

REGULATORY CYCLES AND THE DEMAND FOR CONSERVATIVE STANDARDS

Preliminary and Incomplete Comments Welcome

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Abstract

This paper analyzes standard-setting as an ongoing legislative process in which, each period, new exposure drafts are proposed and adopted if they receive favorable opinions from accounting practitioners. Under the simple majority rule used by US standard-setters, standards exhibits regulatory cycles. A cycle begins with little mandatory disclosure and a stable increase in required disclosure of losses. Standards evolve to relatively comprehensive mandatory disclosure with an increase in required disclosure of both gains and losses. This last regime is highly unstable and, with positive probability each period, a new standard is adopted that lifts nearly all mandated disclosure, starting a new cycle. Under the qualified majority rule used by the International Accounting Standard Board, by contrast, disclosure requirements always evolve to increase over time. Further, we show that mandatory disclosure tends to increase during economic expansions. Finally, we show that liberal standard-setting, which prescribes non-disclosure of losses and disclosure of gains, will always collapse to a completely uninformative standard that ultimately mandates no disclosure.

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Conservatism is a long-standing property of observed accounting practice. The term of conservatism describes a number of accepted practices in which preparers of financial statements require a greater degree of certainty to recognize favorable versus unfavorable events or, as summarized by the adage, “anticipate no profit, but recognize all losses” (Bliss (1924)). Conservatism is an important component of most accounting standards. For example, firms may not be able to reevaluate an asset that gained value but may need to impair an asset that lost value. Similarly, many investments in intangibles (such as research and development) are fully expensed when incurred, rather than capitalized as an asset in anticipation of future economic benefits. As the most visible consequence of these practices, book values of publicly traded companies tend to be much lower than actual market prices; more generally, accounting earnings and balance sheet numbers tend to be downward biased and do not reveal all information about prospective gains. Conservative practices have important ramifications in trying to understand the links between economic creation of value and accounting earnings and are to be considered when writing contracts based on income numbers (such as debt covenants or incentive bonuses); yet, the process that may have led to the emergence of conservatism, and the forces that affect the degree of conservatism in accounting standards are not fully understood.

This paper proposes to explain the institutional foundations of conservative accounting, by modelling the demand for conservative accounting and how standard-setters respond to these demands by producing accounting standards. From the perspective of standard economic theory, the widespread practice of conservatism is surprising. From a contracting perspective, the revelation principle would suggest that more efficient contracts should be feasible if firms were to adopt full disclosure - regardless of whether it is about gains or losses - and write contracts on these disclosures. From a financial reporting perspective, the lack of transparent disclosure about gains may prevent some firms from receiving capital to finance their most promising projects. Conservatism is also an area that is currently heavily debated, with current standard-setters advocating for a more unbiased application of fair-value accounting.

We model the consultative due process followed by standard-setters and that precedes the adoption of a new standard. We assume that, each period, a new standard proposal is put on the agenda and publicly circulated (e.g., a discussion paper or exposure draft), so that parties

interested in the new standard may submit favorable or unfavorable opinions. Our focus is on standard-setting issues that relate to which economic events, whether favorable or unfavorable to a firm value, should be mandatorily disclosed. We assume that standard-setters collect opinions, passing the new standard only if a sufficiently large fraction of favorable opinions is received.

Firms receive some advance signal about the value that may be disclosed. They submit an opinion in favor of a proposed standard only if the disclosure requirements of the new standard would provide outside investors with information that would raise their market price. A firm's most preferred standard, then, would be one it is pooled with firms of greater value, i.e. a conservative standard in which all signals that are more unfavorable than its own must be disclosed. No single standard would be agreeable to all firms and, deriving firm's response to various standard proposals, we describe which standards can be passed and, as new standards are proposed to replace old ones, we analyze the dynamics of the standard-setting process.

We analyze first the commonly observed practice in which disclosure is over unfavorable events and non-disclosure is over unfavorable events, which we denote conservative standard-setting. Our main result is that, under simple majority requirements, the standard-setting process will feature regulatory cycles. By matter of convention, let us define the start of a new cycle as a situation in which current standards require little disclosure, so that most firms do not disclose and receive a market price close to the unconditional expected value. In this regime, a new standard can be passed by mandating disclosure of a small fraction of low-value firms, raising the market price of the (majority of) firms not disclosing. Such a standard can be passed and leads to increases in disclosure of unfavorable events. Conservatism, in the sense of a greater disclosure of bad news, increases.

As time progresses, a sequence of such increases in disclosure is adopted, leading to a mandated disclosure of all unfavorable events but also some favorable ones. This second regime features a decrease of conservatism. However, this second regime is highly unstable. A low-value firm can propose a standard that lifts nearly all disclosure requirements, receiving the support of the (now in majority) other relatively low-value firms forced to disclose. This abrupt decrease in disclosure ends a cycle, and a new cycle begins with few disclosure requirements. The duration and magnitude of a regulatory cycle is stochastic but, as disclosure becomes more pronounced and

more good news are disclosed (i.e., the standard becomes less conservative), the fraction of firms interested in lifting disclosure requirements increases and thus it becomes ever more likely that the low-disclosure standard will be passed and the cycle will end.

We show that the abrupt reduction in mandatory disclosure that ends a cycle is opposed by firms with high value; however, under a simple majority requirement (such as the one required by US standard-setters), it is not sufficient for high-value firms to block this legislation. However, under a qualified majority rule (such as the qualified majority required by the International Accounting Standard Board), the high-value firms would always be able to prevent it. Under a qualified majority rule, then, there are no such cycles and the standard will evolve to require ever greater levels of disclosure.

We contrast conservative standard-setting with liberal standard-setting. Liberal standard-setting is defined as a situation in which standard-setters implement standards that prescribe disclosure of favorable events and non-disclosure of unfavorable events. From a pure informational perspective, having better information about gains is not necessarily less desirable than having better information about losses; however, liberal standards are fairly rare in the accounting tradition. We show that, unlike conservative standards, a liberal standard-setting process always degenerates into a standard that mandates no disclosure.

The intuition for this property is that, unlike under conservative standard-setting, increasing disclosure requires to mandate disclosure for firms previously not disclosing that have the highest value. Such a move receives the unambiguous opposition of all firms that do not disclose and would not pass. In fact, it is in the best interest of firms not disclosing to be pooled with the greatest possible fraction of high-value firms and thus reduce disclosure in the standard. This form of standard-setting quickly evolves into a situation in which the standard prescribes no mandatory disclosure. Thus, the analysis offers a simple argument for the lack of observed surviving liberal standards.

There is a vast empirical research in accounting that has provided evidence of conservative practices (see Watts (2003a) for a survey). Prior theoretical research has focused on whether conservative accounting may efficiently resolve informational frictions. These models have provided mixed findings. Gigler, Kanodia, Sapiro, and Venugopalan (2009) argue that debt covenants based

on conservative numbers reduce the efficiency of continuation/termination decision because conservatism increases the likelihood that a project will be inefficiently liquidated. On the other hand, Chen, Hemmer, and Zhang (2007) argue that conservative accounting dissuades managers from engaging in value-decreasing earnings management activities. Kwon, Newman, and Suh (2001) show that, as an efficient solution to an agency setting, managers are likely to voluntarily report good news less frequently. Our paper differs from these papers, in that our focus is on the legislative process of conservative standard-setting. In this respect, our objective is not to make a normative analysis of the positions that standard-setters should have on conservatism.

