | 0.026** |
| Chinese<br>n = 87    | 1.85 | 0.359              |       |         |

\*\*Denotes significance at 5 percent

H2c predicts that the materiality judgements of Chinese accounting students, who utilise more quantitative than qualitative information will be biased compared to the judgements of the Australian accounting students, who utilise more qualitative information. In the context of this study, it is expected that Australian accounting students will choose to book the proposed materiality adjustment and have higher mean values than their Chinese counterparts, who will opt to waive the adjustment and, thus, have lower mean values.

The results reported in Table 5.7 are consistent with this expectation. The results show that Australian accounting students provide more unbiased materiality judgements (mean = 1.99) in comparison to Chinese accounting students (mean=1.85, F=5.044, p=0.026, one-tailed). This indicates that Australian students, who utilised more qualitative audit information, are more likely to record the proposed adjustment

and provide a more unbiased materiality judgement compared to the Chinese students, who are more likely to waive the proposed adjustment. This result, therefore, provides strong support for H2c.

### ***5.2.7 Influence of national culture on the judgement of auditors (H3)***

H3 is tested using a one-way ANOVA with culture (Australian and Chinese) as the independent variable and auditors' extent of conservatism in materiality judgement as the dependent variable. Participants were asked to rate the materiality of the proposed adjustment on a scale of 1 to 7 (where 1 denotes 'not material at all' and 7 denotes 'extremely material'). Higher values denote the tendency to judge the proposed adjustment as material, while lower values signify the tendency to judge the proposed adjustment as less material. The descriptive statistics and ANOVA results are presented in Table 5.8.

**Table 5.8 Descriptive statistics and ANOVA results for the influence of national culture on the judgement of auditors**

| <b>Culture</b>       | <b>Mean</b> | <b>Standard deviation</b> | <b>F</b> | <b>p-value</b> |
|----------------------|-------------|---------------------------|----------|----------------|
| Australian<br>n = 76 | 4.66        | 1.410                     | 9.112    | 0.003**        |
| Chinese<br>n = 87    | 5.23        | 0.997                     |          |                |

\*\*Denotes significance at 5 percent

H3 predicts that Chinese accounting students, due to stronger values of conservatism, will evaluate the materiality of the proposed adjustment as higher than the Australian accounting students. In the context of this study, Chinese accounting students are expected to assign higher values in rating the materiality of the proposed adjustment than their Australian counterparts.



The results reported in Table 5.8 are consistent with this expectation. Chinese accounting students were found to assign a higher materiality level to the proposed adjustment (mean = 5.23) than their Australian counterparts (mean = 4.66,  $F=9.112$ ,  $p = 0.003$ , one-tailed). This shows that Chinese accounting students are likely to be more conservative in their application of materiality judgements than their Australian counterparts. This result, therefore, provides strong support for H3.

## **CHAPTER 6: CONCLUSIONS, IMPLICATIONS, LIMITATIONS, AND AVENUES FOR FUTURE RESEARCH**

### **6.1 Conclusions and Implications**

This thesis examined whether the gender and culture of auditors affects their judgements on materiality. In particular, this study provides an understanding of whether auditors are using both qualitative and quantitative evidence in their audit judgements regarding materiality, instead of solely using prescribed materiality percentages.

The results support the hypothesis that an auditor's gender influences audit judgements on materiality. Consistent with expectations, the results show that female accounting students prefer to utilise more qualitative data, while male accounting students prefer to utilise more quantitative data as the primary basis for their decision-making. The results also support the prediction that the preference for data will influence the type of audit information being utilised in making materiality judgements, with female accounting students using more qualitative audit information and male accounting students utilising more quantitative audit information. In addition, the results also show that female accounting students, who utilise more qualitative than quantitative information to support their materiality judgements, make more unbiased judgements compared to male students, who utilise more quantitative than qualitative information.

The results also support the hypothesis that an auditor's culture influences audit judgements on materiality. As anticipated, the results indicate that Australian accounting students prefer using qualitative data, while Chinese accounting students prefer using quantitative data as the primary basis for their decision-making. Consistent with expectations, the results also reveal support for the finding that the preference for data will influence the type of audit information being utilised in making materiality judgements, with Australian students using more qualitative audit information and Chinese students utilising more quantitative audit information. In addition, Australian accounting students, who utilise more qualitative than quantitative information to support their materiality judgements, make more unbiased

judgements compared to the Chinese students, who utilise more quantitative than qualitative information.

