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Ronald Dye
Jonathan Glover
Shyam Sunder

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Abstract: This essay analyzes some problems accounting standard setters confront in erecting barriers to managers bent on boosting their firms' financial reports through financial engineering (FE) activities. It also poses some unsolved research questions regarding interactions between preparers and standard setters. It starts by discussing the history of lease accounting to illustrate the institutional disadvantage of standard setters relative to preparers in their speeds of response. Then, the essay presents a general theorem which shows that, independent of how accounting standards are written, it is impossible to eliminate all FE efforts of preparers. It also discusses the desirability of choosing accounting standards on the basis of the FE efforts the standards induce preparers to engage in. Then, the essay turns to accounting boards' concept statements; it point out that no concept statement recognizes the general lack of goal congruence between preparers and standard setters in their desires to produce informative financial statements; we also point out the relative lack of concern in recent concept statements for the representational faithfulness of the financial reporting of transactions. The essay asserts that these oversights may be responsible, in part, for standard setters promulgating recent standards that result in difficult-to-audit financial reports. The essay also discusses factors other than accounting standards that contribute to FE, including the high-powered incentives of managers, the limited disclosures and/or information sources outside the face of firms' financial statements about a firm's FE efforts, firms' principal sources of financing, the increasing complexity of transactions, the difficulties in auditing certain transactions, and the roles of the courts and culture. The essay ends by proposing some other recommendations on how standards can be written to reduce FE.

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Keywords: Accounting standards; financial engineering; the conceptual framework; the roles of norms and culture in financial reporting.

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1. Introduction

For everyone, death and taxes are said to be the two certainties of life. For accountants, their regulators, and standard setters, one might add a third certainty: management of earnings as well as other financial reports by preparers. These parties know that managers of public firms cannot resist designing transactions, or interpreting financial accounting standards, so as to achieve the managers' earnings, balance sheet, or cash flow targets even if that entails circumventing the intent of the standard setters through accounting-motivated financial engineering (FE). Having standard setters diligently patch up prevailing standards to counteract the preparers' more flagrant FE initiatives does not solve the problem, as it only sets in motion another round of FE innovations by preparers. This cat-and-mouse game between rule-makers and preparers is as old as accounting regulation, with many of the same issues reappearing on rule-makers' agendas over the past eight decades. It makes us consider whether Clarence Darrow was thinking of accounting when he wrote: "History repeats itself. That's one of the things wrong with history."²

This essay analyzes some problems standard setters confront in restricting preparers' ability to massage their financial reports through FE. We start by discussing lease accounting, the history of which illustrates how preparers have thwarted standard setters' attempts to improve financial reporting. The history of lease accounting also exemplifies standard setters' fundamental disadvantage in dealing with preparers: standard setters often take years to write rules that preparers, with the help of their investment banking and other FE advisors, need virtually no time to circumvent.

² As quoted in *Peter's Quotations: Ideas for Our Time* (1977), edited by Laurence J. Peter, p. 248.

After documenting the turgidity of the standard-setting process, we ask the question: would a more rapid revision of accounting standards in response to preparers' FE efforts be effective in improving financial reporting? It is not clear to us, as quicker responses will result in less stable standards, and in a world of continual transactions innovation, investors will have less time to learn about the underlying economics of transactions. On the other hand, failing to "patch up" accounting standards in response to transactions innovation may render accounting standards obsolete, may make the interpretation of financial reports more difficult, and may undercut whatever faith courts have that compliance with GAAP is evidence of good financial reporting and disclosure practices. We also establish a theorem that puts into perspective how successful standard setters can hope to be: we show that, no matter how they write standards, they can never develop accounting standards that will be successful in completely curtailing FE.

We then turn to what we regard as the significant failure of the concept statements to recognize the fundamental conflict between the goals of preparers and standard setters in setting accounting standards: most preparers tend to view standards as constraints placed on them by adversaries, not as benevolent guidance from partners interested in promoting better financial reports. We also discuss representational faithfulness, and note that another failure of the concept statements is their recent emphasis on value relevance over representational faithfulness as an attribute to be sought after in and of itself.

We also discuss other issues besides accounting standards that contribute to preparers' FE efforts. These include the high-powered incentives of managers, limited additional disclosures and/or information sources outside the face of the firms' financial statements about a firm's FE, a firm's principal sources of financing, the increasing complexity of "normal" transactions, difficulties in auditing, and the roles of courts and culture.

We conclude by proposing a few changes in how standards are drafted. These proposals include: newly-drafted standards should be field tested on randomly selected preparers to discover their consequences and weaknesses before they are issued broadly; it may also be helpful if standard setters were to offer a substantial prize for the cleverest way of circumventing the intent of a proposed standard. We also propose adopting what we call a “continuous” approach to balance sheet and income statement recognition, and finally, we suggest requiring more disclosures about transactions susceptible to FE.

In the essay, we limit the discussion of FE to those instances in which preparers employ FE/transactions innovation to achieve their own financial reporting goals. We recognize that not all FE efforts are motivated by their value in financial “window dressing.” For example, airlines’ frequent flier programs and financing subsidiaries of automobile manufacturers arose from legitimate marketing efforts to serve their customers better. The accounting issues arising from these innovations —the recognition of liabilities for the miles awarded and the consolidation of financing subsidiaries, respectively—were byproducts of preparers’ substantive business decisions. Such transaction innovations are excluded from the scope of this essay.³ In our view, many transactions innovations are driven by financial reporting concerns and are designed to

³ Similar remarks also apply to limitations on the scope of motivations for new or modified accounting standards we confine our attention to. Just as transactions innovation is not all “window dressing related,” neither are all innovations in standard setting designed simply to counter preparers’ financial engineering efforts. We recognize that accounting standards can evolve for any of the following reasons: A. a standard setting body is young (it should be no surprise that a younger standard setting body (e.g., the IASB) will produce more new rules per unit of time, but have a thinner rule book, than a mature standard setting body (e.g., the FASB), simply because of the time it takes for a standard setting body to develop a stock of rules that govern the reporting of the bulk of transactions that take place in a modern economy even if there were no concerns about transactions innovation of the sort we address); B. the standard setting body makes a mistake in setting past rules (e.g., the FASB’s original standards for reporting employee stock options); C. (and related to B), political pressure has been or is being imposed on standard setters; D. the personality of one or more board members (it is trite but important to observe that accounting standards are set by people, and that the identity of the people, and their individual agendas or concerns, matter to the standards that emerge. This is a testament to the importance of personality in how accounting standards are developed); and E. new transactions arise, the accounting for which is either ambiguous or uncertain under the prevailing accounting standards.

mislead, or at the very least, to favorably influence financial statement readers in assessing a firm's value.

2. The example of lease accounting

The long and tortuous history of standard setters' failed attempts to direct preparers to capitalize long-term leases through written rules illustrates the interplay of standards and FE. As summarized in Table 1, lease accounting standards began with Accounting Research Bulletin (ARB) 38 in 1949,⁴ which simply required disclosure of long-term lease payments. Accounting Research Study 4 and Accounting Principles Board (APB) Opinions 5, 7, and 27 followed in 1962, 1964, 1966 and 1972, respectively. APB Opinion 27 was the first standard to provide explicit criteria for determining whether a lease is in substance a purchase or sale. That standard was followed by SEC Accounting Series Releases (ASRs) 132 and 147 and APB Opinion 31 in 1973, and SEC ASR 141, culminating in FASB's FAS 13. FAS 13 established the now familiar four independent sufficient conditions for capitalization of a lease by the lessee (the present value of the minimum guaranteed lease rentals exceeds 90 percent of the market value of the leased asset; the length of the lease exceeds 75 percent of the economic life of the leased asset, the ownership of the leased asset transfers to the lessee at the end of the lease; and the presence of a bargain purchase option.). These four criteria remain in use at the time of this writing (in 2014).

At the time of its promulgation, the bright line criteria of FAS 13 might have been expected to put an end to the game between standard setters and FE; however, just the opposite happened. In the six years following FAS 13, sixteen additional accounting standards governing leases appeared (see Table 1): each of FAS 23, 29, 94, 98, 125, 140 dealt with leasing issues, as

⁴ Based on IASB Agenda paper 12 C (<http://www.ifrs.org/Current-Projects/IASB-Projects/Leases/Meeting-Summaries-and-Observer-Notes/Documents/Leases0703b12cobs.pdf>), accessed September 8, 2013.

did FASB Interpretations 45 and 46, FASB Staff Position 46-6, and EITFs 90-15 and 96-21. As of October 2014, the FASB and IASB have circulated yet another proposed standard on lease accounting.

This complicated 65+ year saga of attempts to direct lease accounting through written standards contrasts sharply with the simple intent of standard setters—to get long term leases that are, in their economic substance, sales or purchases of assets with borrowed money, on lessees' balance sheets, along with the liability for the associated lease payments.

The bright-line criteria for lease accounting are a textbook illustration of how accounting regulators inadvertently provide preparers with a roadmap for evading regulatory intent. For example, the 90% threshold involving the minimum lease payments makes it easy for a lessee to adjust the terms of a lease so that the minimum payments are, say, 89% of the asset's purchase price.⁵ Similar arguments apply to other contractual terms of the lease: its length, whether it includes reference to any asset reversion features at the end of the lease; whether it includes a bargain purchase option, etc. Whether these terms appear in the lease contract can affect the accounting for the lease even if they do not alter the economic substance of the lease. For example, a lease can qualify as an operating lease even if both the lessee and lessor share the expectation that the lessee will purchase the asset at the end of the lease.⁶

The history of lease accounting illustrates two other lessons about standard-setting. First, patching up poorly-designed standards by adding various and sundry follow-on

⁵ In fact, some lease contracts have been constructed so that not only are the minimum lease payments 89% of the purchase price of the asset being leased, but a 1% residual value guarantee is purchased by the lessor from a third party so that the leased asset is reported on neither the lessee's nor the lessor's balance sheet. The residual value guarantee's sole purpose seems to be to secure this accounting treatment rather than to provide residual value insurance, since the estimated present value of the residual value is an order of magnitude larger than the residual value guarantee.

⁶ Such expectations can be easily enforced when the lessor and the lessee are in a continuing business relationship, or when the lessor has considerable market power: all the lessor has to do is threaten to refuse to engage in future leasing transactions with the lessee if the lessee fails to conform to this expectation.

amendments is rarely effective; inventive financial engineers respond to amendments by simply replacing one set of “abusive” transactions with another set. Second, standard setters are at an institutional disadvantage relative to preparers: the tortoise-like crawl of the former never matches the hare-like sprint of the latter.

3. Regulatory lag: A fundamental institutional disadvantage of accounting standard setters relative to preparers

This difference in standard setters’ and preparers’ speeds follows partly from standard setters’ obligations to listen and respond to their varied constituencies and their commitment to due process in making public policy. Preparers by contrast are unencumbered with due process or external constituencies. Further, standard setters do not have the high-powered incentives instilled by the marketplace, which handsomely rewards preparers and their financial engineers.

Lease accounting is hardly unique as an example of the slow pace of setting accounting standards. One of the authors of this essay attended a conference in the early 2000s at Harvard University focused on the IASB’s and the FASB’s “convergence” project. In a keynote address at this conference, then Harvard University president Lawrence Summers recalled hearing accountants lament the enormity of the task before them. He then reminded the participants that this project had made little progress during the previous decade. By way of comparison, he pointed out that the United States’ participation in World War II, that radically reshaped the world, lasted a mere three and one-half years.

The turgidity in writing accounting standards follows from the boards’ institutional process for setting standards. It is not uncommon for standard setters to spend ten or more years: (a) identifying a set of transactions which, in their view, are subject to reporting abuse; (b) putting the accounting for those transactions on the agenda; (c) drafting a new standard; (d)

circulating the proposal as an exposure draft; (e) redrafting the standard in light of comments received on the first draft; (f) circulating the revised exposure draft; (g) voting on the standard; and (h) specifying a phase-in period for the adoption of the new standard. In contrast, it may take mere hours or less for an investment bank, or other FE agents of preparers, to circumvent the new standard.