The plan of our analysis is as follows. Section 1 presents the institutional background, laying out the due process that underlies the choice of a new standard for the two largest standard-setting bodies. Section 2 presents a model of this due process. Section 3 analyzes the dynamics of standard-setting when standard-setters choose over conservative standards. Section 4 extends the analysis to liberal standards. Section 5 concludes.

1. Institutional Background

We describe first the legislative due process for the two largest standard-setting bodies, the International Accounting Standard Board and the Financial Accounting Standard Board. This description is meant to gain some broad understanding of standard-setters backgrounds and what may be their objectives and influences. Then, we document the due process required prior to the adoption of a new standard. Finally, and to better compare the predictions of the model to observed standards, we provide some evidence of conservatism in current standards.

1.1. International Financial Reporting Standards (IFRS)

The International Accounting Standard Board (IASB) began operations in 2001, and its mission is to develop the International Financial Reporting Standards (IFRS), a single set of global accounting standards.¹ Board members are appointed by twenty two trustees who represent a variety of professional backgrounds, including “auditors, preparers, users, academics, and other of-

¹As of 2008, more than 100 countries permit IFRS and 85 countries require IFRS (“SEC Proposes Roadmap Toward Global Accounting Standards to Help Investors Compare Financial Information More Easily”, SEC 2008-184).

officials serving in the public interest.” (IFRS 2008, p.3). The IASB is composed of twelve full-time members and two part-time members and is chosen to “comprise the best available combination of technical expertise and international business and market experience.” (IFRS 2008, p.3). As of 2008, six members have prior experience as auditors, six as regulators, four as preparers of financial statements, two as users (e.g., banking and investment) and two as academics. In addition, two consultative organisations assist the IASB Board members. The Standards Advisory Council (or SAC) is composed of 40 members interested in issues related to financial reporting. It meets three times a year and provides advice to trustees and Board members. Currently, the SAC voting members include fifteen preparers of financial statements, twelve regulators, ten users, four external auditors and one academic. The International Financial Reporting Interpretations Committee (IFRIC) has twelve voting members and speaks to technical issues not fully addressed in current IFRS.

The IASB has full discretion in preparing and issuing IFRSs. However, the projects undergo a consultative due process (see IASB Due Process Handbook). The IASB first identifies new projects of value to users of financial statements, by receiving input from staff members and its two consultative bodies. After consulting the SAC, a set of agenda items and priorities is decided. Then, the IASB normally circulates a discussion paper which gives an overview of the issues as well as the preliminary views of its authors. The next step of the process is an exposure draft, which considers the different comments made on the discussion paper as well as suggestions of the SAC or working groups. An exposure draft must be approved by at least nine members of the IASB. This exposure draft is publicly circulated and the IASB reviews the comment letters that it receives. An IFRS is finalized during IASB meetings and must be approved by at least nine members. Interpretations from IFRIC follow a similar due process; a draft Interpretation is reached if fewer than four (out of twelve voting members) vote against it. The Interpretation then requires at least nine votes from IASB members to be approved.

The IFRS is generally viewed as less conservative than US generally accepted accounting practices. In its conceptual statement (IFRS Framework for the Preparation and Presentation of Financial Statements, p.69-98 IFRS 2008), the IFRS states that “information must represent faithfully the transactions and other events that it either purports to represent or could reasonably be expected

to represent.” However, the conceptual statement also allows for some forms of conservatism. For example, the statement states that: “although most entities generate goodwill internally over time, it is usually difficult to identify or measure the goodwill reliably.” The IFRS conceptual statement requires preparers to use prudence, defined as “a degree of caution in the exercise of judgments needed in making the estimates required under conditions of uncertainty.” However, the choice of the word of prudence is indicative of standard-setters reluctance to support clear conservative practices, i.e. “the exercise of prudence does not allow, for example, the creation of hidden reserves or excessive provisions, the deliberate understatement of assets or income, or the deliberate overstatement of liabilities or expenses because financial statements would not be neutral.”

In practice, the application of prudence can lead to accounting treatments that are conservative in nature. Conservatism is predominant for a number of investments in intangibles economic assets. In the context of expenditures on research activities, “No intangible asset arising from research (...) shall be recognised. Expenditure on research (...) shall be recognized as an expense when it is incurred” (IAS 38.54). To recognize research expenses as an asset, the entity must demonstrate that the project has reached a development phase and has ability to sell or use this asset. For similar reasons, “internally generated brands, mastheads, publishing titles, customer lists and items similar in substance shall not be recognized as intangible assets.” (IAS 38.63). The IFRS permits impairment tests for a cash generating unit to which goodwill has been allocated. However, the IFRS “prohibits the recognition of reversals of impairment losses for goodwill” (IAS 36.IN15, 36.124), even in cases in which new economic events indicate a gain in value. For tangible assets, the IFRS requires the recognition of an impairment loss as an expense when the economic recoverable value of an asset falls below its carrying amount. However, recognition of gains through the reevaluation of an asset requires the existence of reliable estimates, such as market-based appraisals (IAS 16.31).

1.2. Financial Accounting Standards Board (FASB)

The Financial Accounting Standard Board (FASB) is an organization founded 1973 and which produces the set of standards collectively known as generally accepted accounting practices (US-GAAP) and required for US firms and international firms traded in US exchanges or marketed to

US investors. FASB is not a governmental institution and does not have legal authority for implementing accounting standards (this is the authority of the SEC by the Securities and Exchange Act of 1934). However, the FASB generally accepted accounting principles are closely followed by the Commission.

The FASB is composed of five full-time voting members. As of 2009, two board members were previously auditors, two were preparers and one is from an academic institution. FASB is also composed of 68 staff members. The FASB also receives input from two advisory councils, the Financial Accounting Standards Advisory Council (FASAC) and the Emerging Emerging Issues Task Force (EITF). FASAC provides advice to the Board on issues relevant for existing standards. FASAC is composed of 37 members with a large majority being preparers (22), in addition seven are users, four are auditors, four are academics and one (the chairman) is a full-time FASB staff member. The EITF is composed of fifteen members and charged with identifying and providing consensus on new financial reporting issues. Excluding its chairman, members are auditors (6), preparers (5) and users (3). As compared to the IASB and its advisory councils, the FASB operates in a close relationship with the SEC and the US Congress, with many new standard proposals originating from these bodies and finalized standards being ultimately approved by the SEC.

The due process for a new standard at FASB normally includes the following steps. First, the Board receives recommendations for new issues from staff members. The Board votes whether or not to put this new issue on the agenda. This vote is with simple majority (3 out of 5 members). The FASB may then publicly circulate an Invitation to Comments and a Preliminary Views. After further deliberation and consideration of suggestions, the FASB issues an Exposure Draft. For some issues, the FASB may organize a public roundtable in which participants interested in these issues may express their views. All external parties may submit comment letters to the FASB. The exposure draft may then be amended; it is adopted if a simple majority of Board members is in favor.

Unlike the IFRS, GAAP has inherited a number of conservative practices from the Securities and Exchange Act of 1934. An Exposure Draft is currently being circulated that lays out an analogue to the IFRS conceptual statement for US-GAAP.² This draft present neutrality as an

²Conceptual Framework for Financial Reporting: The Objective of Financial Reporting and Qualitative Characteristics and Constraints of Decision-Useful Financial Reporting Information.

essential component of financial reporting. However, it puts more emphasis on some measured degree of conservatism as stated by “There is a place for a convention such as conservatism meaning prudence in financial accounting and reporting, because business and economic activities are surrounded by uncertainty, but it needs to be applied with care” (paragraphs 92 and 93 of Concepts Statement 2).

US-GAAP is markedly more conservative than IFRS in the preparation of financial statements; in particular, many US corporations issue (unaudited) non-GAAP income measures that unravel these conservative requirements. For example, research expenses must be expensed in the current period. In addition, GAAP prescribes expensing most incurred expenses during the development phase, until formulation, design and testing of the product have been completed (SOP 98-1). After this phase, only direct costs (i.e., clearly traceable to the activity) can be capitalized so that most overhead, training and administrative expenses must be expensed in the current period. As a general principle, GAAP requires impairment tests but does not permit reevaluations of assets, that is except for financial assets valued at fair-value or for assets purchased externally.

2. The Model

We present next a model of the ongoing standard-setting due process. Time is discrete and indexed by $t = 0, \dots, +\infty$, with each period representing the time lapse for a new regulation to replace an existing one (e.g., between one and several years). The economy is composed of a continuum of firms indexed by $i \in [0, 1]$ and with mass normalized to one. Firms have a current economic value $\pi_{i,t} = h_{i,t} + v_{i,t} + \epsilon_{i,t}$, where $h_{i,t}$ is public information - say, as determined by the firm’s past periods of operations or any other current public information - $v_{i,t}$ is a value-relevant signal which is known only to the firm’s management but not to outside investors and $\epsilon_{i,t}$ is i.i.d. white noise which is unknown until the end of the period. Because of the (long) time horizon represented by one period, we assume that actual economic events are realized by the end of the period, so that $\pi_{i,t}$ is publicly known at the end of each period; for our purpose, $v_{i,t} + \epsilon_{i,t}$ may be distributed as a dividend at the end of period t or retained and reincorporated into $h_{i,t+1}$. It is then fairly natural to view innovations to firm value $v_{i,t+1}$ in the next period as an i.i.d. process that is

independent from prior periods (and from other firms in the economy).³

The signal $v_{i,t}$ is indicative of a current economic event that may or may not be disclosed in current financial reports. In the context of revenue recognition, for example, $v_{i,t}$ can represent a service contractually agreed-upon but to be provided in the future; under current US-GAAP, such $v_{i,t}$ would generally not be recognized as revenue in financial statements. The event $v_{i,t}$ may also encompass a number of other situations such as soft information indicating future sales, financial transactions that may or may not be marked to market or information about the success of a particular investment. For tractability, we further assume that the distribution of $v_{i,t}$ is drawn from an exponential distribution with density $f(v) \equiv \alpha e^{-\alpha v}$, where α_t is public. Given that $\mathbb{E}(v_{i,t}) = 1/\alpha_t$, we will also interpret α_t as a proxy for the state of the economy with α_t being greater in bad times and lower in good times. The structure of the model as well as the distribution of $v_{i,t}$ are common-knowledge to outside investors. Given that we will analyze the model considering each period separately, we will ease notations by dropping the indexation on i and t , so that v represents the current change in value for one particular firm and α represents the economy's current state.

Each period, each firm is controlled by a manager who observes v prior to the end of the period (i.e., prior to the realization of the event). As in the financial disclosure literature (e.g. Verrecchia (1983) or Dye (1985)), we assume that the firm's management is interested in maximizing their firm's interim market price prior to v being publicly realized - for example, they may sell a fraction of equity at this interim stage.⁴ Our purpose being to model the function of accounting standards, we assume that firms cannot credibly disclose v outside of the standard. There are of course other sources of information that could be voluntarily disclosed or revealed through private contracts (e.g., an external monitor or signalling). These forms of information are not the object of our analysis and, in our model, would fit in as a component of $h_{i,t}$. Our concern here is with respect to other information that has much lower level of verifiability. For such cases, bilateral private contracts do not have the same enforcement power of public regulations: contracts are always subject to limited liability while failures to satisfy regulations can induce very large punishments

³Note also that $h_{i,t}$ may include the present value of future realizations of $v_{i,t}$ (in particular if $v_{i,t}$ has non-zero expectation).

⁴The results are unchanged if some managers retain all of their ownership for some periods; in this case, these managers would be indifferent between any accounting standards. Similarly, if we were to assume that certain managers are buying (instead of selling) stock, such managers would prefer standards that reduce market prices - the results would be readily adapted to these situations.

(such as fines, public audits or, even, jail time). Thus, v represents information that may only be disclosed if mandated by an accounting standard.

We model an accounting standard as a rule that mandates a disclosure $m(v) \in \{\emptyset, v\}$. The case of $m(v) = \emptyset$ corresponds to non-disclosure of v (as consistent with accounting rules barring recognition of some uncertain events) while $m(v) = v$ corresponds to a disclosure of the management's information. Further, given that accounting frauds are not the primary object of our analysis, we assume that potential penalties are large enough to prevent firms from misreporting $m(v)$.⁵ It should be noted that our representation of information is fairly coarse, and does not do justice to the complexity of highly dimensional information reported in financial statements; however, it captures an important dimension of the disclosure problem, namely the value of a firm implied by the information which has been the main object of many financial disclosure models. After the report $m(v)$ has been made public, the firm's shares are sold at their expected value, i.e. $P(m) = h + \mathbb{E}(v|m)$. Given that h is accurately priced by investors and plays no other role in the model, we will ignore it in the rest of the paper and simply refer to v as a firm's (incremental) value.⁶

It has been argued in prior research that different parties may prefer different standards (Beaver and Demski (1979), Dye (2002)). In our setting, a firm with some particular value \tilde{v} would most prefer to be pooled with firms with higher value $v \geq \tilde{v}$ and be separated from firms with lower value $v < \tilde{v}$. This most preferred standard would prescribe a standard with disclosure of all economic events with $v < \tilde{v}$. As this example shows, better quality firms generally prefer higher-quality standards and there is no single standard that would be agreed-upon by all firms. In this respect, the choice of standards requires us to explicitly model the influence of each firm over the standard-setting process.

To model the choice and implementation of a new standard, we will use a version of the Baron and Ferejohn (1989) model to capture standard-setters' due process. Each period, we assume that a

⁵While receiving considerable attention on an individual basis, large frauds (such as those of Enron or Worldcom) are the exception rather than the norm in the larger population of firms. There are only a minority of firms that restate their earnings due to fraud and - we would hope - many potential frauds are detected by auditors (see Agrawal and Chadha (2005) and references therein). Kedia and Philippon (2007) further propose an analysis of the economic consequences of accounting frauds.

⁶We consider as the benchmark case that v is additive to the firm's value. If firms were of different scales, we would view both h and v as being measures scaled by firm's assets to ensure comparability, and to guarantee that (as is usual in empirical specifications of earnings and cash flows) the innovation to firm's value can be written additively.

new standard proposal is put on the agenda. In practice, agenda items are brought to the attention of standard-setting boards by consultative bodies as well as accounting practitioners, where the influence of preparers is likely to be important. To model this agenda-setting step, we assume that all firms make standard proposals and one is randomly selected to be considered as a new standard. Given the composition of consultative agencies, we would view most preparers as being responsive to the reporting objectives of their firms. Moreover, although to a lesser extent, public officials may be influenced by some lobbying firms in their constituencies and auditors may be responsive to the needs of their portfolio of clients. For reasons of parsimony, we have assumed that users do not submit proposals; however, we would view them as more willing to demand more disclosure and, given that they are relatively less represented, incorporating a fraction of users should not dramatically affect the results (we will discuss this matter in more details as we present the results). The process of agenda-setting is one that is not public and thus we assume that the identity of the firm originating the new proposal is not known to outside investors.