This study further examined whether national culture affects the extent of conservatism expressed by auditors in materiality judgements. The results support the hypothesis that accounting students residing in countries that rank higher in terms of Conservatism, i.e., China, will evaluate the materiality of the proposed adjustment to be greater than accounting students residing in a country that ranks lower in terms of Conservatism, i.e., Australia.

The conclusions of this study have several practical implications. First, the study contributes to the growing literature on the utilisation of quantitative versus qualitative information in audit judgements. Auditors have to deal with both quantitative and qualitative information when they are evaluating and reviewing audit evidence. This study establishes that the utilisation of quantitative or qualitative information is affected by the inherent traits of the auditor – gender and culture. This implies that the emphasis on qualitative or quantitative information as a primary decision-making tool will depend on the gender and culture of the auditor, and they may unknowingly ignore relevant information when making materiality judgements.

Second, this research has implications for on-going harmonisation efforts around the world. Differences in information preference and utilisation when making materiality judgements, due to the gender and culture of auditors, increases inconsistency in materiality judgements. This adds to the obstacles already faced by regulatory bodies in bringing about worldwide harmonisation in the audit profession. Additionally, achieving global harmonisation of auditing standards will be a slow process.

Lastly, even though ISA 450 mandates the use of both quantitative and qualitative information prior to making materiality judgements, an auditor's preference for one type of audit information over another provides management with a potential avenue to misconstrue investor information, should they choose to exploit those preferences by offering selective information to the auditor. Thus far, materiality judgements have been predominantly determined through quantitative measures, and it is still possible for management to influence auditors' materiality judgements by providing salient

quantitative information and not disclosing material qualitative information. This reduces the overall quality of audit judgements.

The research findings also have many policy implications. First, given the recent trends in migration and the multicultural cohort of students joining the audit profession, it is imperative to ensure consistency in audit judgements across cultures to maintain audit quality. As more and more students travel to developed countries, like Australia, for their higher education, it is possible to mitigate the effects of gender and culture through more effective tertiary education. The conclusions of this study will allow policymakers to coordinate with educators to develop educational strategies and training dedicated to addressing the judgement differences that may occur due to variations in gender and culture. This may help to improve consistency in materiality judgements and, consequently, improve audit quality.

Second, the research findings also have implications for new recruits in audit firms. Given that gender and culture affect auditors' materiality judgements, hiring audit firms will need to spend additional resources and time training new recruits, so that they are able to make appropriate audit judgements. In a bid to improve consistency and audit quality, both on-the-job training and specialised training sessions may be necessary to negate the effect of gender and culture on materiality judgement variations. Therefore, the findings of the thesis provide significant implications for the restructuring of education and training of auditors in applying materiality judgements, with a view to improving audit quality in future.

Lastly, this research shows that, regardless of the ISA 450 mandate to apply both quantitative and qualitative information in making materiality judgements, auditors may be prone to base their materiality judgements primarily on quantitative factors. As such, extensive training in the form of workshops that discuss the salience of qualitative factors would be a significant step towards better application of ISA 450. Authorised regulatory bodies need to provide additional implementation guidance regarding the application of qualitative information in materiality judgements to encourage more widespread use of qualitative data.

## **6.2 Limitations and Avenues for future research**

The above conclusions should be considered in view of some potential limitations of the study. Some of these limitations are related to the use of the survey research method, while other limitations include issues with relevant samples, case scenarios, and the choice of the two cultures in the study. The limitations, their consequences, and suggestions for future research are discussed below.

First, the survey research approach was used to collect data and examine the effect of gender and culture on materiality judgements. One of the main limitations of this method is potential bias, which may threaten the internal validity of the study. In applying the survey method, valid outcomes are only possible with a rigorous preparatory process (Singleton & Straits, 2010). To address this concern several steps were taken to ensure a well-designed and well-executed survey, including: (1) formulation of relevant research questions; (2) use of a previously tested survey instrument with high reliability; (3) collecting data from a sample of respondents from well-defined populations; and (4) using appropriate statistical techniques to analyse the results. Instead of applying the survey method, future research might apply an experimental method of research to establish a more robust relationship between the inherent traits of gender and culture, and auditors' materiality judgements.

Second, the case scenario used in this study relates to the determination of the materiality of a warranty obligation. Although the scenario was developed to imitate a real-world circumstance, which is representative of the type of judgements encountered by professional auditors in practice, the scenario cannot represent all possible aspects of the practical world. Several other factors may affect auditor judgements, such as ethical climate, conformity pressure, and obedience pressure, which were not included in the given case scenario. Future research may develop more comprehensive models to examine other contextual factors alongside gender and culture that may influence auditors' materiality judgements.