Even if standard setting could be sped up by a factor of ten—say from ten years to one year—standard setters will hardly match the routine pace of innovation by preparers and their FE agents. If removing this large gap in the timeliness of standard setters’ and preparers’ responses is essential to resisting the distortion of financial reports through financial engineering, regulators should admit defeat and direct their efforts elsewhere.

However, in the next section, we question whether the underlying premise of this section that faster production of accounting standards is inherently desirable is valid.

4. Dynamics of standard setting: is it better to respond quickly to preparers’ FE efforts?

Suppose the FASB could write new standards as rapidly as preparers can engage in FE. Should it do so? Here we argue that the answers are not clear, because there are compelling arguments both for and against increasing standard setters’ pace of standards setting based on how one anticipates the dynamics of the interaction between standard setters and preparers “playing out.”⁷

A policy of standard setters responding to every transaction innovation will almost surely bury financial reporting under a thicker rulebook. Moreover, every new standard is another

⁷ As a referee on a previous draft of this manuscript observed, there is no well-developed and accepted dynamic theory as to how preparers and standard setters interact over time, and consequently, much of the discussion in this section on dynamics is necessarily speculative. Formal theories underlying standard setters’ and preparers’ dynamic interactions are rare in the extant literature (with Dye (2002) being an exception). Dynamic games in economics are almost always complicated to set up and evaluate, and historically accountants and accounting have focused on static questions such as: “what is the appropriate accounting for transaction X” rather than the dynamic question: “what transactions will this accounting for transaction X encourage preparers to generate in the future?”

opportunity for financial engineers to invent and market more financial products designed to sidestep the new standard. This cycle of transactions innovation by preparers, followed by new or amended standards by standard setters, followed by further transactions innovations by preparers, etc., results in a self-sustaining escalation of activity and effectively constitutes a full employment act for financial engineers and standard setters. In this regime, accounting-motivated transactions become fleeting in duration, and accounting standards lose their stability and continuity.

A stable set of standards offers financial engineers the opportunity to evade the standards through a stable set of FE techniques, and presumably reduces their incentives to develop new transactions unfamiliar to investors. Such stability helps investors learn the mapping between the underlying economics of transactions and firms' financial reports, and in particular it allows investors the opportunity to learn how to adjust their interpretation of firms' financial statements to established FE techniques. Stable standards, and the correspondingly stable FE "tricks" are easier for investors to evaluate than a continually-evolving cycle of accounting standards and accounting motivated FE. In short, users may be better off dealing with the FE devil they know than the one they don't.

Moreover, the economics of new transactions takes time to evaluate, and so regulators may want to pause to understand and evaluate new transactions before responding to them with new rules. It is also desirable to see whether the financial markets themselves can evaluate FE innovations without the assistance of regulatory intervention. While financial markets can be temporarily fooled by unfamiliar innovations, they also tend to correct themselves. For example, when SPEs and VIEs, etc., were introduced in the 1990s and early 2000s, they allowed firms to hide debt in unconsolidated subsidiaries within the bounds of the prevailing accounting

standards—remember the so-called 3% rule of EITF 90-15—financial markets eventually saw through the trick, and induced firms to either abandon such vehicles, or to disclose more detailed information about them. Such corrective albeit delayed actions arose from the capital market’s sophisticated reactions to these entities, and not from explicit regulatory actions. But, even when the markets do not fully internalize the consequences of some transactions innovations, it does not follow that regulatory intervention will “cure” the market’s incomplete assessments; as Leftwich (1980) observed, to assume otherwise is to commit the “nirvana fallacy.”

Another obvious benefit of not changing standards in response to financial innovations is that stable standards economize on the cost to investors of constantly learning new standards.

On the other side, if the FASB does not update accounting standards in the face of new transactions, courts may decide that compliance or noncompliance with prevailing accounting standards no longer constitutes prima facie evidence that a firm’s financial statements are or are not presented “fairly,” in which case accounting standards may lose their authoritative status in the minds of both investors and preparers. Also, the case against rapid regulatory response to financial innovation on the grounds that it will result in the destabilization of standards is not a strong one: targeted changes in accounting standards designed to address specific transactions will not throw all accounting standards into disarray. For example, changing lease standards in response to innovations in leasing transactions does not require tampering with revenue recognition rules.

The question of the desirability of having standard setters respond rapidly to transactions innovation is a special case of the question of the desirability of having regulators of all sorts respond rapidly to changing conditions in the industries they regulate. Nobel Prize winners Finn Kydland and Edward Prescott addressed this question in their 1977 paper “Rules

rather than discretion: the inconsistency of optimal plans.” They say that a regulator is acting in a *time consistent* fashion if, at each point in time, the regulator implements rules that are best for society at that point in time, taking the actions of people in the society in the past as given.

Kydland and Prescott observed that time consistent plans may not be optimal when peoples’ actions are affected by the rules they expect the regulator to set in the future.

One of Kydland and Prescott’s illustrations of how time consistent plans may not be optimal involves patent policy. They observed that, given the existing R&D inventions, denying patent protection to all of the intellectual property embedded in those inventions maximizes the social benefits of the patents. However, such a policy obviously discourages potential inventors from incurring the costs required to create new inventions. It will ultimately result in a world with fewer inventions, and so may be inferior over time to a policy that provides patent protection.

Kydland and Prescott’s observations apply to accounting standards to the extent preparers’ current transactions might be influenced by their anticipation of future changes in standards. But, we believe the receptivity of the accounting profession to Kydland and Prescott’s observations is likely to be limited because their dynamic perspective goes against the mindset and training of accountants. Accountants are schooled to think about how to set standards that best measure, classify, and report transactions *currently in use* rather than to take a longer perspective and consider the impact of present and future standards on preparers’ incentives for future transactions innovation. As Christensen and Demski (2007, footnote 14) point out,

“[w]e have a long tradition in accounting of viewing proper accounting in classical terms, by treating the transaction as exogenous and applying a classical measurement perspective to that transaction. This is, precisely what we want to do here, provided transactions are exogenous. But if they can be redesigned, the welfare maximizing perspective is to treat the transaction redesign as a first order effect and adopt an equilibrium perspective.”

Accountants still appear not to have learned this lesson about the endogeneity of transactions, that – as examples – imposing extra conditions on lessees to qualify for operating lease treatment merely encouraged the construction of new contractual terms for leases that also avoid capitalization; that carving out exceptions to the “fair valuing” of some derivatives merely encouraged preparers to construct other derivatives that also call for additional exceptions to “fair valuing;” that control-based criteria for the consolidation of subsidiaries spawned SPEs, that EITF 90-15’s 3% consolidation criterion for SPEs encouraged a wider range of SPEs, and on and on.

Based on the preceding pros and cons, it is ultimately not clear how often and how promptly accounting standards should be revised in response to transaction innovations. But, it is clear that standard setters have little incentive to change their ways and test to see if and when delaying their response might be the preferred course of action. This is true not merely because of organizational inertia, but rather because of their incentives: they are charged with the responsibility of producing new standards, and so they are driven to write new standards, with the economic merit of doing so taking a back seat. Not surprisingly, standard setters tout the volume of new standards they produce as a measure of their accomplishments (also see Sunder 1981). Little in the way of change can be expected of them in the absence of pressure from outside forces, e.g., competition in the form of alternative acceptable standard setting bodies, as Dye and Sunder (2001) have argued.

5. General impossibility of producing accounting standards not subject to financial engineering

In this section, we turn from the issue of the pace of accounting standard setting to the question of whether it is possible in principle for standard setters to write accounting rules that

eliminate incentives for preparers to engage in financial engineering. We reach a negative answer in the form of an “impossibility” theorem. Before formally presenting the theorem, we briefly review the best known of the financial accounting “impossibility” results for a single-person world from Demski (1973).

The core insights of Demski (1973) can be summarized in the following observations⁸:

(1) the information in a firm’s financial reports can be represented as a partition on some underlying space⁹; (2) this information partition changes as accounting standards change; (3) according to the first half of Blackwell’s Theorem¹⁰, a well-known result in statistical decision theory, the only general means of making a decision maker better off by replacing one information partition with another is to make it “finer,” i.e., to make it contain strictly more information than the partition it replaces; (4) according to the second half of Blackwell’s

⁸ Demski (1973) makes other observations as well, including comments about how accounting standards are a social choice, and hence are subject to the problems of rational collective selection as described in Arrow (1963).

⁹ The “information as a partition” approach can be summarized as follows. In decision-making under uncertainty, the payoff of the decision maker (DM) is determined by the action the decision maker selects combined with the realization of some uncertain “state.” Even if the decision-maker collects information about the state before selecting his action, the information he will obtain typically will be imprecise, and the DM typically will not know the exact state at the time he must choose his action. The DM’s information collection can only be expected to: (a) rule “out” some states from occurring, and (b) rule “in” other states as possibly occurring. More formally, the DM’s information structure before selecting his action can be represented by dividing up the set of all possible states that could occur (the “state space”) into a collection of mutually exclusive and exhaustive subsets, i.e., into a *partition* of the state space. The DM’s information about the state is represented by the particular element of this partition the DM knows the state belongs to.

For example, suppose DM’s uncertainty is represented by him not knowing which of five possible states, labeled 1, 2, 3, 4, and 5, occurred. The state space is the set $\{1, 2, 3, 4, 5\}$. Suppose that partition P of the state space is defined by $P = \{\{1, 2, 3\}, \{4, 5\}\}$. That is to say, the DM can tell before taking his action whether the realized state belongs to subset $\{1, 2, 3\}$ or to subset $\{4, 5\}$. But even if the DM knows the realized state belongs to the subset $\{1, 2, 3\}$ (resp., $\{4, 5\}$), he does not know which one of the three (resp., 2) states in that subset has occurred.

With this representation of uncertainty and information, ranking information systems by their informativeness requires ranking partitions. The most natural ranking of partitions is by the “fineness” criterion, which simply says that, if one is comparing two partitions P and P' , then partition P' is “finer” than partition P if P' always provides (at least weakly) more information about the realized state than partition P does, no matter what state occurred.

Recall that in the previous example, partition P is given by $P = \{\{1, 2, 3\}, \{4, 5\}\}$. Suppose partition P' is defined by $P' = \{\{1, 2\}, \{3\}, \{4, 5\}\}$. Then, partition P' is finer than partition P : no matter what state occurred, the DM knows at least as much, and in the case of states 1, 2 and 3, the DM knows strictly more, about which state occurred when the DM’s information is given by P' than when it is given by P .

An expanded but still elementary discussion of these ideas can be found in Demski (1980).

¹⁰ See, e.g., Blackwell and Girschick (1954).

Theorem, when one information partition A is neither finer nor “coarser” (i.e., contains less information) than another information partition B, then there is some decision problem for which information partition A is preferred and there is another decision problem for which information partition B is preferred. Thus, in general, without knowing the details of the decision problems confronted, it is impossible to say whether partition A or partition B is preferred;¹¹ and (5) the change in the information partition generated by a firm’s accounting reports induced by a change in accounting standards is typically not to a strictly finer, nor to a strictly coarser, partition.¹² E.g., the information produced when a firm accounts for a subsidiary by the equity method is different from —neither finer nor coarser than—the information produced from consolidating the subsidiary; the information produced by a hybrid accounting system which contains account balances prepared according to multiple valuation methods, e.g., historical cost and market values, produces different and not necessarily finer nor coarser information than that produced by either “pure” market value or “pure” historical cost valuations, etc.¹³

¹¹ Recently, there has been some progress in trying to rank information partitions using weaker criteria than “fineness,” by imposing some restrictions on the kinds of decision problems the information partition is designed to inform. Two examples of this progress are: Athey and Levin (1998) who study “monotone” decision problems and Ganuza and Penalva (2010) who study what they call “integral precision.” The latter concept has been the subject of some recent accounting applications. See Marinovic (2012).

