

Breaking New Ground: Settings Where Performance Measurement is Important but Less Studied

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Performance measurement is a critical dimension of management control theory and practice, and one of the most widely researched areas of management accounting. The Research Handbook on Performance Measurement for Management Control provides the foundation for the next generation of research in management accounting on performance measurement by canvassing the contemporary landscape of performance measurement research and outlining future research opportunities.

From the foreword by the Editors, **Anne M. Lillis** and **Jennifer Grafton**:

In Chapter 2, Eyring and Van der Stede focus on new frontiers of management accounting research. They exhort us to draw on our unique expertise in measurement and turn our attention to “greenfield” research settings, underexplored by management accountants, such as health, education, government agencies, developing economies and charities. Further, they stress that in the “information age” data is currency, measurement is ubiquitous, and management accounting can play an increasingly prominent role in influencing and informing decision making. Eyring and Van der Stede link opportunities at the new frontiers of research to existing bodies of research by characterizing research in performance measurement according to its focus on decision facilitation and decision influence. Relating to decision facilitation, they point to the explosion of information in and about organizations, the need to better understand the way this information can be fed back to decision makers to yield the best outcomes, as well as the need to better understand the role of non-financial performance measures as leading indicators of financial performance. They note particularly the relevance of behavioral economics in theorizing the decision-facilitating use of performance measurement. Relating to decision influencing, they highlight the opportunities for performance measurement research to explore compensation contract design, monitoring and promotion within organizations, and the role and impact of feedback and reporting. Overall, and intersecting with other chapters in this Handbook, they invite researchers to consider the impact of new data sources, increased reporting and accountability requirements, and an increased focus on sustainability and risk management, all of which impact the questions we explore in performance measurement.

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ABSTRACT - Management accountants' core research expertise as specialists of measurement is not only pertinent to analyze and inform recent changes in managerial practice, but also increasingly relevant in contexts and settings beyond business organizations, where we may not traditionally have focused our attention. Given that measurement is expanding beyond the financial (even in business organizations), there is great potential for management accounting research to play an increasingly prominent role in guiding the use of information to facilitate and influence decision making in a broad range of economic activities in and around any type of organization where there is significant demand for informative measurement to bring about accountability.

KEYWORDS - management accounting practice and research; data science and data analytics; performance measurement; accountability; decision facilitation and decision influence.

CHARTING A COURSE TO INFORM PERFORMANCE MEASUREMENT

A healthy discipline is intentional about its contribution. That means looking back every so often, reflecting on how we reached our current state, and moving forward with objectives in mind. If we use the standard of Ittner and Larcker (2001) to look back over two decades of practice and research, it is just about time for a similar assessment. In that 2001 review, the authors concluded that empirical research in management accounting had evolved to match management accounting practice. Changes in practice, mirrored and informed by research, included a decreased focus on budgetary control and financial analysis. In turn, the discipline shifted its attention to strategic use of measurement to identify and incentivize key drivers of shareholder value. To the extent that the use of management accounting has changed since then, can we boast similar parallel trends in practice and research? If not, what can we do from here to provide insights that are relevant to organizations in the current economy?

Recent field studies have demonstrated that management accounting is relevant in a wide range of settings where performance matters and accountability is sought (Krishnan & Yetman, 2011; Casas-Arce, Lourenco, & Martínez-Jerez, 2017; Eyring, Ferguson, & Koppers, 2021). We envision management accounting as a discipline that examines all kinds of performance, both financial and non-financial, in any organization that serves any economic purpose regardless of for-profit, government, or non-profit designation (Van der Stede, 2015). This conception of management accounting harnesses the expertise of management accountants to contribute to a diverse range of economically

important settings, spanning manufacturing, healthcare, education, service industries, and government agencies (Burton, Summers, Wilks, & Wood, 2021).

The resulting contribution for management accounting would respond to the way that the discipline has spread and changed in practice. Ittner and Larcker (2001, p. 349) wrote that ‘the past two decades have witnessed considerable change in management accounting practice’. The same words hold true for the most recent two decades. For example, regulators, shareholders, and the general public have increased pressure on firms to disclose not just their financial statements but aspects of management control, such as risk management, target setting, and pay for performance (Albuquerque, 2009; Christensen, Floyd, Liu, & Maffett, 2017). Advances in technology for data gathering and dissemination have enabled frequent data reporting at granular levels for decision makers ranging from executives to front-line employees (Li & Sandino, 2018; Eyring, Ferguson, & Koppers, 2021). Economic theories that account for cognitive limits and for non-pecuniary sources of motivation have led to new questions regarding how decision makers use management accounting information (Bol, 2011; Hecht, Tafkov, & Towry, 2012; Casas-Arce, Lourenço, & Martínez-Jerez, 2017). Knowledge of management accounting’s trajectory can guide us to topics that are relevant to practitioners. With that knowledge and intentional direction, we hope that researchers will be able to demonstrate the value of their insights for decision makers.

