

**CCG53 - STRATEGIC BEHAVIOR FOR INTERNAL REPORTING:
TESTING MENTAL ACCOUNTING PREDICTIONS FOR MIXED RESULTS****AUTORIA****RICARDO SUAVE**

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Resumo

Managers use internal reports for several reasons, such as target revision and performance evaluation. However, prior research in accounting does not look at how much detail managers include in internal reports. Thereby, this study examines how these two purposes of internal reporting and the sign of performance-target deviations affect the level of detail managers choose for their performance reports. Using mental accounting theory to develop our hypotheses, we argue in this study that managers may choose to present their internal reports with performance information either in more aggregated or disaggregated formats depending on the sign of performance-target deviation (gains or losses) and on the purpose of the internal report (target revision and performance evaluation). In order to test our predictions, we conducted an experiment with a 2 x 2 between-subjects approach, and recruited participants from Amazon Mechanical Turk platform. Overall, different from what we predicted, managers reporting for target revision also follow mental accounting predictions, in which they aggregated mixed gains and disaggregate mixed losses. On the other hand, managers reporting for performance evaluation, as we predicted, follow mental accounting predictions. In conclusion, our results show that when managers have to report a loss, regardless of the reporting purpose, they prefer to disaggregate accounts.

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ABSTRACT

Managers use internal reports for several reasons, such as target revision and performance evaluation. However, prior research in accounting does not look at how much detail managers include in internal reports. Thereby, this study examines how these two purposes of internal reporting and the sign of performance-target deviations affect the level of detail managers choose for their performance reports. Using mental accounting theory to develop our hypotheses, we argue in this study that managers may choose to present their internal reports with performance information either in more aggregated or disaggregated formats depending on the sign of performance-target deviation (gains or losses) and on the purpose of the internal report (target revision and performance evaluation). In order to test our predictions, we conducted an experiment with a 2 x 2 between-subjects approach, and recruited participants from Amazon Mechanical Turk platform. Overall, different from what we predicted, managers reporting for target revision also follow mental accounting predictions, in which they aggregated mixed gains and disaggregate mixed losses. On the other hand, managers reporting for performance evaluation, as we predicted, follow mental accounting predictions. In conclusion, our results show that when managers have to report a loss, regardless of the reporting purpose, they prefer to disaggregate accounts.

Keywords: Internal reports; Mental accounting; Target revision; Performance evaluation.

1 INTRODUCTION

Before making decisions, organizations may allow and motivate managers to participate in the management process as a way to give voice to them (Ruck, Welch, & Menara, 2016). Internal reports for budgeting and performance evaluation purposes are opportunities managers can use to communicate with their superiors. Research on participative budgeting suggests that participation is a motivational tool and enables managers to share private information (Covaleski, Evans, Luft, & Shields, 2006). As to performance evaluation, prior accounting research examines the advantages of managers' self-evaluation and whether managers' ratings of their own performance are aligned with evaluations provided by their superiors (Korsgaard, Meglino, & Lester, 2004). However, prior research in accounting does not look at how managers choose to present internal reports for these two purposes and neglects practitioner literature referring to how much detail internal reports should include (Starovic, 2003). Thereby, this study examines how these two purposes of internal reporting and the sign of performance-target deviations affect the level of detail managers choose for their performance reports.

Prahalad and Krishnan (2008) call the attention to how information systems enable managers to customize and modify internal reports in order to choose the presentation format that highlights the data they want to emphasize. Examining how managers choose to present their performance in internal reports matters because presentation format may have an impact on decision-making in managerial accounting settings (Cardinaels, 2008; Cardinaels & van Veen-Dirks, 2010). IOMA (Institute of Management & Administration) conducted a survey showing that internal reporting is the best way to boost corporate value and suggesting that both the increase of reporting timeliness and the avoidance of information overload contribute to improve the quality of internal reporting (IOMA, 2005). In fact, firms can benefit from managers' private information in internal reports for the budgeting purpose (Hannan, Rankin, & Towry, 2006). The information benefits of internal reports are particularly true for firms that use past performance information for target revision, i.e. for ratcheting purposes (Cassar &

Gibson, 2008). The value of internal reports may also be evident for evaluation purposes. This is the case when managers have the opportunity to participate in self-performance evaluation processes and that involvement increases their fairness perception regarding the process (Korsgaard & Roberson, 1995). For instance, Coca-Cola encourages a performance evaluation process with interaction between managers and superiors because it “gives everyone the opportunity to assess their annual performance against set goals and objectives”¹. Managers with the opportunity to participate in processes of target revision and performance evaluation will be strategically motivated to present their internal reports in formats that have a positive impact on the decisions affecting the likelihood of achievement of their targets and the chances of obtaining their compensation.

In particular, we argue in this study that managers may choose to present their internal reports with performance information either in more aggregated or detailed formats (hereafter aggregated or disaggregated) depending on the sign of performance-target deviation and on the purpose of the internal report. Mental accounting theory predicts the level of aggregation individuals will prefer to report information regarding gains and losses (Thaler, 1985, 1999). For instance, mental accounting theory predicts that individuals prefer to aggregate an overall loss comprised of multiple losses and disaggregate an overall gain comprised of several gains. Mental accounting theory also predicts that individuals prefer to aggregate a mixed gain comprised of gains and losses and disaggregate a mixed loss comprised of a large loss and a relatively small gain. Bonner, Clor-Proell, and Koonce (2014) provide evidence that managers follow mental accounting predictions in a financial accounting setting. However, other considerations in reporting information may affect individuals’ presentation preferences, such as pressures to be transparent (Bonner et al. 2014).

In our internal reporting setting, we expect that managers will not always follow mental accounting predictions and that this will depend on the sign of performance-target deviation and on the purpose of the internal report. According to mental accounting theory, individuals will choose the presentation format for their internal reports that increases the expected utility of the associated outcomes, such as higher levels of performance-based compensation and lower levels of future targets. For performance evaluation purposes, we expect that managers will follow mental accounting predictions when reporting mixed results: aggregating gains and losses that combine to form an overall gain and disaggregating a large gain and a relatively small loss that combine to form an overall loss.

When choosing the presentation format of internal reports for target revision purposes, we do not expect that managers will follow mental accounting predictions. Target ratcheting is often referred to as a punishment of good performance (Murphy, 2001). Managers then may anticipate that superiors will ratchet targets when reporting positive results and strategically choose to decrease the utility of their performance by disaggregating a mixed positive result (mixed gain). Managers may also anticipate that superiors will not ratchet their future targets when reporting negative results and strategically choose not to show ‘the loss with a silver lining’ by aggregating a mixed negative result (mixed loss).

In order to test these expectations, we conducted an experiment. In this experiment, participants act as profit center managers in a setting in which they know that their results will assist as information either for performance evaluation in the current period or for revision of targets for the next period². Participants judge their preferences about whether to aggregate or disaggregate their performance-target deviations for internal reporting purposes. Using a 2 × 2 between-participants experimental approach, we manipulate the sign of the performance-target

¹ Website, <http://www.coca-colacompany.com/stories/associate-training>, accessed September 23, 2017.

² There are also instances that firms might use the same internal report for both target revision and performance evaluation purposes. The present study considers the use of individual reports for each purpose in order to test managers’ preferences when the purposes are different.

deviation in the first factor (negative or positive) and the purpose of the internal report in the second factor (performance evaluation or target ratcheting). Our motivation is to observe managers' preferences for a particular presentation format, aggregated or disaggregated, according to the sign of their performance-target deviations and to the purpose of reporting.

Our study has several contributions. First, we contribute to the mental accounting literature by showing how managers organize internal reports for different purposes. For example, our results suggest that when managers face a loss in their unit, they tend to follow mental accounting predictions and disaggregate their results when reporting for target revision and performance evaluation. There is evidence from the financial accounting literature (e.g., Bonner et al., 2014) that the pressure to report transparently increases managers preferences for disaggregation in a higher extent than mental accounting predictions. Our study then adds to prior research by showing that in the setting of internal reports, a different form of pressure such as target ratcheting does not affect mental accounting predictions.

Secondly, our results contribute to the ratchet and performance evaluation literature by showing how managers prefer to present their performance-target deviations report for target revision and evaluation. Most of the prior research on target ratcheting focuses on the ratchet effect problem (Indjejikian, Matějka, & Schloetzer, 2014). Meanwhile, the performance evaluation literature that analyzes managers' participation in the evaluation process mainly compares the congruence between rates of superiors and managers. Our results add to these two streams of accounting literature by demonstrating that managers follow mental accounting predictions when preparing their internal reports for both target revision purpose and performance evaluation purpose.

As a contribution to practitioners, this study warns organizations about a strategic behavior that managers can use when preparing internal reports. Even though not resulting in actual changes in the numbers or dishonesty in the reports, managers with reporting functions can manipulate or choose to report information in such a way to put them in a better position for future decisions (Bowlin, Hales, & Kachelmeier, 2009; Dutton, Ashford, O'Neill, Hayes, & Wierba, 1997; Majors, 2016). Although managers can argue that they choose presentation formats for their internal reports that provide only material information, superiors should exert skepticism regarding the reported performance information.

The paper is organized as follows. We develop our hypotheses in the next section. Following, we describe our experimental task and participants. We then present our main results. Finally, we discuss the main results, implications, and opportunities for future research.

2 THEORY AND HYPOTHESIS DEVELOPMENT

2.1 Mental Accounting

Mental accounting proposes that individuals make mental coding of combinations of gains and losses (Thaler, 1985, 1999). The theory is in essence an alternative to the deterministic economic theory of consumer choice, since it considers issues such as consumers' attention to sunk costs. One of the key features of this behaviorally based theory of consumer choice is that it replaces the utility function with the value function from prospect theory. The shape of the function has three characteristics. First, the value function is defined over perceived gains and losses to some reference point and reflects that people respond more to relative than absolute changes. Second, being S-shaped, the value function is assumed to be concave for gains and convex for losses. Third, the function is steeper for losses than for gains, reflecting loss aversion. For instance, an outcome of \$100 will have a utility in the gain domain but a greater disutility whether in the loss domain. While for prospect theory individuals consider the evaluation of single outcomes, mental accounting is concerned on how individuals combine or separate gains and losses into different mental accounts (Bonner et al., 2014), and it is in line with our setting of internal reporting of performance-target deviations. The decision of

combining or separating outcomes matters since the superior's utility of the subordinate performance will differ based on whether performance-target deviations are first separated and then evaluated by the superior or combined and then evaluated by the superior.

According to mental accounting (Thaler, 1985, 1999), there are two possibilities to code joint outcomes: These outcomes will be either aggregated when jointly valued or disaggregated if separately valued. There are four combinations for coding unmixed outcomes, such as only gains, and mixed outcomes, with gains and losses. First, for multiple gains, mental accounting proposes that disaggregation will be preferred because individuals perceive a greater utility in showing them separately. This is due to the concavity of the value function in the gain domain. Second, in case of multiple losses, aggregation is preferred. As the value function is convex and steeper in the loss domain, the disutility of presenting losses separately is greater than presenting all of them combined.

Turning to the mixed outcomes, when there are gains and losses, if the net result is a gain it is called mixed gain, and if the net result is a loss it is called mixed loss. This study focuses on mixed outcomes because these scenarios are present in organization results and they might provide some tension between managers' preferences for aggregation and disaggregation. The third assumption of mental accounting is that individuals prefer aggregate mixed gains. This is referred to as cancellation. As the value function is steeper in the loss domain and the net outcome is a gain, it is possible that presenting outcomes separately could result in disutility, while presenting them jointly will result in greater utility. Fourth, in case of a mixed loss, mental accounting suggests that disaggregation will likely be more preferred when there is a great loss and a small gain; this is referred to as the silver lining principle. In turn, individuals will prefer aggregate when loss and gain become similar in size. This is because a disaggregated gain will be less valued than when is aggregated to reduce a loss, that is, when is presented in the loss domain of the function.

Studies have analyzed managers' preferences for aggregation and disaggregation. For example, Riedl and Srinivasan (2010) examine whether managers aggregate or disaggregate special items for informational or opportunistic behaviors. Mcvay (2006) also look at special items disclosure, specifically, how managers use it as an earnings management tool. Schrand and Walther (2000) show that managers are more likely to announce separately a prior-period gain than a loss to use it as a benchmark. Allee and Deangelis (2015) look at managers narratives and show that tone dispersion is associated with current aggregate and disaggregated performance.

Mental accounting has been used in prior research in accounting to determine whether integration or segregation produces greater utility. Bonner et al. (2014) argue that managers have flexibility regarding aggregation levels in income statements due to the lack of guidelines. Their results indicate that when the performance of the financial instruments results in a small or large net gain, managers prefer aggregate to report as a net gain. When the result is a net loss, managers' preferences depend on the magnitude of the loss. For a net loss comprised of large loss and a small gain, managers prefer disaggregation. For a net loss comprised of a large loss and a large gain, managers equally prefer aggregation and disaggregation. Although these results indicate that managers follow mental accounting predictions, results of their third experiment show that managers under pressure to disclose transparently prefer to disaggregate. In this transparency pressure condition, they expect a greater preference for disaggregation because investors view disaggregated information as more transparent. Different from Bonner et al. (2014), we test the effects of internal performance reporting for target revision and performance evaluation on the predictions of mental accounting.

2.2 Internal Reporting

Managers with local information use managerial reports to communicate decisions related to production, marketing, and capital budgeting to their superiors (Evans, Hannan, Krishnan, & Moser, 2001). In turn, performance reports are used to evaluate managers or firm performance and they essentially highlight differences between expected and actual outcomes for revenues, costs, expenses, profits, among others. Performance reports literature studies some issues such as the role of these reports (Wardell & Weisenfeld, 1991), information that decision makers expect being presented in these reports (Shields, 1984), and how much of this information they expect (Shields, 1980). Guilding, Lamminmaki, and Drury (1998) recognize the need for presenting and distinguishing controllable and non-controllable costs in performance reports. Their comparative study results indicate that some companies adopt the practice of simply aggregating reports and presenting them without distinguishing controllable and non-controllable costs.

Guidelines of practitioner literature that indicates good practices for internal performance reporting (Starovic, 2003) provide examples of how these practices remain unclear. On one hand, the guidelines indicate as good practices that managers should show what is relevant and highlight the company overall position in their reports. On the other hand, the guidelines recognize that many managers may feel tempted to increase the amount of information they provide to their superiors for fear of omitting relevant information, or even worse, they might hide real results to their superiors when feeling pressure to reach their targets. Different from financial reporting, internal reporting literature indicates that internal reports are much more flexible and managers have more discretion over how much and what information they report.

The issue of aggregate or disaggregate information in internal reporting has already been studied by Gomez-Ruiz (2015) in a setting of cooperative behavior. She found that more detailed information among groups enable a negative comparison process within teams. Aggregation and disaggregation as formats for organizing information are also studied in other contexts. Regarding the literature on performance measures, studies indicate that aggregation of performance measures is more prevalent and best for organizations with greater decentralization (Bushman, Indjejikian, & Smith, 1995; Feltham, Hofmann, & Indjejikian, 2016). Research on aggregation of budgeting proposals suggests that superiors accept more aggregated proposals than disaggregated, but less likely accept high proposals; anticipating this behavior, subordinates submit lower aggregated proposals (Young, Schwartz, Spires, & Wallin, 2012). Finally, Chen, Rennekamp, and Zhou (2015) show evidence that disaggregated forecasts are more accurate in absence of performance-based incentives; however, disaggregated forecasts tend to be more optimistic in the presence of performance-based incentives. Considering aggregated and disaggregated formats, even when presented in different sequences (Lau, 2014), we argue that the choice of one format for presenting performance-target deviations have impact on superiors subsequent decisions in the context of target ratcheting and performance evaluation.

One of the possible consequences of more discretion for choosing aggregated or disaggregated formats when producing internal reports is that managers might present information in a format that makes their performance looks better than actually is. Specifically, a manager with an actual poor performance can impress their superior with exaggerated records about their employees' accomplishments (Cunha, 2013). Evidence from target setting literature indicates that some employees proceed with management impression, and sometimes they do it to signal competence to their managers (Frink & Ferris, 1998). There are also results indicating that lower performing employees have stronger management impression intentions when reaching their targets, and that employees with stronger management impression intentions choose less challenging targets (Webb, Jeffrey, & Schulz, 2010). While the results of management impression in target setting literature indicate a willingness to show good

performance, evidence of ratchet effect literature shows when individuals act to achieve a performance below their actual potential in order to avoid more difficult future targets. Contrary to the expectation that managers boost their internal reports with positive results for impressing their superiors, we investigate if managers intend to show their performance-target deviation in a less favorable format by choosing aggregate or disaggregate.

Regarding the format presentation choice in a context of target ratcheting, our first argument follows some research evidence showing that managers might not follow mental accounting predictions. That is, managers might prefer to present their performance in such a format that makes performance looks less favorable to avoid harder targets for future. For instance, Bonner et al. (2014) report that the effects of mental accounting may vary in some settings. They suggest that disaggregation could increase transparency because it reveals details of transactions. Their results indicate that managers feeling high pressure to disclose transparently have higher preference for disaggregation than mental accounting predictions. As other examples of arguments indicating that managers might prefer to present their performance in a less favorable format, we also consider the evidence that target ratcheting is referred to as punishment of good performance (Murphy, 2001), and that managers use biased internal reports (Jollineau, Vance, & Webb, 2012). Moreover, managers could present their performance in a less favorable format as a way to create some slack because they argue that they could not reach some target. Slack literature reports that different types of pressure may induce managers to create slack (Davis, DeZoort, & Kopp, 2006) and that slack is higher in environments characterized by greater information asymmetry (Indjejikian & Matějka, 2006).

Thereby, when managers have to present performance-target deviation reports with scenarios of mixed gains and mixed losses for target ratcheting, we hypothesize that managers will prefer a presentation format contrary to mental accounting predictions.

H1a: Managers will prefer disaggregate a mixed net gain when presenting their performance-target deviation for target revision purposes.

H1b: Managers will prefer aggregate a mixed net loss when presenting their performance-target deviation for target revision purposes.

When reporting for performance evaluation, following mental accounting predictions, we predict that in the case of mixed outcomes managers will prefer to present their performance in a way to increase the utility of their performance-target deviations. Specifically, when a performance-target deviation comprised of a small gain and a large loss results in a net loss, managers will prefer to disaggregate. A disaggregated net loss will increase the perceived utility of this result because it shows the “silver lining”. In turn, when a performance-target deviation comprised of a large gain and a large loss results in a net gain, managers will prefer to aggregate. Aggregating a net gain comprised of gains and losses will increase the utility of this outcome. Then, managers prefer to present their performance in a format that make it looks more favorable when the report purpose is performance evaluation. Therefore, we state our hypotheses:

H2a: Managers will prefer aggregate a mixed net gain when presenting their performance-target deviation for evaluation purposes.

H2b: Managers will prefer disaggregate a mixed net loss when presenting their performance-target deviation for evaluation purposes.

3 RESEARCH METHOD

3.1 Experimental task and participants

Participants judged aggregated and disaggregated presentation formats to report their performance-target deviations. The purpose of reports could be target revision or performance evaluation. Participants assumed a role as profit center managers that had to report their results for their superiors. The performance reports contain targets, actual results, and variances, which we call as performance-target deviations. Disaggregated format reports detailed information regarding sales, expenses bound to these sales, and net profit, while aggregated format only reports the net profit. Both aggregated and disaggregated reports demonstrate targets, actual performance, and the performance-target deviations. All participants could see both formats to evaluate them. Participants were informed that the company have no guidelines regarding internal reporting and they would have discretion to choose the presentation format they want.

We recruited 123 participants from Amazon's Mechanical Turk (AMT). Usually, participants from AMT are from countries such as United States, India, and Philippines. As AMT allows for custom participants screening, we restricted to participants by employee status as currently employed and with an approval rate greater than 75%. AMT provides requesters (researches) with online tasks for workers (participants). These tasks are referred to as Human Intelligence Tasks (HIT) and might include sophisticated tasks, such as those employed in behavioral research (Brandon, Long, Loraas, Mueller-Phillips, & Vansant, 2014). We used AMT because, as pointed by Brandon et al. (2014), the cost of obtaining data through this instrument is generally low, it gives discretion over the compensation, and the appropriateness and data quality is similar to samples obtained from more traditional sources (i.e., convenience and student samples).

The mean age of participants is 35 years old, 35 percent are female, 14 years of working experience, and 6 years in the current job. Before applying the questionnaire, we pre-tested it with colleagues, experienced practitioners, and the target sample (Van der Stede, Young, & Chen, 2005). The pre-test allowed improvements in instructions and manipulation checks. In accordance with previous studies using AMT participants (Rennekamp, 2012), we excluded 13 observations with repeated IP's that took the survey twice or participated in the pre-test. This is a necessary procedure because these repeated participants may had noticed the manipulation. We do not use sophisticated participants because this task tests a human behavior (Thaler, 1985) on coding outcomes, which makes AMT participants appropriate. Thereby, we follow the advice of recruiting sophisticated participants only when the research question requests (Libby, Bloomfield, & Nelson, 2002).

3.2 Design and experimental procedures

We employ a 2×2 between-participants experimental design, adapted from Bonner et al. (2014)³, that manipulates the sign of performance-target deviations (losses or gains) and the reporting purpose (target revision or performance evaluation). We randomly assigned participants to each condition through Qualtrics® software. In the first factor, we manipulate

³ Our setting is different from Bonner et al. (2014) in several ways. First, their study focuses on information from compound financial instruments performance designated to external reporting, while our research deals with unit's performance internal reporting. In addition, while they added transparency pressure to test whether it affected mental accounting, we test the effects of ratcheting in target reviews and performance evaluation on mental accounting, under positive or negative performance-target deviations. Lastly, because Bonner et al. designed their experiment with puttable and callable bonds, they run two experiments testing effects of amount and sign of performance in one factor, and presentation formats in another factor; transparency pressure was added in another experiment as a third factor. In our study, we designed internal reports options with aggregated and disaggregated results of a profit center, this enabled us to run only one experiment, in which for the first factor we vary the sign of performance, and for the second factor, we vary the purpose of performance reporting.

the outcomes in terms of gains and losses. When the performance-target variance is a net gain, sales and profits have favorable variances and expenses an unfavorable variance; otherwise, when the performance-target variance is a net loss, sales and profits have unfavorable variances and expenses a favorable variance. Mental accounting has predictions for four scenarios of mixed outcomes. This study uses a large gain and a large loss in the mixed gain condition, and a large loss and a small gain in the mixed loss condition. The monetary values presented at the reports follow Bonner et al. (2014). In the second factor we manipulate the purpose of performance reporting, target revision or performance evaluation.

Participants obtained access to the task through Amazon Mechanical Turk platform. Before entering in the task, participants could learn their compensation, which was \$ 1.30. Besides participants reward, AMT charges requesters 40% of participants' reward for more than 10 assignments, plus other fees for restricting participants, the total was \$ 0.94 per participant. Thereby, we paid \$ 2.24 per participant (\$ 1.30 + \$ 0.94). After entering in the task, participants first read general instructions, which warned them that anonymity is guaranteed, and that the study is about decision-making in organizations. Next, participants read the specific instructions with information regarding their role as sales managers at the company, their performance-reporting task, their main role in the task, and internal reporting purposes.

After reading instructions, participants were prompted to answer comprehension questions, that is, questions regarding their understanding of the instructions. When successfully completed these questions, participants could proceed to the reporting task. During the task, we recalled participants about the reason for what their superiors would use the reports, that both options for reporting their performance were acceptable, and mentioned about their performance (positive or negative). Participants then saw both presentation formats and judged how desirable and how advantageous they considered each option through a 101-point scale. Then, participants completed some post experimental questions, a manipulation check question checking their unit's performance and demographic questions. Finally, they received a random number to paste at AMT to prove they finished the survey and they were debriefed.

3.3 Dependent measures

As dependent measures, with a 101-point scale, we asked participants how desirable and how advantageous each presentation format option (aggregated or disaggregated) would be in terms of representing their performance to their superiors (0 - not desirable at all / not advantageous at all; 100 - very desirable / very advantageous). We told participants that if they think that one format is better than the other, they should move the marker of the preferred format to a higher number than the other format. However, if they consider both formats equally preferable, they should put the markers for both formats near the same number. We positioned the slider markers in parallel, with one just below the other to facilitate the comparisons. We used the average response of these two questions⁴ to capture participants' preference about each format option for presenting their performance-target deviation, then we created a composite measure with the difference of aggregation preference minus disaggregation preference. For example, if a participant indicates that the aggregated format is 90 in the desirable scale and 80 in the advantageous scale, the aggregation preference is 85. Considering a disaggregation preference of 75, our dependent variable is 10 indicating a slightly preference for aggregation.

⁴ Pearson correlations of the questions about the desirability and advantageousness for aggregation preference = 0.84 and disaggregation = 0.78, $p < 0.01$.

4 RESULTS

4.1 Manipulation check

After reading the specific instructions, we asked three comprehension questions to check participants' understanding of the instructions. Questions were about participants' goal in the study ('make judgments about the performance report options'), their discretion to choose the performance report options ('yes'), and the purpose of the performance report ('to update my targets for the next year' or 'to evaluate my performance of the current year'). When participants wrongly answered some of these questions, they were warned that the selected option was a wrong answer and which option was the correct one. The inclusion of these questions is an attempt to make sure that participants could better understand the setting before proceeding to the task.

We included a manipulation check asking participants whether their unit had a loss or a profit. Among 110 observations after the exclusion of repeated IP's, 18 (16%) participants failed the manipulation check. We removed participants who failed the manipulation check. Coding outcomes according to the signal of performance is an important feature of mental accounting theory, and because of that, we exclude participants that failed this manipulation check, which resulted in 92 usable responses⁵.

4.2 Descriptive Statistics and Hypothesis Test

Hypothesis 1a(b) states that managers will prefer disaggregate (aggregate) a net gain (loss) when presenting their performance-target deviation for target revision purpose. Regarding evaluation purpose, Hypothesis 2a(b) predicts the opposite, that is, managers will prefer aggregate (disaggregate) a net gain (loss) when presenting their performance-target deviation for performance evaluation purpose. Then, while in H2 we predicted that participants would follow mental accounting theory, in H1 we predicted they would not follow that theory. Table 1 presents descriptive statistics (Panel A), and ANOVA results and simple main effects of participants' preferences for aggregation (Panel B).

Table 1 – Descriptive statistics, ANOVA results, and Simple Effect Tests

Panel A: Descriptive Statistics: Managers' Aggregation Preference Judgments – Mean (Standard Deviation)			
Outcome	Reporting Purpose		Row Means
	Target Revision	Evaluation	
Net Gain	8.5 (45.91) n = 26	-4.11 (57.20) n = 27	2.08 (51.86) n = 53
	-33.55 (29.54) n = 20	-27.03 (33.79) n = 19	-30.37 (31.43) n = 39
Net Loss	-9.78 (44.54) n = 46	-13.58 (49.77) n = 46	
Column Means			
Panel B: ANOVA results and Simple Effects Tests			
Source	Aggregation Preference		Two-Tailed p-value
	Statistic	Two-Tailed p-value	
Outcome	F = 11.92	< 0.01	
Reporting Purpose	F = 0.10	0.75	
Outcome x Reporting Purpose	F = 1.03	0.31	
Simple Effect: Net Gain	t = 0.88	0.81	
Simple Effect: Net Loss	t = -0.64	0.74	

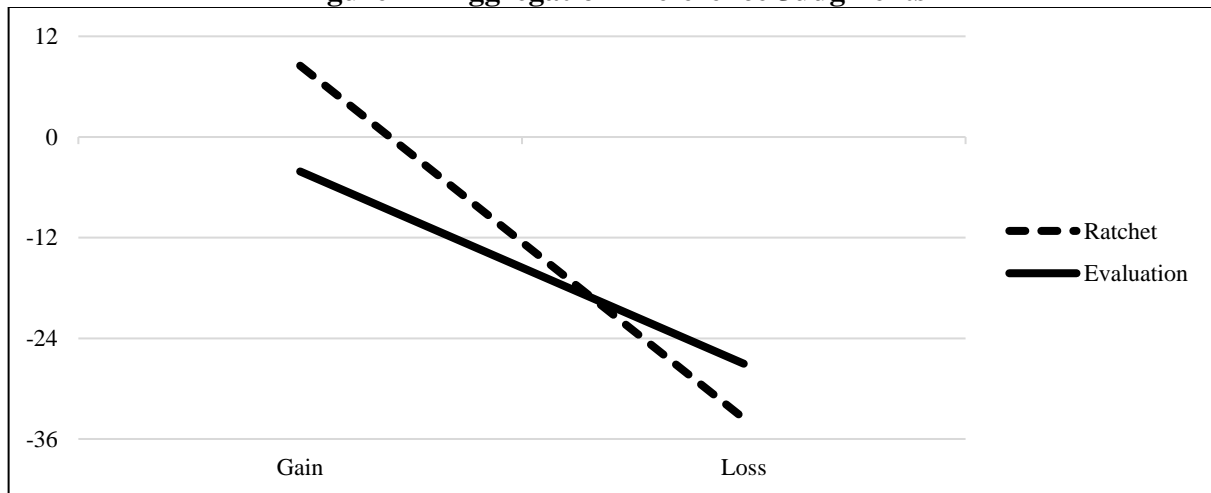
⁵ The inclusion of the 18 participants who failed in the manipulation checks does not change our main results.

Our dependent variable indicates the preference of a presentation format for internal reports, in which positive means indicate preference for aggregation while negative means indicate preference for disaggregation. We present standard deviations and number of participants for all experimental conditions. Panel A of Table 1 indicates a stronger preference for disaggregation in scenarios of net losses and for aggregation in scenarios of net gains, regardless of the reporting purpose. These preferences are in line with mental accounting theory, in which the prediction is a preference for aggregation of results in case of mixed gain scenarios and disaggregation in mixed loss scenarios.

Contrary to H1 and consistent with mental accounting theory, results indicate a significant higher preference for aggregation in a net gain scenario (8.5) and a disaggregation preference in a net loss scenario (-33.55) when participants had to choose a presentation format for a target revision reporting ($t = 3.56$; one-tailed $p < 0.01$; untabulated results). Results are consistent with H2 and with mental accounting theory in our performance evaluation conditions. Although results indicate a low preference for aggregation in net gain outcomes, preferences for aggregation are significantly higher for net gains (-4.11) than for net losses (-27.03) ($t = 1.56$; one-tailed $p = 0.06$; untabulated results).

Looking at the outcome, regardless of the reporting purpose, our results provide evidence consistent with mental accounting predictions. The preference is for aggregation (2.08) when reporting a net gain and for disaggregation when reporting a net loss (-30.37). This difference is represented by a main effect for the outcome variable ($F = 11.92$; $p < 0.01$). Results do not show a main effect for the reporting purpose variable, indicating that our different purposes of reporting do not affect the preferences for performance presentation.

Figure 1 – Aggregation Preference Judgments



Finally, our expected interaction is not significant either ($F = 1.03$; $p = 0.31$). Considering that whether participants in target revision condition preferred a reporting format contrary to mental accounting as predicted in H1, it would be plausible to expect an interaction. A significant interaction would indicate a change of preferences in performance evaluation condition to target revision condition. However, Figure 1 shows that participants in target revision condition are even more aligned to mental accounting theory than participants in performance evaluation condition.

As previously discussed, the quality of internal reports is an important feature to boost corporate value (IOMA, 2005), but guidelines about good practices for internal reporting are unclear, especially about the flexibility on these reports (Starovic, 2003). Prahalad and Krishnan (2008) exemplify this flexibility by showing an example of the discretion managers have on the amount of detail (aggregate or disaggregate) they put on internal reports. Because of this

flexibility, we tested managers preferences of aggregation and disaggregation in an attempt to verify if different settings (outcome and reporting purpose) have effect on their choices. While Bonner et al. (2014) results indicate that managers under pressure to disclose more transparently disaggregated more, our results indicate that ratcheting is not a sufficiently strong pressure that causes managers to report their performance-target deviations different from mental accounting predictions.

4.3 Supplemental Analysis

Accounting studies have analyzed Machiavellianism as a personal trait in organizational settings. Because of manipulative and controlling behaviors associated with these individuals (Goldberg, 1999; Judge, Piccolo, & Kosalka, 2009), those high in Machiavellianism could choose reporting formats in such a way that increase their utility more than individuals considered low in Machiavellianism. For instance, there is evidence that controllers scoring high on Machiavellianism are more likely to give in to pressure by business unit management to create budgetary slack (Hartmann & Maas, 2010).

We used the MACH IV scale developed by Christie and Geis (1970) to test Machiavellianism traits in participants. It is a 20-item Likert format scale, ranging from strong disagreement to strong agreement. When the sentences were phrased so that agreement presumably meant acceptance of a Machiavellianism viewpoint, the scoring was one for strong disagreement and five for strong agreement, and for those statements that the agreement presumably meant acceptance of a non-Machiavellianism viewpoint, the scoring was reversed. The validity and reliability of the scale has also been tested for psychology (McHoskey, Worzel, & Szyarto, 1998; Paulhus & Williams, 2002) and accounting (Wakefield, 2008) studies.

Most studies divide participants with high Machiavellianism traits (high Machs) and with low Machiavellianism traits (low Machs) by the median. Following Okanes and Murray (1980) reasoning, we use the upper and lower quartiles. They assert that is somewhat arbitrary to consider a participant scoring only a few points different from the average with strong or weak Machiavellian tendencies. Using this categorization, descriptive statistics in Panel A of Table 2 shows 29 participants as high Machs and 21 as low Machs. Comparing descriptive statistics of high and low Machs (Panel A, Table 2) with statistics from the overall sample (Panel A, Table 1), the main differences are in net gain conditions.

Table 1 – Descriptive statistics, ANOVA results, and Simple Effect Tests for MACH’s

Panel A: Descriptive Statistics for high Machs and low Mach participants: Managers’ Aggregation Preference Judgments – Mean (Standard Deviation)

Outcome	High Machs			Outcome	Low Machs		
	Presentation Purpose				Presentation Purpose		
	Target Revision	Evaluation	Row Means		Target Revision	Evaluation	Row Means
Net Gain	-2.79	26.23	14.94	Net Gain	21.17	-41.6	-7.36
	(36.97)	(53.60)	(48.83)		(55.59)	(23.68)	(53.33)
	n = 7	n = 11	n = 18		n = 6	n = 5	n = 11
Net Loss	-12.25	-21.07	-17.86	Net Loss	-38.1	-43.5	-40.8
	(28.29)	(29.69)	(28.09)		(38.83)	(23.94)	(30.55)
	n = 4	n = 7	n = 11		n = 5	n = 5	n = 10
Column Means	-6.23	7.83		Column Means	-5.77	-42.55	
	(32.91)	(50.63)			(55.73)	(22.47)	
	n = 11	n = 18			n = 11	n = 10	

Continues.

Panel B: ANOVA results and Simple Effects Tests

Source	Aggregation Preference	
	Statistic	Two-Tailed p-value
Outcome	F = 5.93	< 0.05
Reporting Purpose	F = 0.98	0.33
Outcome x Reporting Purpose	F = 0.16	0.69
MACH	F = 3.62	< 0.10
Outcome x MACH	F = 0.01	0.92
Reporting Purpose x MACH	F = 3.33	< 0.10
Outcome x Reporting Purpose x MACH	F = 3.87	< 0.10
Target revision, Simple Effect: Net Gain	t = 0.93	0.37
Target revision, Simple Effect: Net Loss	t = -1.11	0.30
Evaluation, Simple Effect: Net Gain	t = -2.67	< 0.05
Evaluation, Simple Effect: Net Loss	t = -1.39	0.19

Considering net gain conditions, presentation preferences from the overall sample indicate aggregation for target revision (8.5) and disaggregation for performance evaluation conditions (-4.11), the same pattern is observed for low Machs (21.17 and -41.6). On the other hand, high Machs indicate a preference for aggregation in evaluation condition (26.23) and for disaggregation in target revision condition (-2.79). Although not significant ($t = 0.93$; $p = 0.37$), high Machs reporting for target revision have a lower preference (-2.79) for aggregation (H1a) than low Machs reporting for the same purpose (21.17). This result is contrary to mental accounting predictions, as we stated in our Hypothesis 1, because high Machs would prefer to disaggregate a mixed gain.

Looking at ANOVA results, our MACH variable produces a main effect in the model ($F = 3.62$; $p < 0.10$) and has a two-way interaction with *Reporting Purpose* ($F = 3.33$; $p < 0.10$) and a three-way interaction with *Outcome* and *Reporting Purpose* ($F = 3.87$; $p < 0.10$). Simple effects demonstrate a greater preference for disaggregation of low Machs (-43.5) than high Machs (-21.07) in evaluation loss condition ($t = -2.67$; $p < 0.05$). This result indicates that low Machs reporting a mixed loss for performance evaluation purposes are more aligned to mental accounting predictions than high Machs. This result might be consistent with Bonner et al. (2014) results, because low Machs could have a higher preference for disaggregation in order to show more details about their performance to their superiors, that is, being more transparent.

5 DISCUSSION AND CONCLUSION

This paper set out to investigate how managers choose a presentation format to report their performance-target deviation. We were interested on understanding if managers that report their performance for a firm that ratchets target would choose a presentation format in order to decrease the perceived utility of this performance to avoid harder targets for future. We built our hypotheses on mental accounting and predicted that managers reporting for target revision would not follow mental accounting assumption. However, we did not find evidence to confirm this prediction. Both managers reporting for target revision and for performance evaluation have higher preferences for aggregation when reporting a mixed gain and for disaggregation when reporting a mixed loss.

We present some arguments on why managers reporting for target revision would follow mental accounting predictions, that is, they prefer to present their performance in such a format that makes this performance looks more favorable. In doing so, we take into account the findings that target setting can serve an impression-management purpose for managers (Frink & Ferris, 1998; Webb et al., 2010). These results may indicate that managers can try to impress their superiors by showing a good performance when they present their reports for target revision purposes. In addition, if they expect easier targets by showing a good performance, this is in line with findings that high-profitability firms commonly decrease targets if managers

fail to attain them but rarely increase targets if they reach them (Indjejikian, Matějka, Merchant, & Van der Stede, 2014). Another reason is because profit center managers can build budget slack by misrepresenting or withholding some of their private information to their superiors (Yuen, 2004) through internal reports.

We also performed an additional analysis testing the influence of Machiavellianism in participants preferences. Because of the traits referred to this personality we could expect that individuals with high traits would have higher preferences for a presentation format that maximizes its utility if compared to individuals with low traits. Actually, we found that managers with low Machiavellianism traits have a higher alignment with mental accounting theory when reporting for target revision than those reporting for performance evaluation when the outcome is a gain.

This conclusion has some practical implications. Managers often have to elaborate different kind of reports to their superiors, such as sales reports, production costs reports, labor costs reports, and so on. Usually, managers present these reports according to their accountability and have to report performance-target deviations. Sometimes, due to the complexity, they have some discretion to aggregate information based on materiality judgments. The most conclusive results show that when managers have to report a loss, for both ratchet and evaluation purposes, they will prefer to disaggregate accounts. For instance, even if there are some values not material to show, managers tend to disaggregate to show a small gain that would be hidden. Looking at target revision perspective, managers might do this to impress their superiors and receive a less challenging target. In turn, when presenting a report for performance evaluation, managers also tend to disaggregate in order to show that they had a good result, even considering that the value is not material. In the gain scenarios, results regarding presentation formats preferences do not show significant differences.

Some of the limitations of this study are also opportunities for future research. Because of some design choices, future research could qualitatively analyze ratcheting decisions and ratchet effect in a single organization, observing if managers observe the adverse effect on performance and if they make decisions to avoid it. Another opportunity is the investigation on how much participative are the processes of target revision and performance evaluation through the acceptance of reports from lower level managers, analyzing how much discretion lower level managers have on choosing information to these reports.

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