¹² For example, for the state space of the previous footnote, partitions $P = \{\{1, 2, 3\}, \{4, 5\}\}$ and $P' = \{\{1, 2\}, \{3, 4, 5\}\}$ cannot be ranked by the “fineness” criterion.

¹³ In principle it is possible to construct new accounting standards so that the information partition generated by financial reports produced in accordance with those standards is strictly finer than the information partition generated by financial reports produced in accordance with the standards they replace. New or modified standards could require all firms to produce two set of financial statements, one prepared under the terms of the old standards and another produced under the terms of the new standards. Adopting this procedure systematically would result in every new standard doubling the number of versions of financial statements prepared and published by each firm, with the total number of versions of financial statements per firm being 2^n if n new standards or revisions in old standards occur. Obviously, this progressive doubling of financial reports would become unwieldy in short order, but without such “doubling,” Demski’s (1973) observation applies.

While producing 2^n distinct financial statements for every firm is clearly impractical, another related proposal is not so impractical in the current digital age: simply construct a transactions database, and let a computer program assemble the firm’s financial statements using the database combined with whichever of those 2^n possible accounting choices the financial statement reader prefers. Arthur Andersen proposed such a procedure in the 1990s, but it was never implemented.

(A potential defect of this approach, as Sunder (1997, p. 80) points out, is that it requires investors to have enough sophistication to be able to propose reasonable ways of aggregating transactions in the database.)

Demski (1973), while fundamental, does not explicitly apply to FE for two principal reasons. First, in its main text, Demski (1973) is concerned with the problem of how standards affects a single person decision problem, and hence is not directly applicable to the inherently multi-person problems associated with FE; and second, Demski (1973) implicitly assumed that firms comply with whatever the prevailing accounting standards are, and he does not refer to financial engineering. Nevertheless, we can adapt Demski's partition approach to the study of financial engineering by classifying all transactions that require the same accounting treatment under a given set of standards as belonging to the same element of a partition on the space of transactions.¹⁴ Under this approach, two sets of accounting standards classify some transactions distinctly if at least two elements of their respective partitions of transactions are different from each other.¹⁵ For example, under one set of standards, all debt might be classified as a liability independent of its convertibility. Under another set of standards, convertible debt might be decomposed into separate debt and equity components.

To formalize our "impossibility" result, we employ the following definitions.

1. **Standards: Typicalness of Standards.** A set of accounting standards is said to be *typical* if its associated classification partition contains at least two but only a finite number of elements. Typical standards give preparers a choice over the accounting for some transactions.
2. **Preferences: Reasonableness of Preparers' Preferences over Standards.** Preparers' preferences over a typical set of accounting standards are said to be *reasonable* if given the opportunity to classify a transaction in one of multiple ways permitted by a set of typical

¹⁴ Thus, under the present approach a partition splits up transactions into different elements rather than splitting up states into different elements.

¹⁵ Two elements of the partitions must differ, since the union of all elements of every partition must equal the set of all possible transactions, so it is impossible to have only one element of the partitions differ from each other.

standards, a preparer has a strict discrete (i.e., non-infinitesimal) preference for one classification over all other classifications.

3. Transactions

3A. Metrics on Transactions. A metric $d(\cdot)$ on transactions space is a measure of the distance between any two transactions. For example, one metric might measure the difference between two contingent liabilities by the difference in the probabilities of their occurrence; another might measure the distance between two contingent liabilities by the difference in their expected values. The distance between two leases might be defined by the difference between the ratios of the present values of their minimum lease payments to the market values of the assets being leased; another metric might be the difference between the ratios of the lengths of the leases' terms to the useful lives of the assets being leased.¹⁶

3B. Isolated transactions. A transaction T is said to be *isolated* with respect to a set S of transactions with respect to metric $d(\cdot)$ if there is some distance $\varepsilon > 0$ such that there is no other transaction T' in the set S within distance ε (measured according to the metric $d(\cdot)$) from the given transaction. We expect isolated transactions to be exceptions. For example, two

¹⁶ These simple examples are hardly satisfactory metrics; we present a slightly more sophisticated example in the present footnote: suppose every financial claim is a combination of a finite number of elementary Arrow-Debreu (or AD) state contingent claims where markets are sufficiently complete and competitive so that there is a well-defined dollar value associated with each of those claims. Then, as is well known, every financial claim (e.g., debt, convertible debt, mandatorily redeemable stock, etc.) is some combination of elementary AD securities, and can be written as a vector whose components consist of the number of units of each AD security the financial claim contains. Let the "size" of the claim be the total market value of all AD components, and let the "scaled version" of this AD representation of the claim be obtained by dividing each component of its AD representation by its "size". By construction, this "scaled" financial claim has a market value today of \$1. Next, define a "reference distance vector" by specifying another vector whose dimension also equals the number of distinct Arrow-Debreu securities, and for each component of this reference distance vector, select a fixed nonnegative weight, with the sum of these weights adding up to 1. Then, a metric determining the distance between two scaled financial claims can be defined by the scalar (or dot) product of the reference distance vector and the (vector) difference between the scaled versions of the two financial claims' AD representations. This procedure is similar to the procedure used in measuring the similarity of patterns in the literature on patterns classification (see, e.g., Scholkopf and Smola (2002)).

In our opinion, accounting could benefit from research that develops better metrics for measuring the distance between transactions. A possible place to start such research is Deza and Deza (2013), which contains a compendium of metrics applicable to various fields.

admittedly artificial examples of isolated transactions using the distance metrics given above are: there is a contingent liability C which occurs with, say, probability 0.4 and there is a number $\varepsilon > 0$ for which no other contingent liability whose probability of occurrence is in the neighborhood $(.4 - \varepsilon, .4 + \varepsilon)$; there is a lease whose length runs only 1% of the full useful economic life of the asset being leased and the lengths of all other leases are at least 2% of the full useful economic lives of those assets.

3C. The richness of the space of realized transactions. A set S of realized transactions is said to be rich if there is no potential transaction T that is isolated with respect to S .

3D. Financial Engineering. A transaction has been *financially engineered* if the transaction is modified to change its classification.

4. Costs: The continuity of the costs of financial engineering. The cost of financially engineering a transaction is said to be *continuous* with respect to metric $d(\cdot)$ if the cost to the preparer of changing the transaction into another transaction is continuous in the distance between its original specification and its altered form (using metric $d(\cdot)$).

With these definitions in place, we can state our “impossibility” theorem as follows:

Theorem: If preparers have reasonable preferences over typical standards and the set of realized transactions is rich, then preparers will be motivated to financially engineer some of their transactions when the cost of financially engineering transactions is continuous

The proof of the theorem consists of five observations:

(1) Consider the boundary between any two distinct classifications of transactions associated under a given set of accounting standards, i.e., consider the boundary between two adjacent elements of the classification partition. Each element corresponds to a distinct

accounting classification of transactions under the given standards. Such distinct classifications exist, because typical accounting standards have at least two distinct classifications of transactions.

(2) When the set of realized transactions is rich, there are no isolated transactions, and so, for any arbitrarily small distance $\varepsilon > 0$ from the boundary between two distinct classifications of transactions, there will always be some realized transactions on each side of the boundary whose distance from the boundary is less than ε .

(3) Since preparers have *reasonable* preferences, between any two distinct accounting classifications of transactions, preparers exhibit a positive, discrete preference for one of the classifications over all others.

(4) Since the cost of engineering transactions is *continuous* and there are no isolated transactions, there are always some transactions that would naturally, i.e., without financial engineering, (a) receive the less preferred of the two classifications and (b) be sufficiently close to the boundary that the cost of engineering the transactions so that they qualify for the more preferred classification is infinitesimal.

Finally, (5) once again appealing to the assumption that the preferences of preparers are reasonable, there are positive, discrete benefits to preparers of obtaining the preferred classification for those transactions singled out in (4) while at the same time preparers incur only infinitesimal costs of financial engineering to shift those transactions from the less preferred to the more preferred classification. Hence, any optimizing preparer will be motivated to financially engineer those transactions so as to secure the preparer's preferred classification.¹⁷ This proves the theorem.

¹⁷ This idea underlies both the "classifications manipulation" and the notion of "shadow standards" in Dye (2002).

The theorem highlights a problem associated with any classification system defined by thresholds or boundaries where the classifier prefers one classification over another classification (see Figure 1), and some of the objects being classified lie arbitrarily close to the thresholds or boundaries. When the object being classified lies (at 4 in Figure 1) close enough to a threshold (at 5 in Figure 1), then even small changes in the object can alter its classification (move it from left of the vertical black line to the right). When there are discrete (as opposed to infinitesimal) benefits to the classifier in making such changes, the classifier has an irresistible temptation to modify the object to obtain the benefits of the preferred classification. This logic applies to accounting as well as other contexts.¹⁸

(Insert Figure 1 about here)

It is worth noting how each of the assumptions of the “impossibility” theorem is necessary for its conclusion. If the accounting standards are not typical, then there is only one acceptable way to account for transactions, in which case there will be no opportunity to engage in FE. If the set of realized transactions is not rich, there may be no transactions near the boundary between any two distinct elements of the classification partition, and so the cost of engineering any transaction so that it receives a different classification from what the transaction would naturally receive may be so large that it may not be worthwhile for the preparer to incur the large cost required to secure a preferred classification to justify FE. If the cost of financially engineering transactions is not continuous, then there may be a big jump in the cost of transforming one transaction into another one even if the transactions are close to each other.

¹⁸ For example, the classification of the reason for a patient’s admission to a hospital or treatment by a physician affects the hospital’s (or physician’s) reimbursement from insurers. Healthcare providers have a propensity to engage in “upcoding” or “DRG (diagnostic related group) creep,” that is, to classify treatments opportunistically so as to maximize payments from Medicare, Medicaid, or other insurance providers. See, e.g., Carter, Newhouse, and Relles (1990).

When the benefits are outweighed by the cost of transforming the transaction, there will be no FE.

An implication of the sort of FE that underlies the “impossibility” theorem is that there will be a “lump” of reported transactions near one side of the boundary of the preferred classification. That is, even if the distribution of naturally occurring transactions is uniform (in the space of transactions), because of preparers’ financial engineering efforts, a disproportionately large fraction of reported transactions will be bunched near the boundary of the more favorable classification. Financial reporting consistent with this “lump of transactions” observation have been found empirically, for example, in Degeorge, Patel, and Zechauer (1992) and Burgstahler and Dichev (1997).

The “impossibility” theorem says nothing about transactions that lie far from classification thresholds. Financial engineering is, by and large, not a concern for such transactions. For example, few would dispute that renting a car from Hertz for a day should be, and will be, treated as an operating lease, and not many would dispute that renting a Boeing 787 for, say 20 years, should be (but sometimes fails to be) recorded as a capital lease.

While the impossibility theorem sets a clear bound on what is attainable for standard setters as far as FE is concerned, we wish to acknowledge that some might view the impossibility theorem as both giving an answer to the wrong question and setting the wrong benchmark. The theorem states that one cannot eliminate *all* FE-based transactions innovation regardless of how accounting standards are constructed. One could argue that accounting standards are performing well, and serving a valuable role in financial reporting, if they can be designed to eliminate *most*, not all, FE. As Voltaire is reputed to have said, the perfect is the enemy of the good. From this

perspective, we should not be discouraged if accounting standards cannot be constructed to eliminate FE completely.

