

Comments and Observations Regarding the Relation Between Theory and Empirical Research in Contemporary Accounting Research

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Abstract

We offer some thoughts on the relation between theoretical and empirical accounting research in the context of causal inference, in response to two questions posed by Professor Ivan Marinovic, organizer of the 2014 Stanford University Graduate School of Business Causality conference. The two questions are: should causal inference be the objective of accounting research; and what is, and what should be, the relation between theory and empirical research in accounting? With regard to the latter, we point to two sources of difficulty: (1) confusion and disagreement about interpretation, advantages and disadvantages of various empirical identification strategies; and (2) a lack of progress on the part of empirical researchers in testing the implications of existing accounting theories and thereby providing discipline to those theories. We argue that published empirical accounting research relies too much on insufficiently precise verbal models or generic models that provide few or no new accounting-specific insights and tend to ignore recent advances made by theoretical research. As a result analytical models in accounting research are not sufficiently challenged by empirical research and analytical researchers have made slow progress in establishing a meaningful distinction between accounting information and other types of information provided by firms and their managers. We call for a concerted effort by the profession to bridge the gap, out of concerns that accounting research is in danger of losing the healthy disciplining balance between theory and empirical research that is essential to any scientific field. Without this balance, the profession becomes a discipline of beliefs, rather than a discipline of scientific discovery.

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Comments and Observations Regarding the Relation Between Theory and Empirical Research in Contemporary Accounting Research

I. Introduction

We present our views on two questions posed by Professor Ivan Marinovic, organizer of the 2014 Causality Conference at Stanford University's Graduate School of Business. The first question pertains to the role of causality in accounting research, specifically whether casual inference should be the ultimate objective of accounting research. The second question pertains to the relation between theory and empirical research in accounting, including whether theory should discipline, and has properly disciplined, empirical research; whether the gap between theory and empirical research is undesirably large; and whether the development of theory in accounting has been affected by empirical accounting evidence. We illustrate our views by reference to research that considers the relation between disclosures and the cost of capital, accounting measurement, and the necessity for and consequences of financial reporting standards.¹

With regard to the first question, we do not view the role of causality to be different in accounting research than in other business-related disciplines such as finance or economics; what differs is the context in which researchers analyze causality. We take the position that accounting research seeks to understand the causes, uses and consequences of accounting information; some research focuses specifically on firm-specific accounting choices (accounting policies, judgments and estimates) and financial reporting standard setting decisions, with the goal of producing insights to enhance the role of accounting in improving the efficiency of resource allocation in the economy. Achieving these objectives requires both an understanding of the theoretical links among behaviors, accounting information and outcomes and empirical evidence on the existence and magnitudes of the links. That said, and as

¹ Although some discussion at the Stanford Causality conference focused on process issues, including specifically the role of theory in (1) the context of the publication process in accounting research, for example the roles of referees and editors, and in (2) the context of PhD education, this discussion abstracts from those issues. Also, although we illustrate some of our views by reference to specific examples of accounting research, this discussion is not intended to provide a survey or review of any area of accounting research.

explained later in this discussion, we believe there is a substantial role for descriptive evidence, the provision of empirical facts or evidence presented as facts, in accounting research, as long as they are motivated by a desire to test and challenge theories.

With regard to the second question, we argue that while few accounting academics would disagree (at least publicly) that theories are important first steps to establish causal links, accounting researchers do not agree on what constitutes a rigorous theory, or at least a usable one, and to what extent existing theories can be used to guide empirical accounting research. Accounting empiricists criticize accounting theorists for making implausible and empirically meaningless assumptions about institutional features unique to accounting information, or ignoring them altogether, and for wholesale inattention to making their analyses as transparent as possible to those who would like to test them. Accounting theorists, in turn, criticize empiricists for excessive reliance on imprecise *ad hoc* verbal models and for overly-narrow viewpoints on what are the important institutional features of accounting information.

We believe these disagreements reflect a gap between empirical and analytical research in accounting, and one that is increasing, in that empirical accounting research increasingly displays a tendency to have little direct connection to rigorous economic theory. In turn, accounting theorists are not sufficiently challenged by empirical facts. Without a concerted effort by the profession to bridge the gap, accounting research is in danger of losing the healthy disciplining balance between theory and empirical research that is essential to any scientific field. Without this balance, the profession becomes a discipline of beliefs, rather than a discipline of scientific discovery.

With regard to both questions posed by Professor Marinovic, we note that some disagreements about causality and causal inference in accounting research appear to focus on which empirical identification strategy is superior, for example, structural estimation or natural experiment, with some confusion about what exactly is considered a structural estimation.² Again, such disagreements are not unique to

² We do not seek to contribute to debates and discussions about what qualifies as a structural model. Our discussion takes the same viewpoint as expressed in Hood and Koopmans, eds., *Studies in Econometric Method*, Cowles Commission Monograph No. 14, 1953, in particular chapters 1-3. For purposes of this discussion, a structural

accounting; similar debate has taken place in economics and other disciplines (see, e.g., Heckman (2000), Heckman and Vytlačil (2007)). Our view in this discussion is that at least some of the disagreement among accounting researchers is misplaced. Different definitions of structural estimations exist, and whatever the definition, both structural estimation and natural experiments each have their pros and cons, and neither approach can claim absolute superiority over a reduced form regression. The first implication of this view is that the type of research question addressed should dictate the choice of research design and method, which in turn affects what kinds of inferences the research can support. The second implication is that an assessment of whether a specific research paper makes a substantial incremental contribution should depend on whether the paper presents significant new insights or significant new evidence, arrived at as rigorously as possible given the constraints imposed by data existence and access, and should be largely decoupled from the specific methods applied. Debates over which empirical identification strategy is the best divert attention from the very real problems that arise from a lack of rigorous theories that help establish causal links in the first place.

As previously noted, we use ideas from three streams of accounting research to illustrate our views: (1) the relation between voluntary and/or mandatory disclosure and costs of capital; (2) accounting measurement; and (3) the necessity and consequences of financial reporting standards. We chose these research areas for two reasons. First, the research addresses issues that are important for the accounting profession. Second, the research streams differ in the extent to which theories are well developed and empirical work has been tied to those theories. For example, theorists have made substantial progress in establishing causal links between disclosure (construed broadly as information provision) and costs of capital, and empirical work has by and large been organized around those theories. In contrast, and despite its significance for accountancy as a discipline and as a profession, the second and third research streams remain at a preliminary stage theoretically and empirical work tends not to be organized around the existing theories.

model shows a decision maker's behavior under constraints and subject to economic forces, and is distinct from an empirical summary of that behavior.

Although we consider the three areas separately for expositional ease, we view them as related. For example, financial reporting standards specify required or permitted accounting measurement attributes for assets and liabilities, and that specification presumably has consequences for the nature of information provided. As another example, evidence on the consequences of disclosure (voluntary or mandatory), including for example its effect on costs of capital, should in turn inform standard setters.

The rest of this discussion proceeds as follows. Section II provides background to the specific discussions of accounting research which follow. Section III provides information about the number of theory papers published in accounting and citation-based evidence on the extent to which accounting theory papers appear to be influential in subsequent research. Section IV presents our views on the relation between theory and empirical work in three specific areas of accounting research. Section V concludes.

II. Causality and related empirical methods

The first purpose of this section is to lay out some general observations about theory as the foundation for causal inference, and to clarify the distinction between theory and research designs in their ability to support causal inference. The second purpose is to provide a succinct response to Professor Marinovic's first question, should causal inference be the objective of accounting research.