In this chapter, we consider changes in practice and research and focus on the way that managerial accountants' research expertise—as specialists of measurement (Van der Stede, 2015)—is in demand, where we have not fully offered what we can.

During the 2014 *Journal of Management Accounting* 25th anniversary panel at the AAA Management Accounting Section Midyear Meeting in Orlando, the journal's editor, Ranjani Krishnan, asked three questions to prompt thought about our direction as a field: (a) In what management accounting research topics do we have established knowledge? (b) What are some common themes in management accounting at the present time? (c) What do we need to learn in management accounting going forward? As a member of that panel, Van der Stede (2015) took time to ponder those three questions for the panel presentation, the key points of which, for our purposes here, were:

In terms of opportunities for research, I reckon that we have sometimes confined ourselves to settings where accounting measures of performance are prevalent, even though the underlying measurement and performance evaluation problems and their consequences are as pertinent in, say, schools. ... We seem to have left these areas to economists, even though the core issue is one of measurement
(p. 174)

In that sense, we have studied relatively few areas where performance measurement and evaluation matters ever so much (in schools, in policing, in international aid, etc.). So maybe we have not been daring enough to extend

performance beyond its meaning of accounting performance, or even when considering non-accounting (non-financial) measures, to have applied these primarily to business, thus also not interpreting “management” more broadly. Of course, there are comparative advantages, but these perhaps have been conceived too narrowly, as we are specialists of measurement, both accounting and non-accounting, especially in the management accounting area. (p. 175)

The good news, however, is that there are so many contexts where performance is being measured, and more than just in terms of accounting and business, but instead where performance measurement is seen as the way to bring about *accountability*. And perhaps studying these diverse settings or application areas may lead to innovation at the theoretical level as a bonus. (p. 175)

Our assessment of the field stretching forward from 2015 is that there is a great deal left for management accounting research to offer to settings where it has had limited engagement and where there is significant demand for accountability and informative measurement.

We use the commentary from Van der Stede (2015) as a stepping-off point for our discussion of directions for management accounting research. Rather than comprehensively reviewing the literature (since 2001, say), we instead focus on the prospective contributions of management accounting as we are seeing it currently evolve. But if we are allowed to make a retrospective conjecture, we would suggest that

management accounting research has in the most recent two decades evolved, particularly in the ways in which measurement has gone beyond the financial realm, even in business organizations. We take this conjecture, that *measurement is expanding beyond the financial* (even in business organizations), and the implication that there is great potential for management accounting research to understand performance measurement in any type of organization *to bring about accountability*, as a principal guide rail for the focus of this chapter.

To this end, the next section considers the overarching objectives of management accounting. Attention to those objectives provides the field with a consistent identity even as researchers work along those lines to address understudied challenges in businesses, organizations, and societies. We then examine the state of the management accounting literature in addressing areas where measurement is important but less studied. We also suggest fruitful avenues for research on that frontier of management accounting. In the final section, we synthesize and conclude. For those who only manage or decide to skim read this chapter, our key punchline is as follows. In the “Information Age” of the economy (Castells, 2010), where top executives have referred to data as the new currency for generating wealth (McFarland, 2017), management accounting can play an increasingly prominent role in guiding the use of information to influence decision making in a broad range of economic activities.

JOINT OBJECTIVES OF DECISION FACILITATION AND DECISION INFLUENCE

We apply a broad definition of management accounting research, as the study of measurement for economic activity, for a few reasons. First, the topic of measurement is fundamental to a wide range of management accounting studies, especially recently. These studies examine how measurement systems determine economic activity (e.g., Casas-Arce, Lourenco, & Martínez-Jerez, 2017; Campbell, Loumioti, & Wittenberg-Moerman, 2019; Labro & Stice-Lawrence, 2018, Murphy & Sandino, 2020). Additionally, and critically, when we as management accounting researchers offer our expertise on measurement and its relationship to economic activity, that puts us in a strong position to meet society's needs for insight on how to be successful in the "Information Age" of the economy (Castells, 2010). This is a time in which measurement is ubiquitous and the financial resources dedicated to using measures to inform production and service delivery are set to more than double over the next seven years (Fortune Business Insights, 2021).

Management accounting often looks at the issue of measurement within organizations, which are the engine of the economy, as the Nobel-laureate professor Herbert Simon pointed out. Organizations are where managers and employees *make decisions* and *make things* to generate economic output. In reflecting on the role of organizations in the economy in a way that underlines the importance of our research within organizations, Simon suggested that if Martians viewed Earth and saw all the organizations, or firms, as green dots connected by red lines, their view would be

dominated by green. They would be surprised that we call it a market economy, and might suggest an “organization economy” as a more appropriate term (Simon, 1991).