One could contend that from a social point of view, it is wrong to judge accounting standards by their susceptibility to FE. To illustrate, suppose accounting standards are so bad, and the resulting financial reports are so uninformative, that preparers do not bother to engage in FE because (preparers know that) investors do not pay attention to financial reports.¹⁹ It follows that standards that result in zero FE may not be the best ones. Conversely, standards that induce preparers to engage in massive amounts of FE are not likely to be the best ones either, in view of both the resources firms squander while engaging in FE and the likely substantial degradation in the informativeness of the firms' financial reports due to the FE. Viewed from this perspective, the "best" accounting standards probably induce an "intermediate" amount of FE.²⁰

Pursuing this alternative point of view, one might ask whether accounting standards should be judged not by the amount of FE they induce, but rather by some measure, such as economic efficiency, output, or the social welfare they induce.²¹

But, even if we acknowledge that neither the ultimate nor penultimate goals of standard setting are determined by whether some target level of FE is achieved, emphasizing (as we have)

¹⁹ Under the conditions of the "impossibility" theorem, this could not happen because the assumption of reasonableness of preparer preferences is violated: if FE is so rampant that investors don't pay attention to financial reports produced under the standards, then preparers would never have a strict preference between any classifications.

²⁰ We recognize that, in asserting that the optimal "amount" of FE is "intermediate", we have not been precise in defining how to measure FE. One potential way of measuring this "amount," which overcomes what would otherwise be the intractable problem of aggregating incommensurable amounts of FE across distinct classes of transactions, would be to add up preparers' total dollar expenditures on FE.

²¹ Starting in 2009, FAF introduced a post implementation review (PIR) of newly promulgated accounting standards: "[t]he new post-implementation review process strikes the appropriate balance of these responsibilities and will provide a vitally important mechanism for obtaining 'real world' feedback and analysis on the application, usefulness, and effectiveness of standards set by our Boards" (http://accountingfoundation.org/jsp/Foundation/FAFContent_C/FAFNewsPage&cid=1176157936198). In its evaluation of individual FASB pronouncements, PIRs have used the terms "information content" and "relevance" in describing well-functioning standards. We discuss PIR further in Section 10C below. We note here only that our "impossibility theorem" is not affected by PIR, since it applies both to any set of standards as originally promulgated as well as to any possible revision in those standards initiated by PIR.

the amount of FE a set of accounting standards induces is a useful proxy for the extent to which these other more elusive goals are achieved. We suspect, but have not yet proved, that some intermediate level of FE is consistent with accounting standards that are optimal as measured by these more abstract goals, similar to the observations of Dye (1988), Arya, Glover, and Sunder (1998) and others about earnings management. Development of calculations of the amount of FE induced by a set of accounting standards, along with determining the “ideal” amount of FE accounting standards should induce, remains a challenge for empirical and analytical research.

6. Some difficulties in constructing accounting standards even in the absence of concerns about financial engineering

The problems of constructing effective standards extend well beyond the world of FE. Four difficulties in choosing accounting standards are well known from the “new classical” literature on accounting standard setting, initiated by Joel Demski’s research in the 1970s.²² First, as we originally mentioned in Section 5 above, Demski (1973) identified a difficulty in choosing among accounting standards even in single person decision settings due to the lack of comparability of the information partitions induced by financial reports produced under alternative accounting standards. Second, Demski (1973) observed that accounting standards are a public good, and hence are subject to all the well-known difficulties in choosing public goods, e.g., Arrow’s impossibility theorem, the Gibbard-Satterthwaite theorem, and the like.²³ Third, Demski (1974) observed that replacing one set of standards by another set can result in the redistribution of wealth among individuals in an economy; these redistributions further complicate the problem of getting agreement on the choice among accounting standards. Fourth, Beaver and Demski (1979) emphasized the difficulties that arise in obtaining unanimity when

²² “New classical” being distinguished from the earlier work of distinguished scholars such as Chambers, Sprouse, Moonitz, Edwards, Bell, Paton, Littleton, Hatfield, and Ijiri, etc.

²³ See, e.g., Reny (2001), for a precise description of these theorems.

choosing among income measurement methods since outside the artificial, and hence practically irrelevant, case of perfect and complete markets, no conceptually well-grounded and generally agreed upon notion of income measurement exists.

Penno (2008) added to Demski's list of difficulties in choosing among accounting standards by noting the applicability of the philosophical principle known as the "paradox of the heap," or the sorites paradox,²⁴ to the classification of transactions under any set of accounting standards. This paradox points to the difficulty of classifying any continuous variable into one of a finite number of categories. Changing the variable "a little bit" does not invalidate the original classification of the variable, but doing so repeatedly ultimately does. As examples, repeatedly removing a single grain of sand from a heap of sand still leaves a heap of sand, until... it doesn't. Repeatedly adding to a short person's height, a thin person's weight, a dull person's intelligence, etc. a little bit of height, weight, intelligence, etc., leaves the person short, thin, dull, etc. until, at some difficult to define point, the person is no longer considered short, thin, dull, etc. The same is true for any non-*isolated* transactions:²⁵ changing the fraction of work performed by a seller of some service from 98% to 97.9%, and then to 97.8%, etc., doesn't change whether the seller has earned the right to recognize revenue until...it eventually does. Gradually increasing the magnitude of a transaction by a negligible amount does not change its materiality, until it eventually does, etc. This problem pervades accounting, not only in revenue recognition and materiality, but also in consolidation of subsidiaries, the reasonableness of estimates, contingent liabilities, the assessments of valuation allowances, etc.

²⁴ See, e.g., the Stanford Encyclopedia of Philosophy <http://plato.stanford.edu/entries/sorites-paradox/>, accessed September 9, 2014.

²⁵ While Penno (1998) did not use the term "isolated transaction," it is clear that the classifications issues he discussed apply only to transactions that are not isolated: for an isolated transaction, there are no other transactions that are really "close" to the given transaction, and so the sorites paradox does not apply to it.

The sorites paradox indicates why “on the margin,” the classification of transactions has a fundamental arbitrariness to it. This is not news to any teacher as we all know that the cutoff point between letter grades A and B is fundamentally arbitrary (at least for any sizeable class).²⁶

We can add yet another item to the list of problems in setting accounting standards by observing that every transaction has an infinite number of dimensions associated with it. Once acknowledged, this observation forces us also to recognize that no transaction can be described completely with any finite number of descriptors, that every transaction is unique in some respect, and that there are an infinite variety of transactions. Since there can be only a finite number of ways of classifying transactions under any (typical) set of accounting standards, it follows that any set of standards necessarily involves aggregating non-identical transactions into the same account.

To confirm the claim that no transaction can be specified completely with any finite number of terms, we recall an observation of Steven Weinberg (1992), a Nobel Laureate in physics, about the difficulty of completely describing anything, even something as prosaic as a piece of chalk.²⁷ A complete description of a piece of chalk requires, among other things, an exact description of its location. If the chalk is located in a classroom on or near a blackboard, a complete description of the classroom is necessary to fully describe the piece of chalk. The argument then continues to the building housing the classroom, the street on which the building is located, the city in which the street is located, etc. While a piece of chalk is not a transaction, it is easy to see, by analogy with Weinberg’s observation, that no transaction can be described

²⁶ The qualification “for any sizeable class” is important: if there are few enough students in a class, and the differences in the performance among the students is stark enough, then the boundary determining whether a student receives an “A” grade or a “B” grade may not be arbitrary. This is closely related to the discussion of the “impossibility” theorem in section 5 above, where – in demonstrating that it was impossible to eliminate FE – we had to rule out the possibility of isolated transactions.

²⁷ See Weinberg (1992) Chapter 2, “On a piece of chalk.”

completely either. Consider the simplest of transactions: buying a bottle of water from a vending machine. That simple transaction can generate a countless set of outcomes: the machine may swallow the money inserted in the vending machine without delivering the bottle; the bottle may get stuck in the vending machine's chute; the customer's hand may get stuck in the vending machine while trying to retrieve the bottle; the water in the bottle may be defective in any number of ways (leaky, expired, too warm, contaminated, etc.); the change returned by the machine may be incorrect; the machine may fall on the customer, etc. While many of these possible consequences of buying bottled water from a vending machine are unlikely, they are implicit or explicit possible components of the transaction, and they imply an infinitude of potential state-contingent claims against the vendor distributing the water, the producers or employees of the bottling plant, the retailers where the vending machine is located, etc.

Of course, the transaction of purchasing a bottle of water from a vending machine pales in complexity relative to the transactions that individuals and business organizations routinely engage in. If it is impossible to completely describe the purchase of a bottle of water from a vending machine, a fortiori it is impossible to completely describe any of the myriad transactions engaged in by any person or any business.

That no transaction can be described completely with a finite number of descriptors is the accounting adaptation of the remark of Heraclitus: "No man ever steps in the same river twice."²⁸ Mathematically, it implies that every transaction requires an infinitely long vector to describe it. Since any realistic classification of transactions associated with a set of accounting standards is limited to partitioning transactions on the basis of a finite number of the transactions' dimensions, it follows that all financial reports contain line items or other components with transactions that are not identical to each other, thus rendering the frequently-

²⁸ See, e.g., Sedley (2007).

sought after goal of uniformity in financial reporting impossible under any set of accounting standards.²⁹ Since a change in even one dimension of a transaction results in a different transaction, the infinite dimensionality of transactions also reveals another source of complexity in standard setting: there are an infinite variety of potential transactions.³⁰

The infinite dimensionality and infinite variety of all transactions reveals the pointlessness of standard setters' attempts to develop rules so detailed that they can comprehensively cover the entire landscape of transactions. In practice, there is no choice but to enunciate only general principles in the face of an infinity of transactions, each of which requires an infinite number of dimensions to describe completely.

7. Some fundamental problems with the conceptual framework

The preceding sections identified multiple fundamental difficulties in setting accounting standards, including: the institutional disadvantage of standard setters in their relatively slow speed; the impossibility of constructing standards that eliminate preparers' incentives to bypass standards through FE; the inevitable arbitrariness in classifying transactions at the margin because of the sorites paradox; and the impossibility of developing comprehensive rules governing all transactions because of the infinite complexity and variety of transactions. These difficulties limit what accounting standard setters can hope to accomplish in principle.

²⁹ See also Sunder (1983, 1997 Chap. 9) for an argument that uniformity in the accounting classification of transactions cannot be assured even when the variety of transactions is finite; a fortiori, the same is true when the variety of transactions is infinite.

³⁰ An alternative way of making the case that there is an infinite variety of transactions is to recall from Debreu (1959) and others that any product or service must be indexed by each of: its location, its time of delivery, and the state of the world in which it is delivered. Real estate agents are familiar with the importance of location in their mantra: "location, location, location." There can be large differences in the prices of "identical" pieces of real estate located at different addresses. Similarly, commodities delivered at different times are different commodities. A fresh orange in January is not the same product as a fresh orange in August. Likewise, two airline tickets for the same flight purchased at different times are different tickets and so may have sold for distinct prices, etc. A security that delivers \$1 at the top of the business cycle is a very different asset in terms of both its price and in terms of its return from an asset that delivers \$1 at the bottom of the business cycle. Since variations in location, time and states are all infinite, it follows that so is the number of possible transactions.

In the face of all these difficulties with standard setting, one might be inclined to look upon the task of recommending improvements in the standard setting process with despair. But, notwithstanding the preceding difficulties, in this section, we suggest that there are opportunities to improve accounting standards, starting with the elimination of what we regard as three weaknesses in the current version of the conceptual framework. First, the framework fails to recognize that few preparers view themselves as partners of standard setters in trying to construct financial statements that communicate financial information to investors and other parties in a clear and interpretable manner. Second, the framework places inadequate emphasis on the auditability of financial reports produced in conformity with accounting standards. Third, the framework demotes the concept of representational faithfulness from a fundamental principle and desirable characteristic of accounting standards worthy of trading off with other characteristics such as relevance, to a minimum constraint to be satisfied while maximizing relevance.