Theory and research designs/methods as foundations for causal inference. While the need for establishing causal relations may be well understood, there is at least the potential for disagreement about how best to establish the links. Adopting the premise that the role of causality does not differ in accounting research from its role in other related disciplines such as economics, we take the view that the nature of a causal relation is best defined in a theoretical framework, described by Heckman (2000), which corresponds to the comparative statics of a theoretical model:

Formal economic models are logically consistent systems within which hypothetical "thought experiments" can be conducted to examine the effects of changes in parameters and constraints on outcomes. Within a model, the effects on outcomes of variation in constraints facing agents in a market setting are well defined. Comparative statics exercises formalize Marshall's notion of a *ceteris paribus*

change which is what economists mean by a causal effect. .. The “other things are equal” or *ceteris paribus* clause is a cornerstone of economic analysis.³

We emphasize the corollary of this view: establishing a credible, relevant causal link requires first a theory delineating the exact nature of, and the conditions necessary to give rise to, the causal link and second empirical studies providing facts validating the assumptions, verifying the predictions, and/or identifying the parameters corresponding to the theoretical causal links. The relative strength of the theoretical link and the empirical evidence would be expected to vary, depending on the specific research question. Whether sufficient evidence on a given question exists to establish causality should be evaluated based on the combined strength of the theoretical foundation and the weight of the empirical evidence. In other words, acceptance of an idea is a cumulative process that depends on the quality and quantity of theoretical and empirical knowledge that researchers have amassed.

We believe there is a tendency among some accounting researchers to equate causality with specific types of econometric methods and research designs. We do not agree with this perspective, based on reasoning in, for example, Heckman (2000, p. 47), that the validity of placing a causal interpretation on an empirical association depends crucially the assumptions needed to identify the causal parameters. Viewed this way, the problem with causal inference does not arise from the empirical technique *per se* but rather with imprecise assumptions (and, in some cases, imprecise statements of assumptions). Regardless of the econometric sophistication of the technique used to estimate it, a parameter is just an association in the absence of an underlying model.

Related to the preceding point, our reading of the accounting literature suggests that some believe results based on natural experiments, or exogenous shocks, are the benchmark for establishing causality. One example is research on whether and how the adoption of International Financial Reporting Standards (IFRS) in the European Union (and elsewhere) affected certain financial reporting outcome indicators. This research in turn belongs to a large literature which seeks to provide evidence on whether actual or proposed changes in financial reporting standards will have their intended effects or will induce

³ Heckman further warns that without models, the debate about the meaning of causality can become rancorous and confusing (footnote 4, pg. 47, Heckman (2000)).

undesirable outcomes. The motivating question for such research is intrinsically causal and related to analyses of policy effects more generally. The natural experiment is suitable to documenting the effects of existing financial reporting standards, that is, standards that are being implemented to produce financial reporting information. However, without rigorous theories, the approach is of limited value in helping us understand the mechanisms through which the effects take place. Absent evidence on the channels of causality leading from IFRS adoptions (or other changes in reporting standards) to financial reporting and market outcomes, the research is of limited value if the objective is to assess the effects of a standard-setting proposal.⁴

To clarify, we take the view that the role of theory in supporting causal inference is not to produce conclusions that confirm what empiricists already believe: many advances in our thinking start out as implausible or “far-fetched.” At the same time, accounting research will benefit if theorists are able to keep the empiricist’s task in mind, and produce models and analyses that capture important institutional features that characterize accounting and accounting information, that generate meaningful testable implications, and more importantly, that highlight the limitations of existing thinking. For example, a model of the relation between competition among auditors and audit quality would include features that distinguish the market for audit services from the markets for other professional services and from the markets for products. In the absence of such a theory, empiricists should be cautious about relying on traditional theories from the industrial organization literature that do not speak to the special institutional features of auditor competition.

Should causal inference be the objective of accounting research? A view that *all* empirical accounting research should be evaluated by whether it produces causal inferences seems to us to be over-reaching, over-broad and ultimately misleading. We believe it would be more appropriate and more helpful to clarify the distinction between a motivating question, the question that makes the research

⁴ In some cases, we believe accounting theorists have produced insights that have not yet been taken seriously by empiricists. For example, many published empirical studies on accounting conservatism have ignored theoretical research on conservatism (for example, Gigler and Hemmer 2001 and Gigler et al. 2009) and instead relied on an intriguing hypothesis largely derived from *ad hoc* arguments.

consequential, and the specific research question addressed in a given project or paper. Our view is that motivating questions ultimately pertain to causality, and a specific research project or paper may or may not be aimed at providing *immediate* causal inferences. Put another way, the consequentiality of accounting research findings rests, in the final analysis, on whether those findings support causal inference, but that does not mean that each and every empirical research paper should be assessed relative to that benchmark.

To illustrate, we note that in some cases the research question may be aimed at providing a fact or facts or at least descriptive evidence that is presented as a fact, as long as the evidence is arrived at as rigorously as possible given the constraints imposed by data existence and access, and represents significant new evidence that can help shed new insights on important issues. Here is an example: for a specified type of asset held by an entity, which measurement attribute, historical cost or fair value, is more correlated with the entity's stock price? The question is motivated by a wish to evaluate the informativeness of different measurement attributes, and by a belief that more informative asset measurement is more useful for investors' decisions. The belief implies a causal link, specifically, that more informative asset measurement causes an improvement in investors' decision-making, and the belief provides a motivation for assessing the correlations between stock prices and two ways of measuring a specified type of asset. Research documenting the strength of the associations is a first step, providing facts that can be useful to infer the relative informativeness of different asset measurement approaches. The fact is useful in guiding theorists to come up with models and structures that can produce consistent predictions and in doing so understanding the conditions and assumptions one needs to make in interpreting the association as measure of informativeness. Empiricists can in turn produce evidence shedding light on the validity of these conditions in empirical settings which in turn help eliminate alternative theories. It is under this condition that we view the fact finding types of research can add value.

A second example of an accounting research question that is intended to provide factual evidence is: What is the actual state of competition in the market for external audit services? The question is motivated by both a general interest in understanding what factors determine the quality of audit services,

