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Reporting matters: the real effects of financial reporting on investing and financing decisions

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In this paper, I provide an overview of the research on the real effects of financial reporting on investing and financing decisions made by firms. Accounting can improve investment efficiency and affect nearly every aspect of the financing decision by reducing information asymmetry and improving monitoring. However, limitations in the financial reporting system, specifically distinguishing liabilities from equity and determining control for consolidations, result in opportunities to structure transactions to achieve certain financial reporting outcomes. A recent new stream of research documents a link between accounting and macroeconomic indicators, providing evidence that accounting predicts revisions in these indicators. An interesting avenue for future research could be to investigate the link between accounting, investing and financing, and macroeconomic performance.

Keywords: real effects; investing decisions; financing decisions

1. Introduction

Understanding how accounting affects real decisions of managers and other stakeholders has been the focus of a large number of research papers. The charge of this paper is to focus on a subset, but still very sizeable, area of the literature, specifically the real effects of financial reporting on investing and financing decisions. The purpose of this paper is to give a reader, either academic or practitioner, an overview of the literature and identify potential areas where research could expand our understanding.

The US Financial Accounting Standards Board (FASB) conceptual framework identifies the objective of financial reporting as ‘to provide financial information about the reporting entity that is useful to existing and potential investors, lenders and other creditors in making decisions about providing resources to the entity’ (FASB 2010; OB2). In other words, financial reporting should provide information on the amount, timing and uncertainty of the future cash flows of an entity.

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However, financial reporting is more than a simple description of future cash flows, as it leaves managers with room to decide when, how, and, in some instances, what to report in the financial statements. These choices mean that firms with very similar underlying economics can have financial reporting that looks and feels very different. Therefore, it is interesting to consider how and when the properties of the financial reporting system affect firms' investing and financing decisions.

Financial reporting impacts these decisions across two broad dimensions. First, managers can apply the rules to achieve specific outcomes. For example, managers can choose to structure a transaction to keep financing off the balance sheet. There is substantial research evidence that managers will use the rules to structure transactions to achieve specific financial reporting outcomes. In fact, research has provided evidence that managers will structure transactions, in part, for personal gain, for instance, to improve the metrics used in compensation contracts (e.g. Core 2020).

The second way accounting affects investing and financing decisions is through the attributes of the reporting system itself. Typically, research has highlighted three main attributes of financial reporting that are associated with these decisions: disclosure policy, accounting quality and timely loss recognition. Disclosure policy includes both voluntary and mandatory, and, financial and nonfinancial disclosures. Accounting quality is a difficult concept to quantify. Researchers use a variety of proxies, both direct and indirect, to capture this underlying concept. Direct measures include accruals, the properties of earnings and the nature of the disclosures. For example, managers make choices about the accruals to report. Researchers model the firm's accruals process, referring to the difference between actual accruals and those predicted by the model as abnormal accruals. Abnormal accruals reduce financial transparency, i.e. they cloud the picture of the true underlying economics of the firm. Indirect measures of accounting quality include audit outcomes and regulatory interventions. For example, when a firm discloses an internal control problem, it is highlighting the potential for a misstatement in the financial statements. Research uses this as evidence of low accounting quality. Timely loss recognition is the property of accounting where there is a higher standard for recognition of gains than losses, i.e. losses (bad news) are recognized in the financial statements faster than gains (good news). This bias in the accounting system results in more precise information about bad news and lower net asset values, reducing uncertainty for capital providers and helping to reduce underinvestment problems.

When considering the attributes of the accounting system and its interaction with investing and financing decisions, research considers the role accounting plays in either reducing information asymmetry or improving monitoring. When appropriate, the research design will control for various economic characteristics of the firm, the information environment and other relevant variables. The goal of the research is to isolate the effect of the financial reporting system from these other variables. In general, higher quality accounting and more timely loss recognition has been found to be associated with improved investment efficiency and with nearly every aspect of the design of contracts used in financing.

Finance theory proposes that investment decisions use a net present value (NPV) calculation. The firm would estimate the future cash flows associated with the proposed project, discount these cash flows back using an appropriate discount rate, and then take on the project if the NPV is zero or higher, all else equal. However, all else is not equal: information asymmetry affects the investment decision and its efficiency along two dimensions. First, external capital providers will not be willing to provide sufficient capital to fund the investment opportunity due to their information disadvantage. Second, managers have incentives not aligned with the stakeholders, leading to either overinvesting, through empire building, or underinvesting, with managers seeking out the quiet life. When accounting quality is high, financial reporting improves transparency. Improved transparency lowers information asymmetry leading to an improvement in investment decisions. In section two, I provide an overview of the research that examines the association

between the attributes of the accounting system and investment decisions. Overwhelmingly, the research finds a positive relationship.

Next, I examine the impact of financial reporting on financing decisions. The decision to finance involves multiple dimensions, including what instrument to issue, and, when to issue it. Finance theory does not provide an overarching and complete theory of capital structure. However, it does provide insights into the financing decision that have helped guide accounting research. Issues of both equity and debt are examined in the research, finding that financial reporting directly affects these financing decisions. Firms manage earnings leading up to the issue of equity and this manipulation is, at least partly, the explanation for the poor subsequent performance. Financial reporting has influenced every aspect of debt issues, from the interest charged, to the choice of collateral and covenants, to the market to issue in.

Two weaknesses in the accounting model have allowed firms to structure their financing decisions to achieve specific desired outcomes. First, accounting does not have a complete model that distinguishes liabilities from equity. Given the significant differences in how accounting treats the two and the related payments, it is not surprising there is much evidence of transaction structuring to achieve specific financial statement outcomes.¹ Second, our model of consolidation has dealt poorly with entities capitalized with instruments with no voting rights. The guidance has swung like a pendulum, from one extreme where virtually no entities are consolidated, to another, where nearly all entities are consolidated. These swings have resulted in real changes to operations of institutions and the structure of certain transactions.

The vast majority of research has examined the real effects of financial reporting at the firm level. A relatively new stream of research is starting to shed light on the impacts accounting has on macroeconomic outputs. Though early, the findings are intriguing. As one might expect, accounting is associated with macro measures, including real and nominal Gross Domestic Product (GDP). Interestingly, accounting predicts revisions in these measures suggesting that accounting can be used to improve our macro output measures. GDP is widely used to assess if the economy is contracting or expanding, directly related to financing and investing decisions. It would be interesting to understand if the findings at the firm level on the association between financial reporting and investing and financing decisions, roll up and affect macroeconomic outputs.

Overall, the research concludes that financial reporting has real effects on both investing and financing decisions. However, there is still a considerable amount for us to understand and there are many opportunities for future work. The next two sections outline the research into firms' investing and financing decisions, respectively. Section 4 surveys the research on accounting and the macro economy. Section 5 concludes.

2. Accounting and investing decisions

2.1 *How do we view investing decisions?*

Modern finance theory holds that the value of an asset equals the discounted expected cash flows from that asset. Therefore, investment opportunities that have either a zero or positive net present value (NPV) should be accepted, and those opportunities with negative NPV values should be rejected. In a survey of CFOs, Graham and Harvey (2002) find that in practice 74.9% of CFOs

¹Any instrument classified as a liability increases balance sheet leverage and periodic payments are recognized as interest, directly impacting net income and potentially the amount of taxes paid. By comparison, the periodic payments for instruments classified as equity are recognized as dividends, with no impact on net income.

always, or almost always, use an NPV technique. Large companies and highly leveraged companies were significantly more likely to use NPV.

While managers may predominately use an NPV calculation to assess the firm's investment opportunities, they may still make suboptimal investment decisions due to various agency frictions. In particular, when there is information asymmetry between the manager and other stakeholders, the manager may not make decisions aligned with the interests of those stakeholders. Research has most frequently focused on the interests of equity holders but other stakeholders, including debt holders, are also considered.

Information asymmetry may affect the investment decision and its efficiency in two major ways. First, external capital providers may not be willing to provide sufficient capital to fund the investment opportunity. Second, managers may have incentives not aligned with the other stakeholders. The manager may look to over invest, referred to as empire building, by increasing the size of the firm to acquire more power, compensation, etc. (Jensen 1986). Alternatively, the manager may be effort-averse, looking for the quiet life, and will underinvest (Bertrand and Mullianathan 2003). The increased transparency from financial reporting should improve investment efficiency as it reduces information asymmetry and improves contracting and monitoring.

2.2 The role of financial reporting in investing decisions

A key aspect of the financial reporting system is the quality of the information provided. Roychowdhury et al. (2019) outline a framework to understand the relationship between investment efficiency and financial reporting. They consider two streams of literature. First, information asymmetry exists between the agent and principal leading to adverse selection and moral hazard problems. The accounting literature treats higher quality information as increased financial reporting transparency. An increase in financial reporting transparency reduces the information asymmetry conflicts. Second, information is symmetric between the agent and principal but there is information uncertainty. In this second stream of literature, firms can learn either from peers or from the reporting requirements themselves. In addition, Roychowdhury et al. (2019) provide extensive ideas for future research that I recommend to the interested reader.

Biddle and Hilary (2006) use the variation in cross-country accounting quality to examine whether financial reporting transparency is positively associated with investment efficiency. They find that higher accounting quality is associated with lower investment cash flow sensitivity. In other words, financial transparency is positively associated with investment efficiency. Biddle et al. (2009) extend this work, examining the association between the transparency of financial reporting and financially constrained versus cash-rich firms. Financially constrained firms are in need of external capital to finance investment projects, while cash-rich firms are exposed to the incentives of managers to empire-build. Their findings are consistent with accounting quality being associated with improved investment efficiency; financially constrained firms have a positive relationship suggesting more access to external capital and cash rich firms have a negative relationship suggesting improved monitoring.

With these baseline results, numerous others studies have extended our understanding of the connection between accounting quality and investment efficiency. Accounting quality is a difficult concept to measure, and though Biddle and Hilary (2006) use a variety of measures including earnings aggressiveness, loss avoidance, earnings smoothing and timeliness of reporting, it is always possible that the results are due to other unobserved factors. Shroff (2020) uses an exogenous shock to perceived financial reporting quality to examine the association between investment efficiency and financial reporting quality. Specifically, he examines the staggered release of PCAOB inspection reports and the content of these reports for the audit work of non-US auditors, finding an increase in capital expenditures following the disclosure of these reports.

Cheng et al. (2013) proxy for the time series variation in financial reporting quality using the remediation of internal control deficiencies. They find no systematic behavior prior to the disclosure of the internal control deficiency, firms under or over invest prior to the disclosure. However, firms improve investment efficiency subsequent to remediation. Finally, financing and investment decisions are less affected by changes in real estate values for firms with higher accounting quality (Balakrishnan et al. 2014).

In addition to accounting quality, timely loss recognition, another attribute of financial reporting, has a positive association with investment efficiency. The asymmetric property of accounting requiring recognizing losses on a timelier basis than gains is referred to as conservative accounting. Conservative accounting means that difficult to verify economic losses are recognized into earnings more quickly than gains, resulting in a downward bias in net asset values. This facilitates firms' access to debt financing and allows them to invest in projects that the firm might otherwise not start. The empirical evidence supports this conjecture. Firms with more conservative accounting invest more and issue more debt in settings prone to underinvestment (Garcia Lara et al. 2016). These effects are more pronounced for firms with greater information asymmetry. Balakrishnan et al. (2016) show that firms with less conservative accounting experienced a sharper decline in investment activity following the onset of the recent credit crisis. Furthermore, timely loss recognition is positively associated with stock market reactions to acquisitions (Francis and Martin 2010). Bushman et al. (2011) examine the impact of conservatism on the global stage, comparing across countries and find that timely loss recognition accentuates the sensitivity of investments to growth opportunities. Combined, these papers suggest that timely loss recognition plays an important role in investment efficiency.

Disclosure is a critical aspect of the financial reporting system; it plays a significant role in firm information risk. Segment disclosure is an interesting setting to examine the relationship between disclosure and investment efficiency. Segment disclosures allow stakeholders to better monitor the firm by giving them insight into how the resources of the firm are deployed across the organization. Statement of Financial Accounting Standards (SFAS) No. 131 removed the requirement for firms to disclose earnings by geographic segment. Therefore, after SFAS 131, geographic segment disclosures are voluntary. Hope and Thomas (2008) use this setting to examine the impact on investing decisions of firms. Comparing firms that voluntarily disclose geographic segment earnings to non-disclosing firms, they find non-disclosing firms have greater expansion of firm sales, produce lower foreign profit margins and have lower firm value in the post SFAS 131 period. Hope and Thomas (2008) conclude the results are consistent with empire building.

In addition to removing the requirement to disclose earnings by geographic segment, SFAS 131 changed how firms determine their segments. The rules moved to a model based on how decisions are made internally. Firms must identify the chief decision maker and use the segment information this person(s) reviews to determine the segments to include in the notes to the financial statements. Cho (2015) exploits this change to examine a firm's internal capital markets, finding an improvement in capital allocation post adoption of SFAS 131. The greatest improvement is experienced by firms with more severe agency problems, suggesting that aligning disclosure with the business model of the firm improves monitoring. Overall, the results are consistent with segment disclosures improving investment efficiency.

As outlined above, finance theory identifies NPV as the best method for determining whether to take on a project. NPV calculations require two basic inputs, the cash flow projections and an appropriate discount rate. A project is accepted if the NPV is zero or greater, or alternatively if the internal rate of return exceeds a hurdle rate. Therefore, the cost of capital is critical in determining which investment projects to take on. Extensive archival research examines the association between financial reporting and the costs of debt and equity.

Higher information quality is assumed to improve investors understanding of the underlying economics of the firm, reducing adverse selection. This improved understanding by investors leads to more liquidity, lower bid-ask spreads and, ultimately, a lower cost of equity. Disclosure policy is associated with direct measures of cost of equity, (e.g. Botosan 1997, Botosan and Plumlee 2002) and with bid ask spreads and liquidity, (e.g. Welker 1995, Healy et al. 1999, Lang and Lundholm 2000). Segment disclosures provide investors more detail about the underlying economics of the firm reducing estimation risk. Blanco et al. (2015) find that improved segmental disclosures, under SFAS 131, are associated with a reduction in cost of equity, consistent with a reduction in estimation risk.

In addition to disclosure policy, research examines other properties of the accounting system and its association with cost of capital. Conditional conservatism is associated with lower cost of equity through the associated increased precision of bad news, resulting in a reduction in information uncertainty (Garcia Lara et al. 2011). Research shows measures of accounting quality, including accruals quality, transparency of earnings and earnings smoothing, are associated with the cost of equity (Bhattacharya et al. 2003, Francis et al. 2004, Francis et al. 2005, Barth et al. 2013). However, using an asset-pricing model, Core et al. (2008) find that accrual quality is not a priced risk factor. More recently, McInnis (2010) proposes that the link between smoothed earnings and lower cost of capital is driven by optimism in analysts' long-term earnings forecasts. Using an asset pricing methodology, he finds no association between smoothed earnings and the cost of capital. Overall, there is some evidence that the properties of the accounting system are related to the cost of equity. However, we need more research to understand whether the mixed evidence is tied to the challenges of estimating the cost of equity, or if only a subset of measures of accounting quality are related to the cost of equity.

The cost of debt is easier to observe, with firms disclosing information to allow researchers to calculate the effective interest rate for liabilities. Sengupta (1998) provides evidence that firms with higher disclosure ratings have lower effective interest costs when issuing debt. Accrual quality is associated with the cost of debt, with poor accrual quality being associated with higher cost of debt (Francis et al. 2005). Furthermore, firms are willing to pay a higher cost of debt to retain accounting flexibility, potentially to avoid covenant violations and to avoid costs of record keeping (Beatty et al. 2002).

Disclosure should result in an increase in financial transparency, leading to improved monitoring by stakeholders. Firm disclosures requirements come from a variety of sources including by statute or a regulator, in addition to accounting standard setters. Researchers have examined the impact on investment efficiency for a wider set of disclosures, referred to as nonfinancial disclosures. Under company law, U.K. firms are required to provide the name and location of all subsidiaries. However, not all firms comply with the requirement. Activists in the U.K. put pressure on firms in the Financial Times Stock Exchange (FTSE) 100 to disclose the location of subsidiaries. Clearly, non-disclosure could be motivated by a desire to hide operations in tax havens. Dyreng et al. (2016) find that firms put under pressure to disclose their subsidiaries, reduced their use of these entities in tax haven countries, when compared with firms not subject to the disclosure pressure. In the US, the Dodd Frank Act of 2010 required additional disclosures about mine safety. These disclosures are required to be made both periodically, via 10K and 10Q, and in certain situations via an 8K. Firms are required to disclose, on a mine by mine basis, significant information regarding specified health and safety violations, orders, citations, legal actions, and mining-related fatalities. Christensen et al. (2017) find that these disclosures are positively correlated with an improvement in mine safety. Both of these studies highlight the role that disclosures can play in stakeholder monitoring.

Firms can voluntarily disclose nonfinancial information. Dhaliwal et al. (2011) examine the association between corporate social responsibility disclosures and the cost of equity. While

corporate social responsibility (CSR) is a nonfinancial disclosure, it is growing in popularity and importance. Firms that initiate CSR reporting with high cost of equity in the prior year experience a decline in the current year.

However, we should not conclude that increased disclosure would always improve agency costs. Studies on the frequency of financial reporting find that an increase in frequency is associated with real earnings management (Ernstberger et al. 2017) and a decline in investment (Kraft et al. 2018). While at first glance it would seem that an increase in disclosure has the potential to further reduce information asymmetry and improve agency costs, the impact of increased disclosure on the behavior of the manager should be considered. An increase in disclosure is associated with managerial myopia, i.e. the manager becomes overly focused on the short term.

Firms can learn from the disclosures of their peers and directly affect their investing decisions. However, it is not clear, *ex ante*, whether investment efficiency would improve; peer firms have incentives to misreport. Badertscher et al. (2013) examine the fraction of public firms in an industry to determine if this fraction affects the investment efficiency of private firms in the same industry. Public firms are subject to significant disclosure requirements. As the composition of the industry moves more towards public firms, a more complete picture of the industry can be drawn, allowing private firms to improve their investment efficiency as information uncertainty is reduced. However, it is possible that peer firm disclosures mislead the firm into believing the economic situation of the industry is better than reality. For example, Beatty et al. (2013) examine the investment behavior of firms when a peer firm has perpetrated a fraud. They find that the firms over invest in periods when an economically related peer firm overstate earnings.

Managers can learn from the preparation of the financial statements. If we assume managers have limited attention and incur information-processing costs, the production of the financial statements can be informative to managers. McNichols and Stubben (2008) provide evidence consistent with managers believing their own overstated earnings trends. They show firms that overstate earnings overinvest. When accounting guidance changes, managers need to gather new information to comply with the new rules. This additional new information can inform the managers' investment decisions. Shroff (2017) find that changes in (Generally Accepted Accounting Principles) GAAP that require managers to gather new information are associated with investment decisions.

While there has been extensive research on the impacts of disclosure, it is not clear we can yet provide standard setters and regulators an overarching theory of disclosure. For example, what is the right frequency of disclosure, what disclosures could combat myopia? Both the International Accounting Standards Board (IASB) and FASB are currently working on a disclosure framework and have several projects at various stages, from initial deliberations of a project to re-deliberations of an exposure draft. Frequently, disclosure is somewhat of an afterthought in the standard setting process. The body of research outlined above shows the significant role the financial reporting system plays in reducing information asymmetry and improving monitoring, leading to improved investment efficiency. Research could further guide the standard setters' decisions on what disclosures to mandate. For example, what is the best format for disclosing information, how frequently should information be disclosed, etc.?

3. Accounting and financing decisions

3.1 *How do we view financing decisions?*

Open any corporate finance textbook and you will quickly realize that we do not have a comprehensive theory of firm capital structure that can consistently explain all empirical anomalies observed. However, there is still some overarching guidelines that help researchers frame how

to think about financing decisions. Modigliani and Miller (1958) lay the foundation for our thinking about the capital structure of the firm. Under significantly limiting assumptions, the theory shows that the value of the firm is independent of capital structure, i.e. the mix of debt and equity, and the cost of equity is increasing in the percentage of debt in the capital structure.

By relaxing the assumptions in Modigliani and Miller, research has shed light on how managers make capital structure decisions. This work has predominately relied on two theories, trade off theory and pecking order theory. Under trade off theory, the addition of debt to the capital structure brings with it a potential tax shield but increased exposure to the costs of bankruptcy (Baxter 1967, Kraus and Litzenberger 1973). When a firm pays interest on its debt, it will pay lower taxes and therefore shield some of its income. Assuming the firm has taxable income, the firm should continue to increase the level of debt in its capital structure to benefit from the tax shield, all else equal. However, all else is not equal. Increasing leverage exposes the firm to increasing financial distress costs. The magnitude of the financial distress costs will be a function of the probability of default and the magnitude of the loss given default. Financial distress costs are estimated to be between 10 and 23% of market value of the firm (Andrade and Kaplan 1998). The costs of financial distress include direct costs, such as legal costs, renegotiation costs etc., and indirect costs, such as loss of customers and employees, fire sale of assets, etc. Therefore, the firm will need to tradeoff the benefits of a tax shield against the costs of financial distress. Trade off theory allows for variability in capital structure across firms.

Pecking order theory relaxes the perfect market assumption of equal access to all information by market participants, i.e. there is asymmetric information between the firm manager and investors (Myers and Majluf 1984). When this assumption is relaxed, a rank ordering for the source of financing forms. First, the firm will choose to finance any investments internally. With variability in profitability and investment opportunities, along with a sticky payout policy, internally generated cash flows may be greater than or less than capital expenditure needs. When there is excess cash flows, the firms will either pay down debt or invest in marketable securities. When there is insufficient cash flows, the firm will sell marketable securities or draw down on its cash reserves. If external financing is required, firms will first look to debt financing, with equity being a last resort source of financing. Under pecking order theory, there is no target debt/equity mix and the tax shield from interest on debt is of second order concern.

Survey evidence suggests these theories are not fully explanatory of firms' behaviors (Graham and Harvey 2002). Managers consider a variety of factors in determining capital structure, including financial flexibility, credit ratings, earnings per share (EPS) dilution and the undervaluation of equity. Despite not being fully explanatory of firms' decisions, these theories do provide excellent insights into the decisions of management. While accounting research does not always directly use these two theories to guide the development of hypotheses, the research does rely on many of the concepts underlying the theories, including information asymmetry and monitoring.

3.2 Accounting role in financing decisions

The decision to issue equity is a significant event in the life of any firm. Research has examined equity issues both as initial public offerings (IPO) and as seasoned equity offerings (SEO). When issuing equity, the firm has a clear incentive to maximize the proceeds from the offer, whether it is an initial or a seasoned offering. However, there are unique differences in the incentives of managers and in the information available to investors across the two settings.

When a firm goes through an IPO, it will release a number of years of prior financial statement information. Researchers investigate the properties of the financial information contained both in the prospectus and after the listing. In particular, researchers look for abnormal discretionary accruals, i.e. income-increasing accruals that are higher than a model of the accruals process would predict.

Researchers assume that these abnormal accruals are due to earnings management by the manager. Managers have incentives to increase the IPO price by managing earnings upward. Several studies have found a positive association between high accruals, or abnormal accruals, in the year of the IPO and poor subsequent performance of the IPO, measured as either stock returns or financial performance (Friedlan 1994, Teoh et al. 1998a). Teoh et al. (1998) investigate the reasons for the high abnormal behavior, finding firms that have income increasing depreciation policies or provide significantly less for uncollectible amounts for accounts receivable have poor subsequent IPO performance. The combined evidence of these studies is that management initially engages in earnings management leading up to an IPO and this earnings management explains, at least in part, the poor subsequent performance of IPOs. Ball and Shivakumar (2008) challenge the conclusion that firms engage in earnings management leading up to an IPO, highlighting some methodological issues and concerns with Teoh et al. (1998a). Additionally, they show that public companies have enhanced accounting quality due to the market and regulatory effects on the financial reporting of these firms. More recently, Sletten et al. (2018) examine the timing and motivations more closely using quarterly data. They find that the earnings management only happens in the quarter before and the quarter of the lockup expiration. These findings are concentrated in less scrutinized firms and in firms with high selling by pre-IPO shareholders.

In the US, we do not have a history of private firms releasing information. Therefore, the only financial information available for IPO firms is contained in their prospectuses. It might be easier to engage in earnings management to mislead investors leading up to an initial equity offering. Seasoned equity offerings provide an interesting setting to examine incentives to engage in earnings management around equity issues. Investors have a history of financial results to examine. Rangan (1998) and Teoh et al. (1998b) both provide evidence consistent with firms engaging in earnings management, through abnormal discretionary accruals, leading up to an SEO. SEO firms with higher discretionary accruals around an SEO exhibit weaker post SEO performance, with lower stock returns and net income.

An interesting question to consider is whether the firms are responding rationally when they engage in earnings management prior to an SEO. Shivakumar (2000) hypothesizes and finds that managers of firms engaging in an SEO are not able to signal credibly that they are not engaging in earnings management. Investors rationally expect earnings management from SEO firms and remove any expected impact of earnings management from the projections of future firm performance, whether it actually happens or not. Therefore, firms must engage in earnings management or be penalized by investors. Furthermore, Shivakumar (2000) finds that the association between high discretionary accruals and subsequent poor performance is dependent on the model used in the research design. These combined results suggest that earnings management around an SEO is a classic prisoner's dilemma problem and earnings management leading up to a seasoned equity offering may be rational behavior.

The second form of financing considered by the finance theory outlined in the previous section is debt. Debt comes in a variety of forms. It can be public or private, having many potential contractual features, making it an interesting form of financing when it comes to financial reporting. Unlike equity, a debt contract has multiple dials the contracting parties can turn to achieve an overall objective, e.g. pricing, collateral terms, maturity, etc. Furthermore, the lender can turn the dial on the monitoring mechanism used. Armstrong et al. (2010) provide an excellent overview of the literature on the role accounting plays in debt contracting.² The central theme of much of the

²I refer the interested reader to Armstrong et al. (2010) for more detail on the debt contracting literature and only provide a very high-level overview here of papers that directly investigate attributes of the financial reporting system and its effect on financing decisions.

research in this area is that the owner/managers have incentives to expropriate wealth from debtholders and that financial reporting plays a vital role in reducing the costs of debt contracting. Financial reporting has been found to be associated with multiple aspects of a debt market including, '(1) the choice of lender, (2) the lending market entered, (3) the amount of the loan held by the lead lender, and (4) the size of the bid-ask spread in the syndicated loan market' (Armstrong et al. 2010, p. 216). Overall, the financial reporting system influences nearly every aspect of the debt market and debt contracts.

One of the key dimensions to any debt contract is the interest rate spread. The interest rate charged should be commensurate with the risk taken on by the lender. Accounting quality can affect the risk, and therefore, the interest spread charged, by reducing the information asymmetry between the contracting parties. Bharath et al. (2008) find that impact of accounting quality on the interest rate spread for public debt is 2.5 times that of private debt, suggesting that other mechanisms exist for private lenders to acquire information or otherwise monitor the borrower. Properties of the accounting system are also associated with other aspects of the debt contract, including maturity and collateral for private debt contracts (Bharath et al. 2008) and the number of covenants in public debt contract (Nikolaev 2010). The research design in these papers controls for other aspects of the borrower and attempts to isolate the impact of just the features or characteristics of the accounting systems.

Disclosure is a critical part of a high-quality financial reporting system. Changes in disclosure regulations offer an opportunity to examine if accounting quality plays a role in the structure of a debt contract. Franco et al. (2016) examine the association between segmental disclosures and cost of debt. Theory would suggest that the more diversified a firm is the lower its cost of debt. The diversification acts as a co-insurance effect that decreases the risk of default. Franco et al. (2016) show that firms with greater diversification, as measured by segmental disclosures, have a lower cost of debt. Further, they show that with the introduction of SFAS 131 and an improvement to the quality of disclosures, the spreads for syndicated loans are lower for the sub-sample of firms where the lenders are likely to rely on public information.

While the intentions of the IASB and FASB are to make changes to the guidance to improve the quality of financial reporting, there are sometimes unintended consequences. SFAS 128 was effective for reporting periods ending after December 15, 1997. When initially issued the standard included convertible securities into diluted EPS using the if-converted method. However, if there was a contingency attached to the conversion, it was assumed that the securities would not convert, i.e. the effects of these securities were excluded from diluted EPS. Contingently convertible bonds (Cocos) first appeared in late 2000. Marquardt and Wiedman (2005) present evidence that these securities were used to manage diluted EPS and furthermore, they show that firms that use EPS-based compensation were more likely to issue Cocos.

Contrary to finance theory, avoiding EPS dilution is frequently listed as the number one reason in surveys of CFOs to avoid issuing equity (Graham and Harvey 2001). Huang et al. (2014) show that the findings for Cocos can be extended to a larger sample of debt-equity issues. If a manager's compensation contract is dependent on EPS as a performance measure, the firm is less likely to issue securities that would dilute EPS.

While there are many attributes of the financial reporting system that have improved financing decisions, the accounting model is far from perfect, and there are weak areas that have allowed firms to structure transactions to achieve certain outcomes. For instance, this has occurred when a new standard leaves a potential loophole, as was the case with SFAS 128, but it can also be a weakness in the accounting model itself. Two particular weaknesses in the accounting model have led to significant amounts of structuring by firms. First, the accounting model does not distinguish debt from equity; equity is simply the residual element. Second, our consolidation

model struggles with the notion of control when there is not a clear measure, e.g. voting rights. Research has addressed both of these issues.

Instruments with characteristics of both debt and equity are either compound financial instruments or hybrid financial instruments. Compound instruments are ones where a contract contains multiple and separable instruments, e.g. convertible bonds. It is possible to split compound instruments into their component instruments, e.g. a convertible bond contains a straight debt instrument and an option (Barth et al. 1998). Hybrid instruments are ones where the instrument itself has attributes of both debt and equity, e.g. the instrument is perpetual but pays a fixed and known return as with many types of preferred stock. Under both IFRS and US GAAP, the accounting rules that distinguish a liability from an equity instrument are very complex.

Classification of an instrument on the face of the balance sheet is clearly important to firms. Engel et al. (1999) examine how much a firm is willing to spend to achieve a specific balance sheet outcome. Trust preferred stock, considered the holy grail of securities, was classified as debt for tax purposes and equity for financial reporting. Therefore, the firm would receive a tax deduction for interest but account for the payments as dividends and treat the instrument as equity on the face of the balance sheet. For a sample of issues from the mid-1990s, the estimates show that firms paid between \$10 million and \$43 million to reduce their debt to asset ratio by 12.8% (Engel et al. 1999).

Prior to the issue of SFAS 150, firms could report mandatory redeemable preferred stock in equity. Typically, this instrument has all the attributes you would associate with a liability, having something akin to a fixed coupon payment and an obligation to redeem. Post SFAS 150, firms are required to report mandatorily redeemable preferred stock as a liability. Levi and Segal (2015) show that there is a decline in the issuance of these instruments post SFAS 150. Furthermore, they show that the characteristics of the firms also changed. Prior to the change in the guidance, firms that issued these instruments had higher levels of debt and lower coverage ratios than non-issuing firms. After the change, the decision to issue mandatory redeemable preferred stock is no longer related to firms' existing debt and coverage levels.

While debt and equity might be the first thing that comes to mind when considering financing, there are other sources of financing that play a critical role for some firms or industries. In particular, leasing, securitizations and other related special purpose entities are used to structure transactions. Special purpose entities (SPE) are one class of entities that significantly challenges the consolidation model. Consolidations are built on the concept of control. Control is easy to determine when based on voting rights. SPEs are typically all debt capitalized and contain no instruments with voting rights. Accounting has grappled with the accounting for SPEs for over several decades.

Leasing is one of the original off balance sheet structures. Leasing structures have used a careful application of the guidance and, from time to time, SPEs, to ensure specific financial reporting outcomes are achieved. Prior to the recent change in GAAP by both FASB and IASB, there were two types of leases, operating and capital. Operating leases remained off balance sheet and were treated like a service contract. Capital leases had both leased asset and a leased liability recognized. Under US GAAP, the rules to distinguish between the two were bright line tests. Under IFRS, though the guidance did not contain explicit thresholds, the same bright line approach to the accounting was used. A large and extensive body of guidance built up in the US to distinguish between an operating and capital lease.

Early research examines the impact of the adoption of the leasing standard SFAS 13. This accounting change required that certain leases be recognized in the financial statements as a capital lease, i.e. both an asset and liability is recognized for the lease. Imhoff and Thomas (1988) examine firms' response to the new rules and show that upon adoption of SFAS 13, there is a substitution from capital leases to operating leases. These results are consistent with firms using the accounting rules to keep financing off the balance sheet.

Clearly, firms can use the accounting rules to keep the financing of a lease off the balance sheet. It is interesting to consider what aspects of the accounting system might interact with this incentive. Beatty et al. (2010) investigate whether low accounting quality firms are more likely to finance using operating leases over a direct asset purchase. They hypothesize that the lessor's control rights over the leased assets allow them to provide capital to constrained firms with low accounting quality reports. Consistent with this, they find that low accounting quality firms have a higher propensity to lease rather than purchase.

Firms can choose to use voluntary disclosure to aid in the understanding of the implications of their leasing structures. In synthetic leases, a special purpose entity (SPE) owns the building and leases it under an operating lease to the firm. The SPE finances the acquisition from the lessor. The SPE is structured to fail the consolidation rules and the lease remains off the balance sheet of the lessee. The advantage of the structure is that the firm/lessee can take the tax benefits. The lease is off balance sheet for financial reporting but on balance sheet for tax reporting purposes. Additionally, a typical synthetic lease delays cash payments relative to more traditional methods of financing, making it an attractive form of financing for constrained firms. Prior to 2003, it was not possible to distinguish a standard operating lease from a synthetic lease without additional disclosures. Zechman (2010) shows that firms with the most benefits from delaying cash payments, i.e. cash constrained firms, finance using synthetic acquisitions but these firms make voluntary disclosures to ensure investors understand the cash flow implications of these leases. Firms with incentives to use off balance sheet financing do not provide transparent disclosures about the firm's use of synthetic leases. Combined, these results suggest that managers use voluntary disclosures to offset or maintain uninformative disclosures.

While leasing was one of the earliest places to see the use of special purpose entities, their use increased across a plethora of transactions. The consolidation model is built on the concept of control over the resources of the entity, where control is typically determined by looking at the voting rights. When there are no voting instruments, or effectively no voting instruments, the standard setters have struggled to determine how to consolidate entities. The guidance has swung from one extreme to another in determining control, highlighting the conceptual difficulty in determining a model of control. With each change in guidance, an opportunity arises to structure transactions to achieve desired financial reporting outcomes while accessing a source of financing.

One of the most common areas to find SPEs is in securitization transactions. The use of an SPE allows a firm to finance its investment in certain assets, typically loans for a financial institution, by issuing debt. For example, a bank transfers fixed rate mortgages to a SPE. The SPE issues debt backed by the cash flows of the mortgages and pays for the acquisition of the loans from the bank with the proceeds of the debt issuance. These transactions were at the heart of the 2008 credit crisis. Leading up to the credit crisis, these structures were not consolidated into the financial statements. While investors valued the firms as if these structures were on balance sheet (Landsman et al. 2008), the timing of these structures ensured that firms could significantly window dress their financial statements (Dechow and Shakespeare 2009). Forty-one percent of securitization transactions occurred in the last month of the quarter, with over half occurring in the last five days. The impact on leverage was large and material. Additionally, if a firm reported a gain on a securitization transaction sufficiently large to ensure meeting or beating an earnings threshold, the transactions were more likely to occur in the last five days of the quarter. In other words, these transactions provided significant opportunities for firms to window dress the financial statements. While investors may have viewed these transactions as on balance sheet, the window dressing would have allowed the firm to avoid violating debt covenants by using the proceeds to repay short-term financing.

After the credit crisis and the resulting regulatory fall out, the rules changed and many previously off balance sheet securitizations were brought back on balance sheet. Research estimates that the introduction of SFAS 166/167 brought \$811 billion back on balance sheet (Dou et al. 2018). Dou et al. (2018) investigate if the accounting for the securitizations, i.e. whether they are consolidated or not, affects the mortgage business of the firms affected by the changes. They found that banks with larger amounts of newly consolidated securitization structures have larger decreases in the mortgage approval rights and larger rates of sales of mortgages than other banks.

SFAS 166/167 is not the first time a change in the consolidation rules around SPEs have had an impact on firms' businesses. Bens and Monahan (2008) show that the asset backed commercial paper market all but ceased in the US following the introduction of Fin 46. Fin 46 required that variable interest entities (VIE) be consolidated in the financial statements of the primary beneficiary (VIE is another name for SPE). Under the rules, the primary beneficiaries of asset backed commercial paper conduits were the sponsoring banks. These conduits provided a very low margin to the sponsoring banks. Once the conduits were brought back on balance sheet, the capital requirement costs made them an inefficient use of capital. Interestingly, Bens and Monahan (2008) show that the adjustments started when Fin 46 was first proposed. Fin 46 had broader implications than simply shutting down the asset commercial paper conduits for US sponsoring banks. Callahan et al. (2012) show firms that were impacted by Fin 46, i.e. had to consolidate previously off balance sheet variable interest entities, had a significant increase in their cost of capital of 50 basis points relative to firms that had an immaterial impact from Fin 46.

Overall, research has demonstrated that financial reporting has had a significant impact on firms' financing decisions. Contracts and transaction structures have all been impacted by the various attributes of firms' reporting choices. Accounting research has an opportunity to provide further clarification to the theory of capital structure. When accounting guidance changes, managers' incentives influence firms' responses. Accounting research could inform capital structure theory by considering how either trade off theory or pecking order theory tie to these incentives. Furthermore, we should note that the current theories of capital structure do not consider hybrid financial instruments, including preferred stock. Understanding why firms issue these instruments and the choices they trade off in making their selections could all lead to a deeper understanding of capital structure and a more complete theory.

4. Accounting and the macro economy

If accounting is associated with the real effects of firm level investment and financing decisions, we should expect to see a relationship between aggregate measures of accounting and economy wide measures of activity. In other words, do these firm level effects documented in the previous two sections roll up into economy wide effects? There is a recent and growing literature examining the relationship between accounting and economy level outcomes. While still a relatively new stream of research, it provides some interesting insights into the role accounting plays in forecasting overall economic activity and starts to shed light on the question of whether the financial reporting system has a role to play at the economy-wide level.

Konchitchki and Patatoukas (2014a) consider whether aggregate changes in the accounting profitability, and profitability drivers, are useful for forecasting real GDP growth. Real GDP growth measures the inflation-adjusted value added at each stage of the production process of goods and services produced in the economy. Firms' investment decisions will impact this measure. Market participants closely watched this estimate and it is widely considered a standard measure of the overall growth in economic activity. The authors show that accounting measures of profitability have predictive power for real GDP growth and that this predictive power is

incremental to stock market returns. In other words, forecasts of real GDP growth could be improved by considering aggregate level accounting information. A similar result holds for nominal growth in GDP (Konchitchki and Patatoukas 2014b).

Building on these first papers, Nallareddy and Ogneva (2017) shed light onto why accounting measures improve macroeconomic forecasts by examining the information used to build the macroeconomic forecast. In the US, the Bureau of Economic Analysis (BEA) is responsible for producing estimates of GDP. BEA uses a wide range of information to construct the forecast; some of the information is not available when initial measures of GDP are released. Therefore, the BEA must use a variety of techniques including estimating trends to produce these early estimates. Nallareddy and Ogneva (2017) find that the estimates of GDP can be improved by considering how aggregate accounting earnings numbers relate to some of the underlying trend assumptions that are made. Specifically, they examine the relationship between earnings growth dispersion and estimates of unemployment and ultimately aggregate output. Earnings growth dispersion predicts future restatements in both real and nominal GDP. In other words, using accounting could improve early estimates to GDP.

The prior work makes a link between accounting numbers and GDP estimates but is relatively silent on the mechanism. Shivakumar and Urcan (2017) start to shed light on the pathway to explain the relationship between aggregate accounting measures and inflation. Specifically, they examine two non-mutually exclusive hypotheses that would relate aggregate earnings to inflation. The investment demand hypothesis predicts aggregate earnings growth shifts the demand curve for investments in inventory and in goods and services needed to increase the firm's production. This in turn leads to pressure on prices, assumed inelastic in the short term, leading to inflation. The consumer demand hypothesis predicts that aggregate earnings growth will result in a growth in consumption. This consumption growth will put pressure on prices leading to inflation. The findings are consistent with the investment demand hypothesis with no support for the consumer demand hypothesis. In additional analysis, the paper shows that the ability of aggregate earnings to predict future revisions in GDP is concentrated in the Producers Price Index (PPI) and not in the Consumer Price Index (CPI). Combined, these results suggest that firms adjust their investment plans in response to profitability growth, putting pressure on the price of production goods and services in the short term resulting in inflation.

When we look at the results in these papers, they suggest that financial reporting not only is associated with current economy wide performance but also is predictive of future performance. Overall, this suggests that accounting is capturing the economic impacts of the decisions of managers and that it should be considered as a leading indicator of future economic performance. In real terms, accounting captures the real impact of economic decisions, including investing and financing decisions. The choices made by managers not only impact performance at the firm level but also roll up into affecting the economy as a whole.

It would be interesting to understand how firm-level investment choices affect macroeconomic measures of activity. Accounting plays a significant role in minimizing frictions that arise from the information asymmetry between capital providers and firm managers. When these frictions are reduced, investment efficiency is improved. One potential area for research is to deepen our understanding of the how firm level investment choices as reported by the financial reporting system link to macro-economic measures of performance.

5. Conclusion

In this paper, I provide an overview of the research on the real effects of financial reporting on financing and investing decisions made by firms. I start by describing the finance theory on how firms make investment decisions and how accounting improves investment efficiency. To

understand the results of accounting research, we need to place them within the wider literature on investment efficiency. Financial reporting can reduce information asymmetry and, by improving monitoring, reduce the incentives of managers to either empire build or live the quiet life. I propose that one area for future research is developing a better understanding of the features of disclosure that improve investment efficiency, i.e. reduce information asymmetry without having unintended consequences.

In section three, I discuss capital structure theory and its relationship to the financing decisions of firms. Finance theory has no single overarching theory of capital structure. However, the two predominant theories, trade off theory and pecking order theory, provide interesting insights into the choices of managers. Next, I examine the financing choices firms make and the role financial reporting plays in these choices. I survey the research on financing decisions, starting with the issue of equity and debt and then moving into transaction structuring, including leasing and securitizations. Accounting clearly plays a significant role in the financing decisions made by firms. I believe this presents an opportunity for accounting researchers to build on and add to the theories of capital structure.

I end by describing a relatively new stream of research that examines the relationship between accounting and macro level performance. It is interesting to consider if the firm level results in the prior research roll up into economy wide effects. Research in this area is only beginning to shed light on this. Perhaps not surprisingly, accounting is associated with both nominal and real GDP. However, perhaps more interestingly, accounting is associated with future revisions to GDP. The work to date suggests that the link between aggregate accounting measures and inflation is concentrated in the PPI and not in the CPI. Further research can shed more light on the link, if any, between financial reporting, investment decisions and macro-economic performance.

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