Third, this study was carried out among final year audit students at Macquarie University. Hence, the generalisability of the results of this study in the professional audit workplace may be limited. Audit students lack the practical knowledge gained

by professional auditors through years of working experience. It is possible that experience acquired by professional auditors may negate the effect of gender and culture on auditors' materiality judgements. Therefore, future research could extend this study by conducting a similar study on professional auditors instead of a student sample. The study could establish whether gender and culture continue to affect auditors' materiality judgements in the professional workplace, given the experience of practising auditors.

Finally, this thesis provides evidence across two cultures – Chinese and Australian. Therefore, the generalisability of the results of this study to other cultures, even with similar characteristics, should be applied with caution. With most countries around the world having an established audit profession, there are significant opportunities for future research to extend this study to other cultures. Such studies would provide valuable insights into the challenges of achieving consistency and improved audit quality in the application of auditing standards worldwide.

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## **Appendix : 1 : Research Instrument**



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## Participant Information

### JUDGMENTS OF AUDITORS

You are invited to participate in a study that investigates judgments made by post graduate students enrolled in the Master of Professional Accounting program. The purpose of this study is to examine the impact of various factors affecting materiality judgments in audit contexts.

The study is being conducted by Batul Towfique Hasan [Department of Accounting and Corporate Governance, Macquarie University, NSW, Australia, [batul.towfique@students.mq.edu.au](mailto:batul.towfique@students.mq.edu.au)]. It is being conducted to meet the requirements of Master of Research (MRes) under the supervision of Associate Professor Parmod Chand [[parmod.chand@mq.edu.au](mailto:parmod.chand@mq.edu.au), Ph: (612) 9850 6137] and Dr Meiting Lu [[meiting.lu@mq.edu.au](mailto:meiting.lu@mq.edu.au), Ph: (612) 9850 1928] of the Department of Accounting and Corporate Governance, Macquarie University.

If you decide to participate, you will be asked to complete a questionnaire. The questionnaire has three parts. Part One collects demographic data about the respondents. Part Two consists of a small case study, and you are asked to provide your judgment on a scenario concerning the materiality of an audit adjustment. Part Three consists of a series of questions on your preferences for using different types of information. It will take approximately 20-25 minutes to complete the questionnaire.

As you participate in this study as an individual, you are not considered to be a representative of your work organization or institution. The information provided by you represents your personal views only and not the views of your workplace. No sensitive personal information will be collected. Any information or personal details gathered in this study are confidential, except as required by law. No individual will be identified in any publication of the results. Data will be analysed in aggregate form, held and accessed solely by the researchers (Associate Professor Parmod Chand, Dr Meiting Lu and Batul Towfique Hasan) and will not be used for any other purpose. The results of this study will be incorporated into Batul Towfique Hasan's MRes thesis, which will be available at the Macquarie University Library for public access. A summary of the research results can be made available to you on request by email to the researchers.

Participation in this survey is entirely voluntary. If you could complete the attached questionnaire, your time and co-operation will be greatly appreciated. If you do not wish to participate, simply do not return the questionnaire. Please note that completion and return of the questionnaire will be regarded as consent to use the information for research purposes.<sup>1</sup>

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<sup>1</sup> The ethical aspects of this study have been approved by the Macquarie University Human Research Ethics Committee. If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Committee through the Director, Research Ethics (telephone [02] 9850 7854, email: [ethics@mq.edu.au](mailto:ethics@mq.edu.au)). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

Please answer all questions. Your response is very important for the research which will contribute to understanding the factors affecting the professional judgment of auditors.

## Section 1

### YOUR PERSONAL PROFILE

Please respond to the following questions so that a profile for respondents can be developed.