To expand on the first point, many preparers seem to view accounting standards as unwelcome constraints on their ability to attain their own financial reporting goals.^{31,32} If the concept statements were to accept, acknowledge, and attend to the wedge between the objectives of preparers and standard setters, the latter might try harder to draft accounting standards that are robust to preparers' resistance to complying with them.

Expanding on the second point, in recent years, the FASB seems to have forgotten the old adage that "you can only account for what you can audit. How else can one understand the

³¹ For prior expositions, see Maines and Wahlen (2006), Watts (2006), and Demski and Christensen (2007). Also see Section 9 below for more on the role of incentives.

³² Also, while it might be theoretically possible to design the financial reporting "game" in a way so that truth-telling is the best (and incentive compatible) policy for all by creating an environment where the Revelation Principle can be applied (as discussed originally by Myerson 1979) and subsequently enumerated in accounting contexts by, among others, Dye (1985, 1988) and Arya, Glover, and Sunder (1998), it is difficult to imagine practical circumstances under which the conflicting goals of standard setters and preparers can be totally reconciled.

Board's willingness to prescribe accounting rules hinged on managerial intent (for example, FAS 115 makes classification of debt depend on the preparer's ephemeral intention to hold the security to maturity)? How else can one understand the Board's willingness to require so-called "fair value" (re-) measurements for assets without any liquid markets (as in FAS 157)? How else can one understand the Board's adoption of standards that rely on managerial clairvoyance about losses being "other than temporary?" And how else can one understand the Board's willingness to propose "fair value" standards for complex derivatives that must be "marked to model," where the only people with sufficient expertise to properly audit such models are people who could earn far more by working *in* a financial firm instead of *auditing* such a firm?³³

It is remarkable how far the accounting profession, rooted in historical cost accounting and supported by the principles of objectivity and verifiability of its measurements, has strayed from its foundations. While formal recognition in the conceptual framework of the distinct objectives of standard setters and (at least some) preparers may not return the profession to its original foundations, the reminder that financial reporting is not inherently a cooperative venture with preparers may help to limit the promulgation of standards to those that can be properly administered and audited even if preparers comply with them only grudgingly.

Expanding on the third point, standard setters sometimes place more emphasis on the information content or value relevance of financial statements than they do on how well the

³³ Lucas and McDonald (1992) identified another situation where the only people with the likely expertise to properly audit transactions are the people who engage in the transactions. They observed that the secondary market for loans is likely to be subject to a lemon's problem (Akerlof 1970). Specifically, among loans whose default risk is observationally indistinguishable, only the higher risk loans are likely to be offered for sale by a bank. Sophisticated buyers will suitably adjust the price they pay for these loans. Any auditor who mechanically values the portfolio of "held" loans using the transaction prices of observationally similar "traded" loans would systematically undervalue a bank's loan portfolio. Few auditors can be expected to have the skill and knowledge to delicately adjust the traded prices to reflect the "lemons" discount in this market. Anyone with the expertise to make this adjustment correctly is likely to earn more by *working* in banking rather than *auditing* a bank. (For further illustrations of how bank insiders exploit private information related to these loan securitizations, see, e.g., Ryan, Tucker, and Zhou 2013.)

financial statements faithfully report the economics of actual events and transactions. As evidence, we recall the following paragraph from Concept Statement No. 8 (paragraph QC 18).

“The most efficient and effective process for applying the fundamental qualitative characteristics usually would be as follows (subject to the effects of enhancing characteristics and the cost constraint, which are not considered in this example). First, identify an economic phenomenon that has the potential to be useful to users of the reporting entity’s financial information. Second, identify the type of information about that phenomenon that would be most relevant if it is available and can be faithfully represented. Third, determine whether that information is available and can be faithfully represented. If so, the process of satisfying the fundamental qualitative characteristics ends at that point. If not, the process is repeated with the next most relevant type of information.).”

We believe this demotion of representational faithfulness is misguided. Evaluating the representational faithfulness of a firm’s financial statements is also useful as a way of identifying instances of FE. While standard setters cannot fully eliminate preparers’ incentives to engage in FE, standard setters may be able to render the distortions induced by FE more transparent by emphasizing discrepancies between current methods of reporting transactions and what a more representationally faithful reporting of the transactions would entail. This would be in keeping with the demands of SEC Rule 12b-20, which requires that firms provide supplemental disclosures when the financial statements would otherwise be materially misleading

A shift in the academic accounting community’s attitudes and methodologies might help restore the role of representational faithfulness in financial reporting. As it stands currently, academics who have been schooled in analytical and statistical methods have given little attention to representational faithfulness either in their research or in classes and, instead, have become fixated on measuring the statistical correlation between accounting and stock market data, with little pretense of concern for whether these correlations reflect causality. Whether individual components of financial statements measure what they purport to measure has vanished from academic discourse. While we acknowledge that the present emphasis on statistical correlations reflects the failure of the preceding debates among many of the accounting intellectuals of the 20th century (Hatfield, Paton and Littleton, Edwards and Bell, Spouse and

Moonitz, Ijiri, Mattessich, etc.) to generate a consensus, the substitution of crude statistical (specifically, mostly regression-based) analyses for those debates has shifted the methodological focus of the profession without having identified better methods of financial reporting. In their present preoccupation with statistical correlations between accounting and stock market data, academics have lost sight of the distinction between accounting information obtained *for the markets* from accounting information derived *from the markets* (Sunder 2011), and as a consequence, academics have limited ability to judge the contribution of accounting standards to the functioning of the capital markets.

We recognize that some may disagree with the perspective taken here on the importance of representational faithfulness. An alternative perspective comes from Justice Louis Brandeis' advice for the law: "in most matters it is more important that the applicable rule of law be settled than that it be settled right."³⁴ That is, it may be better to "settle" the accounting treatment for innovative transactions by having *some* standard for them rather than tinker endlessly with standards in the quest for the "best" or most representationally faithful way to account for the transactions.³⁵ Related, following Coase (1960), we recall that Leftwich and Dodd (1980) observed that private parties always have the opportunity to contract around prevailing standards when reports produced in accordance with prevailing standards do not serve their goals. Leftwich and Dodd's observation also suggests that it is best to truncate debate over the correct choice of accounting standards and let the markets remedy any deficiencies in financial reports arising from deficiencies in accounting standards.

The Brandeis/Coasian view is effectively a claim that the details of accounting standards don't matter. In contrast, the representational faithfulness view is a claim that the details of

³⁴ In his dissent in *Burnet v. Coronado Oil & Gas Co.*, 285 U.S. 393 (1932).

³⁵ See also Sunder 1988, 1997, Chap. 11.

accounting standards matter a lot. Rather than being dogmatic, we call for more research to determine the circumstances in which one or the other of these two perspectives is correct.

8. Lessons from other industries

Accounting is not unique in its dependence on evolving rules and regulations. Public utility regulation and the law also rely on slowly changing rules and regulations. In this section, we discuss some of the similarities and differences between these two areas and accounting so as to identify insights for improving accounting standard setting.

For public utilities subject to rate of return regulation, how frequent should be the adjustment of rates paid by customers? An argument advanced by Klevorick (1973) and others is that the prices should be fixed for substantial periods of time, even if this gives the utilities rates of return on their investments in excess of rates specified by the public utility commissions overseeing them, under the premise that freezes in public utilities' prices give the utilities incentives to make efficiency enhancing investments: the utilities will reason that with frozen prices, they will be able to capture the returns from making those efficiency enhancing investments for some period of time. In contrast, were public utility commissions to react immediately and adjust the allowed prices the utilities can charge as soon as they detect any deviations in the utilities' realized rates of return from their allowed rates of return, the utilities would have no incentive to make efficiency enhancing investments, because they would not capture the benefits of such enhancements for a sufficiently long period of time to make such investments worthwhile. In the long run, the customers lose.

An insight potentially applicable to accounting regulation here is that quick adjustments by regulators to the investments of their regulatees limit the returns the regulatees receive from those investments, and thereby reduce the incentives of the regulatees to make those investments.

With public utilities, the investments are efficiency enhancing and socially desirable, and hence to be encouraged by delaying the adjustment of rates; with preparers and their FE facilitators, the investments they make to generate FE transactions are inefficient and socially undesirable, and hence are to be discouraged by increasing the pace of regulation – by adjusting accounting standards to undo the effects of the FE.³⁶

Perhaps law is a better domain for making comparisons with accounting. In both fields, accumulated and reasoned precedents govern the treatment of conventional transactions and activities. Since every event or transaction is unique in some way, both lawyers and accountants face the problem of deciding on which of the existing categories of rules is appropriate for classification of newly encountered events and transactions, and when new categories of rules should be created.

Posner (2010) has on point insights concerning both the pace of the evolution of rules in the legal industry, i.e., how fast common law changes, and the tradeoffs involved in developing narrow rules vs. broad standards. Posner notes that specific legal rules depreciate more quickly than broad standards do because the specific actions and events subject to those rules change over time, exceptions arise, and then the exceptions themselves become rules.

³⁶ An interesting avenue for future research would be to explore further the differences between the accounting industry and the public utilities industry that might affect the ability to transfer regulatory lessons between these two industries. For example, unlike public utility regulation, any mispricing in security markets may be immediately capitalized and its benefits harvested by the manipulators, unlike the efficiency gains in utilities which have to be realized slowly over time. Another difference is that with FE, rapid regulatory change makes the FE products something only the “smartest guys in the room” can design and sell. We doubt that old (and well understood) FE tricks can be sold at as high prices as new FE tricks that few understand. In contrast, in utilities regulation, fixing high prices for long periods encourages innovation. Also, perhaps, there is a “non-monotonicity” in the profitability of FE as a function of accounting regulation: that is, if accounting regulators can respond quickly enough to a new FE trick – i.e., before a particular FE makes its way into firms’ annual or quarterly reports - then perhaps that FE trick would attract no demand from preparers. However, as long as there is at least one reporting date (e.g., fiscal year end) from which a preparer can benefit from FE, we suspect that preparers will demand the trick and that financial engineers will be more than willing to redesign their products to circumvent the following year’s standards—somewhat similar to the way software developers and, in the past, car manufacturers profited from the obsolescence of previous versions of their respective products.

Posner also notes that specific legal rules deliberately throw away information (e.g., when an automobile driver is ticketed for exceeding 55 mph, it is irrelevant whether driving conditions were good and there was no traffic) whereas broad standards allow more nuanced information to be brought into the judicial examination of an issue. Both of these observations are immediately applicable to accounting.

9. The roles of other institutions in limiting FE and in accounting standard setting

Besides the actions of standard setters, several other elements of the financial reporting environment influence preparers' penchant for engaging in FE. We consider several of these elements briefly in this section.

a. High powered incentives of managers

We conjecture that all of the compensation-related factors that influence managers' propensity to engage in earnings management (e.g., accounting performance-based bonuses, restricted stock and employee stock option grants, the number and strike prices of options issued to managers tied to reported performance, etc.) also give managers incentives to engage in financial engineering. Related, as Healy (1985) initially showed in reference to discretionary accruals, not only does having these sorts of high powered incentives matter, but where a firm's unmanaged performance stands in relation to the firm's manager's incentive compensation (e.g., whether the firm's unmanaged performance is at the bottom or top of the range of values where the manager's incentive compensation increases in reported performance) also affects the manager's propensity to engage in earnings management, and hence we conjecture, also to engage in FE.