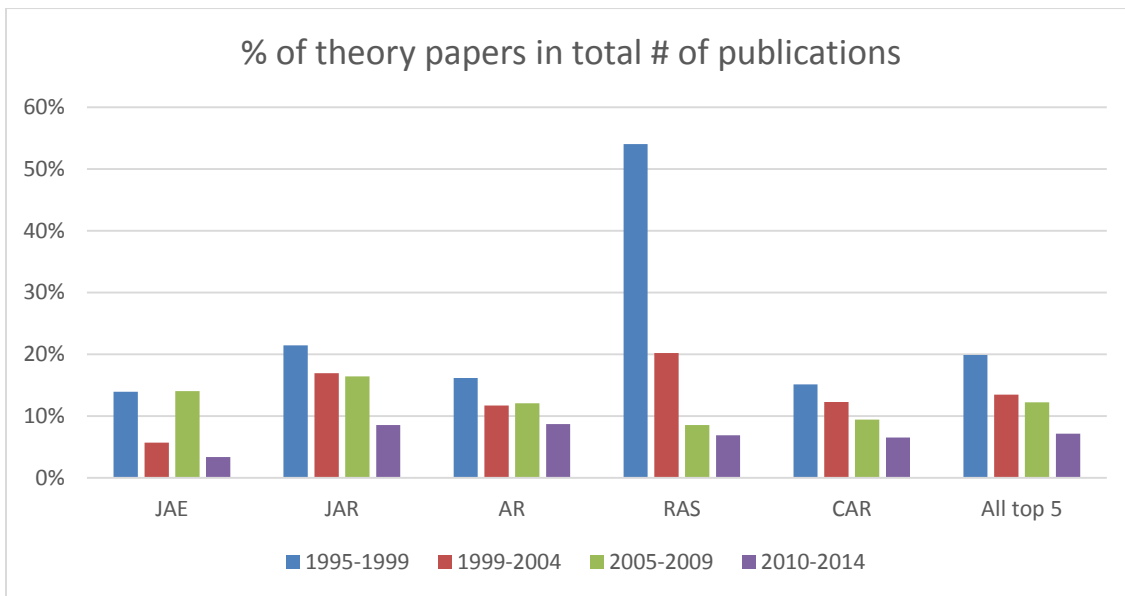
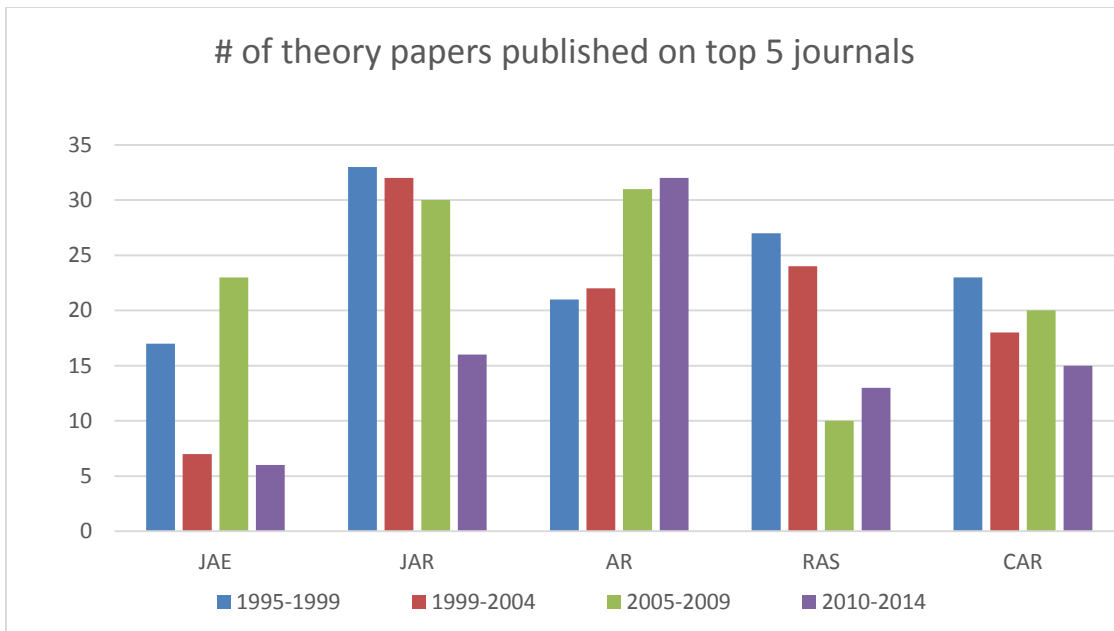
and by the specific conjecture that audit quality may depend on the state of competition in the market for audit services. While the conjecture suggests a causal link from market competition to audit quality, a prerequisite for establishing such a causal link is to establish reliable evidence on the state of competition in the audit market. A carefully designed and executed empirical study documenting facts about the state of competition in the market for audit services can make a meaningful contribution to the literature. That said, it is difficult to imagine convincing facts about the state of competition can be established without relying on theoretical models delineating the nature and type of competition that is unique to the auditing industry.

These examples should make it clear that we view the criterion for meaningful contribution as whether the research has the ability to generate new insights and to challenge our existing way of thinking. A necessary condition is for the research to be solidly grounded in existing theories, without which it is difficult to see how it can illuminate the shortcomings and limitations of existing theories. Under this view, the mere application of certain econometric methodologies is neither a sufficient or a necessary condition for establishing new insight. At the same time, merely documenting facts is also in our view insufficient. In fact, we are concerned that an increasing amount of empirical research focuses on finding “surprising” “novel” associations, without a clear understanding why and how these associations can enhance our understanding of some central accounting questions and how they challenge existing thoughts.

III. **Information about theory research in accounting.**

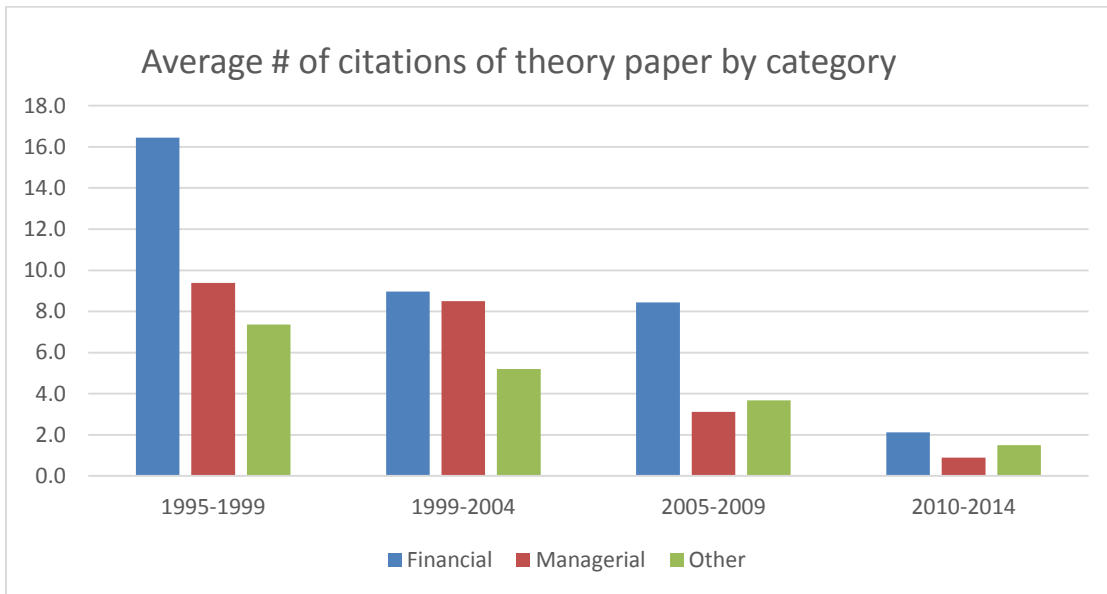
Taking the perspective that theory is essential to support causal inference in accounting, we next provide descriptive information about the state of theory research in accounting. We start with the number of theory papers produced and published. The following charts show the number and percent (of all papers published) of theory papers in *Journal of Accounting and Economics (JAE)*, *Journal of Accounting Research (JAR)*, *The Accounting Review (TAR)*, *Review of Accounting Studies (RAS)*, and *Contemporary Accounting Research (CAR)* during 1995-2014. Across all five journals and the 20-year time period analyzed, 12% of published papers are theoretical, as opposed to either empirical archival or

empirical experimental. The percentage is declining, from 20% theory papers in 1995-1999, to 13% from 1999-2004, to 12% from 2005-2009, and to 7% in 2010-2014.



A second indicator of the state of theory research in accounting is influence as measured by citations we gathered from www.scopus.com. The next chart shows the average number of citations to financial accounting theory papers in five top accounting journals (*JAE*, *JAR*, *TAR*, *CAR* and

RAST). The citations are organized by year and by subject matter focus of the cited theory paper. We note that our focus is on citations *to* accounting theory papers, not citations *by* accounting researchers to theory of all kinds; accounting researchers, both theory researchers and empirical researchers, often cite theory from outside accounting.



By our count, the average accounting theory paper has eight citations by papers published in the five accounting journals we analyzed (results not shown in charts). The Appendix lists the most cited financial accounting theory papers published in these journals. Even the most-cited papers have fewer than 300 citations, including some, for example, Feltham and Ohlson (1996) published about two decades ago. Only five of the papers have 100 or more citations.

These descriptive data suggest that theory research accounts for a modest and declining share of total accounting publications, assuming the five journals we analyzed are reasonably representative. While the decline in the share of publications may align with similar trends in related disciplines (economics and finance) and reflect the increasing availability of data to researchers, the decline in citation suggests that theory plays a disappointingly modest role in shaping empirical research. As previously discussed, the reasons for this situation are not entirely clear but may include (1) empiricists' lack of familiarity with relevant accounting theories (casual observations suggest that the majority of

accounting PhD programs offer no theoretical seminars in accounting); (2) empiricists' beliefs that accounting theories are not sufficiently rich to support empirical research; and/or (3) theorists' inability to create models that include the specific institutional features that distinguish accounting from a generic information system and reported accounting numbers from generic information signals. The declining influence of accounting theory on empirical research can be self-reinforcing: when empirical research is not motivated by relevant accounting theories, the resulting analyses are less likely to be disciplined by theory and consequently they are also less likely to be designed and structured to shed light on the strengths and weaknesses of existing theories. This in turn reduces the disciplining effect that empirical research should have on theories and further reduces the relevance of theories to empirical research.

IV. Relation between theory and empirical work in three areas of accounting research

In this section we describe the relation between theory and empirical work in three areas of accounting research: the relation between disclosure, both voluntary and mandatory, and costs of capital (section IV.1), accounting measurement (section IV.2) and the necessity and consequences of accounting standards (section IV.3).

IV.1. *Relation between disclosure and costs of capital.* The causal relation that researchers want to establish is easy to state: does disclosure of firm-specific information affect firms' costs of capital? Put another way, will a voluntary or mandatory change in a firm's disclosure behavior cause a change in that firm's cost of capital? We view the importance of establishing causality from disclosure to costs of capital as largely non-controversial and carrying both practical and policy implications.⁵ Evidence on this causal relation can inform and advise both policy makers and firms evaluating disclosure policy, either at the firm level or at the economy level. For this purpose, it is important to understand both the theoretical nature and the empirical magnitude of the causal link.

Theorists have produced a substantial body of research delineating the nature of the causal relation between disclosure and costs of capital via several non-mutually exclusive channels. The most commonly

⁵ Gao (2010) cautions that cost of capital is not a measure of welfare. Regardless of whether researchers find convincing evidence of a causal link between (accounting) disclosure and costs of capital, the broader issue is disclosure as a factor in better resource allocation decisions.

cited papers are based on noisy rational expectations models in which information about firm fundamentals reduces investors' estimation risk and therefore reduces the premium risk-averse investors demand to hold securities (for example, Grossman and Stiglitz (1980), Verrecchia (1982), Admati (1985), Easley and O'Hara (2004), Lambert, et al. (2007)). These models share certain features with asset pricing models and can easily reconcile with a traditional CAPM model under common information. They can also be adapted to accommodate investors with heterogeneous information (Easley and O'Hara (2004), Lambert, et al. (2010), Hughes, et al. (2007)), with disagreement (Bloomfield and Fischer (2010)), or with different trading horizons (e.g., Allen, et al. (2006), Gao (2008), Chen et al. (2014)). Because of these features, they are also the models most cited by empiricists.

A second type of model, also cited by empirical work, is based on transaction costs (for example, Kyle (1985), Glosten and Milgrom (1985), Amihud and Mendelsohn (1986), Diamond and Verrecchia (1991)). In this type of model, more public information reduces the information asymmetry between types of investors and therefore reduces the transaction costs arising from adverse selection. This type of model is partial equilibrium; while the models predict a direct relation between information and measures of transaction costs (for example, bid-ask spreads), they do not generate predictions about whether information risk is a priced risk factor.

Most of these two types of models are based on pure-exchange economy in which a firm's terminal payoff is exogenous and unaffected by the information disclosure itself.⁶ Models that relax this assumption include so-called real effect models (for example, Kanodia and Lee (1998)), and more traditional agency cost models in which disclosure choices can affect firm/manager behaviors (for example, Dye (1983), Baiman and Verrecchia (1996), Gigler and Hemmer (1998)). In general, and as compared to models based on a pure-exchange economy, these models point to a more nuanced picture of how disclosure affects real economic efficiency, which at least in principle should be related to firms' costs of capital. However, these models tend to be partial equilibrium, and do not have constructs that

⁶ See Bertomeu and Cheynel (2014) for a survey of the theoretical literature and Botosan (2006) for a survey on the empirical literature.

directly correspond to the notion of returns. As a result, their empirical implications have not been as fully explored.

Empirical research on the relation between disclosure and costs of capital has in general followed the guidance of the first two types of theories (that is, theories based on pure-exchange economy).⁷ Research has documented cross-sectional associations between empirical proxies for disclosure and both measures of costs of capital and measures of transaction costs that are believed to affect costs of capital (for example, bid-ask spreads). Research has also examined whether the relation between disclosure and costs of capital operates via risk factors, or via firms' loadings on risk factors.

Researchers disagree about the robustness and sensitivity of these cross-sectional correlations to changes in research designs and to changes in empirical proxies for unobservable constructs including in particular costs of capital and disclosure. While empiricists attempt to resolve disagreements by adopting different proxies and by devising elaborate sensitivity tests, theorists contribute by assessing the sensitivity of the underlying theoretical models to alternative settings. For example, theory identifies conditions that may affect the strength of the link between disclosure and costs of capital, including for example the degree of competition in the securities market (Lambert and Verrecchia (2012)), and the effect of disagreement (Bloomfield and Fischer (2010)).

Setting aside any question of the reliability of reported cross-sectional associations between proxies for disclosure and costs of capital, the question is how to interpret them. That is, to what extent can the cross-sectional association results be interpreted as evidence of causality, that is, disclosure "causes" costs of capital to change? One impediment to this interpretation is the fact that some disclosure measures are firm-level choice variables. As a result, some believe the causal link can be established only by studies using a natural experiment design. Whether this is in fact the case is not an issue new to accounting, or to this literature specifically. The same debate exists among economists on the advantages and

⁷ However, Bertomeu and Cheynel (2014) point out what they see as common misconceptions about what these models can say and what these models do not imply. Armstrong et al. (2011) is an example of research that takes these comments and suggestions seriously.

disadvantages of structural estimation versus natural experiments. As pointed out by Toni Whited in her conference presentation and in her essay included in this volume, the debate sometimes confuses the issue of causality with identification. Identification does not equate to causality. Only a theory can clearly lay out the conditions necessary for, and the mechanisms supporting, a causal link between disclosure and costs of equity. Although it is indisputable that different empirical approaches provide different types of evidence for addressing different and possibly related issues, the important pre-condition for thinking about empirical approaches is theory. Given a well-developed theoretical framework, the question of which empirical approach is better, or which empirical evidence is viewed as more convincing, becomes a matter of context-specific judgment and personal taste.

To illustrate our perspective, we point to Lo's (2014), which provides evidence that is consistent with a causal link between disclosure and costs of capital. Lo reports an increase in disclosure by borrowers of banks that are more exposed to the financial crisis in overseas markets, consistent with the view that firms view increased disclosure as beneficial for raising external capital. While one can argue that Lo's study meets the empirical conditions (e.g., exogeneity of financial shocks; the difference-in-differences estimation method) to identify the effects of the financial crisis on borrowers' disclosure behavior, the resulting evidence cannot be interpreted as supporting a causal link in the absence of a theory.⁸ We can perhaps conclude that firms would not have increased disclosure had their lending banks not been exposed to the financial shock (i.e., the counterfactual), but absent theory, we do not know *why* firms would increase disclosure when their lenders' financial health deteriorated. Theory fills this gap and also provides guidance on cross-sectional variation in the strength of the causal link (for example, the link should be stronger for firms whose public disclosures can be used for monitoring purposes by investors).

We conclude this subsection with two observations about theory and empirical work on the link between disclosure and costs of capital. First, we believe there is ample scope for more theoretical specificity. For example, there is a lack of theory that addresses whether (under what conditions) the type

⁸ To repeat, identification does not equal causality, as highlighted by Toni Whited in her conference presentation and in her essay included in this volume.

and nature of disclosure matters for costs of capital. Most theories model disclosure as a generic reduction in the signal to noise ratio without regard to how the information is generated and how it is disseminated. In pure-exchange economy based models, the disclosure item is also directly informative about firms' future cash flows, but as an empirical matter many disclosures provide information about actions, for example, capital expenditures or decisions to restructure, that are indirectly informative about future cash flows. As a result, the implications available from pure-exchange economy models have limited applicability in many empirical accounting contexts. With regard to the specific nature of the disclosure, does the voluntary vs. mandatory distinction matter? How should a researcher analyze the endogeneity of voluntary disclosures and voluntary changes in disclosure practices? Within each category (voluntary or mandatory), is it the disclosure quantity (for example, more frequent disclosure), or disclosure quality (for example, high quality disclosures would reduce uncertainty more) that matters?⁹ And if so, how? Theorists have only begun to address these questions (for example, Kanodia and Lee (1998), Gigler and Hemmer (1998) and Gigler, et al. (2012)).

Our second observation is that there is ample scope for empiricists to increase the rigor (within the limits of available data) and precision of their measures of disclosure, including the rigor and precision of qualitative discussions of those measures. This consideration is especially important when the proxy is intended to capture disclosure quality (or more specifically accounting quality), an unobservable construct that is not interpretable in the absence of a decision context. As noted by, for example, Dechow et al. (2010) empirical work should explain the decision the disclosure is meant to facilitate and how the specific empirical measure matches the context of the decision, as opposed to analyzing accounting quality in the broad context of (for example) reducing generic information asymmetry.

We believe that increased attention to the decision context in which disclosures are used on the part of empirical researchers will have the beneficial effect of broadening research beyond consideration of costs of capital toward the provision of direct evidence on how disclosure affects investors' behaviors. After all,

⁹ Clearly, holding the time period constant, more frequent disclosure would lead to more uncertainty reduction. The question is whether it matters how to achieve the total uncertainty reduction, that is, via multiple disclosures or one disclosure.

costs of capital (at least in the standard noisy rational expectations model) are the equilibrium outcome of investors' behaviors and are not themselves direct measures of such behaviors, including, for example, investors' trading behaviors, or their decisions to acquire additional private information. In thinking about whether better quality disclosures (or better quality accounting) reduces information asymmetry, the researcher should consider such matters as what is the nature of the information asymmetry (is it about future project outcomes, or about past performance) as well as what specific characteristics of accounting/disclosure better achieve the goal of reducing this information asymmetry and why. A general reference to the existence of "agency costs" that arise from "information asymmetry" with reference to Jensen and Meckling (1976) would not be sufficient for this purpose.

Analyses of accounting conservatism provide another illustration of this point. Published empirical works have in general interpret their findings as pointing to contracting benefits of accounting conservatism (as proxied by certain empirical measures), sometimes with, and sometimes without, reference to a specific decision context. But theory shows that context matters, as does the nature of the accounting conservatism. With regard to decision context, Gigler, et al. (2009) show that in a debt contracting environment, conservatism is not desirable for debt efficiency.¹⁰ With regard to the nature of the accounting conservatism, Chen et al. (2007) identify a benefit of conservative *standards* (that are committed ex ante, observable to all parties, and implemented by all firms), not conservative accounting *choices* by specific managers of specific firms (that are not ex ante announced or committed but only ex post approximated by researchers). Chen et al. (2011) show that whether conservative or liberal is optimal depends on the type and nature of incentive problems that accounting reporting is used to address: conservative bias is optimal when the only incentive problem is to motivate the agent to exert an unobservable mean-increasing effort; whereas liberal bias is optimal when the agent also exert effort that can produce more precise information to assist the principal's decision making. These works are not *that* difficult to understand, and their empirical implications are fairly straight-forward: the implication of

¹⁰ Our analysis of five accounting journals shows that Gigler et al. (2009) has been cited 22 times in these journals, through 2014. Of these 22 citations, six are in empirical papers.

Gigler et al. (2009) is that conservative accounting, if ever adopted as an optimal system, is not because of its benefit in debt contracting. Yet it appears that either empiricists are unwilling to take the views expressed in these models seriously, or journals are unwilling to publish works that take these views seriously.¹¹ Regardless, the end result is instead of focusing our attention on debates on different *economic thoughts*, the profession gets distracted in debates about different *econometric* methodologies.

IV.2. *Accounting measurement.* Analyses of different accounting measurement attributes (for example, fair value and historical cost) illustrate the potential benefit of using theory to discipline empirical analysis. A general question that accounting researchers are interested in is whether accounting measurements matter, in the sense of whether different accounting measurement attributes for the same item lead to differences in investors' assessment of firms' fundamentals and therefore affect investors' decision-making. Put another way, do different accounting measurement attributes for the same item provide different information to investors, and does the different information affect investors' decision-making? While the question appears to pose a causal link, the mechanism of the causal link is unspecified in the absence of a proper theory. To complete the causal link, researchers need to clarify the notions of "fundamental" and "decision-making," two terms that are frequently used in empirical research but often vaguely defined. Theories can make the concept of fundamental clear, forcing separate consideration of (a) the exogenous variables that affect (b) management's actions which in turn affect (c) future earnings and cash flows. All three appear to qualify as fundamentals, and distinguishing among them requires researchers to be explicit and precise. Theories can also clarify the nature of the decision that investors make using accounting information, for example, which "fundamental(s)" do investors rely on for what purpose (for example, debt contracting or equity valuation), as well as help specify how different measurements affect such decision-making.

Many empirical assessments of alternative measurement attributes belong to the broad class of research sometimes described as value relevance research (or, sometimes, information content research),

¹¹ Empiricists tend to reject theory models under the belief that their assumptions are not plausible when instead theory models simply make it clear what conditions are needed for one to draw certain inferences. In contrast, vaguely worded arguments tend to be more easily endorsed by empiricists in accounting.

which assesses the statistical association between a market outcome (price or return) and accounting outcomes (earnings, change in earnings, book value of equity, specific assets, specific liabilities). Most papers in this literature either explicitly state or implicitly assume that the fundamentals are the firm's future dividends/cash flows, and investors wish to estimate equity values using accounting information. Under these assumptions, a theoretical framework would specify how observed accounting information relates to future cash flows, how investors value firms' future cash flows, and the relation between accounting information and other information investors have with respect to future cash flows. The theory would also operationalize and make precise what constructs in the model correspond to the notions of "information content" and "value relevance".¹² Furthermore, to generate meaningful empirical predictions, the theoretical framework would need to specify a role for accounting measurement, for example, do different measurements affect the relation between observed accounting information and future cash flows, and if so, how? Do they affect the valuation model investors use, and if so, how? Different theoretical specifications should generate corresponding empirical specifications and predictions, which researchers can then take to data.

The existing value relevance literature has been largely based on a valuation model developed and described by, for example, Edwards and Bell (1961), Peasnell (1982), and Ohlson (1995). This valuation approach does not model how investors to use accounting information to update their beliefs about firms' future dividends. Therefore, the value relevance literature circumvents what some might view as a basic question to be asked about differences in accounting measurement attributes, namely, do the different measurements indeed result in differences in information used by investors. Furthermore, because the valuation model is silent on what "information content" and "value relevance" mean and how they are affected by different measurements, it has limited ability to guide research designs and in help researchers draw meaningful inferences. Consequently, existing literature has relied on *ad hoc* specifications, and focused on assessments of explanatory power and assessments of regression coefficients linking

¹² An example of such a model is Holthausen and Verrecchia (1990), which derives from a noisy rational expectations model constructs that correspond to the notions of informedness and consensus and shows how these notions relate to prices and trading volumes.

accounting outcomes such as earnings to market outcomes such as price or return. Absent a theory, the interpretations of these results must of necessity be *ad hoc*.¹³

We suggest that broad theoretical approaches exist that could be used to guide empirical evaluations of accounting measurements in terms of the extent to which they provide different kinds of information, and the extent to which they affect market participants' decisions. These approaches offer the potential to allow for information updating under uncertainty. We describe these as the information or measurement error approach (for example, Beaver and Demski (1979), Fischer and Verrecchia (2000)) and the real-effect approach (for example, Kanodia and Lee (1998), Kanodia, Singh and Spero (2005)). The information/measurement error approach takes firms' true cash flows ("economic income") as the given fundamental and as unobservable to both researchers and investors, and evaluates the magnitude of the noise in various accounting measurements. The real-effect approach relaxes the assumption that firm value is exogenous to accounting measurement, and takes the perspective that investors use financial reporting information to update their estimates of the information that management uses to operate the firm which in turn affect their assessment of firm value. We believe that neither approach is systematically used in empirical accounting research to assess differences in measurement attribute for the same financial statement item, but that either approach could be usefully considered by empirical researchers.

IV.1. *Necessity and consequences of accounting standards*

In this subsection, we consider two related and distinct questions related to financial reporting standards: (1) Are financial reporting standards necessary (that is, what problem(s) do they solve)? and (2) What are the consequences of financial reporting standards? For our purposes, financial reporting standards are rules that specify permitted and required information items in financial reports, their measurement and their presentation, and that distinguish between recognized information that is displayed

¹³ We are not implying that the residual income frameworks revived by Ohlson (1995) have no value. In fact, we believe this line of works provides seminal thought on the role of accounting measurement. We simply note that this line of work is not suitable to answer questions related to how investors use accounting data to update uncertainty about future cash flows.

on the face of financial statements and disclosed information that is displayed in notes. We note that accounting *practices* are not the same as accounting *standards*; the former can arise from voluntary information provision decisions and the latter specify mandatory reporting behaviors.¹⁴

Are accounting standards necessary? There exist theory works that address the first question, the specific problem(s) that financial reporting standards solve. For example, In Gigler and Hemmer (1998, 2001), the existence of mandatory reporting enables more credible and timely voluntary disclosure which can be used to improve contract efficiency. In Kanodia and Lee (1998) and Kanodia, et al. (2005), the role of mandatory reporting is to impose measurement rules to facilitate the equilibrium inference investors draw about the unverifiable information underlies firm decisions, which in turn affect investors' pricing of the firms and in equilibrium affect firm decisions themselves. In Admati and Pfleiderer (2000), mandatory disclosure (not measurement) regulations can reduce the inefficiencies in firms' provision of information in the absence of regulation. Dye and Verrecchia (1995), Dye and Sridhar (2008), and Chen, et al (2015) identify various conditions under which reporting under restricted regime (i.e., standards) is preferred to reporting under discretionary regimes. While these papers by no means offer the final say on this important issue, they each have different empirical implications and have the potential to guide and shape empirical studies that have yet to be taken seriously by empirical researchers.

In contrast to (some) accounting theories, the conceptual frameworks of standard setters such as the Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB) do not explicitly address the question, what problem do financial reporting standards solve. For example, the FASB states that its mission “is to establish and improve financial accounting and reporting standards to provide decision-useful information to investors and other users of financial reports,”¹⁵ which seems to presume that properly-constructed standards will solve some unspecified problem in the provision of decision-useful information. Instead, the conceptual frameworks emphasize the desirable characteristics

¹⁴ For example, many income statements contain a subtotal labeled “operating earnings,” but this reporting practice is voluntary in US GAAP, which does not define operating earnings or require it to be displayed.

¹⁵ <http://www.accountingfoundation.org/jsp/Foundation/Page/FAFSectionPage&cid=1351027541293>, accessed August 16, 2015.

for information produced by applying standards, including comparability, consistency, understandability, faithful representation and verifiability.

Among the desirable characteristics, based on a subjective analysis of the most recent concepts statements jointly developed and issued by the IASB and FASB, we offer the view that one key objective that accounting standards are intended to achieve is *comparability*, meaning that similar items are accounted for the same way. In the absence of accounting standards, there can be no guarantee of comparability. To accomplish the goal of comparability in financial reporting, standard setters reduce the number of free-choice reporting alternatives available to preparers of financial statements. With regard to *which* reporting choices should be prescribed (or in some cases permitted) and which should be proscribed, that is, the actual content of the accounting standards, guidance for the standard setters for making that decision comes from the qualitative characteristics of decision-useful information identified and discussed by the FASB and IASB in their 2010 revision of a portion of their conceptual frameworks.¹⁶ Identifying comparability as the objective of standards is not equivalent to identifying the nature of underlying problems or inefficiencies to which comparability is the solution. We believe additional theories are needed to help shed light on these complex issues.

What are the consequences of accounting standards? With regard to the second question, what are the consequences of financial reporting standards, there is a large empirical literature in accounting that speaks to whether *changes* in financial reporting standards are linked to either or both management decisions and capital market outcomes. We consider examples from these two literatures separately, using historical examples that illustrate the longstanding nature of the basic question, and the research design and empirical implementation issues that seem to recur, albeit in different forms, over time. These

¹⁶ For the FASB, the relevant document is Statement of Financial Accounting Concepts No. 8, *Conceptual Framework of Financial Reporting*, issued 2010 and available at the FASB's website (fasb.org). Indirect evidence that standard setters view (lack of) comparability as the problem that is solved by accounting standards can be found in the prefatory material of Accounting Principles Board (APB) Opinion No. 6, *Status of Accounting Research Bulletins*, 1965, AICPA and in Opinion 12, *Omnibus Opinion*, 1967, AICPA. In issuing APB Opinion 12, the APB stated (para. 1(b)) that one aim of Opinion 12 is to affirm "accounting principles and methods which have become generally accepted through practice and which the Board believes to be sound," and to "prevent the possible development of less desirable alternatives."

examples highlight the lack of progress we as a profession has made in this area, which we attribute largely to the lack of empirical studies to absorb and test new insights discovered by theoretical works.

Do changes in financial reporting standards cause changes in management's investing, operating or financing decisions?

Some accounting researchers describe this question as pertaining to the “real effects” as opposed to the capital market effects of financial reporting standards. Of course the two are related, as management's decisions about how to manage a firm will have capital market consequences. Setting this relation aside for the moment, and with the understanding that we will return to it, we discuss the causality issue in the context of research that poses the question: Did the 1974 FASB decision to require that research and development (R&D) costs (as defined in the standard) must be expensed have an impact on R&D expenditures?¹⁷ This question was analyzed by Dukes et al. (1980), among others.

We discuss this paper to illustrate two points. The first is that accounting researchers have used *reasonable conjectures* for decades to support predictions about the effects of changes in accounting standards. We use the term “reasonable conjecture” to refer to intuitive statements about what to expect, without a full description of what is assumed and without a full development of the channel or mechanism through which causal factors operate to produce outcomes. (Others such as Toni Whited use the term “verbal theory” to refer to a similar approach). As previously discussed in other contexts, we believe that progress away from theories in the form of reasonable conjectures toward formal models of behavior subject to constraints in response to economic forces has been disappointing.

The second point we make in our discussion of Dukes et al. (1980) is that accounting researchers have used variants of the design now commonly referred to as “difference-in-differences” for decades. The uses were subject to criticism in the past, just as they are now.

With regard to the use of reasonable conjectures, Dukes et al. (1980) posit two related reasons for predicting an effect of the required change in accounting on R&D spending: (1) claims made by managers

¹⁷ The requirement is in Statement of Financial Accounting Standards No. 2, *Accounting for Research and Development Costs*, October 1974. Before this standard, firms could more or less freely chose to capitalize and amortize their R&D costs or record them as period expenses.

of firms that had been capitalizing R&D spending that they would reduce that spending if new authoritative guidance required immediate expensing and (2) agency theory, specifically, Jensen and Meckling (1976), described on p. 3 as follows:

The connection between decisions involving R&D [expenditures] on the one hand and the reporting of the associated costs on the other hand is through net income and, in turn, the impact on market valuation and the compensation and tenure of management. Agency theory (see Jensen and Meckling [1976]) provides a *theory* about why changes in reported net income may alter reported economic decision-making behavior. The reasons include the coupling of bonus plans to net income measures and the nature of bond covenant provisions based on accounting numbers affected by the mandated reporting change (emphasis added).

Although Dukes et al. use the word theory to describe their second reason, viewed from the perspective of three decades of changes in accounting research, we would characterize both the second reason and the first reason as conjectures. To illustrate, the first stated reason for predicting that the standard has causal effects, assertions by management about a change in behavior, contains no posited channel through which the change in accounting acts on management decisions; that said, a researcher could design a study that attempts to provide evidence on whether managers who *said* they would decrease R&D spending actually *did* reduce that spending. The verbal theory that would support this study might be phrased: Managers do what they say they will do in response to a specified change in financial reporting. Evidence that supports or refutes this conjecture in the context of a specific accounting change would not speak to a question as to whether any other mandatory change in the accounting for a class of costs would or would not have a similar effect, because the reason why management did (or did not) decrease spending cannot be inferred from the evidence that spending did (or did not) decrease. Only if the researcher can discern the reason for management's actions, or, alternatively, the causal channel or mechanism through which the specified accounting change induced a change in behavior, can that researcher speak to whether any other change would or would not have a similar effect.