|     |   |
|-----|---|
| 1.  | Are you:    Male <input type="checkbox"/> Female <input type="checkbox"/>   |
| 2.  | How old are you?<br><input type="checkbox"/> Under 20 years <input type="checkbox"/> 20-24 <input type="checkbox"/> 25-29 <input type="checkbox"/> 30-34 <input type="checkbox"/> 35-39 <input type="checkbox"/> 40-49 <input type="checkbox"/> 50-59 <input type="checkbox"/> 60 or over       |
| 3.  | In total, how many years of formal education (primary, secondary and tertiary) did you complete?<br><input type="checkbox"/> Less than 15 years <input type="checkbox"/> 15 years <input type="checkbox"/> 16 years <input type="checkbox"/> 17 years <input type="checkbox"/> 18 years or over |
| 4.  | In which country did you complete your:<br>Primary education _____ Secondary education _____ Tertiary education _____   |
| 5.  | What is your current citizenship? _____   |
| 6.  | What was your citizenship at birth, if different? _____   |
| 7.  | What is your ethnicity?<br><input type="checkbox"/> Anglo-Celtic <input type="checkbox"/> Chinese <input type="checkbox"/> Indian    _____<br>Other (please specify)  |
| 8.  | Are you a member of: <input type="checkbox"/> CAANZ <input type="checkbox"/> CPA Australia <input type="checkbox"/> IPA    _____<br><input type="checkbox"/> Not Applicable    Other (please specify)   |
| 9.  | In which type of firm/organization do you work?<br><input type="checkbox"/> Big 4 Accounting Firm <input type="checkbox"/> Non-Big 4 Accounting Firm <input type="checkbox"/> Not Applicable    _____<br>Other (please specify)   |
| 10. | How familiar are you with Australian Auditing Standards (ASAs)?<br><input type="checkbox"/> Very familiar <input type="checkbox"/> Familiar <input type="checkbox"/> Somewhat familiar <input type="checkbox"/> Not familiar  |
| 11. | How frequently do you refer to ASAs in your professional practice?<br><input type="checkbox"/> Often <input type="checkbox"/> Sometimes <input type="checkbox"/> Seldom <input type="checkbox"/> Never  |

## Section 2

### CASE STUDY

**Below is a scenario that requires your judgment on the materiality of an audit adjustment. The required judgment is based on Australian Auditing Standards (ASAs). You may refer to the relevant ASA in making your judgment.**

#### The Audit Engagement

You are a successful CPA employed in a large accounting firm. Your performance and skill has led to rapid advancement in your career. You expect to have an excellent chance of being promoted to manager next year, ahead of your peers. As a test run to further sharpen your managerial skills, you have been assigned to review the work-papers prepared by the audit team of Legacy Furniture, and make some judgments and decisions on the proposed audit adjustments for the client. To assist you in performing the task, some background description of the client and extracts of its financial statements for the financial year ended 30 June 2016 are provided below.

#### Client Background

Legacy Furniture is a large publicly traded company that manufactures premium furniture from quality wood such as oak, teak and mahogany. The company has its own retail outlets but also sells through independent retailers around Australia. It also produces custom-made furniture for consumers.

Legacy Furniture was one of the leading producers in the premium furniture market not so long ago, known for its durable and well-designed furniture. However, recently, several factors have affected its growth, primarily, cheap imports and quality furniture from alternative and more eco-friendly raw materials such as melamine boards. Labour costs are a major issue for Legacy, as its furniture do not need self-assembling and are ready to use.

The furniture industry is characterised by intense competition, which results in limited potential for growth and thin margins. The principal competitive factors are product durability, design, customer service, and price. The availability of cheaper imports and mergers and acquisitions amongst competitors has led to a loss of market share for Legacy Furniture, affecting its revenues. The general economic condition in the country is slow affecting sale of luxury items. Year on year revenue growth rates over the last 5 years have been low and unstable compared to previous years. However, Legacy is closely followed by analysts and has so far been able to meet analysts' forecasts. Analysts have forecasted Earnings per share to be \$1.00 for this year. The management at Legacy are paid bonuses based on financial results i.e. if return on assets is above the 10% threshold.

In response to the increased competition and falling revenue growth, Legacy has introduced several strategies this year. The management has decided to introduce a cheaper brand of furniture to compete with the new incumbents in the market. It has also taken up an aggressive selling policy. It has decreased deposit rates to 10% from the previous 25% and doubled credit periods; instead of full payment within 45 days, Legacy now allows a payment holiday of 3 months. These changes have boosted sales figures but at the expense of applying pressure on the cash flow of the company. Given its long establishment and business success in prior years, Legacy has access to short-term lending from banks and has already begun to use it extensively. It has requested the bank for an extra line of credit. The credit has been granted but under condition that the company provide the bank with audited statements within 3 months of the end of the financial year, strictly maintain a debt to equity ratio of 2.5:1 and have a return on asset of 10%.



Your firm has been the auditors for Legacy for the last 8 years and share a healthy business relationship with the management. Any minor disagreements so far have been amicably settled and adjusted.