However, there is at the same time an increasing role for our expertise to understand measurement surrounding organizations. Various economic (and other) stakeholders outside an organization—ranging from investors, to regulators, to consumers—are demanding growing levels of transparency (e.g., Government Accountability Office, 2021). The demands for transparency are met by disclosures of both financial and non-financial information (Krishnan & Yetman, 2011; Leuz and Wysocki, 2016; Eyring, 2020), where a subset of the latter, if not the most significant portion of it, involves measurement to *account for decisions* and *account for things*.

Before we delve into suggested research directions that utilize expertise in measurement to speak to issues within organizations and markets, we will briefly review the discipline’s direction to date so that we can understand the link between the past and the future.

Surveys of the field trace the roots of management accounting as a discipline to the 1950’s (Ittner & Larcker, 2001). Empirical work constitutes an increasing majority of the papers in the leading accounting journals and the area’s field journals. Furthermore, literature reviews focusing primarily on the two decades to 2000, and some more recent ones, generally document a shift over time from cost research to control research. Within control, then, the trend has been away from budgets and towards performance

measurement and evaluation (e.g., Lindquist & Smith, 2009; Van der Stede, 2015). The concepts that management accounting scholars explore are grounded most heavily in theory from economics but also incorporate theory from sociology and psychology (Ittner, Larcker, & Meyer, 2003; Campbell, 2012).

In addition to the documented centrality of measurement to management accounting research (over time), reviews of management accounting as a discipline also have outlined its two key roles: *decision facilitation* and *decision influence* (e.g., Sprinkle, 2003). To illustrate these two roles, consider how management accounting information *facilitates* economic *decisions*, purchasing and pricing decisions, for example, among numerous other decisions. Management accounting information also can offer a metric to which a firm can attach incentives for the purpose of rewarding economic decisions of managers and employees, such as decisions that are profitable for the firm. Such rewards *influence decisions*.

We separate topics into the general categories of *decision facilitation* or *decision influence* when discussing management accounting research questions. Our purpose is not to provide a comprehensive overview of research in each area. Rather, our aim is to link areas where management accounting is important, but less studied, to existing research streams. Through those links, our discipline's expertise in measurement can give food for thought and structure to hypotheses. We hope to focus that thinking on "green field" topics for management accounting research, where our discipline can increase its

contribution to businesses, organizations, and society. The next section considers evolving research directions and related opportunities.

TOPICS AND SETTINGS TO EXPAND THE IMPACT OF RESEARCH ON PERFORMANCE MEASUREMENT

Decision Facilitation

We first consider research opportunities related to decision facilitation, or the way that organizations provide information that guides decision makers to take actions that are aligned with organizational objectives (Baker, Jensen, & Murphy, 1988, Ittner & Larcker, 1998). Research on decision facilitation stands to benefit from the dual tailwinds of (1) new theory development in economics that accounts for the way that decision makers deviate from perfect rationality, and (2) vast and expanding data availability in *and about* organizations.

Regarding economic theory development, behavioral economic experiments are growing and generate new insights into bounded rationality. Recent management accounting research draws on behavioral economic theory and its relationship to measurement to study issues such as biases in performance evaluation (Bol, 2011; Tayler, 2010); preference alignment in determining performance (Campbell, 2012); and salience in influencing attention and responses to performance feedback (Casas-Arce, Lourenco, & Martínez-Jerez, 2017). Within organizations, there are vast and growing amounts of data. These sit in data warehouses that firms draw from, or could draw from, such as is

the case with “dark data” (Forker, 2023), to exchange information electronically with managers, employees, and others in their supply chain or ecosystem (customers, suppliers, joint-venture partners). As a consequence, employee and customer responses, for example, are increasingly electronically traced. This makes measurement and its effect on decisions increasingly feasible to track at a granular level (Campbell, Datar, Kulp, & Narayanan, 2015; Casas-Arce, Lourenço, & Martínez-Jerez, 2017). It also has allowed these studies to test hypotheses from behavioral economics to describe decision making as it occurs in practice where individuals face limits on information processing and derive utility from sources other than financial compensation and leisure.

The blend of methodology on research in this field up until about 2015 was almost exclusively lab experiments and non-experimental field studies (Bloomfield, Nelson, & Soltes, 2016). Lab experiments seek to model the activities inside a firm, randomly assigning problems, management tools, information, and incentives, to then evaluate performance and determinants of performance (e.g., Bol 2011; Hannan, Krishan, & Newman, 2008; Tafkov, 2013). Field studies in management accounting comprise mostly surveys and analyses of archival data from companies, with some case and interview-based papers (e.g., Banker, Potter, & Srinivasan, 2000; Ittner, Larcker, & Meyer, 2003; Sedatole, Vrettos, & Widener, 2012). More recently, field experiments have arisen (Casas-Arce, Lourenço, & Martínez-Jerez, 2017; Eyring & Narayanan, 2018; Li & Sandino, 2018). These offer the advantages of causal inference from random assignment paired with the ability to observe people responding to treatment in a real-world setting as they go about day-to-day activities.