While the effects of managers' high powered incentives on their proclivities to engage in earnings management and FE are likely to be similar, one possible difference between the two is that FE cannot be done on the spot – it takes time to develop the various FE devices in the first place, and, once developed, cannot be “turned on” instantaneously, since unlike some discretionary accruals, the financial reporting effects of FE are entirely transactions based.

b. Additional disclosures and/or information sources

While the recognition vs. disclosure debate continues, it is reasonable to postulate that requiring firms to disclose more about their transactions may dampen firms' incentives to engage in FE. Incentives to engage in FE are most pronounced when the faces of firms' financial statements are the principal sources of information about firms' transactions. Wide ranging disclosures provide investors with alternative sources of information about firms' transactions, and attenuate managers' incentives to engage in financial engineering. These additional disclosures might include, for example, managements' rationale underlying FE transactions, the economics of those transactions, alternative transaction structures considered but not adopted, and information about the identities and histories of the financial engineers who helped to construct the transactions.³⁷

³⁷ For further discussion of such disclosures, see Glover (2013), and also in the “Interagency Statement on Sound Practices Concerning Elevated Risk Complex Structured Finance Activities” which focuses on transactions that:

- Lack economic substance or business purpose;
- Are designed or used primarily for questionable accounting, regulatory, or tax objectives, particularly when the transactions are executed at year end or at the end of a reporting period for a customer;
- Raise concerns that the client will report or disclose the transaction in its public filings or financial statement in a manner that is materially misleading or inconsistent with the substance of the transaction or applicable regulator or accounting requirements;
- Involve circular transfers of risk;
- Involve oral or undocumented agreements;
- Transactions with material terms inconsistent with market norms; or transactions with high compensation for financial engineers (indicating possible litigation risk).

c. Sources of financing

A firm's sources of financing, capital structure, binding debt covenants, and debt with performance pricing features that are about to be triggered, etc., are known to affect a firm's earnings management activities. We conjecture these same factors also affect a firm's propensity to engage in FE. For example, if most of a firm's capital is provided by debt financing, and a firm has on its board of directors one of the firm's major creditors – say a bank – then there is likely to be less incentive for the firm to engage in FE than if there are no creditors on the firm's board, since the board member will have finer (in the sense defined in Section 5) information about the firm's performance than what is available through the firm's financial reports, and this finer information will render moot many of the possible effects of FE on the creditor's perceptions of the firm's financial condition. In contrast, if most of the firm's financing is in the form of equity provided by small equity holders, then it can be predicted that the firm will engage in FE, because these equity holders' perceptions of the firm's financial condition are likely to be affected by its FE efforts.

d. Increased complexity of “normal” transactions

In the present environment, complex transactions are increasingly the norm, and not necessarily evidence of FE. Instead, they can be evidence of good business practices. For example, in cross-border transactions, standby letters of credit from multiple sources are often used to support the transactions, with various hedges put in place to distribute the risk of executing the transaction. When complicated transactions are the norm, financially engineered transactions can be concealed among the other transactions, and hence may not be detected or, even if detected, not carefully scrutinized. Consequently, the increased complexity of routine

transactions can serve to mask FE transactions, and thereby contributes to preparers' inclination to use FE when the need arises.

e. Changes in the auditing environment

We previously discussed auditing in Section 4 in reference to the Concept statements. Here, we discuss issues related to audit firms' incentives to perform audits well and how the increased complexity of ordinary transactions makes auditing more difficult.

Until the Sarbanes-Oxley Act of 2002 tried to rein in the practice, the consulting branches of the major auditing firms were considered to be profit drivers, with auditing serving merely as a commoditized loss leader to get a foot in the client's door to sell the client profitable consulting services. At Arthur Andersen, this de-valuation of auditing contributed to the celebrated audit failures at Enron, WorldCom, Waste Management, etc. In the past decade, consulting has reemerged as a major source of audit firms' profits.³⁸ If the de-emphasis on auditing continues, and resources continue to be shifted away from auditing, new financial reporting problems, including some rooted in financially engineered products, may reemerge.

But, even if incentives to perform audits well have not changed, the task of auditing has changed because transactions have become more complex, involve more parties, and often involve various forms of assurance and risk management that are difficult to assess. Even a diligent auditor finds it more challenging to identify manipulations and/or understand the economics of financially engineered transactions.

³⁸ After some eighty years of being required by law, it has become difficult to assess the value and consequences of audit for financial reporting. See recent field studies of audit engagements for publicly-traded and private firms, Fiolleau et al. (2013), and Esplin et al. (2014), respectively, which point to evidence on the economic value of audit in private companies who are not legally required to have an audit.

An extreme example of these challenges is provided by a transaction Enron used before its bankruptcy that was devised by Barclays investment bank.³⁹ As summarized in Figure 2, Enron established financial structures in which subsidiaries of Enron (Enron North America or ENA, Herzliede, and Grampian) had various bilateral contracts between itself and another supposedly independent party, Colonade, an entity in fact established by Barclays, as well as other bilateral contracts between itself and/or one of its subsidiaries and Barclays. No auditor could have discovered through routine work that the contracts between Colonade and Barclays ultimately transferred the risks associated with payments made in accordance with Enron's various bilateral contracts back to Enron.⁴⁰

f. The role of courts

Courts are the ultimate arbiters of accounting standards, the adequacy of firms' disclosures, and of information transferred to investors through financial statements. Courts are not bound to recognize behavior as non-negligent, or acceptable, simply because it conforms to industry standards. As we discussed in Section 4 above, maintaining the courts' respect for accounting standards, which in part entails keeping accounting standards current, is a legitimate and important reason for updating accounting standards in response to the FE initiatives of preparers.

g. The role of culture and academics

It is useful to remember that financial reporting problems arise in a cultural context. The scandals of Enron, Global Crossing, WorldCom, Tyco, Waste Management, etc., occurred in an

³⁹ This description is based on the report of "the examiner" Neal Batson, for the Bankruptcy Court of the Southern District of New York, and is referred to there as the "sulfur dioxide emissions credits transactions with Barclays bank" (Batson 2003b, http://www.enron.com/media/Final_Report_Neal_Batson.pdf).

⁴⁰ Source: The Second Interim Report of Neal Batson, Examiner, United States Bankruptcy Court, Southern District of New York, Appendix F, Miscellaneous Transactions of Enron (Batson 2003a).

environment with excessive emphasis on profits and pay. In this world, morality enters at best as an incidental desideratum in the cost-benefit calculus that determines peoples' behavior. The attitude of Olympic swimmer Cameron van der Burgh is unfortunately all too representative in this culture: after having been accused of cheating to win his gold medal at the London Summer Olympics, he said: "(i)f you're not doing it, you're falling behind. It's not obviously—shall we say—the moral thing to do, but I'm not willing to sacrifice my personal performance and four years of hard work for someone that is willing to do it and get away with it (*Sydney Morning Herald*, August 4, 2012)."

Just when it seemed that cheating in sports had reached its nadir, we got the spectacle of the celebrated cyclist Lance Armstrong being revealed as the greatest, most systematic, and most organized of cheaters in the history of athletics (who we know about). It is not difficult to draw parallels between Armstrong's and other athletes' egregiously immoral behavior and the behavior of bank officers who, in the years following the financial crisis, repeatedly agreed to have their firms pay billions of dollars of shareholders' money in penalties to escape jail for their crimes or the crimes of their employers.

Business professors have not been mere bystanders to this degradation of ethical behavior; some academics have actively facilitated the decline in moral behavior. The documentary *Inside Job* gave one perspective on the role of academic economists in facilitating some of the more outrageous behavior of banks during the financial crisis. Besides sometimes directly contributing to the morass of unethical behavior in the form of their own unprincipled actions, business academics have contributed indirectly to the present environment by promoting an incentive-driven view of organizations and culture that arguably has led to a general decline

of business ethics, a broad increase in irresponsible financial reporting, and an intellectual basis for not only condoning but also rewarding selfish behavior at the cost of public welfare.

In the management literature, the “organizational man” model of the 1950s gave way to the “individual incentives” model of the 1970s and thereafter. In the 1950s and 1960s, bonus-based incentive compensation was infrequent and small, and the pride of “professionalism” constrained the behavior of both managers and accountants. Senior executives earned only single digit multiples of their firms’ median worker’s compensation. The financial returns to an executive in side-stepping accounting standards were small, and the opprobrium an executive could be subject to for getting caught having done so would have been significant. The inclusion in AICPA’s 1973 Code of Ethics of the sentiments of Marcus Aurelius that “a man should *be* upright, not be *kept* upright” signaled what the accounting culture valued at that time. While this social milieu and attitudes may not have eliminated preparers’ incentives for financial engineering, such behavior remained constrained.

While it is hard to pinpoint when the culture shifted away from these values and toward an incentive-oriented view of the world, surely one harbinger of that change was Milton Friedman’s 1962 book *Capitalism and Freedom*. In that book, Friedman asserted that “in a free society, there is one and only one social responsibility of business—to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game.” Meckling and Jensen (1976) also contributed to this view through their paper, “*Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*,” which is widely

credited with establishing the “foundation for the widespread use of stock options as executive compensation tools.”⁴¹

It is of course impossible to turn the clock back to the 1950s and 1960s. We have to think of other ways to improve the financial reporting environment in light of the many irreversible changes that have occurred in the interim. In his 1998 speech, “The Numbers Game,” SEC chairman Arthur Levitt attempted to change the norms of acceptable financial reporting behavior by emphasizing, among other things, that materiality levels were not determined by just quantitative thresholds. Although considered radical at the time,⁴² the speech was heard but not listened to, as a series of major financial reporting and governance scandals followed in short order. After Levitt’s experience, it is difficult to be optimistic about the success of contemporary attempts to improve financial reporting through changes in norms and culture.

Collectively, the factors listed in this section can be recast to describe some changes that could be made to either the incentive structures or behaviors of participants in financial markets to reduce preparers’ propensities to engage in FE: reduce the portion of incentive pay of CEOs that is either directly (e.g., accounting based bonuses) or indirectly (e.g., stock or option based bonuses) influenced by FE; increase the liability of auditors when they fail to detect and report instances of GAAP noncompliant FE; better educate investors so that they are less fixated on firms’ income statements as the primary source of information about future firm value and, instead, take a more holistic view of the information reported in firms’ financial statements; for

⁴¹ The quotation is from Wikipedia in its commentary on the Jensen and Meckling article. For some historical references on the “shareholder value movement” spawned by Jensen and Meckling, see, e.g., Lazonick and O’Sullivan (2000) and Dobbin, Frank; Jiwook Jung (2010).

⁴² Carol Loomis (CNN Money, August 2, 1999) reported: “The opening shots came in a New York speech, “The Numbers Game,” that Levitt gave last September to CPAs, lawyers, and academics. Lynn Turner, chief accountant of the SEC (and formerly a partner of Coopers & Lybrand), recalls that as Levitt started to speak, waiters whipped around serving salads, and people began to eat. “Then,” says Turner, “two amazing things happened. First, people put down their forks and started listening very hard. Then--and this just never happens--they pulled out notepads.”

those FE efforts that are GAAP-compliant, require firms to make FE efforts more visible to investors (e.g., by requiring more disclosures along the lines of SOX's requirement that all off-balance sheet arrangements be summarized in the MD&A section of firms' financial statements and, related, by requiring firms to disclose their critical accounting policies), by giving preparers other incentives to "fess up" and describe situations where they are being aggressive in their exercise of discretion in choosing among financial reporting alternatives (much along the lines of the IRS's "Uncertain Tax Position Statement," Schedule UTP; see Towery 2013 for a study on Schedule UTP.)

10. Helping resist the tide of financial engineering

In this section we offer a few additional suggestions for standard setters concerning: how standards should be written, how asset and revenue recognition criteria might be revised, and how field testing standards before their general implementation might reduce financial engineering.