Denote $m_{new}(\cdot)$ the randomly selected proposal on the agenda and denote $m_{old}(\cdot)$ the standard currently in place. Consistent with the due process for both the IAS and the FASB, we assume that the standard proposal is first circulated as a discussion paper, so that firms can submit a comment or opinion letter. We assume that firms' opinions are made truthfully in favor of the standard - whether the new or the old standard - that most maximizes their current market price (this is a weakly-dominant strategy given managers' reporting objectives). We assume that firms that are indifferent between new and old standard do not submit an opinion.⁷

We assume that standard-setters use this consultative process to determine whether or not the new standard should be passed. Standard-setters have potentially full discretion in choosing a standard; but, in practice, standard-setters' mission is to represent parties interested in financial statements and the process of collecting opinions is often one that is used to assess the support for a new standard. For the sake of modeling, we assume that the new standard is adopted if at least a fraction ρ (which we assume strictly greater than .5) of all submitted opinions is in favor

⁷This assumption is natural in our setting. In practice, we would see no reason to express an opinion or attempt to change the status-quo for a firm that has no incentive to do so. Further, if we had a finite but large number of firms (of which a continuum of firms is a limiting representation), and there was a small cost of either proposing or sending an opinion, then it would be optimal not to send an opinion or propose in cases in which the firm is indifferent. The results can be extended to cases in which indifferent firms argue in favor of the status-quo or always submit an opinion for more informative standards.

of the new standard. We do not mean that firms cast a vote in a literal sense (in the same way that constituents in a legislature do not actually vote on all laws) but rather that firm's lobbying effort and comment letters should affect Board members. As the closest observable analogue to ρ , one may consider the required voting rules for a Board to adopt a new standard. In the IASB, 75% of favorable votes are required (or 9 out of 12). In the FASB, 60% of favorable votes are required (or 3 out of 4). In other words, we make the assumption that the support of the new standard among firms is representative of the support of the standard by board members.⁸

It should be emphasized that our objective is not to discuss issues relating to the desirability of particular standards. As a result, we choose not to model considerations of economic efficiency which have ramifications that go far beyond our simple model of legislatures and could not be well-addressed in our setting. If such issues existed (and prior research on these topics shows that they likely do), they should be considered as a separate step to design the standard-setting due process in order to implement the desired standard. In contrast, this paper is about - what we view as far less ambitious question - how the structure of the standard-setting process determine which standards are implemented. Note also that our model does not preclude long-lived managers: in any future period, the expected market price on v is $1/\alpha$ regardless of the current legislation. Therefore, there would be no point for a manager to consider the impact of the current legislation on future legislations.⁹

In general, one may envision any possible function $m(\cdot)$ as a potential standard. Yet, many theoretically possible standards could be extremely complex and would be unlikely to be found in practice (imagine for example a standard that prescribes disclosing $m(v) = v$ if and only if v is a rational number). We will avoid the practical and technical difficulties created by an unrestricted set of standards by limiting our analysis to standards that can be summarized as a single threshold, such that the disclosure policy - whether disclosure or non-disclosure - is identical

⁸For simplicity, we assume that all firms are equally influential but the results are qualitatively unchanged in situations in which some firms have more influence than others (so that their opinions have greater weight). Assuming that, say, high-value firms are more likely to propose would not change the set of implementable standards; it would only imply that the implementable standards favored by these firms are chosen more often (thus affecting the stochastic demand for standards). Assuming that opinions' influence depend on firm's value would, similarly, only work to increase the set of implementable standard preferred by these firms.

⁹If we were to assume short-lived managers with reporting motives, then the results would be unchanged. However, short-lived managers would imply that the assumption that $v_{i,t}$ is independent of prior periods would no longer be required.

for all values lying on the same side of the threshold. This is with loss of generality but provides us with the restrictions on the standard choice problem necessary to obtain empirically reasonable predictions.¹⁰

3. Conservative Standards

3.1. Definition

There exists considerable evidence of conservatism in observed accounting standards. Specifically, a central property of a conservative standard is to prescribe an asymmetric recognition requirement for bad news relative to good news (Basu (1997), Watts (2003b)). If some particular economic event is disclosed in a conservative accounting system, other more unfavorable events should also be disclosed; due to the asymmetry, however, more favorable events may not be disclosed.¹¹ Following this logic, we model conservative standards as, for some threshold A : (i) for $v < A$, $m(v) = v$, (ii) otherwise, $m(v) = \emptyset$. The parameter $A \in [0, +\infty]$ indicates the informativeness of the standard: as A increases, more outcomes are disclosed and the information contained in the standard increases.¹² The special case of $A = +\infty$ corresponds to a perfectly informative standard. To better fit the strong institutional support of conservatism, we initially assume that firms can only propose over the set of conservative standards and we denote this regime “conservative standard-setting”.

It should be noted that A represents the information quality of a standard (or, in short, quality). However, it is not a direct measure of how conservative a standard is; that is, conservatism is a notion that is, a-priori, different from information quality. There are some cases in which increases in A would capture both increases in quality and increases in conservatism. Take for example the

¹⁰In fact, this restriction is critical to guarantee that the problem of choosing a most preferred standard has a solution. Take, for example, the case of a firm with value v_0 proposing a standard in the unrestricted set of standards. By choosing $m(v) = \emptyset$ if $v = v_0$ or $[V, V + \epsilon]$ - where $V > 0$ and $\epsilon > 0$ - it could guarantee itself a market price at least greater than V (because it is marginal relative to the mass of firms between V and $V + \epsilon$). By making V arbitrarily large, it could achieve an arbitrarily large value (in fact, even if any of these new standards could be voted on, it could also be passed in certain cases).

¹¹Strictly speaking, conservatism is linked to recognition (in the income statement or balance sheet) rather than disclosure. By contrast, disclosure may occur as a press release or a footnote in financial statements. However, given that we focus on highly unverifiable information that can only be credibly disclosed if mandated by a standard, the two concepts should be very similar in our setup.

¹²The choice of A is in $[0, +\infty]$, as we potentially allow firms to propose $A = +\infty$ (the full-information standard).

case of $A = 0$ (a completely uninformative standard) and consider an increase to $A' = 1/\alpha$. This alternative standard A' is more informative and represents more disclosure of negative surprises (below the unconditional mean) - one could generally interpret A' as being more conservative. From this observation, it should follow that any change to a new standard $A' \in (0, A)$ could be viewed as “more” conservative.¹³ On the other hand, suppose that the current standard is $A = 1/\alpha$ and is increased to, say, $A' = 2/\alpha$. This alternative standard prescribes more disclosure of good news and thus could be viewed as “less” conservative. For these reasons increases in quality $A' > A \geq 1/\alpha$ should represent decreases in conservatism. As this argument shows, we cannot clearly rank which of the standards $A < 1/\alpha$ or $A' > 1/\alpha$ is more conservative; for these cases, we shall remain agnostic on the appropriate definition of conservatism.¹⁴

3.2. Implementable Conservative Standards

The first step of our analysis will be to derive which conservative standards can be passed against another conservative standard. Let A denote the quality of the standard in the previous period and $Q_c(A) = \mathbb{E}(v|v \geq A)$ denote the value of the firm conditional on non-disclosure, where:

$$Q_c(A) = \frac{\int_A^\infty v f(v) dv}{\int_A^\infty f(v) dv} = A + \frac{1}{\alpha}$$

We consider next an alternative standard with quality A' . We break down the analysis in several cases of interest, as a function of where A' lies as compared to A . The analysis of opinions in each possible situation is illustrated in Figure 3.2.