We now turn specifically to studies on decision facilitation that fall under the following categories: (1) performance measure dynamics and relationships; (2) setting and evaluating strategy; (3) managing risk; and (4) feedback and reporting for facilitating decisions. We of course recognize that the takeaways from many studies blur the lines of these categories. We offer these categories as a framework, with intentionality in the order that they are listed, to infer what management accounting research is contributing to decision facilitation. Specifically, a stream of research focuses on describing *performance measure dynamics and relationships*, and these insights contribute to our understanding of how economic decision makers engage in *evaluating strategy*, *managing risk*, and providing information at lower levels of the organization and in markets through *feedback and reporting for facilitating decisions*.

Performance measure dynamics and relationships

Managers, employees, and other stakeholders can best use a measure to guide decision-making when they know the measure's dynamics in isolation and in relation to other measures. There is a large literature on this topic that has helped management accounting as a discipline to stake a claim as experts of measurement and to demonstrate relevance to decision-making in various economic settings. The bulk of this stream of literature within management accounting to date has focused on the behavior of financial measures, especially revenue and cost.

The literature on cost is heavily influenced by evidence that costs grow in a non-linear fashion and exhibit asymmetry in the way that they rise and fall in response to changes in production. Balakrishnan, Labro, and Soderstrom (2014) document this cost behavior and find evidence that this is partly attributable to companies changing their cost structure to match a long-term growth strategy. Another stream of the cost literature in management accounting looks at drivers of cost and how firms allocate resources and set prices. In the context of non-profit hospitals, Krishnan and Yetman (2011) find that institutional forces drive cost allocation via managers' attempts to please stakeholders who want to see investment in certain areas of an organization. Kaplan and Witkowski (2014) also examine the hospital setting and outline how process maps and overhead cost allocation can help hospitals to accurately price services and determine where to operate competitively.

Research on revenue has looked further into the realm of non-financial performance measurement. Banker, Potter, and Srinivasan (2000) offered the foundational result that non-financial performance measures such as customer satisfaction are leading indicators of financial performance. Specifically, the authors showed that non-financial performance measures contained additional predictive power regarding future financial performance not reflected in past financial measures. Relatedly, Nagar and Rajan (2001) showed that non-financial measures of operations performance, including defect rates and on-time deliveries, are leading indicators of future sales. To understand internal decision making that determines revenue and profitability, Bormann, Bouwens, and Hofmann (2014) study profit center managers within a firm. These

managers are more likely to take actions that benefit each other rather than themselves if they have opportunities to interact and collaborate.

Along the lines of Bormann, Bouwens, and Hofmann (2014), there is opportunity for field research to describe the interactions of managers and frontline employees that affect financial performance through non-financial determinants. As non-financial measures become increasingly common in financial reports or other voluntary disclosures, this provides opportunities to examine how these measures form and how they feed into relevant outcomes. Eyring (2020), for example, does this in the case of the disclosure of patient ratings of physicians. Disclosures of the justification for executive pay, which legislation increasingly mandates (Van der Stede, 2011; Christie, 2022), similarly provides opportunities to track the links between actions taken and performance achieved. Research on the relationships among accounting measures will guide the expanding use of measurement in organizations and markets as various stakeholders demand higher levels of transparency.

Setting and evaluating strategy

Several studies across a range of industries have shed light on the way that measures can help set, implement, and evaluate the effectiveness of a strategy. For example, a field study in the banking industry, “Choose the Right Measures, Drive the Right Strategy,” examines how a firm can use leading indicators to help employees take strategy-aligned actions (Campbell, 2006). Specifically, this study illustrates the way that well-designed performance reports on leading indicators, such as customer satisfaction,

can help an organization prioritize them, as well as keep them in the optimal range that accounts for non-linear financial returns to operational improvement. In the convenience store franchise industry, Sandino (2007) shows how the match between a control system and the organization's strategy leads to better performance. Further research on that industry documents how an organization can verify the effectiveness of a strategy. Internal performance measures can send early signals of a strategy's implementation and impact on profit, and this can help the organization to understand whether the strategy is working and how to adjust implementation to ensure its success (Campbell, Datar, Kulp, & Narayanan, 2015).

Lab studies have considered the role of a manager in strategy development. Tayler (2010) finds that managers' involvement in strategy development induces bias toward concluding that the strategy was a success. The author also finds that this can be resolved to a degree by representing the strategy as a causal chain and including managers in measure selection. Cheng and Humphreys (2012) document that managers are better able to assess a strategy's appropriateness for a situation when the causal linkages in the strategy are clear.