A. Be purposefully vague in writing standards

The history of FE suggests that standard setters often cannot anticipate how financial engineers will try to sidestep, or engineer around, the standards they promulgate. Without irony, we suggest that standard setters should learn to anticipate that financial engineers will surprise them. Standard setters can benefit from the insights of economic theorists who study contract design in circumstances where certain contingencies cannot be contracted on in advance. One conclusion from these theorists is that it can be optimal to leave some conditions of a contract unspecified when writing the contract. For example, it can be better for the firm not to describe precisely what will trigger a CEO's dismissal, and instead, be content with vaguely stated criteria

such as the CEO serving at the pleasure of the board of directors. As another example, it may be better for an investment bank to leave the determination of whether it will pay the legal fees of its employees to the discretion of the bank.⁴³

By analogy, the accounting treatment of new transactions could be resolved by broad principles espoused by regulators, leaving conflicts for the auditors and the courts to resolve. Just as courts use broad language such as “guilty beyond a reasonable doubt” as a criterion for lay juries to use in deciding criminal cases, accountants could use “true and fair” criteria to direct their financial reporting decisions (see Sunder 2010).

The recent tendency of standard setters to write detailed and voluminous standards in their failed attempts anticipate all conceivable contingencies regarding the standards’ implementation runs directly contrary to the contract theorists’ approach and, absent some fundamental change in regulatory philosophy, it portends even more voluminous accounting standards in the future.

Another way the Securities and Exchange Commission (SEC) can, and has, supported vagueness in the FASB’s writing of rules without losing control of accounting standards involves requiring SEC registrants to seek pre-clearance for their accounting treatment of innovative (financially engineered) transactions. Yet another approach is to make the less desirable (from preparers’ perspective) reporting alternative the default method of accounting for a transaction unless the preparer satisfies all items on an explicit list of criteria that exempts the preparer from the less desirable reporting alternative. This is, in our judgment, one of the few positive features to have emerged from the accounting for leases, where the lessee can avoid capital lease accounting treatment only if the lessee succeeds in avoiding all four of the principal criteria that

⁴³ See Bernheim and Whinston (1998) for a theoretical development and Morgenson (2014) on Goldman Sachs’ exercise of discretion in paying the legal fees of its employees.

trigger capital lease accounting treatment.⁴⁴ The FASB might want to consider even more extreme versions of this approach by specifying the terms of a “plain vanilla” operating lease contract and requiring that any deviation from the terms of that lease must result in lease capitalization. Following such a “FASB template” could be encouraged by packaging the lease with an assurance that the operating lease treatment for the plain vanilla lease will not be challenged by the SEC.

B. Adopt a “continuous” approach to recognition

Replacing bright line thresholds with a “continuous” approach to the classification of transactions is one possible way of structuring standards to be more resistant to financial engineering. The continuous approach to accounting for leases replaces the 0-1 classification conventionally adopted, where a lease is treated either as operating or capital in its entirety. In the continuous version, the present value of minimum lease obligations appears on the lessee’s balance sheet regardless of other contractual features of the lease. It is more robust than the bright line approach, in so far as a small change, or estimation error, in the calculation of lease payments does not result in a significant change in the lessee’s balance sheet.

Another example of the application of the “continuous” approach would be having a contingent liability appear on a firm’s balance sheet at its expected present value, instead of appearing in its entirety if the liability is deemed “more likely than not,” to have been incurred. For a third example, the conventional discrete “earned and realized” criteria for recording revenue from the sale of a product or service could be replaced by pro rata recognition of revenue as the seller performs work for a customer. While recent FASB pronouncements have

⁴⁴ We acknowledge that even this positive attribute of the standards for the accounting of leases has failed to get most long term leases capitalized.

begun to replace threshold criteria for recognition by this continuous approach, this transformation in accounting standards remains far from complete.⁴⁵

C. Greater field-testing of standards

Susceptibility to financial engineering is not the only weakness of accounting standards. Accounting standards also affect the fabric of organizations, markets, and society, and simultaneously affect millions of people who react to new standards by changing their behavior in difficult-to-predict ways. In the face of this complexity, it is not surprising that the present top-down approach to the design of accounting standards has generated plenty of unintended consequences. Three examples—evolution from FAS 125 to FAS 140 (Accounting for transfers and servicing of financial assets and extinguishments of liabilities), evolution from SFAS 19 to SFAS 25 (financial accounting and reporting for oil and gas producing companies), and evolution from a seemingly interminable standard on derivatives (FAS 133) to giving up and creating a standing “derivatives implementation group”—seem to be sufficient evidence on the inability of standards writers to understand the consequences of their rules.

Standard setters may, however, be able to improve their performance by organizing contests to see which preparers can design transactions that best circumvent the intent of proposed new standards, with prizes going to the most creative winners. The idea is not as far-fetched as it seems, as software designers often solicit user experience with beta versions for years, and sometimes even go so far as to invite hackers into newly designed systems before implementing them broadly. Google and Microsoft, among others, reap the benefits of “crowd

⁴⁵ The continuous approach has problems of its own. Since the booked amount would depend on the entire probability distribution of possible obligations, one must audit this probability distribution. Under the current threshold approach, one can concentrate audit efforts on those probabilities in the vicinity of the threshold. In the threshold approach even small manipulations can matter a lot, albeit only in the vicinity of the threshold; in the continuous approach small manipulations can have only small consequences, but such consequences are not confined to the neighborhood of the threshold. Greater difficulty of verifying small probabilities may create additional opportunities for manipulation under the continuous approach. See Donegan and Sunder (1989).

sourced” debugging of their programs. Even new models of a toaster, hardly an example of technological complexity or radical innovation, get field tested before being offered for sale to customers. There seem to be few downsides to field-testing new accounting standards.

The FASB has made improvements in their process such as adding post-implementation review. (See Blouin and Robinson (forthcoming) for a general overview of the post-implementation review process and their experience in working on the post-implementation review of FIN 48.) However, we suspect that such reviews are likely to come too late to have much impact on FE. The FASB has also engaged in field testing of particular standards, but their process has typically relied on voluntary participation and/or hypothetical financial statements (recasting financial statements). Voluntary early adoption can also be viewed as a form of field testing. While these seem to be steps in the right direction, much more could be done. Absent such contests, it seems otherwise nearly impossible to elicit comprehensive information about all the significant ways a standard can be circumvented. While there may not be a prize large enough that the FASB could give that will result in the crafting of new standards so well field tested that they shut down the entire FE industry, this form of beta testing seems worthwhile. The only cost that we can see with such an approach is, as a referee has kindly pointed out, a possible additional delay in the broader implementation of standards.

11. Conclusions

When business organizations choose their transactions, no regulator can prevent them from considering how the transactions they engage in may affect the appearance of their financial reports. Replacing one information structure/partition/financial reporting system with another will not eliminate such incentives. One of our goals in writing the present essay is to suggest that the FASB carefully consider both preparers’ incentives as well as its own limitations

while writing new standards. Dealing with preparers' incentives, and the challenge of verifying compliance with the standards it writes, are integral parts of the standard setter's job. They are not someone else's problem. The prevalence of an attitude that "we write the standards and we leave it to others (mostly auditors) to enforce the standards" makes financial reporting easy prey for financial engineering. While standard setters cannot eliminate preparers' incentives to engage in financial engineering, they may render the standards more resistant to such distortions.

References

Akerlof, G. 1970. "The market for 'lemons': Quality uncertainty and the market mechanism." *The Quarterly Journal of Economics*: 488-500.

American Institute of Accountants: 1934. *Audits of Corporate Account: Correspondence between the Special Committee on Co-operation with Stock Exchanges of the American Institute of Accountants and the Committee on Stock List of the New York Stock Exchange*. New York, NY.

Arrow, K. *Social choice and Individual Values* 2nd ed., Wiley, 1963.

Arya, A, J. Glover, and S. Sunder. 1998. "Earnings management and the revelation principle." *Review of Accounting Studies* 3.1-2: 7-34.

Athey, S., and J. Levin. 1998. "The Value of Information in Monotone Decision Problems" MIT Working Paper No. 98-24.

Batson, N., 2003a. Second interim report of Neal Batson, court-appointed examiner. United States Bankruptcy Court, Southern District of New York. In: re: Chapter 11 Enron Corp., et al., Debtors, Case No. 01-16034 (AJG), Jointly Administered, January 21.

Batson, N., 2003b. Final report of Neal Batson, court-appointed examiner, United States Bankruptcy Court, Southern District of New York. In: re: Chapter 11 Enron Corp., et al., Debtors, Case No. 01-16034 (AJG), Jointly Administered, November 21.

Bernheim, B., and M. Whinston. 1998. "Incomplete contracts and strategic ambiguity." *American Economic Review*: 902-932.

Blouin, J., and L. Robinson. "Insights from the initial post-implementation review of FIN 48." *Accounting Horizons*, forthcoming.

Burgstahler, D., and I. Dichev. 1997. "Earnings management to avoid earnings decreases and losses." *Journal of Accounting and Economics* December: 99-126.

[Carter, G.](#), [J. Newhouse](#), and [D. Relles](#). 1990. "How much change in the case mix index is DRG creep?" *Journal of Health Economics* 9(4): 411-28.

Christiansen, J., and J. Demski. 2007. "Anticipatory reporting standards," *Accounting Horizons* 21:4 (December): 351-370.

Debreu, G., *Theory of Value: An Axiomatic Analysis of Economic Equilibrium*," Cowles Foundation, Yale University Press, New Haven and London, 1959.

Demski, J. 1973. "The general impossibility of normative accounting standards." *Accounting Review*: 718-723.

Demski, J. 1980. *Information Analysis* Addison-Wesley.

Deza, M, and E. Deza. 2013. *Encyclopedia of Distances*, 2nd ed., Springer.

Dobbin, F., and J. Jung. 2010. "The misapplication of Mr. Michael Jensen: How agency theory brought down the economy and why it might again," in *Markets on Trial: The Economic Sociology of the U.S. Financial Crisis* (Research in the Sociology of Organizations): 30B, 29-64.

Dodd, P., and R. Leftwich. 1980. "The market for corporate charters: Unhealthy competition vs. federal regulation," *Journal of Business*: 259-283.

Donegan, J., and S. Sunder. 1989. "Contract theoretic analysis of off-balance sheet financing." *Journal of Accounting, Auditing and Finance* 4, no. 2: 203-216.

Dye, R. 2002. "Classifications manipulation and Nash accounting standards." *Journal of Accounting Research* 40.4: 1125-1162.

Dye, R., and S. Sunder. 2001. "Why not allow FASB and IASB standards to compete in the US?" *Accounting Horizons* 15.3: 257-271.

Esplin, A., K. Jamal, and S. Sunder. 2014. "A field study of auditing and private capital formation," Yale School of Management Working Paper, July.

FASB. 1980. Accounting for Leases: FAS 13 as Amended and Interpreted through May 1980.

FASB. 2010. Statement of Financial Accounting Concepts No. 8.

Fiolleau, K., K. Hoang, K. Jamal, and S. Sunder. 2013. How do regulatory reforms to enhance auditor independence work in practice? *Contemporary Accounting Research* 30 (3):864-890.

Francis, J., and K. Schipper. 1999. "Have financial statements lost their relevance?" *Journal of accounting Research* 37.2: 319-352.

Francois D., J. Patel, and R. Zeckhauser. 1999. "Earnings management to exceed thresholds," *The Journal of Business* Jan, 72.

Friedman, M. 1962. Capitalism and Freedom, University of Chicago Press, Chicago.

Glover, J. 2013. "Can financial accounting regulators and standard setters get (and stay) ahead of the financial engineers?" Emanuel Saxe Lecture at Baruch College.

Ganuza, J. and J. Penalva. 2010. "Signal orderings based on dispersion and the supply of private information in auctions." *Econometrica* 78 (3): 1007-1030.