The second stated reason, that management responds to changes in accounting standards that require a different income calculation because of existing contracts that base payouts (bonus plans) or lender decision rights (bond covenants) on accounting income as reported, has a long history in accounting research. This perspective requires a number of assumptions, sometimes unstated, about, for example, the

extent to which contracts do or do not rely on unadjusted accounting income, and why, and whether the contracts are or are not updated in light of changes in rules for calculating accounting income, and why. Furthermore, without explaining the causal channel through which these contracting incentives operate on management decisions, the prediction of a decrease in R&D spending because of an accounting rule that reduces net income is also consistent with the following reasonable conjecture: R&D spending is a fixed percentage of net income.¹⁸

With regard to research design choices, specifically choices about what is called identification strategy, Dukes et al. used a variant of what is now called “difference-in-differences,” by carrying out various tests comparing R&D spending divided by sales between capitalizing firms [the treatment or experimental group] and expensing firms [the control group] *before* and *after* SFAS 2 required all to expense.

Commenting on Dukes et al. (1980) specifically, and research on the “real effects” of accounting change more generally, Ball (1980) raised the following concerns (among others). First, he noted the absence of theory that explains why some firms applied a capitalization policy for R&D spending and others did not. The idea is that a theory of management’s choice among permitted reporting alternatives will assist in developing predictions about what will happen if one of those alternatives is removed. Second, he noted the absence of a “precise connection” (p. 29) between R&D spending and the agency theory cited by the authors (that is, a channel or mechanism through which the change in accounting rules would operate). Third, he argued that the change mandated by SFAS 2 is unlikely to be exogenous, meaning that “causality runs in both directions between the environment and accounting policy” (p. 32). Taken as a whole, we believe that these comments illustrate the points made previously in this paper about the lack of theory used to guide contemporary accounting research. To the extent Dukes et al. (1980) and Ball’s (1980) discussion are representative, the complaint or concern that empirical research is insufficiently grounded in theory has existed without apparent resolution for decades.

¹⁸ This point is noted by Dukes et al. (1980, p. 3), but their research design does not exploit this possibility.

Do changes in accounting standards have capital market consequences? This question has been addressed by, among others, accounting researchers, persons and entities writing comment letters to the FASB and IASB, and the standard setters themselves. For example, the practice of “post implementation reviews,” applied to both US GAAP and to IFRS, seeks to determine, among other things, whether a standard is achieving its stated purpose at reasonable cost to comply.¹⁹

We illustrate both the long-standing interest of standard setters and academic researchers in whether accounting standards have capital market consequences, and the lack of resolution of issues related to both theoretical support and research design, by describing two examples of empirical research on the same question: whether a mandatory change in the accounting for expenditures on oil-and-gas exploration had discernible capital market effects.²⁰ The two examples are Collins and Dent (1979) and Dyckman and Smith (1979). As described by Dyckman and Smith, the objective of the research was to isolate and measure a capital market consequence of a proposal by the FASB to prohibit the full-cost (FC) method and to require the successful-efforts (SE) method of accounting for expenditures on oil-and-gas exploration.²¹ The capital market consequence was change in share price during periods of news events about the proposed accounting change. Both Dyckman and Smith and Collins and Dent used a variant of what is now called the difference-in-difference approach, in which FC firms are the treatment group and SE firms are the control group to test for a (relative) price decline among FC firms, and compared share price changes of the treatment and control firms at pertinent news events. In analyzing the same question, the two papers reached opposing results; Collins and Dent reported reliably negative capital market consequences associated with the accounting change and Dyckman and Smith did not.

¹⁹ Our observation is that post-implementation review processes tend (regrettably, in our view) to focus first on perceptions garnered from surveys and interviews and secondarily on independent and objective empirical research. For example, the 2013 post-implementation review of SFAS 109, *Accounting for Income Taxes* (ASC 740) references a survey of over 900 professionals and has no references to academic research papers. We acknowledge that the reason may lie in a dearth of pertinent research.

²⁰ The specific accounting change was SFAS 19, *Financial Accounting and Reporting by Oils and Gas Producing Companies*, issued December 1977 with an effective date for fiscal years beginning after December 15, 1978. The Securities Exchange Commission overruled the FASB in Accounting Series Release (ASR) 253 in August 1978 and the FASB “suspended” SFAS 19 in February 1979.

²¹ Briefly, the full-cost method permits capitalizing exploration expenditures unconditional on the outcome of the exploration while the successful-efforts method capitalizes only exploration expenditures that result in discovering oil or gas or both.

With regard to theory, Dyckman and Smith (p. 48-49) state that cash flows, and therefore share valuations, should not be affected by a mere change in reporting techniques, abstracting from the (small, non-recurring) costs to change information systems. As support for a prediction of an adverse share price effect for FC firms, they point to contracting (or agency) costs, specifically, the idea that managers “may forego the exploration and development of an economically justifiable field to avoid a decline” in earnings under the SE method (p. 48).²² In other words, they use an extension of the same theory as Dukes et al. (1980) used in their examination of changes in R&D spending because of an accounting change except that Dyckman and Smith test for an *outcome* of an *anticipated* change (reduction) in economically-valuable spending, namely, a decline in share prices of affected firms.

Collins and Dent (1979, pp. 6-8) present a similar but distinct theoretical reason for a price decline among FC firms under a required change to SE accounting, namely, a reduced ability to attract equity capital because, relative to the FC method for a given firm, the SE method will weaken balance sheets (by eliminating assets that are recognized under FC accounting), reduce the level of earnings and increase earnings volatility. They quote several studies (p. 6-7) which point to reduced liquidity, marketability and prices of FC firms and an increase in their costs of equity. They also cite, as a contrasting argument, the claim that informationally-efficient capital markets will disregard the accounting change. Finally, they suggest that “unlike voluntary changes, mandatory accounting changes are likely to impose certain costs on the firm and on management which, in turn, may lead to adjustments in the firm’s production/investment decisions” (p. 8).²³

As in the case of Dukes et al.’s (1980) analysis of whether a mandatory accounting change affected investment decisions as manifested in R&D spending, the channel or mechanism that connects external reporting rules, and their effects on reported accounting amounts, to management decisions is missing beyond the conjecture that the channel operates through pay packages. This point, among others, is made

²² Collins and Dent (1979, p. 4) cite a study which projects a reduction of about 8% in annual domestic exploration activities.

²³ If management makes economically dysfunctional decisions because of a change in reporting rules, we would expect an informationally-efficient market to price shares lower.

by Foster (1980) in a commentary on both Dyckman and Smith (1979) and Collins and Dent (1979). Foster (1980, p. 30) argues that “the more interesting research task [as compared to documenting an association between news about the accounting change and share values] is testing explanations (theories) for an association” and that applying such theories should allow the researcher to devise more powerful tests.

Unlike Dyckman and Smith and Collins and Dent, Foster posits a CAPM-based valuation model and asks what parameters might be affected by an accounting change; a problem of course is that such a model has no meaningful and explicit role for accounting information and offers no opportunity for investors to update their valuations based on new accounting information. That said, Foster argues that a decline in spending for economically-desirable exploration would reduce share valuations, or change systematic risk or even shift economy-wide parameters. We view these arguments as examples of reasonable conjectures.

Foster raises the question of how big any likely effects of changes in management decisions might be after a requirement to apply SE accounting and notes that *ex ante* assessment of likely magnitudes of effects shed light on whether a researcher could detect the effect, assuming it exists. Also, unlike Dyckman and Smith and Collins and Dent, Foster (p. 42-47) explores and discusses the applicability of what is now called the difference-in-difference design, pointing to the fact that SE firms and FC firms pre-selected into those accounting practices based on factors that are not considered in either study.

We provide this historical analysis to illustrate the following points. First, the use of what we call reasonable conjectures has a long history in accounting research that seeks to relate accounting standards, or the amounts produced from applying them, to operating/investing/financing outcomes or capital market outcomes. As previously discussed, we believe there has been inadequate progress in moving away from reasonable conjectures toward more fully-developed analytical frameworks that specify both what is assumed and what is the causal mechanism that leads from the accounting standard to the posited capital market effect. The slow progress is puzzling in light of the fact that theories have been proposed in the last twenty years that can at least be potentially useful for empirical analyses. Second, the use of empirical

techniques to increase internal validity and the strength of causal inference has a similarly long (and controversial) history. Third, the existence and nature of a causal association between specific accounting requirements and capital market outcomes has been a source of controversy since (at least) the late 1970s.

We believe this last point is illustrated in a contemporary context by research on the capital market effects of IFRS adoptions, which are for the most part wholesale mandatory changes from a set of domestic accounting standards to (some version of) IFRS.²⁴ In many cases, this research treats what is a potentially massive change in both what information is reported, and how that information is reported, as a single effect, something along the lines of the R&D accounting change and the proposed oil-and-gas exploration expenditures accounting changes just discussed. Research designs often focus on identification and analysis at the country-level, giving short shrift to the mechanism(s) that would have to be at work to result in the posited effect. In most published research that we have examined, the paper concludes that the predicted effects are in fact present and uses reasonable conjectures to explain the mechanism or channel through which the IFRS adoption caused them.

The difficulty is that the IFRS adoption is so extensive and affects so many specific reported and disclosed items that the researcher cannot conclude much if anything about what is the channel or mechanism or feature of IFRS feature that is at work to produce the posited result. We argue that asserting broad characteristics such as IFRS contains higher quality standards or IFRS implementation results in more comparable reported amounts is not sufficiently specific to be helpful. With regard to evidence of causality, we believe that two kinds of additional analyses would be helpful.

First, we believe there is a lack of descriptive evidence as to what actually happens in a jurisdiction that adopts IFRS (or some variant thereof) and begins to implement the new guidance. As discussed in the first portion of this paper, there is a role for research that develops facts, or evidence that is presented as facts. In the context of IFRS adoptions specifically, we believe there is a role for evidence on such matters as preparer and auditor expertise in applying IFRS as opposed to domestic standards; evidence on

²⁴ This literature is large and growing. We make no attempt to survey this research and do not reference specific studies.

the quality of firms' information systems for gathering the (possibly new) data need to apply IFRS; evidence on whether there are concurrent (with IFRS adoption) changes in other related requirements such as tax rules, securities laws (and their enforcement) and corporate governance requirements.

Second, we believe that country-specific analyses have the potential to provide useful empirical evidence as to which specific aspect of IFRS has a specific posited effect, thereby shedding light on the causal channel through which IFRS adoptions affect capital market outcomes. For example, if French GAAP was similar to IFRS in all aspects except the accounting for marketable securities held as assets, whereas German GAAP was similar to IFRS in the accounting for marketable securities and different in the accounting for business combinations, then the effect of adopting IFRS would be different for German firms than for French firms, and for different reasons. The existing analyses carried out at the country level cannot provide this type of evidence, but without it we cannot predict what would happen if IFRS were to be adopted in a different jurisdiction (such as the United States).

V. Concluding comments

We have discussed two questions posed by Professor Ivan Marinovic, organizer of the 2014 Causality Conference at Stanford University's Graduate School of Business. First, what is the role of causality in accounting research; should casual inference be the ultimate objective? Second, what is, and what should be, the relation between theory and empirical research in accounting?

With regard to the first question, we make the case that the ability to support causal inferences is an essential attribute of consequential accounting research. That said, we argue that the causal issue can take the form of a motivating question, which is distinct from the specific research question answered by a given paper or project. We argue for research that provides facts, by which we mean defensible empirical evidence that is descriptive of a state of affairs or a set of circumstances and that has the ability to shed light on important issues and generate new economic insights, as an important foundation for research which itself directly concerned with causality.

With regard to the second question, we provide descriptive data on trends in the share of theory papers published in five accounting journals, and note that share is about 20% in 1995-1999 and declining

over time, to about 7% in 2010-2014. We also provide descriptive data on citations to accounting theory papers and note that even highly-cited papers have fewer than 300 citations. We interpret this descriptive evidence that accounting theory, or more specifically published accounting theory research, does not play a major role in shaping empirical accounting research.

We discuss the role of theory, including what qualifies as a theory, in the context of three streams of empirical research that consider the relation between disclosure and the costs of capital; accounting measurement; and the necessity and consequences of accounting standards. In the case of the first stream of research, we point to well-developed theories that can be and have been used to guide empirical analyses, at least in terms of finding evidence of an association between disclosure and costs of capital. The difficulty, as we see it, is that theory does not specify the conditions under which accounting disclosure specifically, and the type of nature of accounting disclosure, matters for costs of capital.

In the case of the second stream of research, concerning accounting measurement, we pose the causal issue as: do different measurement attributes for the same item provide different information to investors and thereby affect their decisions? We argue that many empirical investigations related to this question are based on models and approaches that do not allow for investors to update their assessments based on new information. Models that accommodate this updating exist but are not widely used in empirical accounting research. Further, empirical works have largely ignored models that highlight the effect of measurement on firms' investment decisions.

Finally, in the case of research that considers the necessity and consequences of accounting standards, we make two arguments. First, researchers have been concerned about causal inference in this context for decades. Second, in many cases empirical researchers base their analyses on what we call *reasonable conjectures*, by which we mean intuitive statements about what to expect, without a full description of what is assumed and without a full development of the channel or mechanism through which causal factors operate to produce outcomes. We use historical examples to illustrate the difficulties with this approach. We call for more empirical studies that tie closer to recent advances in theoretical research that speak to these issues.

Appendix: Most cited financial accounting theory papers published in five accounting journals
(Journal of Accounting and Economics, Journal of Accounting Research, The Accounting Review, Contemporary Accounting Research, Review of Accounting Studies)

<u>Authors</u>	<u>Cited by</u>	<u>Title</u>	<u>Year</u>	<u>Journal</u>
Lambert, R., Leuz, C., Verrecchia, R.	286	Accounting information, disclosure, and the cost of capital	2007	<i>Journal of Accounting Research</i>
Feltham, G., Ohlson, J.	144	Uncertainty resolution and the theory of depreciation measurement	1996	<i>Journal of Accounting Research</i>
Kim, O., Verrecchia, R.	110	Pre-announcement and event- period private information	1997	<i>Journal of Accounting and Economics</i>
Ewert, R., Wagenhofer, A.	103	Economic effects of tightening accounting standards to restrict earnings management	2005	<i>The Accounting Review</i>
Baiman, S., Verrecchia, R.	100	The relation among capital markets, financial disclosure, production efficiency, and insider trading	1996	<i>Journal of Accounting Research</i>
Gigler, F., Hemmer, T.	93	Conservatism, optimal disclosure policy, and the timeliness of financial reports	2001	<i>The Accounting Review</i>
Fischer, P., Verrecchia, R.	91	Reporting bias	2000	<i>The Accounting Review Review of Accounting Studies</i>
Ohlson, J.	87	On transitory earnings	1999	<i>Studies</i>
Gigler, F., Hemmer, T.	61	On the frequency, quality, and informational role of mandatory financial reports	1998	<i>Journal of Accounting Research</i>
Ohlson, J.	57	Earnings, Book Values, and Dividends in Equity Valuation: An Empirical Perspective	2001	<i>Contemporary Accounting Research</i>
Feltham, G., Ohlson, J.	51	Residual earnings valuation with risk and stochastic interest rates	1999	<i>The Accounting Review</i>

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