Large Increase in Standard Quality, i.e. $A' \geq Q_c(A)$

The first scenario that may occur is a situation in which the new standard is significantly more informative than the old standard, leading to a disclosure of all values between A and A' . We ana-

¹³The threshold of $1/\alpha$, which is the unconditional mean may seem somewhat arbitrary; however, this is not the essential part of our discussion and the reference point for bad news $1/\alpha$ could be easily replaced by any other threshold.

¹⁴Note also that, because in $\pi = h + v + \epsilon$, the component h may be negative; the firm may make losses. If were to adopt the convention of defining good and bad news with respect to gains or losses (versus the unexpected component of v), then we would set the conservative “bliss” point at $A = -h$ rather than $A = 1/\alpha$. These considerations of terminology do not play much for the results presented here, and the results would be easily adapted to fit this other definitions.

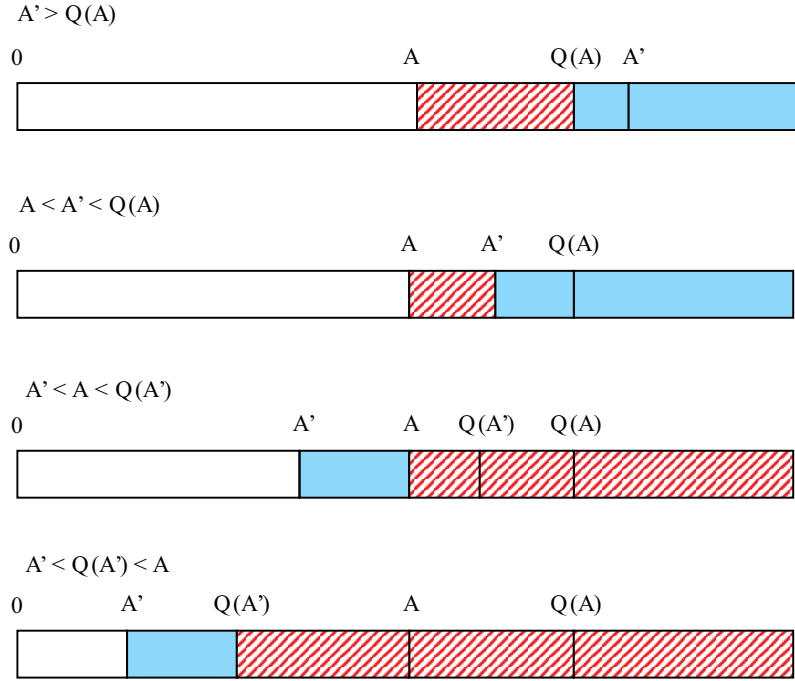


Figure 1: Opinions for A' against A : “Aye” (Color), “Nay” (Dashed), No Vote (Blank)

lyze next whether such new standard can be passed and denote $L_c(A, A')$ the fraction of opinions in favor of the new standard.

Firms can be in one of four possible situations. First, firms with high value (greater than A'), under both standards, do not disclose v . Their primary objective is to select the standard that most reduces the lemon’s problem that they are facing: this means forcing relatively low-value firms to disclose in order to increase market price conditional on non-disclosure. It follows that all firms with value greater than A' are favorable to the higher-quality standard. Second, firms with value in $(Q_c(A), A')$ are those firms that suffer from the lemon’s problem in the old standard. The new standard gives them the possibility to disclose v , separating themselves from low-value firms and increasing their market price from $Q_c(A)$ to v . Thus, they are also favorable to the new standard. Third, firms with value in $(A, Q_c(A))$ are the “lemons” that benefited in the old standard from being pooled to firms with $v \geq Q_c(A)$. Under the new standard, they are forced to disclose, leading to a market price v , and lose the benefits of pooling. Fourth, all firms with value $v \leq A$ disclose v in both regimes and are indifferent between the two standards (they do not submit an

opinion). Collecting these four cases, we can derive the fraction of favorable opinions as:

$$L_c(A, A') = \frac{\int_{Q_c(A)}^{+\infty} v f(v) dv}{\int_A^{+\infty} f(v) dv} = 1/e \leq 1/2$$

It follows from the above that the proportion of opinions against the new standard would always dominate the proportion of favorable opinions; therefore, the new standard would (always) be defeated. One problem with a significant increase in the quality of the standard is that it alienates relatively low-quality firms who would lobby not to be distinguished from high-value firms. Importantly, it should be noted that we have used the Exponential distribution merely for the simplicity of the closed-form expressions that it yields; however this result (as well as other results in this paper) are not specific to the Exponential distribution and would hold for other classes of distributions (e.g., uniform or normal).

Small Increase in Standard Quality, $A' \in (A, Q_c(A))$

We consider next a conservative standard with quality $A' \in (A, Q_c(A))$, that prescribes a small increase in quality. Following similar arguments, one can notice that all firms with v above A' prefer the new standard (since it increases the market price conditional on non-disclosure). All firms with v between A and A' , on the other hand, prefer the old standard. The ratio of favorable opinions to total opinions is now given by:

$$L_c(A, A') = \frac{\int_{A'}^{+\infty} v f(v) dv}{\int_A^{+\infty} f(v) dv} = e^{\alpha(A-A')}$$

One can note that, provided A' is set sufficiently close to A , the legislation can always be passed. That is, a conservative standard can be set to make a minority of low-value firms disclose in order to raise the market price. Solving for the maximum standard quality A' such that the new legislation can be passed yields that A' must lie in $(A, A + \ln(1/\rho)/\alpha)$. In this respect, a requirement for a larger majority of favorable opinions reduces the maximal implementable quality. That is, the greater the majority required to pass the standard, the more the new standard needs to shrink the fraction of low-value firms that are required to disclose (and submit an opinion against the standard), thus the less the quality can be increased.

Small Decrease in Standard Quality, i.e. $A' \in [Q_c^{-1}(A), A)$

We consider an alternative conservative standard in which quality is reduced, leading to non-disclosure of values between $Q_c^{-1}(A)$ and A . Managers with value between A' and A benefit from being pooled to better firms and prefer the new standard. On the other hand, firms with value greater than A prefer the old standard.

$$L_c(A, A') = \frac{\int_{A'}^A v f(v) dv}{\int_{A'}^{+\infty} f(v) dv} = 1 - e^{\alpha(A'-A)}$$

For the ratio of favorable to total opinions to be greater than ρ , it must be $A' \in [A - 1/\alpha, A + \ln(1 - \rho)/\alpha)$. The set of implementable standards is non-empty if and only if $\rho \leq (e - 1)/e$ (or approximately 63%). Given the important role that this majority threshold will play, we shall refer to $\rho \geq (e - 1)/e$ as a qualified majority. By contrast, we refer to cases with $\rho \in (.5, (e - 1)/e)$ as a simple majority. The actual value of the threshold, while it should be interpreted with care, maps well into the majority rules used by the FASB (60%, or simple majority) and the IASB (75%, or qualified majority).

Large Decrease in Standard Quality: $A' < A - 1/\alpha$

Finally, consider a new standard with $A' < A - 1/\alpha$. It follows that all firms with $v \geq Q_c(A')$ would express an opinion against the legislation while those firms with $v \in (A', Q_c(A'))$ would express an opinion in favor.

$$L_c(A, A') = \frac{\int_{A'}^{Q_c(A')} f(v) dv}{\int_{A'}^{+\infty} f(v) dv} = \frac{e - 1}{e}$$

It follows that if $\rho > (e - 1)/e$, no legislation with a decrease in quality in the threshold can be passed. If, however, $\rho \leq (e - 1)/e$, any $A' \leq A - 1/\alpha$ can be passed.

Summary

We plot the fraction of favorable opinions to total opinions in Figure 3.2 for $\alpha = 1$ and $A = 1$. All standards A' that lie above the dotted line receive more than ρ opinions and can be passed.

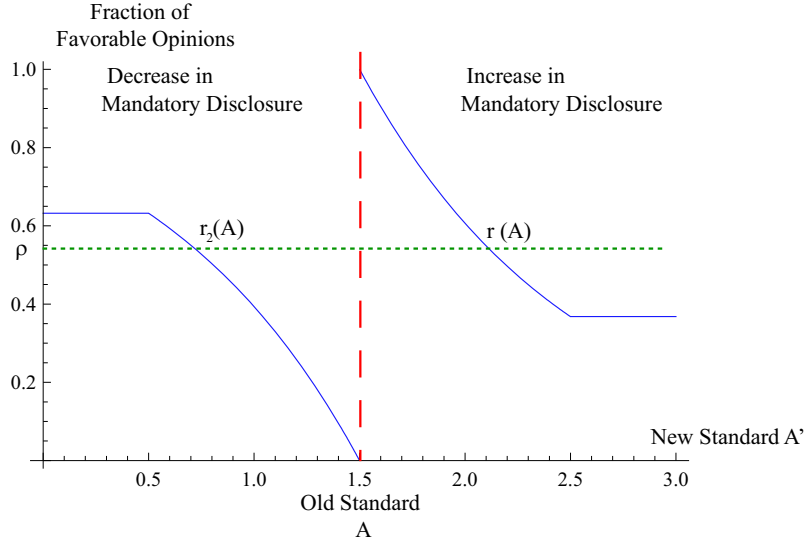


Figure 2: Fraction of favorable opinions A' against A

In this example, this includes all sufficiently low-quality standards as well as small increases in standard quality. When ρ increases, the set of implementable standards shrinks, for both high-quality standard and low-quality standards. As A decreases, the fraction of favorable votes (full line) shifts leftwards, leading to fewer low-quality standards being implementable; that is, until this fraction falls below ρ for all $A < A'$ and any decrease in the standard quality can no longer be passed. The outcome of the consultative process of a standard A versus a proposal A' is summarized in the next Proposition.

Proposition 3.1 *Suppose the current legislation is conservative with threshold A . If either $\rho > (e - 1)/e$ (qualified majority) or $A < \ln((1 - \rho)^{-1})/\alpha$ (a sufficiently uninformative standard), only a small increase in standard quality $A' \in (A, A + \ln(1/\rho)/\alpha)$ can be passed. Otherwise, the following standards can be passed:*

- (i) *A small increase in quality $A' \in (A, A + \ln(1/\rho)/\alpha)$, or*
- (ii) *A large decrease in quality $A' \in [0, A - \ln((1 - \rho)^{-1})/\alpha)$.*

In Proposition 3.1, we describe several properties of conservative standard-setting. Under a qualified majority rule, the standard cannot become less informative. In response to a proposed decrease in quality, relatively high-value firms that prefer to be separated from lower-value firms

would submit an opinion against the new legislation (effectively preventing it from passing). Thus, the first result of the analysis is that a qualified majority prevents low-value firms from taking over the standard setting process, while a simple majority set close to 50% is not sufficient on its own. On the other hand, this majority rule comes at the cost of making the standard more rigid with respect to increases in quality, preventing it from increasing to a quality greater than $A' = A + \ln(1/\rho)/\alpha$.

Under a simple majority rule, by contrast, there exists situations in which the standard can decrease in quality. Specifically, if the standard is of sufficiently high quality, an alternative standard with significantly less disclosure can be passed and gain the support of all low-value firms that were required to disclose under the previous standard. To attract the support of a large enough fraction of low-value firms, most mandatory disclosure requirements must be lifted, decreasing quality to $A' \leq A - \ln((1 - \rho)^{-1})/\alpha$. Such a fall in quality can only occur if there are enough low-value firms disclosing and thus it could never occur if the current standard is already of low-quality.

While we have assumed that (mostly) preparers determine the standard-setting process, the results could be easily modified to incorporate other consulted parties that prefer greater levels of disclosure, such as should be the case for users. If users were to cast an opinion in favor of any increase in disclosure, they would make it easier to pass increases in quality, raising the maximum threshold for quality somewhat above $A + \ln(1/\rho)/\alpha$ and decreasing the threshold for a qualified majority that prevents a decrease in quality. If users were very influential (something that their actual representation in boards does not seem to suggest), they would be able to pass and sustain a standard with full disclosure or $A' = +\infty$. The effect of their presence being as intuitively expected, we have not incorporated them explicitly into the model.

3.3. Conservative Regulatory Cycles

Qualified Majority, i.e. $\rho \geq (e - 1)/e$

While, typically, more than one standard may be passed against an existing standard, which one will be ultimately chosen will depend on the incentives of the firm proposing the new legislation. Suppose first that $\rho > (e - 1)/e$ is required to pass a new standard. Following Proposition 3.1, for

a current standard with quality A , only standards with quality $A' \in (A, A + \ln(1/\rho)/\alpha)$ may be passed.

A firm with value $v \leq A$ would never be able to pass a standard in which it does not disclose v and thus we assume that it maintains the status-quo. A firm with value $v \in (A, A + \ln(1/\rho)/\alpha)$ could raise its market price (and attain its most preferred conservative standard) by proposing and passing $A' = v$. Finally, a firm with value $v \geq A + \ln(1/\rho)/\alpha$ would propose the standard that would raise its value the most and can be passed. This would lead to excluding the greatest feasible fraction of lower-value firms from the set of values that are not disclosed, i.e. proposing $A' = \ln(1/\rho)/\alpha$.

Proposition 3.2 *Suppose $\rho > (e - 1)/e$ and the current standard has quality A . Assume that a firm with value θ makes the new standard proposal.*

- (i) *If $\theta \leq A$, the current standard is maintained.*
- (ii) *If $\theta > A$, the old standard is replaced by a higher quality standard $A' = \min(v, A + \ln(1/\rho)/\alpha)$.*

Corollary 3.1 *Under a qualified majority rule, the quality of the conservative standard may only increase. Quality increases at a slower rate when a greater majority of favorable opinions is required and when the current standard is of higher quality.*

Under a qualified majority rule, the standard features a “race to the top”, progressively increasing in quality and mandating increasingly more disclosure. However, the voting requirement bounds the maximal increase in the standard. As the standard becomes more informative, it becomes increasingly less likely that a firm with incentives to raise the standard will make a proposal to increase standard quality. As a result, the standard becomes increasingly rigid as quality increases.

Simple Majority, i.e. $\rho \in (1/2, (e - 1)/e)$

We consider next situations in which fewer votes need to be favorable in order to pass a new standard. While the behavior of high-value firms remains unchanged, low-value firms may now

propose a decrease in quality. To begin with, all firms with value $v \leq A - \ln((1 - \rho)^{-1})/\alpha$ can successfully implement their most preferred conservative standard $A' = v$. They would clearly choose to do so. Firms with value $v \in (A - \ln((1 - \rho)^{-1})/\alpha, A)$ can retain the existing standard, in which they would realize a market value v , or implement their most preferred decrease in quality $A' = A - \ln((1 - \rho)^{-1})/\alpha$, and receive a market price $A' + 1/\alpha = A - \ln((1 - \rho)^{-1})/\alpha + 1/\alpha$. This market price is always greater than A (because $\rho < (e - 1)/e$). Therefore, such firms would always be willing to reduce the quality of the standard.

Proposition 3.3 *Suppose $\rho \in (1/2, (e - 1)/e)$ and the current standard has quality A . Assume that a firm with value θ makes the new standard proposal.*

- (i) *Suppose $\theta \leq A$. the current standard is maintained if $A < \ln((1 - \rho)^{-1})/\alpha$; otherwise, it is replaced by a new standard $A' = \min(v, A - \ln((1 - \rho)^{-1})/\alpha)$.*
- (ii) *Suppose $\theta > A$. The current standard is always replaced by a new standard with quality $\theta = \min(v, A + \ln(1/\rho)/\alpha)$.*

We show that the standard exhibits stochastic regulatory cycles. When the current standard is of low quality, it cannot further decrease in quality, leading to a new standard of (weakly) higher quality in a future period. On the other hand, once a level on quality A is reached, it becomes possible to successfully pass a significant decrease quality. Simultaneously, the probability that the proposer will be a low-value firm interested in proposing this low-quality standard increases. This leads to an abrupt decrease in standard quality which ends the periods of increase in quality. That the standard will ultimately lose quality is certain although when this will occur is unknown and the standard may keep increasing for several more periods if a high-value firm proposes. It follows from these two observations that standards oscillates between a regime with a low-quality standard with an upward trend of increase in quality, and a regime with high but increasingly unstable quality.

In Figure 3.3, we simulate some dynamics for standards under the assumption of a number of required opinions greater than $(e - 1)/e$ (left) and a number of opinions lesser than $(e - 1)/e$ (right). The first simulation exhibits a standard that can only increase in quality, consistent with our previous discussion. However, the increase in quality occurs at an increasingly lower pace as

it becomes more and more unlikely that the firm proposing is of lower quality than the current standard. On the right-hand side, we show that, under a simple majority rule, the standard

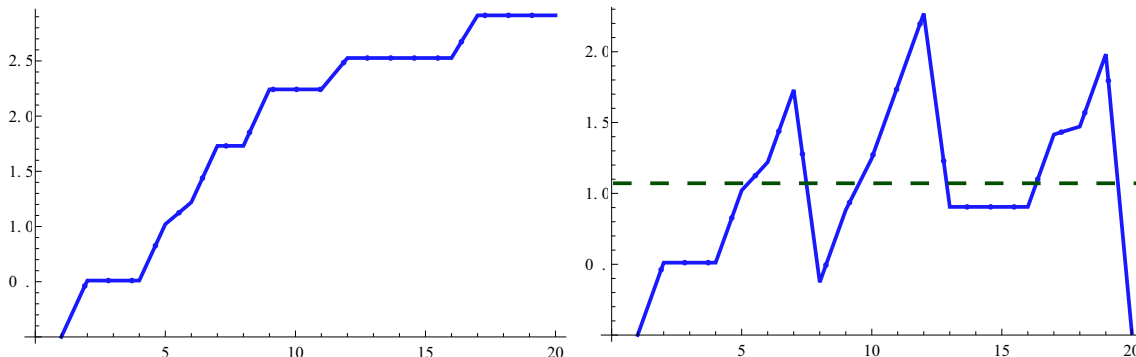


Figure 3: Dynamics of Current Standard over 20 periods: Qualified Majority (left, $\alpha = 1$, $\rho = .65$) and Simple Majority (right, $\alpha = 1$, $\rho = .6$).

will feature the regulatory cycles discussed earlier. The dashed line represents the threshold on accounting quality below which the quality cannot be decreased. In this simulation, we obtain an example of three cycles. When the standard is low, it can only increase in quality leading to one or more periods of increasing quality. As quality increases, it becomes possible to pass standards of lower quality; further, the event that a low-value firm will propose becomes more likely. This leads to an abrupt reduction in the quality of the standard that ends each cycle. Once quality has been so reduced, a new regulatory cycle starts with a sequence of increases in standard quality. The periods in which the standard remains constant (which occur in two out of the three cycles) correspond to periods in which a low-quality proposes but, because the existing standard is not of very high quality, cannot pass a decrease in quality.

3.4. Business Cycle Considerations

We address next how changes in business cycle conditions may affect the standard-setting process. In our model, an economic expansion would lead to more favorable signals v , leading to an increase in $\mathbb{E}(v) = 1/\alpha$. In the case of a qualified majority, an increase in $1/\alpha$ would increase the maximum standard that may be passed, i.e. $A + \ln(1/\rho)/\alpha$, leading to faster improvement

in the standard.¹⁵ Further, it would make it more likely that high-value firms propose, implying that A would increase more often. Combined, these two effects imply that conservative standards increase in quality more rapidly during expansions under a qualified majority.

Consider next the case of a simple majority. In this case, the two forces previously at play are maintained, leading to more frequent and greater increases in quality. Similarly, an increase in $1/\alpha$ also increases the minimum threshold on quality such that the standard can be reduced ($\ln((1 - \rho)^{-1})/\alpha$). This leads to an overall reduction in the probability that the standard will decrease in quality.

Proposition 3.4 *An economic expansion leads to more informative standards.*

This result is intuitive. After an economic upturn, more firms are of high-quality relative to the current standard. They are more willing to increase the standard quality rather than decrease it. In turn, this should lead to periods of increases in disclosure that are correlated to the cycle. Interpreted in the context of conservatism, this result implies that, if the standard is with low-quality, the increase in A implied by the expansion will typically imply new standards with greater levels of conservatism. On the other hand, for standards that prescribe more disclosure (such that A is large), an expansion will generally imply a new standard with more disclosure of good news and thus a decrease in conservatism.

4. Liberal Standards

4.1. Definition

In the previous Section, we restricted the attention to conservative standards. In doing so, however, we have assumed away other forms of standards and have not explained why liberal standards may be less likely to survive the regulatory process than liberal ones. We address this important issue next. For lack of many observed liberal standards, we shall define a liberal standards by contrast to a conservative one as an asymmetric recognition of good versus bad news. We model such a standard as, for some $A \in (0, +\infty]$, (i) $m(v) = \emptyset$ for $v < 1/A$, and (ii) $m(v) = v$ oth-

¹⁵Note that we do not assume that α does not depend on t ; the fact that we write α instead of α_t is simply to simplify notations.

erwise. Similar to conservative standards, the parameter A represents the quality of the standard. By matter of convention, we let $A = 0$ represent a standard in which $m(v) = \emptyset$ always.

As before, let us denote $Q_l(A) = \mathbb{E}(v|m(v) = \emptyset)$, the market price of a firm conditional on non-disclosure.

$$Q_l(A) = \frac{\int_0^{1/A} v f(v) dv}{\int_0^{1/A} f(v) dv} = \frac{1}{\alpha} - \frac{1}{Ae^{\alpha/A} - A} < 1/A$$

4.2. Implementable Liberal Standard

We proceed by considering which liberal standards with quality A' could be passed against another existing liberal standard with quality A . The four main cases of interest are presented below and illustrated in Figure 4.2.