**Financial Statement (Extracts) – Legacy Furniture: Consolidated Income Statement**

|                                     | 30/06/2016<br>(Before Audit Adjustments) |
|-------------------------------------|--|
| Revenues                            | \$200,000,000                            |
| Cost of sales                       | 120,000,000                              |
| Gross profit                        | 80,000,000                               |
| Depreciation and amortization       | 24,850,000                               |
| Selling and Administrative expenses | 22,685,000                               |
| Interest expenses                   | 3,500,000                                |
| Other expenses                      | 13,965,000                               |
| Net profit before tax               | 15,000,000                               |
| Provision for income tax            | 5,000,000                                |
| Net profit after tax                | 10,000,000                               |
| <b>Earnings per share</b>           | <b>1.00</b>                              |
| Number of ordinary shares           | 10,000,000                               |

**Consolidated Balance Sheet**

|  | 30/06/2016<br>(Before Audit Adjustments) |
|--|--|
| Cash and equivalents   | 9,450,000                                |
| Receivables (net)  | 35,000,000                               |
| Inventories (net)  | 40,000,000                               |
| Other current assets   | 13,550,000                               |
| <i>Total current assets</i>                                    | 98,000,000                               |
| Non-current assets   | 52,000,000                               |
| <b>Total assets</b>  | <b>150,000,000</b>                       |
| Accounts payable and accrued liabilities                       | 10,000,000                               |
| Short-term borrowings and current maturities of long-term debt | 20,000,000                               |
| <i>Total current liabilities</i>                               | 30,000,000                               |
| Long-term debt (excluding current maturities)                  | 70,000,000                               |
| Other long-term liabilities                                    | 7,000,000                                |
| <i>Total liabilities</i>                                       | 107,000,000                              |
| Total shareholders' equity                                     | 43,000,000                               |
| <b>Total liabilities and shareholders' equity</b>              | <b>150,000,000</b>                       |

### Cash flow statement

|  | 30/06/2016<br>(Before Audit Adjustments) |
|--|--|
| Cash flows from operating activities     | (40,500,000)                             |
| Cash flows from investing activities     | (20,500,000)                             |
| Cash flows from financing activities     | 30,450,000                               |
| <i>Increase in cash and equivalents</i>  | (30,550,000)                             |
| Cash and equivalents, beginning of year  | 40,000,000                               |
| <b>Cash and equivalents, end of year</b> | <b>9,450,000</b>                         |

#### Proposed Adjustment

Assume that there is only one proposed adjustment to be considered. Legacy offers a 2-year warranty on its products and a free polish for items sold after one year. This has been included in the 'Other long-term Liabilities' section. Legacy has recorded warranty liabilities of \$350,000 after a review of the company's warranty payments and expenses in previous years.

You have reviewed the warranty accounts for the last five years and after considerable deliberation, estimate that the warranty liability should be \$1,000,000. The management has stated that it has changed raw materials used in the furniture. The new and significantly more expensive polish is going to substantially reduce after sales service costs and hence, the reduction in warranty liabilities. However, in examining the cost of sales, you find that it has increased at the same rate as previous years, with no significant increase in costs due to the application of a new kind of polish. In speaking to some of the carpenters, you also find no substantial evidence to show that the polish currently being used on the furniture is significantly different in quality from those used previously, though the brand has been changed. You are unconvinced of the justification provided by the management regarding lowering warranty liabilities.

You propose that the warranty obligations figure be adjusted to \$1,000,000. Legacy management has indicated that the proposed audit adjustment is not material to the financial statements as a whole and that they do not wish to record the audit adjustment.

Assume that work on all other accounts have been completed satisfactorily with additional procedures carried out where necessary and no further misstatements are detected.



Please answer the following questions relating to the proposed audit adjustment by marking an “X” on the scale corresponding to your judgment:

The auditing standard, ISA 450 Evaluation of misstatements identified during the audit, requires auditors to consider both quantitative and qualitative factors when determining the materiality of uncorrected misstatements. Auditing standards in Australia are legally enforceable.

1. To what extent do you consider the proposed audit adjustment to be material to Legacy Furniture’s financial statements?

| Judgment | Not material at all |   |   |   |   |   | Extremely material |
|----------|---------------------|---|---|---|---|---|--------------------|
|          | 1                   | 2 | 3 | 4 | 5 | 6 | 7                  |

2. What is your most likely decision regarding the disposition of the proposed audit adjustment (i.e., whether to waive (not record) or book (record) the proposed adjustment)? Please tick one.

☐ Waive the proposed audit adjustment (Not Record) ☐ Book the proposed audit adjustment (Record)

3. How confident are you in your decision (in Q.2) above?

| Judgment | Not confident at all |   |   |   |   |   | Extremely confident |
|----------|----------------------|---|---|---|---|---|---------------------|
|          | 1                    | 2 | 3 | 4 | 5 | 6 | 7                   |

**4. Please indicate whether the following pieces of information were useful/not useful to your decision making process.**

Please **do not go back to change any of your judgments** in parts 1-3 above in light of these information.

Please place a tick in the appropriate box where 1 denotes that the information was not useful at all and 10 denotes that the information was very useful.

| Information   | Not Useful at all |   |   |   |   |   |   |   |   |    | Very Useful |
|---|-------------------|---|---|---|---|---|---|---|---|----|-------------|
|   | 1                 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |             |
| 1. The audit adjustment is less than 5 per cent of net profit before tax.   |                   |   |   |   |   |   |   |   |   |    |             |
| 2. The booking (recording) of the audit adjustment will affect compliance with debt covenants or other contractual requirements.  |                   |   |   |   |   |   |   |   |   |    |             |
| 3. The audit adjustment is less than 1 per cent of total assets.  |                   |   |   |   |   |   |   |   |   |    |             |
| 4. The audit adjustment, if not booked (not recorded) will mask a change in earnings or other trends, especially in the context of general economic and industry conditions.            |                   |   |   |   |   |   |   |   |   |    |             |
| 5. The audit adjustment is less than 3 per cent of net assets.  |                   |   |   |   |   |   |   |   |   |    |             |
| 6. The audit adjustment has the effect of increasing management compensation, for example by ensuring that the requirements for the award of bonuses or other incentives are satisfied. |                   |   |   |   |   |   |   |   |   |    |             |
| 7. The audit adjustment is less than 3 per cent of EBITDA (earnings before interest, tax, depreciation and amortisation).   |                   |   |   |   |   |   |   |   |   |    |             |
| 8. The booking (recording) of the audit adjustment will affect ratios used to evaluate the entity's financial position, results of operations and cash flows.                           |                   |   |   |   |   |   |   |   |   |    |             |
| 9. The audit adjustment is less than 1 per cent of total revenue.   |                   |   |   |   |   |   |   |   |   |    |             |
| 10. The audit adjustment is significant having regard to the auditor's understanding of known previous communications to users, for example in relation to forecast earnings.           |                   |   |   |   |   |   |   |   |   |    |             |

**5. If your decision (in Q.2) is to book (i.e., not to waive) the audit adjustment, would you qualify the audit opinion if Legacy Furniture's management insists on not recording the proposed audit adjustment?**

☐ Yes ☐ No

**6. How confident are you in your decision (in Q.5) above?**

| Judgment | Not confident at all |   |   |   |   |   |   | Extremely confident |
|----------|----------------------|---|---|---|---|---|---|---------------------|
|          | 1                    | 2 | 3 | 4 | 5 | 6 | 7 |                     |

**Please indicate how motivated you were to perform well on this case on the following scale:**

Not at All Moderately Motivated Extremely Motivated

1 2 3 4 5 6 7

☐ ☐ ☐ ☐ ☐ ☐ ☐

**Please indicate how much effort you have expended on this case on the following scale:**

Very Little Effort Moderate Effort A Great Deal of Effort

1 2 3 4 5 6 7

☐ ☐ ☐ ☐ ☐ ☐ ☐

**Auditing standards in Australia are:**

☐ Legally enforceable ☐ Not legally enforceable

**Please indicate the level of complexity of this case on the following scale:**

Not Complex Moderately Complex Extremely Complex

1 2 3 4 5 6 7

☐ ☐ ☐ ☐ ☐ ☐ ☐

**Please indicate your level of familiarity in dealing with similar cases like this on the following scale:**

Not Familiar Moderately Familiar Very Familiar

1 2 3 4 5 6 7

☐ ☐ ☐ ☐ ☐ ☐ ☐

**I tried to take into consideration all possible perspectives:**

|                          |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Rarely                   |                          |                          |                          |                          | Very Much                |
| 1                        | 2                        | 3                        | 4                        | 5                        |                          |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**I tried to make judgments and decisions as thorough as possible:**

|                          |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Absolutely disagree      |                          |                          |                          |                          | Absolutely agree         |
| 1                        | 2                        | 3                        | 4                        | 5                        |                          |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**I thought deeply before making a decision:**

|                          |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Seldom                   |                          |                          |                          |                          | All the time             |
| 1                        | 2                        | 3                        | 4                        | 5                        |                          |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**7. Please mark an “X” along the scale, indicating your preference for each of the pairs of statements.**

**To me, materiality judgment is:**

Important \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Unimportant

Boring \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Interesting

Relevant \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Irrelevant

Exciting \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Unexciting

Means nothing \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Means a lot to me

Appealing \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Unappealing

Fascinating \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Mundane

Worthless \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Valuable

Involving \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Uninvolving

Not needed \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Needed

### Section 3

#### TYPE OF INFORMATION

| Please indicate how strongly you agree or disagree with each of the statements (Please circle one answer in each line across) | Strongly Disagree | Disagree | Somewhat Disagree | Neutral | Somewhat Agree | Agree | Strongly Agree |
|---|-------------------|----------|-------------------|---------|----------------|-------|----------------|
|---|-------------------|----------|-------------------|---------|----------------|-------|----------------|

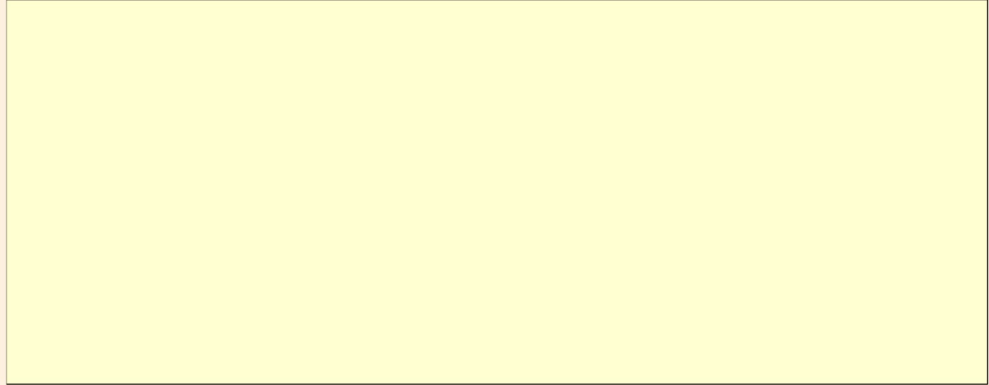
|   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|
| I enjoy work that requires the use of numbers                           | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I think quantitative information is difficult to understand             | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I find it satisfying to solve day-to-day problems involving numbers     | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Numerical information is very useful in everyday life                   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I prefer not to pay attention to information involving numbers          | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I think more information should be available in numerical form          | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I don't like to think about issues involving numbers                    | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Numbers are not necessary for most situations                           | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Thinking is enjoyable when it does not involve quantitative information | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I like to make calculations using numerical information                 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Quantitative information is vital for accurate decisions                | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I enjoy thinking about issues that do not involve numerical information | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| It helps me to think if I put down information as numbers               | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

|  | <b>Strongly<br/>Disagree</b> | <b>Disagree</b> | <b>Somewhat<br/>Disagree</b> | <b>Neutral</b> | <b>Somewhat<br/>Agree</b> | <b>Agree</b> | <b>Strongly<br/>Agree</b> |
|--|------------------------------|-----------------|------------------------------|----------------|---------------------------|--------------|---------------------------|
| Understanding numbers is as important in daily life as reading or writing                      | 1                            | 2               | 3                            | 4              | 5                         | 6            | 7                         |
| I easily lose interest in graphs, percentages, and other quantitative information              | 1                            | 2               | 3                            | 4              | 5                         | 6            | 7                         |
| I don't find numerical information to be relevant for most situations                          | 1                            | 2               | 3                            | 4              | 5                         | 6            | 7                         |
| I think it is important to learn and use numerical information to make well-informed decisions | 1                            | 2               | 3                            | 4              | 5                         | 6            | 7                         |
| Numbers are redundant for most situations  | 1                            | 2               | 3                            | 4              | 5                         | 6            | 7                         |
| It is a waste of time to learn information containing a lot of numbers                         | 1                            | 2               | 3                            | 4              | 5                         | 6            | 7                         |
| I like to go over numbers in my mind   | 1                            | 2               | 3                            | 4              | 5                         | 6            | 7                         |

**Please record the approximate time you spent to complete this survey:**

**Time Spent:**

**Thank you for taking the time to complete this instrument. Your assistance is very much appreciated. If you have any further comments, please provide them in the space provided.**



**Please ensure that you have answered every question. Missing questions will mean all of your responses are unusable.**

Batul Towfique Hasan  
Department of Accounting and Corporate Governance  
Faculty of Business and Economics  
Macquarie University  
NSW 2109  
Australia.

**Thank you for your participation!**

## **Appendix : 2 : Ethics Approval Letter**



Dear Dr Chand

Re application entitled: Impact of Gender and Culture on Audit Judgements

Reference Number: 5201700334

The above application was reviewed by the Faculty of Business & Economics Human Research Ethics Sub Committee. Approval of the above application is granted, effective "12/05/2017". This email constitutes ethical approval only.

This research meets the requirements of the National Statement on Ethical Conduct in Human Research (2007). The National Statement is available at the following web site:

[http://www.nhmrc.gov.au/files\\_nhmrc/publications/attachments/e72.pdf](http://www.nhmrc.gov.au/files_nhmrc/publications/attachments/e72.pdf).

The following personnel are authorised to conduct this research:

Associate Professor Parmod Chand  
Dr Meiting Lu  
Batul Towfique Hasan

NB. STUDENTS: IT IS YOUR RESPONSIBILITY TO KEEP A COPY OF THIS APPROVAL EMAIL TO SUBMIT WITH YOUR THESIS.

Please note the following standard requirements of approval:

1. The approval of this project is conditional upon your continuing compliance with the National Statement on Ethical Conduct in Human Research (2007).
2. Approval will be for a period of five (5) years subject to the provision of annual reports.

Progress Report 1 Due: 12th May 2018  
Progress Report 2 Due: 12th May 2019  
Progress Report 3 Due: 12th May 2020  
Progress Report 4 Due: 12 May 2021  
Final Report Due: 12th May 2022

NB. If you complete the work earlier than you had planned you must submit a Final Report as soon as the work is completed. If the project has been discontinued or not commenced for any reason, you are also required to submit a Final Report for the project.

Progress reports and Final Reports are available at the following website:

[http://www.research.mq.edu.au/for/researchers/how\\_to\\_obtain\\_ethics\\_approval/human\\_research\\_ethics/forms](http://www.research.mq.edu.au/for/researchers/how_to_obtain_ethics_approval/human_research_ethics/forms)

3. If the project has run for more than five (5) years you cannot renew approval for the project. You will need to complete and submit a Final Report and submit a new application for the project. (The five year limit on renewal of approvals allows the Committee to fully re-review research in an environment where legislation, guidelines and requirements are continually changing, for example, new child protection and privacy laws).

4. All amendments to the project must be reviewed and approved by the Committee before implementation. Please complete and submit a Request for Amendment Form available at the following website:

[http://www.research.mq.edu.au/for/researchers/how\\_to\\_obtain\\_ethics\\_approval/human\\_research\\_ethics/forms](http://www.research.mq.edu.au/for/researchers/how_to_obtain_ethics_approval/human_research_ethics/forms)

5. Please notify the Committee immediately in the event of any adverse effects on participants or of any unforeseen events that affect the continued ethical acceptability of the project.

6. At all times you are responsible for the ethical conduct of your research in accordance with the guidelines established by the University. This information is available at the following websites:

<http://www.mq.edu.au/policy/>  
[http://www.research.mq.edu.au/for/researchers/how\\_to\\_obtain\\_ethics\\_approval/human\\_research\\_ethics/policy](http://www.research.mq.edu.au/for/researchers/how_to_obtain_ethics_approval/human_research_ethics/policy)

If you will be applying for or have applied for internal or external funding for the above project it is your responsibility to provide the Macquarie University's Research Grants Management Assistant with a copy of this email as soon as possible. Internal and External funding agencies will not be informed that you have approval for your project and funds will not be released until the Research Grants Management Assistant has received a copy of this email.

If you need to provide a hard copy letter of approval to an external organisation as evidence that you have approval, please do not hesitate to contact the FBE Ethics Committee Secretariat, via [fbe-ethics@mq.edu.au](mailto:fbe-ethics@mq.edu.au) or 9850 4826.

Please retain a copy of this email as this is your official notification of ethics approval.

Yours sincerely,

Dr. Nikola Balnave  
Chair, Faculty of Business and Economics Ethics Sub-Committee

Dr Nikola Balnave  
Senior Lecturer, Department of Marketing & Management  
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