Research on the use of measurement to guide strategy selection and implementation extends knowledge and applications of value-based management, a framework that Ittner and Larcker (2001) focused on in their review of management accounting research. That framework seeks to chart the antecedents of organizational performance, defined in Ittner and Larcker (2001) as shareholder value. To push research

in this space further, future studies could broaden the definition of success to encompass any organizational objective—not only earnings and its translation into share price (i.e. shareholder value). We note that in place of shareholder value maximization there is heightened focus in management and public discourse on stakeholder wealth maximization (Merchant & Van der Stede, 2023). This focus accounts for shareholders but also others of a corporation’s contributors and affected parties—ranging from municipalities, to customers, to the environment.

Accounting and other economics-based disciplines have, for example, studied performance metrics related to the sustainability of an organization’s impact on the environment and society (Moser & Martin, 2012). Moreover, in many non-profit and government settings, value is defined partly or largely in terms of non-financial metrics and administrators devise and implement strategies to improve value (Banerjee, Cole, Duflo, & Linden, 2007; Porter, 2009). There are ample settings to examine how these strategies translate into value, such as in healthcare (Gallani, 2023) or education (Eyring & Narayanan, 2018) and to learn about the process of strategy setting, implementation, and re-evaluation in the process.

Managing risk

A great deal of attention in the media and among regulators over the past two decades has focused on poor risk management practices that precipitated devastating financial and economic crises in 2001 and 2008. The crises, in turn, led to landmark legislation to shore up risk management practices and detect excessive risk taking,

whether by employees within firms or by corporate executives (Van der Stede, 2011; Hail, Tahoun, & Wang, 2014). Regulation to mitigate risk now reaches deeper into internal operations, both as stipulated by the Sarbanes-Oxley Act of 2002 and the Dodd-Frank Act of 2010. These laws require public companies (in the U.S., but also similar legislation elsewhere) to take risk management steps such as (1) disclosing a subjective assessment of the adequacy of their internal control systems; (2) a more independent and financially literate board composition than before; and (3) disclosing salary and performance metrics along with a justification of executive payment relative to performance and to peer firms. The SEC in the U.S., and similar regulators elsewhere, continue to impose new requirements on publicly held firms to increase disclosures. For example, as of 2023, firms will have to disclose a table with three years of senior executive pay in comparison to financial performance, with an additional year of disclosure in each of the subsequent two annual proxy filings (Christie, 2022).

Management accounting scholars have examined some important aspects of risk mitigation. Sarens and De Beelde (2006) find that internal auditors are developing more formal risk awareness and control systems in response to the Sarbanes-Oxley Act. Anderson, Christ, Dekker, and Sedatole (2014) explore how managers use controls to mitigate risk in alliances. They draw on field and survey data to show that firms use management controls, including careful partner selection and performance contracts, to guard against risks in the form of partner exit or non-performance. Still, there is much more to understand about how firms use the vast and growing numbers of measures available to them for effective risk management. This is a much-needed contribution as

regulators and shareholders seek to guard against the type of corporate fraud and excessive risk-taking that rocked financial markets and caused several large firms to fail.

Larcker and Tayan (2011) list “seven myths of corporate governance” that raise several issues for empirical research. They note that the blunt edge of government regulation (as well as an overly simplistic media narrative) misconstrues certain characters or characteristics of corporations as the problem while failing to address the underlying forces that can influence risk. For example, they point out that there is little evidence that board structure translates into board quality; that CEOs are overpaid or not paid based on performance; or that regulation helps to improve corporate governance. Each of those observations that run counter to popular narratives could benefit from additional research. Furthermore, other work shows that variation in who prepares the disclosures about firm performance and strategy, when they are prepared, and the amount of effort expended by different types of managers to prepare them, contribute to differences in public disclosures themselves (Amel-Zadeh, Scherf, & Soltes, 2019).

Feedback and reporting for facilitating decisions

Over the past two decades, a surge of technological development has enabled organizations and markets to display data cheaply and efficiently. This, in turn, has increased information flow inside and around organizations. There is evidence that executives pay significant attention to which measures to share and how to share them with employees (Amel-Zadeh, Scherf, & Soltes, 2019; Mercer, 2019; Zenger & Folkman, 2014). Despite the widespread ability for firms to disseminate performance information

down to the front-line employee level, Casas-Arce, Lourenço, and Martínez-Jerez (2017) note that there is still much for accounting research to do to shed light on how these performance metrics influence employee behavior. In this subsection, we consider theory that can inform this line of inquiry, and we point to studies that research in this stream can extend.

Kluger and DeNisi (1996) provide a discussion of theory for forming hypotheses regarding how feedback will affect performance. Their discussion refers both to decision facilitation and decision influence. We will discuss the latter under our *Performance Feedback and Reporting for Influencing Decisions* portion of the next section. One of feedback's fundamental roles is to facilitate learning. Kluger and DeNisi (1996) point to control theory in particular, also referred to as cybernetics (Podsakoff & Farh, 1989; Vancouver, 2005), as a useful field of research to formulate hypotheses about the role of feedback in learning. A seminal example of this literature that sparked a revolution in cognitive psychology is Miller, Galanter, and Pribram (1960). They proposed a Test-Operate-Test-Exit (TOTE) model in which a decision maker takes an action toward an objective; observation indicates if the goal has been achieved; and the decision maker takes a subsequent action meant to reduce or eliminate error that led to any deviation from the goal. To the extent that the organization can track measures that are sufficient proxies for the goal, feedback with those measures enables the observation step in the TOTE process of learning and effort direction.

Casas-Arce, Lourenço, and Martínez-Jerez (2017) explore how employees' ability to learn from feedback depends on how much detail it contains and how frequently it is provided. In contrast with what a model of rational Bayesian updating would predict, providing feedback more frequently leads to worse performance. The authors draw on salience theory, which accounts for bounded rationality, to note that more recent information is more salient. The results are consistent with more frequent feedback causing employees to overweight the recent (and therefore salient) information in a way that inhibits learning.

In addition to feedback, organizations are sharing information on peers that facilitates the sharing of best practice. Recent research in field settings ranging from retail to healthcare have examined how feedback and reporting systems facilitate learning. For example, Li and Sandino (2018) examine an information sharing system that allows stores in a cell phone retailer to learn from each other's creative designs for marketing materials. Song, Tucker, Murrell, and Vinson (2017) find that feedback on efficiency in healthcare helps care providers to identify the high performers and learn from their best practices.

There is still much to uncover about the use of feedback and reporting to guide decisions. There is great potential, for instance, to examine heterogeneity among decision-makers. Feedback research has shown such heterogeneity across levels of experience, baseline performance, and other characteristics (Hannan, Krishnan, & Newman, 2008; Eyring, Ferguson, & Koppers, 2021). The implication of such findings is

that feedback can be customized to the recipient to yield the best average effect across all recipients.

Moreover, research on feedback and reporting that draws on theories from social psychology and behavioral economics can also feed into theory development in those disciplines as well as our own. Indeed, these disciplines advance theory using experiments regarding information processing of financial and non-financial measures of performance, costs, investment, and productivity (Ashraf, Karlan, & Yin, 2006; Heath, Larrick, & Wu, 1999; Kaur, Kremer, & Mullainathan, 2015), which are topics that management accounting has a skillset to address through the lens of our expertise on measurement.

Decision Influence

Fundamental to the decision-influencing role of accounting information are the agency costs of adverse selection and moral hazard. The relation to management accounting is that private information, which allows adverse selection, and private action, which allows moral hazard, can be mitigated by measurement that increases accountability and better aligns incentives.

Adverse selection has taken a broader definition in management than in insurance or used car markets where the buyer or seller has an information advantage and hides it from the other party. In management accounting, it refers to any private information held by an employee (or any other agent in a principal-agent relationship) and used for the

employee's (or agent's) gain at a cost to the firm (or principal) (Sprinkle, 2003). Privacy fosters incentives to use firm resources, including one's own time, for personal rather than firm benefit. This is especially true if employee compensation, promotion, and termination are not sensitive to the employee's actions. Analytical work shows that moral hazard can be mitigated by rewarding or penalizing any measure containing incremental information regarding the employee's effort (Holmstrom, 1979). Later work showed that the weight on a measure should be increasing in its signal-to-noise ratio and its congruence with profit (Banker & Datar, 1989; Datar, Kulp, & Lambert, 2001).

The neo-classical economic agent has a utility function consisting solely of pay and leisure. Predictions of adverse selection and moral hazard assume that employees have such a utility function. Studies below of field settings absent these predicted problems suggest that other components factor into employees' utility. Research in behavioral economics and psychology speak to components of utility, such as reciprocity, identity, and social comparison (Akerlof & Kranton, 2005; Falk & Fischbacher 2006; Smith, 2000). Our goal in this section when discussing research on decision influence, is to encourage the incorporation of theory on the limits of human cognition and rationality to understand how measures influence boundedly rational decisions and, relatedly, economic outcomes. Many studies in management accounting are relevant both to decision facilitation and decision influence. Thus, there is overlap between the studies that we mentioned in the prior section and those that we discuss here. In this section, however, we provide some structure by using a taxonomy for the decision-influencing role of management accounting related to (a) compensation, monitoring and promotion

and (b) feedback and reporting for influencing decisions which, in turn, represent three different means of influencing decisions, i.e., (1) by providing *compensation* to agents, (2) by *monitoring and promotion* of managers and employees in their stewardship roles for an organization, and (3) by providing *feedback and reporting* that influences decisions (especially effort provision). We reference studies in each of these three categories that we believe help chart the frontier of the discipline and offer stepping-off points for relevant contributions from new research.

Compensation

The model from Holmstrom (1979) provides a seminal starting point for understanding the use of management accounting in compensation contracts. This work was fundamental to Holmstrom's receipt of a 2016 Nobel Prize (Nobel Prize Outreach, 2023). A primary takeaway is that contracts that incorporate only the payoff of an agent's action are second best to contracts that are made possible by 'creating additional information systems as in cost accounting, for instance' (Holmstrom, 1979, p. 89). Thus, the core idea is that the principal can improve the contract by including additional pieces of information from such accounting systems. The sweeping result from the model is that 'essentially any imperfect information about actions or states of nature can be used to improve contracts' (Holmstrom, 1979, p. 89).

This result has spurred empirical investigation. Several analyses ask the basic question of whether pay-for-performance does, in practice, lead to better performance along the principal's objectives and when it might not. Holmstrom and Milgrom (1991)

provide the analytical result that, when the agent performs multiple tasks or is responsible for multiple dimensions of performance, pay for task or dimension A can increase the opportunity cost of and reduce effort on task or dimension B. Empirical evidence on this is mixed. While studies such as Brickley and Zimmerman (2001) and Jacob (2005) show that employees trade off effort toward a task with higher incentives in a way that hurts performance on another task, the results are not always so straightforward. Models in Feltham and Xie (1994) and Mullen, Frank, and Rosenthal (2010) account for tasks or dimensions that share inputs. In this case, incentives for and effort toward task or dimension A can benefit performance on task B. Moreover, Hecht, Tafkov, and Towry (2012) draw on theory from neuroscience to predict that incentives activate a performance mentality that can spill over between distinct tasks or dimensions.

Especially given that economic theory has motivated management accountants' research on the use of accounting systems to augment contracts, it would serve our discipline well to pay attention to gaps that scholars in that field are pointing out. Economists have emphasized that empirical research still has much to explore in terms of how to optimally compensate employees. For example, in the case of contracts for employees who carry out tasks with multiple elements of performance, which are widespread (Hecht, Towry, & Tafkov, 2012), a survey of the literature noted that 'theory related to multi-tasking is decades ahead of empirical evidence' (Hong, Hossain, List, & Tanaka, 2013, quoted from abstract). Thus, we encourage the use of empirical data, through archival and experimental analysis, to extend the stream of literature on contract design and compensation practices.

Monitoring and promotion

We have discussed explicit financial incentives for performance, which are typically administered through formal compensation contracts drawn up before the agent's action. Monitoring and promotion offer an alternative to such contracts. This alternative takes the form of ex-post evaluation of performance with some probability of a reward or consequence. Studies on monitoring and promotion have examined mitigation of wrongdoing, as in the case of embezzlement or fraud (Morales, Gendron, & Guénin-Paracini 2014; Stubben & Welch, 2020). Monitoring and promotion can also be a means of augmenting pay-for-performance, helping motivate employees to work toward an organization's objectives (Campbell, 2008; Chan, Evans, & Hong, 2022). Along both major dimensions of employee stewardship—avoidance of wrongdoing and election into organizationally-aligned actions—monitoring and promotion help to establish control in an organization (Merchant & Van der Stede, 2023).

Public disclosure of systems for monitoring and promotion inside of organizations is limited. Thus, research based on real-world data must often draw on proprietary information sources (e.g., Campbell, 2008; Chen & Sandino, 2012). Clever lab designs shed light on dynamics at play in monitoring and promotion (Towry, 2003; Messier, Reynolds, Simon, & Wood, 2011), such as the tendency to promote people one level above their optimal fit in the organization, also known as the “Peter Principle” (Chan, 2018). Also, data on executive selection, governance, and turnover helps to identify

monitoring and promotion decisions and effects at the highest levels of a firm (Chan, Evans, & Hong, 2022; Dikolli, Heater, Mayew, & Sethuraman, 2021).

The factors at play in systems for monitoring and promotion are expansive. A promotion decision, for example, both communicates strategic priorities to the firm and bestows power on a particular employee. Given the status, recognition, and financial benefits that accrue upon a promotion, the impact on behavior can be substantial both leading up to and after the promotion decision (Campbell, 2008; Chan, Evans, & Hong, 2022). Monitoring, similarly, is imbued with tension. A monitoring system is critical to augmenting output-based observability with information on actions, which can aid in contracting (Holmstrom, 1979), and yet monitoring in too rigid and unforgiving a manner can inhibit employee development and learning (Campbell, Epstein, & Martínez-Jerez 2011; Merchant & Van der Stede, 2023). Research on these topics has benefited from the application of behavioral economic theories and field experimental designs. This allows causal inference in real-world settings (Ashraf, Bandiera, & Jack, 2014; Lourenço, 2016). We see this combination of theoretical tensions and research design as a promising area for future research.

Feedback and reporting for decision influence

A large and growing area of research in management accounting looks at the use of feedback and reporting not only to facilitate, but to influence decisions. One of the widely used features of such reporting is peer comparison. Such comparison spurs competitiveness and serves to motivate effort provision both in the presence and absence

of pay-for-performance (Eyring & Narayanan, 2018; Hannan, Krishan, & Newman, 2008; Tafkov, 2013; Song, Tucker, Murrel, & Vinson, 2017). Social comparison theory explains the mechanism of this result. Specifically, theories from Festinger (1954), Suls and Wheeler (2000), and Smith (2000) explain that people seek to validate a self-image as a source of utility. Favorable performance comparison to a peer group can provide that type of validation, and this serves as a source of valence that rewards effort. The idea of valence, which can be pecuniary or non-pecuniary, is from expectancy theory of motivation.

Evidence from experiments such as Tafkov (2013) and Blanes-i-Vidal and Nossoll (2011) draw on and support these theories. Tafkov (2013) and Eyring (2020) show that, when performance comparisons among peers is made publicly identifiable, this can further motivate effort provision. This result can occur through multiple avenues. First, if the disclosure of a professional's peer performance allows customers to compare among professionals, this creates a financial incentive to perform well in order to attract customers and, thereby, revenue (Eyring, 2020). Second, Tafkov (2013) demonstrates that, even when peer comparison has no direct or indirect financial benefit, public comparisons have a greater effect on performance. This is consistent with theory that public perception helps to validate one's self-image (Baumeister, 1982; Brown & Gallagher, 1992), and so public comparisons have a larger impact on self-image than private comparisons.

The numerous mechanisms by which feedback and reporting can motivate effort provision, paired with the ability of firms to cost-effectively and frequently gather and disseminate data in an organization and market, provide fertile ground for research on the way that information dissemination affects economic activity. This research can shed light on the use of financial or non-financial performance in government, non-profit, and for-profit settings. Given that humans are subject to limits on attention (Hirshleifer & Teoh, 2010; Miller, 1956), boundedly rational use of information (Gigerenzer & Selten, 2002; Simon, 1990), and non-pecuniary sources of motivation (Smith, 2000; Tafkov, 2013), there is much that behavioral economic theory can help to predict in this space. We believe that management accounting can, in this manner, help guide firms in markets that commonly discuss how to make use of the ever-growing databases on activities ranging from supply-chain to human resources, to marketing and sales (Ewenstein, Hancock, & Komm, 2016; Mercer, 2019).

THE FRONTIER OF MANAGEMENT ACCOUNTING RESEARCH

As we look toward the next two decades of management accounting research, we see two salient forces that warrant a response. First, there are headwinds in the form of changing industry and student preferences. A 2022 *Wall Street Journal* article highlighted that over 300,000 auditors and accountants had left their jobs in the past two years, representing a 17% decline (Ellis, 2022). Furthermore, declining numbers of students are enrolling in accounting programs. Second, there is tailwind that we can adjust our sails to catch. Specifically, the labor market has seen a surge of demand for data analysts, both

due to a transition in the Big-4 accounting firms' offerings and related workforce, and due to the need for companies broadly to leverage vast databases (Liew, Boxall, & Setiawan, 2022). Indeed, the Bureau of Labor Statistics projects that employment of data scientists and operations research analysts will grow by 35% and 26%, respectively, from 2021 to 2031, much faster than average employment growth. Thus, we have an opportunity to use our expertise on measurement and accountability to speak to relevant industry demand, and we also have our feet to the fire, so to speak, as demand for more traditional courses ebbs.

To the extent that management accounting researchers and educators demonstrate relevance to those job-market fields through our expertise in measurement, we could experience similarly high demand for our courses. For example, schools like the University of Illinois Gies College of Business and the BYU Marriott School of Business have leveraged their management accounting faculty's knowledge to teach courses on data analytics (as featured in, for example, the 2022-2023 Gies Accountancy Annual Report).

The insights that our discipline can offer to help organizations employ the surfeit of data stockpiled in "warehouses" or lingering in "dark pools" (Forker, 2023) will be based in the way that humans react, subject to limited attention and bounded rationality, to information. This kind of insight is of great interest in economics and social psychology. Research that we do in this space, including through field studies that make

use of the abundant data in and around firms, has the potential to influence management, psychology, and economic inquiry.

We end with the call for research on large areas of the economy—where the core issue is one of measurement—that our discipline has still largely left to economists (Van der Stede, 2015). These areas include healthcare, education, government agencies, developing economies, and charitable organizations. Researchers and practitioners who study and operate in those areas can benefit from our perspective as experts in *measurement*, especially since we often share the common goal of bringing about *accountability*. Managerial accountants are, thus, well positioned to study bold questions that use expertise in measurement to increase accountability in a broad range of economic activities.

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