- Healy, P. 1985. "The effect of bonus schemes on accounting decisions." *Journal of Accounting & Economics* 7 (1-3): 85–107.
- Herz, Robert. *Accounting Changes*. AICPA. 2013.
- Hölmstrom, B. 1979. "Moral hazard and observability." *The Bell Journal of Economics*: 74-91.
- IASB. 2007. "History of Lease Accounting, Agenda Paper 12C". <http://www.ifrs.org/Current-Projects/IASB-Projects/Leases/Meeting-Summaries-and-Observer-Notes/Documents/Leases0703b12cobs.pdf> accessed September 8, 2013).
- Jensen, M., and W. Meckling. 1976. "Theory of the firm managerial behavior, agency costs, and ownership structure." *Journal of Financial Economics* 3 (4): 305-360.
- Klevorick, A. 1973. "The behavior of a firm subject to stochastic regulatory review." *The Bell Journal of Economics and Management Science* 4 (1): 57-88.
- Kydland, F., and E. Prescott. 1977. "Rules rather than discretion: The inconsistency of optimal plans." *The Journal of Political Economy*: 473-491.
- Lazonick, W., and M. O'Sullivan. 2000. "Maximizing shareholder value: A new ideology for corporate governance." *Economy and Society* 29 (1): 13-35.
- Leftwich, R. 1980. "Market failure fallacies and accounting information." *Journal of Accounting & Economics* 2: 193-211.
- Lucas, D., and R. McDonald. 1992. "Bank financing and investment decisions with asymmetric information about loan quality." *The RAND Journal of Economics*: 86-105.
- Maines, L., and J. Wahlen. 2006. "The nature of accounting information reliability: Inferences from archival and experimental research." *Accounting Horizons* 20 (4): 399-425.
- Marinovic, I. 2012. Internal Control System, Earnings Quality and the Dynamics of Financial Reporting. Northwestern University Phd dissertation.
- Meneghetti, C., and R. Williams. 2013. "Fortune favors the bold." University of West Virginia Working Paper (http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2336063).
- Morgenson, Gretchen. 2014. "At Goldman Sachs, Even the Legal Fees Are Different," *The New York Times* (September 6), http://www.nytimes.com/2014/09/07/business/at-goldman-sachs-even-the-legal-fees-are-different.html?ref=business&_r=1.
- Myerson, R. 1979, "Incentive-compatibility and the bargaining problem," *Econometrica* 47: 61–73.

- Nelson, M., J. Elliott, and R. Tarpley. 2002. "Evidence from auditors about managers' and auditors' earnings management decisions." *The Accounting Review* 77.s-1: 175-202.
- Penno, M. 2008. "Rules and accounting: Vagueness in conceptual frameworks." *Accounting Horizons* 22: 339-352.
- Peter's Quotations: Ideas For Our Time*. 1993. Edited by Laurence Peter, Harper Collins 1993.
- Posner, R. 2010. *Economic Analysis of Law* 8th ed. Wolters Kluwer.
- Reny, P. 2001. "Arrow's theorem and the Gibbard-Satterthwaite theorem: a unified approach." *Economics Letters* 70: 99-105
- Ryan, S., J. Tucker, and Y. Zhou. 2013. "Securitization and Insider Trading," Stern School Working Paper, New York University.
- Sedley, D. 2007. *Plato's Cratylus*, Cambridge Press.
- Sunder, S. 1981. "Why is the FASB making too many accounting rules?" *The Wall Street Journal*, April 17.
- Sunder, S. "Limits to information." In *1983 Accounting Research Convocation; Proceedings* edited by Kathleen Bindon, 101-110. School of Accountancy, University of Alabama, 1984.
- Sunder, S. 1988. "Political economy of accounting standards." *Journal of Accounting Literature* 7: 31-41.
- Sunder, S. 1997. *Theory of Accounting and Control*. Cincinnati, OH: South-Western College Publishing.
- Sunder, S. 2010. "True and Fair' as the moral compass of financial reporting." *Research on Professional and Ethics in Accounting* 14: 3 -11.
- Sunder, S. 2011. "Paradox of writing clear rules: Interplay of financial reporting and engineering." *The Japanese Accounting Review*: 119-130.
- Towery, E. 2012. "How do disclosures of tax aggressiveness to tax authorities affect reporting decisions? Evidence from Schedule UTP," University of Texas at Austin Working Paper.
- Watts, R. 2006. "What has the invisible hand achieved?" Working paper, Massachusetts Institute of Technology.
- Weinberg, S. 1992. *Dreams of a Final Theory*. Vintage Books.

Table 1: Lease Accounting Standards⁴⁶

Year	Author	Doc	Title
1966	APB	APB Opinion 7	Accounting for Leases in Financial statements of Lessors
1972	APB	APB Opinion 27	Accounting for Lease Transactions by Manufacturer or Dealer Lessors
1973	SEC	ASR 132	Reporting of Leases in Financial Statements of Lessees
1973	SEC	ASR 141	Interpretations and Minor Amendments Applicable to Certain Revisions of Regulation S-X
1973	APB	APB Opinion 31	Disclosure of Lease Commitments by Lessees
1973	SEC	ASR 147	Notice of Adoption of Amendments to Regulation S-X Requiring Improved Disclosure of Leases
1974	FASB	DM	An Analysis of Issues Related to Accounting for Leases
1975	FASB	ED	Accounting for Leases
1976	FASB	ED (revised)	Accounting for Leases
1976	FASB	FAS 13	Accounting for Leases
1977	FASB	FAS 17	Accounting for Leases—Initial Direct Costs
1977	FASB	FASB Interpretation 19	Lessee Guarantee of the Residual Value of Leased Property
1978	FASB	FASB Interpretation 21	Accounting for Leases in a Business Combination
1978	FASB	FAS 22	Changes in the Provisions of Lease Agreements Resulting from Refundings of Tax-Exempt Debt
1978	FASB	FAS 23	Inception of the Lease
1978	FASB	FASB Interpretation 23	Leases of Certain Property Owned by a Government Unit or Authority
1978	FASB	FASB Interpretation 24	Leases Involving only a Part of a Building
1978	FASB	FASB	Accounting for Purchase of a Leased Asset by the

⁴⁶ Sources: IASB, History of Lease Accounting, Agenda Paper 12C: <http://www.ifrs.org/Current-Projects/IASB-Projects/Leases/Meeting-Summaries-and-Observer-Notes/Documents/Leases0703b12cobs.pdf> accessed September 8, 2013); and FASB (1980). Accounting for Leases: FAS 13 as Amended and Interpreted through May 1980.

		Interpretation 26	Lessee During the Term of the Lease
1978	FASB	FASB Interpretation 27	Accounting for a Loss on a Sublease
1979	FASB	FAS 26	Profit Recognition on Sales-Type Leases of Real Estate
1979	FASB	FAS 27	Classification of Renewals of Extensions of Existing Sales-Type or Direct Financing Leases
1979	FASB	FAS 28	Accounting for Sales with Leasebacks
1979	FASB	FAS 29	Determining Contingent Rentals
1979	FASB	Technical Bulletin 79-10	Fiscal Funding Clauses in Lease Agreements
1979	FASB	Technical Bulletin 79-11	Effects of a Penalty on the Terms of Lease
1979	FASB	Technical Bulletin 79-12	Interest Rate Used in Calculating the Present Value of Minimum Lease Payments
1979	FASB	Technical Bulletin 79-13	Applicability of FAS 13 to Current Value Financial Statements
1979	FASB	Technical Bulletin 79-14	Upward Adjustment of Guaranteed Residual Values
1979	FASB	Technical Bulletin 79-15	Accounting for Loss on a Sublease not Involving the Disposal of a Segment
1979	FASB	Technical Bulletin 79-16	Effect of a Reduction in Income Tax Rate on the Accounting for Leveraged Leases
1979		Technical Bulletin 79-17	Reporting Cumulative Effect Adjustment from Retroactive Application of FAS 13
1979	FASB	Technical Bulletin 79-18	Transition Requirement of Certain FASB Amendments and Interpretations of FAS 13
1980	FASB	Technical Bulletin 79-16 (Revised)	Effect of a Change in Income Tax Rate on the Accounting for Leveraged Leases
1980	IASC	ED (E19)	Accounting for Leases
1982	IASC	IAS 17	Accounting for Leases
1997	IASC	ED (E56)	Leases
1997	IASC	IAS 17 (revised)	Leases
2003	IASB	IAS 17 (revised)	Leases
1996	G4+1	Special Report	Accounting for Leases: A New Approach
1999	G4+1	Special Report	Leases: Implementation of a New Approach
2005	FASB/IASB	Proposed FSP FAS 13-a	Accounting for a Change or Projected Change in the Timing of Cash Flows Relating to Income Taxes Generated by a Leveraged Lease Transaction

2009	FASB/IASB	Discussion Paper	Leases: Preliminary Views
2010	FASB/IASB	Proposed Standards Update	Proposed Accounting Standards Update—Leases (Topic 840)
2013	FASB/IASB	Proposed Standards Update	Leases (Topic 842): A Revision of the 2010 Proposed FASB Accounting Standards Update

Figure 1: Schematic chart of costs and benefits of re-engineering transactions in a classification system

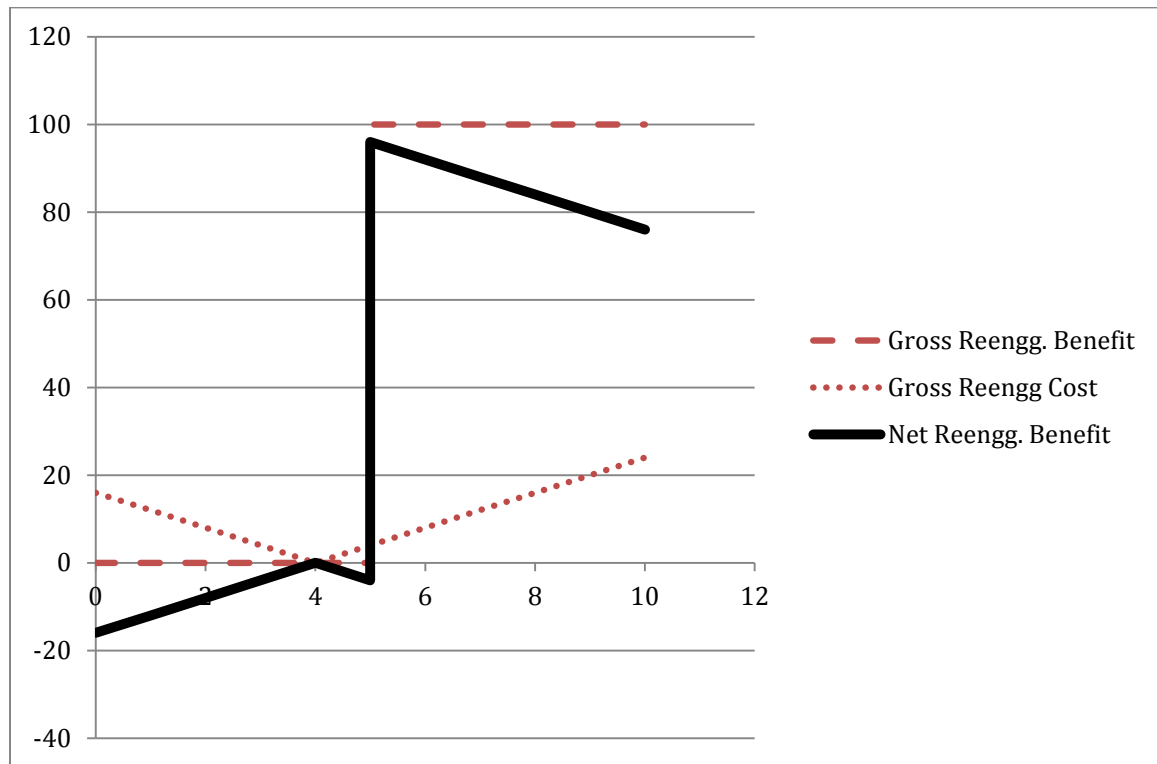


Figure 2: Enron's SO₂ Transaction.

The structure of the SO₂ Transaction is shown in the following diagram:

