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Title: Management accountants' susceptibility to overconfidence: the overplacement perspective.

Running title: Management accountants and overplacement bias.

Abstract: **Purpose:** Overconfidence bias is considered to be a very influential decision-making bias in the business environment. This paper aims to identify the susceptibility of management accountants to overconfidence-related overplacement bias and to determine its pervasiveness among these professionals.

Design/methodology/approach: Two international samples of management accountants were surveyed using overplacement bias elicitation questions. The hypothesis that bias susceptibility varies between management accountants in different hierarchical employment positions was tested employing binary logistic regression.

Findings: Management accountants are found to be susceptible to overplacement bias, yet its pervasiveness among the samples is similar to other sample populations in comparable studies. Management accountants in the position of CFO were found to be more susceptible to overplacement bias than their colleagues in other management accountant and business management positions.

Originality: This is the first paper to assess overplacement bias in management accountants as a group of decision-makers, especially within the context of their increasing involvement in business decision-making.

Research limitations: The use of convenience sampling represents a limitation of the research.

Practical implications: The findings confirm that there is a need for syllabi and continual professional development projects to educate management accountants on this bias. CFOs are especially at risk of being overconfident, which may not be in the best interest of the business.

Keywords: Overconfidence bias, overplacement, management accountant, chief financial officer, business decisions.

Paper classification: Research paper.

Management accountants' susceptibility to overconfidence: the overplacement perspective.

1 INTRODUCTION

"If we were all appropriately humble about the quality of our judgments, we could more easily double-check our opinions and correct our flaws" (Bazerman and Moore, 2012)

Bazerman (1994) defines overconfidence bias as the tendency of human decision-makers to be overly confident in the correctness of their own judgement when making decisions. A decrease in the knowledge of the decision-maker regarding the scenario upon which a decision has to be made (referred to as the decision problem in the present paper), does not necessarily lead to a corresponding decrease in the confidence of the decision-maker (Bazerman, 1994). Bazerman and Moore (2012) argue that *overconfidence* results in some of the "most potent, pervasive and pernicious" biasing effects of all the commonly known cognitive decision biases. They also suggest that overconfidence facilitates many of these other biases.

Business and managerial decision-making are not immune to the effects of overconfidence bias. Camerer and Lovallo (1999) report experimental evidence that overconfidence may be a significant factor contributing to the over-entry of entrepreneurs into the market, despite the high rate of entrepreneurial failure. Similarly, Malmendier and Tate (2008) ascribe the high rate of merger and acquisition activity, despite high failure rates, to overconfidence by CEOs. Yet, Grežo (2020) argues that in some financial decision-making contexts the effect of overconfidence may be overvalued, especially where indirect measures are used as proxies for overconfidence.

Management accountants are increasingly becoming involved in business and managerial decision-making (CGMA, 2016, Goretzki *et al.*, 2013, Oesterreich & Teuteberg, 2019). Within the fast-paced managerial decision-making domain managers regularly have to make decisions in conditions of uncertainty (Järvenpää, 2007), often resulting in the use of judgement rather than rigorous analysis (Hodgkinson and Starbuck, 2008). Managerial decisions made in conditions of uncertainty, where the need to use judgement arise, are regularly influenced by cognitive behavioural biases, including the effects of overconfidence (Bazerman and Moore, 2012).

Consequently, this study questions whether management accountants exhibit overconfidence bias which may affect their emerging managerial decision-making role. As Moore and Healy (2008) and

Grežo (2020) argue that overconfidence research suffers from the confounding of different aspects of overconfidence, which create measurement difficulties, the present study investigates possible overconfidence bias focusing only on the overplacement construct of overconfidence. The analyses that are performed to determine the possible presence of overconfidence bias are based on four questions posed in a survey of an initial international sample of management accountants (main sample), supplemented by seven questions posted to an additional sample of management accountants (supporting sample) in order to supplement the findings of the main sample. The results from the analyses of the different questions are then triangulated to enable a motivated conclusion on the susceptibility of management accountants to overconfidence bias. Finally, binary logistic regression analysis is performed to determine whether the position in which the management accountant is employed is associated with susceptibility to overconfidence bias. This aspect is of interest due to the changing roles and positions of management accountants.

The results of the present study would be of interest to the management accounting profession, which is also in the process of acknowledging the possibility that cognitive biases may influence business and analytical decision-making (CGMA, 2016). Kahneman *et al.* (2011) state that awareness of the possible biases is not sufficient to eliminate behavioural decision biases in decision-making. Consequently, the findings of this study will pave the way for future research into how to minimise the influence of possible overconfidence in the decision-making behaviour of management accountants.

The paper continues with an in-depth discussion of the overconfidence literature and the development of hypotheses. The research methods are then discussed, followed by the results and findings. The conclusion summarises the main findings and provides recommendations for possible future areas to be researched.

2 LITERATURE REVIEW

In this review of supporting literature, the theoretical grounding for the study is discussed, followed by discussions on overconfidence, its bias constructs, and its relevance to managerial decision-making. Lastly, a hypothesis is developed, based on the available literature, to investigate the possible association between the position a management accountant is employed in and overconfidence bias.

2.1 COGNITIVE DECISION-MAKING BEHAVIOUR

Human decision-making has been researched through mainly two theoretical frameworks (Bazerman and Moore, 2012). The first theoretical approach is based on developing models for optimal decision-making by a rational human decision-maker, referred to as prescriptive decision research. The second theoretical approach is to observe decision-making behaviour by human decision-makers to analyse how human beings really make decisions, referred to as descriptive decision research. The present study examines business decision-making of management accountants through the theoretical lens of descriptive decision research.

Descriptive decision research is largely founded on the seminal work of Simon (1957) which indicated that human decision-makers are unable to make fully rational decisions when the decision problem is complex and time is constrained, due to limitations on their cognitive ability. Moreover, Grežo (2020) relates overconfidence, one of the aspects influencing the level of rationality of decision-making behaviour, to the theory of positive illusions (Taylor, 1989). This theory suggests that decision-makers have a systematic tendency to distort reality in order to be excessively optimistic in their beliefs and predictions of themselves (Grežo, 2020).

2.2 OVERCONFIDENCE UNPACKED

Overconfidence bias aligns with positive illusions theory in that this bias refers to the irrationally strong belief in the correctness of one's own judgement. The development and endurance of overconfidence bias can, in part, be attributed to selective and self-serving interpretations of outcomes (Morris and Moore, 2000). Negative outcomes are ascribed to emanate from other people's actions or even bad luck, while positive outcomes are hedonically attributed to a decision-maker's own actions (or at least excessively attributed to own actions).

Moore and Healy (2008), as well as Moore and Schatz (2017), argue that overconfidence should be sub-divided into at least three constructs. These three constructs are overprecision, overestimation and overplacement. *Overprecision* is defined as the tendency of human decision-makers to be overconfident in their judgement, even in the presence of mildly contradictory evidence. *Overestimation* is defined as the tendency of human decision-makers to consider themselves to be better, over a number of spheres, than they actually are. *Overplacement* refers to human decision-makers considering themselves better than others when comparing their abilities against those of others. Grežo (2020) argues that, of the three constructs, overplacement has the most significant

effect on financial decision-making. Consequently, the present study focuses specifically on possible overplacement by management accountants.

The prevalence of overplacement is more pronounced when the decision problem is perceived to be easy (Moore, 2007). Moore and Healy (2008) explain that overplacement in easy decision-problem scenarios is replaced by underplacement in difficult decision problems. They argue that decision-makers underestimate the abilities of others on easier tasks more than they underestimate their own ability, resulting in overplacement. However, when faced with a difficult decision problem, decision-makers overestimate the abilities of others more than they overestimate their own ability, resulting in underplacement. Referencing Klar *et al.* (2008), Klar *et al.* (2012) and Windschitl *et al.* (2008); Bazerman and Moore (2012) indicate that one of the possible causes of overplacement is that decision-makers neglect to properly delineate the reference group to which their abilities should be compared (e.g. a professional population with specific skills) and simply compare their abilities to the general population (whom may, on average, not be as proficient in the relevant skills).

2.3 OVERCONFIDENCE IN MANAGERIAL DECISION-MAKING

Managerial decision-makers are also influenced by overconfidence bias. When individuals display (over)confidence in their abilities, they tend to be evaluated as being more capable than others (Bazerman and Moore, 2012). Indeed, Radzevick and Moore (2011) indicate that prospective leaders gain support by expressing overconfidence. It is, therefore, no surprise to find overconfidence to be prevalent in the decision-making behaviour of managers. It should be noted that if the overconfidence is disconfirmed it damages the reputation of decision-makers significantly, especially if (over)confidence was verbally expressed by the decision-maker (Tenney *et al.*, 2019).

Overplacement related overconfidence has been found to be present in decision-making behaviour of various managers, including investment fund managers (Menkhoff and Nikiforow, 2009) and property fund managers (Lowies, 2012). Gort (2009) found overplacement to be present in pension fund committee members' and managers' evaluation of their ability to find and employ above-average fund managers, their expectations of the performance of current fund managers, and their expectations of the performance of the funds being managed. The expectation of better than average performance in the future does not correlate with the relatively poor general recent performances by these pension funds and therefore can be argued to relate to overplacement, even though individual performances could not be measured precisely (Gort, 2009).

Overconfidence has been reported to have several negative effects on managerial decision-making. Concerning financial managerial decision-making, Huang *et al.* (2016) found that overconfident Chief Executive Officers (CEOs) were willing to take on higher liquidity risk by making use of a higher proportion of current debt (payable within 12 months), than CEOs who exhibited less overconfidence. Apart from higher risk-taking behaviour, overconfidence by executive management is also correlated with poorer company financial performance for established companies (Arend *et al.*, 2016). Yet, Arend *et al.* (2016) also contend that overconfidence is positively correlated with company financial performance for entrepreneurial companies. Phua *et al.* (2018) corroborate the possible advantageous effect of overconfidence with their finding that overconfident CEOs are able to obtain more supplier commitment and stronger labour commitment. Yet, when considering the findings by Phua *et al.* (2018) through the lens of the conclusions by Radzevick and Moore (2011) and Tenney *et al.* (2019), this apparent advantage may indeed later lead to a larger perceived lack of trust in the overconfident executive's abilities if actual stakeholder relations do not meet the high expectations created by the overconfidence.

Very relevant to the current study on management accountants, Ben-David *et al.* (2013) found significant overconfidence, specifically overestimation, by Chief Financial Officers (CFOs) of companies in both market and company performance predictions. In addition, Ben-David *et al.* (2013) posit that overconfidence bias by CFOs has a definite effect on company financial policy decisions, including the pursual of more aggressive investment and debt policies. Alarmingly, Meikle *et al.* (2016) argue that overconfidence in accounting-related earnings forecasts places executives under pressure in subsequent reporting years, resulting in an increased propensity to fraudulently misrepresent organisational performance to be more in line with the overestimated performance. This argument is consistent with the findings by Von Hippel *et al.* (2005) which link overconfidence by decision-makers to their inclination to rationalise fraudulent behaviour.

Due to pressures related to automated enterprise resource planning systems, management accountants are driven to become more involved in business decision-making (Caglio, 2003, Oesterreich & Teuteberg, 2019). This increased decision-making involvement, along with the high potential for overconfidence to negatively affect business performance, forms the motivational basis for the present study.

2.4 EMPLOYMENT POSITION AND OVERCONFIDENCE

Regarding an individual's position in an organisation's management hierarchy, Meikle *et al.* (2016) argue that promotion practices result in *higher-level managers* exhibiting higher overconfidence than persons in lower-level positions. According to Meikle *et al.* (2016), individuals who have achieved success from risky and overconfident behaviour are regularly promoted to higher-level managerial positions. This situation is exacerbated by promotion committees looking for confident individuals to act as leaders in the organisation, even though confidence may not always be an indication of ability (Meikle *et al.*, 2016). Yet, Radzevick and Moore (2011) and Tenney *et al.* (2019) argue where such overconfidence is exposed by underperformance, a significant lack of trust in the abilities of the individual tend to develop. Ben-David *et al.* (2013) report significant overconfidence by CFOs, the top position specific to the management accounting field. Yet, some management accountants also progress to the top managerial position of CEO, where overconfidence may also be a prevalent factor (Huang *et al.* 2016; Phua *et al.* 2018). It would therefore be of interest to determine whether the prevalence of overconfidence differs between management accountants in these two positions, and also whether management accountants in more traditional positions are, in fact, less susceptible to overconfidence. As some management accountants are also employed in operational manager positions (mid-tier business management) the analysis will include these positions. The following hypothesis is therefore generated for investigation:

Hypothesis 1 – Position and susceptibility to overplacement bias:

Management accountants in the different general hierarchical employment positions related to the profession, exhibit differing levels of susceptibility to overplacement bias.

Two demographic factors found to be prevalent in literature as being associated with higher susceptibility to overconfidence, are gender and age. Consequently, these two demographic factors were selected as control variables for the analysis of hypothesis one. Concerning *gender*, Pompian and Longo (2004), as well as Barber and Odean (2001), found that men were significantly more overconfident than women. In terms of *age*, Kovalchik *et al.* (2005) as well as Arend *et al.* (2016) state that younger individuals are more overconfident than older individuals.

Bazerman and Moore (2012) and Meikle *et al.* (2016) indicate that experienced managers exhibit similar levels of bias as less experienced decision-makers, experience was thus not included as a control variable in the analyses. The research methods applied to address the research objectives of the present study are discussed in more detail in the next section.

3 RESEARCH METHOD

Based on the focus of this study being the international population of management accountants, a survey approach was necessitated to obtain a widely diverse sample of the population. This is in accordance with Brandon *et al.* (2013) who suggest the use of online surveys and response generation tools when conducting accounting-related behavioural research. Surveys are regularly used to investigate overconfidence (Gort, 2009, Lowies, 2012, Moore and Schatz, 2017).

Assistance in obtaining responses for the main sample was provided by the Institute of Management Accountants (IMA), the Chartered Institute of Management Accountants (CIMA), and by means of Qualtrics Panel services. The main sample for this study ($n = 303$) consists of a convenience sample of management accountants who responded to the e-mail requests and other profession-focused marketing media. Even though convenience samples regularly represent a valuable proxy for random samples in situations where the population is widely dispersed, the validity of these samples should be confirmed through additional procedures (Brandon *et al.*, 2013). The validity of the present study's sample was confirmed by its demographic composition which compared remarkably well (except for its unique international composition) with the samples of previous studies on the same population (Clinton and White, 2012, Garg *et al.*, 2003, Montano *et al.*, 2001). Additionally, a comparison (Pearson's χ^2) of the responses of early responders to late responders to test for non-response bias found insignificant differences ($p = .676$). The supporting sample ($n = 52$) was obtained from USA and UK respondents exclusively through Qualtrics Panel services to support the findings of the analyses on the main sample.

As suggested by Grežo (2020), direct measures of overplacement were used in the present study. using two Likert scale 'better than average' questions which were adapted from questions originally posed by Gort (2009) and later amended by Lowies (2012). A similar question was also used by Menkhoff and Nikiforow (2009). The one question asked respondents to judge their business decision-making abilities against those of other business managers (in general). Based on the premise by Bazerman and Moore (2012) that decision-makers tend to neglect the reference group, the second question required management accountants to consider their business decision-making abilities specifically against other management accountants.

This approach of comparing the mean response actually received to the expected 'average' mean response if no overplacement bias was present, is criticized Benoît *et al.* (2015) and Moore and Schatz (2017) due to the possibility of skewness in the abilities of the sample. Consequently, the

initial findings of the main sample are supplemented by additional tests as discussed hereafter. Firstly, the validity of the sample to the population was confirmed by the number of responses and the comparability of the demographic variables to those of previous studies of the same population. Accordingly, the probability of skewness in the sample's capabilities when compared to other management accountants is deemed improbable. Secondly, these two overplacement questions (better-than-average) were also posed to the supporting sample to determine if the trends in the main sample also hold for the supporting sample. If so, it would provide supporting evidence that overplacement is present in the population as two different samples found such trends. Concerning the comparison to other business managers, the possibility of management accountants having superior *business* decision-making abilities to other business managers is questionable (Byrne and Pierce, 2007).

However, Benoît *et al.* (2015) propose a list of possible additional tests to more accurately test for overplacement. Consequently, additional questions were posed to each sample respectively. As Moore (2007) points out that overplacement decreases when the difficulty of the decision problem increases, two additional questions were incorporated into the questionnaire presented to the main sample to test for overplacement or underplacement when facing a difficult decision problem. Their placement confidence was then compared to their actual placement. In the supplementary sample, placement was compared to actual performance on a set of four questions of average difficulty.

Binary logistic regression (Hosmer and Lemeshow, 2000) was selected as statistical analysis method to investigate the possible significance of the association between the position in which a management accountant is employed and higher susceptibility to overplacement bias. For a description of the composition and abbreviations used for the variables in the binary logistic regression analysis, refer to Appendix 1. The sample size adheres to the minimum requirements suggested by Hosmer and Lemeshow (2000). The results of applying these research methods and analyses are presented in the next section.

4 RESULTS AND DISCUSSION

4.1 OVERPLACEMENT BIAS RESULTS

4.1.1 General overplacement and neglect of the reference group

The first set of two questions to test for overplacement bias required respondents to the main sample to indicate how they deemed their business decision-making ability to compare to other general business managers, as well as to other management accountants respectively. The response options that were available to the respondents consisted of a five-point Likert scale, with average ability being the centre option. The responses were coded from 1 for a response by individuals who deemed their decision-making ability to be 'Well below average' to 5 for a response by individuals who deemed their ability to be 'Well above average'. Following Gort (2009), a one-sample t-test (bootstrapped to ensure robustness) is conducted to determine whether the mean response by respondents differs significantly from average confidence. It is hypothesised that, should respondents in the sample not be either overconfident or underconfident, the mean response to these questions should be average for each question. Accordingly, a mean response of 3 for each of the two relevant questions represents the null hypothesis for statistical analysis purposes. Table I below presents the results of the t-test.

Table I: t-Test for significance of overconfidence bias – ability relative to other managers

Insert Table I here.

The proportion of respondents who rate their own decision-making abilities higher than other business managers is 58.4% (177 responses). Based on the one-sample t-test presented, the mean confidence level of respondents in the main sample ($n = 303$) in their business decision-making abilities when compared with the other business managers ($M = 3.54$, $SD = 0.792$) differs significantly ($t(302) = 11.827$, $p < .001$) from an 'Average' level of confidence ($M = 3$). Cohen's d ($d = 0.68$) indicates a medium effect size. The higher than 'Average' mean value in the sample indicates that management accountants in the main sample considered their business decision-making ability to be significantly higher than the ability of the average business manager. The supporting sample provided similar results, apart from the 'better than average' placement being a little more pronounced at 71.2% (37 responses) in this sample. The one-sample t-test confirms that this differs significantly from average ($M = 3.88$, $SD = 0.855$, $t(51) = 7.458$, $p < .001$, $d = 1.03$).

When comparing their decision-making abilities to other management accountants, 52.1% of respondents in the main sample (being 158 respondents) were confident that they are better decision-makers. The mean confidence of respondents in ($n = 303$) in their business decision-making abilities when compared with other management accountants ($M = 3.51$, $SD = 0.825$) differs significantly ($t(302) = 10.789$, $p < .001$) from an 'Average' level of confidence ($M = 3$). Cohen's d (d

= 0.62) again indicates a medium effect size. Thus, management accountants in the main sample considered their business decision-making abilities to be significantly higher than the ability of an 'Average' management accounting professional. This finding is corroborated by the supporting sample where the 'better than average' effect is present in 71.2% (37 responses) of this sample. The one-sample t-test also support the presence of overplacement ($M = 3.85$, $SD = 0.697$, $t(51) = 8.755$, $p < .001$, $d = 1.21$). The presence of this bias was found in both samples providing preliminary support for the presence of overplacement.

Management accountants in the sample were slightly more confident in their decision-making ability when compared to other business managers ($M = 3.54$, $SD = 0.792$) than when compared to other management accountants ($M = 3.51$, $SD = 0.825$). However, this difference is not statistically significant ($p = .55$), according to a paired sample t-test ($t(302) = 0.54$, $SD = 0.776$). The effect size of this difference is also very small ($d = 0.04$). The findings for the supporting sample were similar ($t(51) = -0.33$, $SD = 0.839$, $p = .742$, $d = -0.046$). The non-significant difference when placing abilities comparative to two different reference groups provides some corroboration for the argument by Bazerman and Moore (2012) that overplacement partly occurs due to neglect by decision-makers to properly delineate the reference group against whom abilities are compared.

Even though t-test are regularly used for Likert-scale variables and provides valid results (De Winter and Dodou, 2010, Norman, 2010), some academics regularly argue that it is more appropriate to use a statistical test that compares medians, rather than means (Norman, 2010). Accordingly, the results of one sample Wilcoxon signed-rank tests for this data are briefly reported here. When judging their decision-making abilities in comparison to other business managers, the observed median placement by respondents ($Md = 4$) is significantly higher ($z = 9.643$, $p < .001$) than the expected median of 3 (supporting sample: $Md = 4$, $z = 4.998$, $p < .001$). Also, when judging their decision-making abilities against other management accountants, the observed median placement ($Md = 4$) is significantly higher ($z = 8.984$, $p < .001$) than 3 (supporting sample: $Md = 4$, $z = 5.489$, $p < .001$). The difference between placement when comparing to other business managers in general, and other management accountants in particular, remains insignificant (main sample: $z = 0.687$, $p = .492$; supporting sample: $z = 0.816$, $p = .414$).

It is useful to compare these findings to those of previous studies which used the same type of rating scale. Menkhoff and Nikiforow (2009) found a mean level of 3.66 placement (also based on a five-point Likert scale [1]) by investment fund managers in their ability when compared with other fund managers. The mean placement by the property fund managers in their abilities, when compared to

other fund managers, is 3.65 (Lowies, 2012). Gort (2009) used a seven-point Likert scale and found a mean response of 4.57 placement by Swiss pension fund managers when judging their own fund's ability to outperform competing funds. Consequently, the mean confidence of management accountants in the present study, whether compared with other business managers ($M = 3.53$, and $M = 3.88$), or other management accountants ($M = 3.51$, and $M = 3.85$), falls within the range of that found for other populations in previous studies.

4.1.2 *Over-/ (under-) placement for difficult task (main sample)*

The second set of two questions to test for overplacement bias in the main sample endeavoured to determine respondents' confidence in providing a better estimate on a difficult task to determine whether the overplacement bias decreases to underplacement when management accountants were confronted with difficult decision problems as suggested by Moore (2007). Furthermore, if overplacement would again be present, these questions would validate the overplacement found in the previous set of questions. The first question requested each respondent to estimate the exact percentage of all respondents to the questionnaire who would, in the demographical information section of the questionnaire, indicate that they were employed at companies consisting of 100 or fewer employees (the smallest category available for that question). This could not be known in advance, but could only be estimated to some extent based on information regarding the general percentage of total enterprises which denotes micro and small enterprises. However, due to the challenges of estimating in advance the percentage of respondents who would indicate that they were employed in companies with 100 or fewer employees, respondents were expected to be more conservative concerning their confidence in being able to predict this particular figure with more accuracy than other respondents (Moore and Healy, 2008). The following question then requested respondents to indicate their confidence in being able to predict a more accurate estimate when compared with other respondents in the sample. The response options to this question were an 11-point scale of percentages between 0% and 100%, in increments of 10 percentage points. One respondent did not answer these two questions and was therefore excluded from the analysis.

Predictions about the percentage of respondents who were employed by companies with 100 or fewer employees range between 0% and 100% ($M = 41.90\%$, $SD = 23.58\%$). The actual percentage of respondents employed by companies with 100 or fewer employees, is 26.4%[2].

The mean confidence of respondents in the main sample in their ability to provide a more accurate estimate than other respondents is 51.13% ($SD = 21.58\%$). Based on a one-sample t-test ($t(301) =$

0.906), this level of confidence does not differ significantly ($p = 0.365$) from a 50% (thus average) confidence placement level. Accordingly, for the difficult decision problem, the presence of the overplacement bias could not be confirmed in the decision-making behaviour of respondents. Consistent with the findings by Moore and Healy (2008), the mean placement of the respondents in the current study in their abilities compared to others decreases when faced with a difficult decision problem. However, contrary to the argument by Moore and Healy (2008), the mean placement of management accountants who responded did not decrease to a level below average (thus underplacement). The non-occurrence of mean underplacement may partly be due to the respondents not having expected to receive feedback on the correctness of their actual responses (Allison *et al.*, 1989, Kunda, 1990). These results are analysed further in the following paragraphs.

The large standard deviation ($SD = 21.58\%$) in the confidence of respondents indicates that a large variation is present in the confidence placement levels of the respondents. This is confirmed in Figure 1.

Figure 1: Distribution of the placement levels of respondents regarding the difficult task relative to other respondents

Insert Figure 1 here.

In line with suggestions by Moore and Schatz (2017), the placement by respondents was compared with their actual performance on the task. An increase in accuracy levels of predictions, relative to an increase in placement levels, would suggest that the increased placement may have been validly based on a higher level of knowledge relevant to the decision problem. This premise is investigated using Figure 2. The approach followed was to test whether the level of *inaccuracy* of estimates *decreases*, relative to an *increase* in placement levels. As confirmed by Figure 2, the opposite was found, namely higher mean inaccuracy levels for respondents with higher placement levels relative to respondents who indicated a lower level of placement. Subsequently, the relationship between the confidence that respondents had in their estimates, as measured by their placement, and the distance of the respondents' estimates from the actual value is investigated utilising Pearson's product-moment correlation coefficient. A statistically significant medium-strength and positive correlation ($n = 302$, $r = .338$, $p < .001$) between the level of placement by respondents, and the distance of the estimates from the actual value, is found. Consequently, an increase in the placement levels of respondents is associated with an increase in the mean inaccuracy of their responses to

this difficult decision problem. This finding suggests respondents with higher confidence in their placement are more prone to overplacement (invalidly high placement) on a difficult decision task.

Figure 2: Overplacement bias – mean absolute distances of estimates from correct outcome vs standard deviation of estimates in 10% confidence increments

Insert Figure 2 here.

The increase in error rate that accompanies the increase in placement levels, could be due to the respondents with higher placement levels having access to information on the percentage of small firms in existence in general, which may differ from the percentage found for the population in the sample of the present study. If this is the case, then the confident respondents should provide a narrower range of responses, which approximates possible information to which they may have had access, than the range of 'guesses' by the respondents with lower placement levels. Consequently, the standard deviations of the estimates are also presented in Figure 2. It is hypothesised that if respondents with higher confidence levels were more knowledgeable concerning the difficult decision scenario than respondents with lower levels of placement confidence, then the standard deviations of responses from respondents who indicated lower placement would be higher due to the natural dispersion of 'random best guesses' relative to 'more informed guesses' by the high placement respondents, irrespective of the actual answer to the present study's question. Here also, the information presented in Figure 2 contradicts the hypothesised explanation of valid placement, as the standard deviations of estimates from respondents with different placement levels do not indicate a decreasing trend, but rather an increasing trend. To test the statistical significance of this trend, it was decided to investigate the possible correlation between the range of estimates provided by a category of respondents when aggregated into nine placement-level categories (0% and 100% levels of placement are disregarded because each was only selected by one respondent and are regarded as outliers) and the level of confidence of each category. Accordingly, the non-parametric Spearman's rho correlation coefficient is used to investigate the relationship between the level of placement by respondents of their estimates relative to others, and the range of estimates within the placement-level group (measured using the standard deviation of the estimates). A statistically significant, strong, and positive correlation is found between the particular level of placement of a group of respondents and the width of the range of estimates in the particular group of respondents ($n = 9, r = .8, p = .01$). The positive correlation indicates that the range of estimates increases along with an increase in the level of placement. Accordingly, the findings confirm that the increase in error rate which accompanies an increase in placement level is not due to respondents who placed themselves higher having access to reliable alternative information. In fact, it indicates the contrary,

namely that higher placement levels are associated with a wider range of guesses, which can be associated with a lower level of conservatism in guesses (i.e. more 'wild' guesses).

4.1.3 *Over-/ (under-) placement on a four-question task (supporting sample)*

In line with the suggestion by Benoît *et al.* (2015) to compare placement to actual performance *on a set of questions*, respondents in the supporting sample were required to indicate their expected placement on a set of four questions (considered to be of average difficulty). Respondents were aware that management accountants from the United Kingdom and the United States of America were the target population for this particular sample. Respondents were informed that the set of questions would consist of two business strategy-related questions, one relevant costing question and one financial management question.

The four questions were an Ansoff's matrix categorisation question, an industry life cycle question, a special-order decision and the selection of a financial criterion to compare mutually exclusive projects. Respondents found the questions more difficult than expected with a mean score of 1.13 out of 4 ($SD = 0.76$). In particular, the respondents struggled with the special-order (relevant costing) and financial criterion for comparing mutually exclusive projects (financial management) questions.

On average, respondents placed their confidence in their abilities when compared to other respondents at 67.12% ($SD = 20.23\%$) which suggests overplacement by a large portion of respondents. When comparing their confidence to their performance, 82.7% (43 respondents) of respondents in the sample ($n = 52$) overplaced their abilities. The lower mean placement estimates ($M = 51.13\%$, $SD = 21.58\%$) on the difficult task (main sample) than the mean placement estimates ($M = 67.12\%$, $SD = 20.23\%$) for the four-question task indicated to respondents to be of average difficulty (supporting sample), provides supporting evidence to the argument by Moore (2007) that overplacement is more prevalent on tasks of easy and average difficulty than on difficult tasks.

The finding of overplacement on comparable tasks by a significant proportion of respondents in both samples validates the preliminary findings from the 'better than average' analyses that management accountants are significantly susceptible to overconfidence-related overplacement bias.

4.2 *EMPLOYMENT POSITION AND OVERCONFIDENCE*

The need to test the possible relationship between employment position and susceptibility to overconfidence-based bias was discussed in the literature review. This suggested relationship is thoroughly tested based on the following hypothesis:

Hypothesis 1 – Position:

Management accountants in the different general hierarchical employment positions related to the profession, exhibit differing levels of susceptibility to overplacement bias.

The aforementioned hypothesis was tested by way of logistic regression modelling and analysis of the combined sample. Respondents to both samples (main and supporting) were classified as being susceptible to overconfidence-related overplacement bias when the respondents indicated that they considered their abilities to be ‘better-than-average’ in at least one of the two relevant overplacement measures, and at least ‘average’ on the remaining related overplacement measure. Additionally, respondents also had to indicate higher confidence than actual performance on the confidence-compared-to-actual-performance questions in both samples. Note that, as per Appendix 1, 15 respondents did either not indicate the positions they were employed in, or their positions did not fit into the four main position categories of ‘top management position – CEO’, ‘top management accounting position – CFO’, ‘customary management accounting position’ or ‘operational management position’. These respondents had to be excluded from the sample for the current analysis. In the resultant combined sample ($n = 340$), the overplacement bias selection criteria resulted in 162 (47.6%) of the respondents being classified as not particularly susceptible to the bias. For 178 (52.4%) of the respondents, overplacement bias was prevalent based on the criteria above.

A theory-informed model building exercise was implemented according to the prescriptions by Hosmer and Lemeshow (2000), which was neatly summarised by Reyers (2014). Table II indicates that ‘Position’, as well as the two control variables, all qualify statistically to be entered into the initial model.

Table II: Summary of bivariate analysis – position and overplacement bias

Insert Table II here.

When analysing the initial model, ‘Position’ is significant at a $p \leq 0.05$ level. As expected, the addition of both ‘Gender’ and ‘Age’ variables improves the final model.

The statistics regarding the fit of the final model are summarised in Table III. Apart from the R² statistics, the other fit statistics indicate a moderate to good fit. Accordingly, the model is accepted as a moderate model. Preliminary interpretations from the model should be supplemented by future research in this area.

Table III: Model fit statistics – position and overplacement bias susceptibility

Insert Table III here.

The final model is presented in Table IV. 'Position' is the only statistically significant predictor of susceptibility to overplacement bias by respondents in the sample. 'Gender' and 'Age' serve as controlling and moderating variables and are not statistically significant at $p < .05$.

Table IV: Final logistic regression model – position and overplacement bias susceptibility

Insert Table IV here.

Based on the model, respondents in the *top management accounting position* of CFO, Financial Director, or Vice-President Finance, are 2.57 times more susceptible to overplacement bias (Wald $\chi^2 = 7.573 (1), p = .008$) than their colleagues in the customary management accountant, financial manager, controller, or accountant positions. The finding of the higher prevalence of overplacement bias among management accountants who progressed to *the top management accounting positions* corroborates the arguments by Meikle *et al.* (2016) that people who are overly confident in their abilities are likely to pursue, and be appointed to, higher-level management positions. This finding that CFOs are more prone to overplacement bias than management accountants employed in lower management accountant positions expands on the finding by Ben-David *et al.* (2013) of significant overestimation by CFOs. However, management accountants who progressed to the *top business management position* of CEO, managing director, or president, were not significantly (at $p < .05$) more prone to overplace their abilities than management accountants in the customary management accounting positions.

The reason for this difference can only be speculated in the present study and is considered worthy of future research efforts. Two possible explanations for this anomaly are suggested. The first is that overconfident management accountants in the top management accounting position are more likely to neglect the reference group (Bazerman and Moore, 2012) of professional decision-makers when comparing their own abilities, while management accountants in the top business management

position may be more in contact with top managers in other businesses and therefore more aware of the abilities of the reference group. The second may be that, for management accountants to progress to the top business management positions, they need to overcome the archaic stigma that management accountants inhibit general business decision-making (Byrne and Pierce, 2007). Accordingly, they should not have verbally expressed overconfidence to an excessive extent, as this would have harmed their reputation (Tenney *et al.*, 2019) resulting in non-selection to top business management positions.

Furthermore, management accountants in operational management positions did not exhibit significantly higher susceptibility to overplacement bias than their colleagues in the customary management accountant position. This result makes sense as these two positions can be argued to both be at the same hierarchical level of mid-tier management. Interestingly, the results also seem to suggest that the susceptibility of management accountants in CEO positions does not differ from those in operational management positions. The betas of these variables suggest that the susceptibility of management accountants in business management positions (CEO and operational managers) does not differ between the hierarchical levels. This is contrary to the argument by Meikle *et al.* (2016) that in general, persons who exhibit overconfidence may be more likely to be promoted to higher business management positions.

To summarise, hypothesis 1 is supported by the results of the analysis specifically for the difference in susceptibility between management accountants at the top management accounting position when compared to those at the customary management accounting position level. The findings were anomalous in that respondents in CFO positions were found to be more susceptible to overplacement bias than customary management accountants, yet respondents in CEO positions were not.

5 CONCLUSION

5.1 DISCUSSION OF FINDINGS

This study set out to determine the susceptibility of management accountants to overconfidence bias. Management accountants are becoming more involved in business decision-making (CGMA, 2016, Goretzki *et al.*, 2013) and, as human decision-makers, are expected to be susceptible to cognitive behavioural bias (Bazerman and Moore, 2012). Overconfidence is argued to be one of the

most common and influential biases, suggested to even be facilitating many of the other biases (Bazerman and Moore, 2012). Yet, limited past studies have investigated the susceptibility of management accountants, as a group of decision-makers, to cognitive behavioural biases and none could be found that focused on overconfidence.

In accordance with Moore and Schatz (2017) and Grežo (2020), overconfidence was considered to be divisible into three sub-constructs, namely overprecision, overestimation, and overplacement. The present paper focussed specifically on overplacement bias. A survey was performed on a main international sample of 303 management accountants, most of whom have a professional association. A set of two self-placement questions with differing reference groups was posed to respondents. The mean and median response to these two questions indicated a statistically significant 'better-than-average' effect. However, due to research questioning the validity of such tests of a single sample, a supporting sample of 52 respondents was obtained, most of whom are associated with a professional association. The level of overplacement in the supporting sample surpassed that of the initial main sample and therefore corroborates the initial finding that management accountants exhibit the 'better than average' effect overplacement bias. When this effect was compared to other studies, management accountants' susceptibility to overplacement was comparable to the range found by previous studies on other populations, with the supporting sample being somewhat above this range. Consistent with the discussion by Bazerman and Moore (2012), it was found that management accountants neglected to adjust their placement for the change in reference group from other management accountants in the one question, to other business managers in the other.

The main sample was also tested to determine whether general overplacement changed to underplacement when management accountants were faced with a difficult decision problem (Moore, 2007). Interestingly it was found that the overplacement simply changed to average placement, and not underplacement. Additionally, a positive correlation was found between the level to which respondents placed themselves to other respondents and the mean inaccuracy of estimates. The range of estimates also correlates positively with the placement levels. Accordingly, the higher respondents placed themselves, the more incorrect their guesses were on average, and the wider the range of guesses. This indicates that those who place themselves higher are more likely to overestimate themselves, compared to those who are humbler in their placement.

In line with suggestions by Benoît *et al.* (2015) the supporting sample survey compared respondents' own placement levels with their performance on a set of tasks. Respondents were aware that other

respondents would be similar to them and were also informed as to the broad topics of the task. Respondents in this supporting sample significantly overplaced themselves with reference to their comparable task performance.

Based on the findings from analyses from the two samples, management accountants are considered to, on average, be susceptible to overplacement bias in terms of the 'better than average effect', as well as for tasks of average difficulty, but not to underplacement on difficult tasks. Further analysis indicates that responding management accountants in the top management accounting position of CFO were significantly more prone to overplacement bias than their colleagues in lower management accounting positions. Yet, responding management accountants in the top business management position of CEO were found not to be significantly more susceptible to overplacement bias than their colleagues in lower management accounting positions. The data of the present study do not provide the analysis opportunities required to explain this anomaly. Two possible causes for the anomaly were speculated with reference to past literature being; lower neglect of the reference group by CEOs (Bazerman and Moore, 2012), and the possibility that reputational damage of overconfident management accountants may inhibit their progression to the top business management position of CEO (Tenney *et al.*, 2019). The susceptibility of management accountants in mid-tier operational management positions did not differ significantly from that of management accountants in the position of customary management accountant.

5.2 IMPLICATIONS OF FINDINGS AND AREAS FOR FUTURE RESEARCH

The finding of the presence of overconfidence bias in the decision-making behaviour of management accountants is of particular concern when considered with reference to the association between a higher propensity for accounting misstatement by overconfident executives (Meikle *et al.*, 2016). Ben-David *et al.* (2013) argue that overconfidence bias results in CFOs making overoptimistic earnings forecasts. According to Meikle *et al.* (2016), this places executives in general under pressure when the lower actual earnings results are noted, to fraudulently report higher performance which is closer to the overoptimistic forecasts. Even though the mentioned studies refer to overestimation and not overplacement, the present study's finding that CFOs were also comparatively more susceptible to overplacement bias are concerning. CFOs are naturally more involved in the preparation of earnings forecasts (Ben-David *et al.*, 2013). Cortina *et al.* (2000), Huang *et al.* (2016), and Meikle *et al.* (2016) indicate that overconfidence bias may have a negative influence on business in a number of spheres. Therefore, mitigation of susceptibility to the overconfidence bias by management accountants should receive urgent attention in subsequent

research studies. Furthermore, management accounting educational syllabi and continual professional development efforts should be amended to address this issue.

The survey approach limited the study from measuring overplacement more comprehensively, yet enabled a wider sample of the population. While the convenience sampling method represents a further limitation to the current study, the attainment of responses from an international sample which compares well in terms of demographic make-up to that in previous research samples of the population, provides support for the validity of the present study's sample.

The anomaly in the findings of the higher susceptibility to overplacement bias of management accountants in the CFO positions, than management accountants in the CEO positions, requires focused future research attention to explain this difference.

Management accountants are susceptible to overconfidence-related overplacement bias, yet to a comparable extent to other decision-makers. Their increased involvement in business decision-making should therefore not be worrisome from an overconfidence bias perspective. Nonetheless, due to their particular involvement in earnings forecasts, the possible effect that overconfidence may have when preparing these forecasts, should be noted.

[1] Note that the findings by Menkhoff and Nikiforow, (2009) were inverted, as their original coding (being 1 highest placement, and 5 lowest placement) was the reverse of the present study's coding.

[2] Four respondents answered by selecting the "I honestly don't know" option. These responses were retained as part of the total respondents as it is assumed that these respondents would be employed in larger companies where it is more difficult to obtain the total number of employees figure than in very small companies.

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