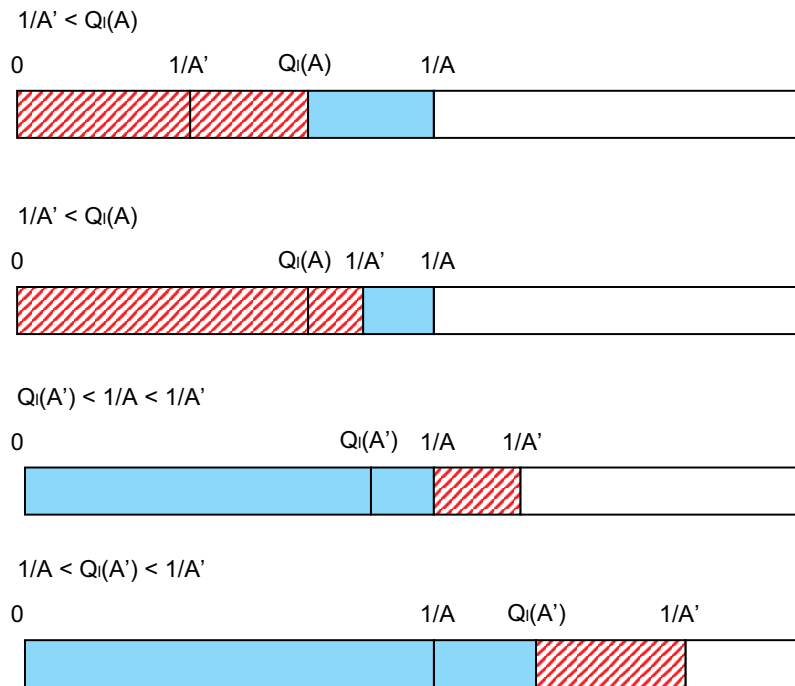


Figure 4: Opinions for A' against A : “Aye” (Color), “Nay” (Dashed), No Vote (Blank)

Large increase in quality, $1/A' \leq Q_l(A) < 1/A$

Consider a new standard that prescribes a large increase in quality, i.e. such that all firms with value between $(1/A', 1/A)$ are now required to disclose. Firms with value between 0 and $Q_l(A)$

prefer the old standard while those with value between $Q_l(A)$ and $1/A$ prefer the new standard. The ratio of firms with opinions in favor of the new standard is:

$$L_l(A, A') = \frac{\int_{Q_l(A)}^{1/A} f(v)dv}{\int_0^{1/A} f(v)dv} = \frac{e^{\frac{\alpha(1+\frac{1}{e^{\alpha/A}-1})}{A}} - e}{e(e^{\alpha/A} - 1)}$$

This function is increasing from $1/e$ to $1/2$. Therefore, such a new standard can never be passed. The intuition for why this standard cannot be passed is similar to that under conservative standard-setting, and due to the reluctance of low-value firms to allow high-value firms to separate.

Small increase in quality, $Q_l(A) < 1/A' < 1/A$

If $Q_l(A) < 1/A' < A$, all firms with quality between $1/A'$ and $1/A$ will vote in favor of the standard. The ratio of favorable to unfavorable opinions will be given by:

$$L_l(A, A') = \frac{\int_{1/A'}^{1/A} f(v)dv}{\int_0^{1/A} f(v)dv} = \frac{e^{\alpha(\frac{1}{A}-\frac{1}{A'})} - 1}{e^{\alpha/A} - 1}$$

Because $1/A' > Q_l(A)$, this ratio is always less than if $1/A' = Q_l(A)$ which, as shown earlier, leads to less than half favorable opinions. It follows that this legislation can never be passed. As a result, with liberal standard-setting (and unlike conservative standard-setting), *no* improvement in standard quality can be passed. The reason why liberal standard-setting cannot be used to improve quality lies in how liberal standard-setting attempts to gain support from low-value firms. Liberal standard-setting pits all low-value firms against their higher-value counterpart; thus it always puts the less numerous high-value firms at a disadvantage in a collective consultation. In other words, liberal standards only allow low-value firms to separate themselves from high-value firms - something that has undesirable properties in terms of accounting quality - while conservative standards allow low-value firms to separate from (even) lower value firms.

Small Decrease in quality, $Q_l(A') < 1/A < 1/A'$

The third situation of interest may occur for an increase in standard quality that increases the market price of all of the firms that did not report in the previous standard, but reduces the market

price of some of the firms now required to report. In this case, all firms with value in $(0, 1/A)$ vote in favor of the new standard while those with value in $(1/A, 1/A')$ vote against it. The ratio of favorable to total votes is:

$$L_l(A, A') = \frac{\int_0^{1/A} f(v)dv}{\int_0^{1/A'} f(v)dv} = \left(1 - e^{-\frac{\alpha}{A}}\right) \left(1 + \frac{1}{e^{\alpha/A} - 1}\right)$$

The above term is decreasing in A' , from 1 when $A = A'$ up to $(e - 1)/e$ when A' is close to zero and decreasing in A . Let us denote $L_l(\bar{A}, Q_l^{-1}(\bar{A})) = \rho$. We consider next two main cases. One, if $A \leq \bar{A}$, the legislation can be passed for any $A' \in (Q_l^{-1}(1/A), A)$. Two, if $A > \bar{A}$, there exists $\phi(A) \in (Q_l^{-1}(1/A), A)$, a function increasing in A and defined as $L_l(A, \phi(A)) = \rho$ such that the standard can be passed for any $A' \in (\phi(A), A)$.¹⁶

Large Decrease in quality, $1/A < Q_l(A') < 1/A'$

The analysis of this last case is similar to the previous case, except that firms with value in $(1/A, Q_l(A'))$ now cast an opinion in favor of the new standard.

$$L_l(A, A') = \frac{\int_0^{Q_l(A')} f(v)dv}{\int_0^{1/A'} f(v)dv} = \frac{e - e^{\frac{\alpha}{A'(e^{\alpha/A'} - 1)}}}{e - e^{1 - \frac{\alpha}{A}}}$$

Because the above term is decreasing in A' and equal to $(e - 1)/e$ when A' is chosen close to zero, one of the following three cases can occur. First, if a qualified majority is required, no new standard can be passed. Second, if $A \geq \bar{A}$ (as defined previously), any standard $A' \in [0, Q_l^{-1}(1/A)]$ can be passed. Third, if $\rho < (e - 1)/e$ and $A < \bar{A}$, there exists a threshold \underline{A} (implicitly defined by $L_l(0, \underline{A}) = \rho$) such that any standard of quality $A' \leq \underline{A}$ can be passed.

Summary

We plot the fraction of favorable opinions to total opinions in Figure 4.2 for $\alpha = 1$ and $A = 1$. As before, all standards A' that lie above the dotted line receive more than ρ opinions and can be passed. In this example, there are two types of standards that can be passed. Standards of very low

¹⁶The threshold $\phi(A)$ cannot be derived algebraically; it is however well-defined and unique.

quality (up to completely uninformative standards) can be passed. In addition, a small decrease in the quality of the standard can be passed as well. When ρ increases, the set of implementable standards shrinks until the set of very low-quality implementable standards fully vanishes when $\rho \geq (e - 1)/e$. As A decreases, the increasing portion of the curve in the region $Q_I(A) > 1/A'$ increases, leading to more low quality standards becoming implementable. However, provided $\rho < (e - 1)/e$, a standard with quality $A' = 0$ remains implementable regardless of A (since the level of the curve in the region with $Q_I(A) < 1/A'$ does not depend on A). The outcome of the consultative process of a standard A versus a proposal A' is summarized in the next Proposition.

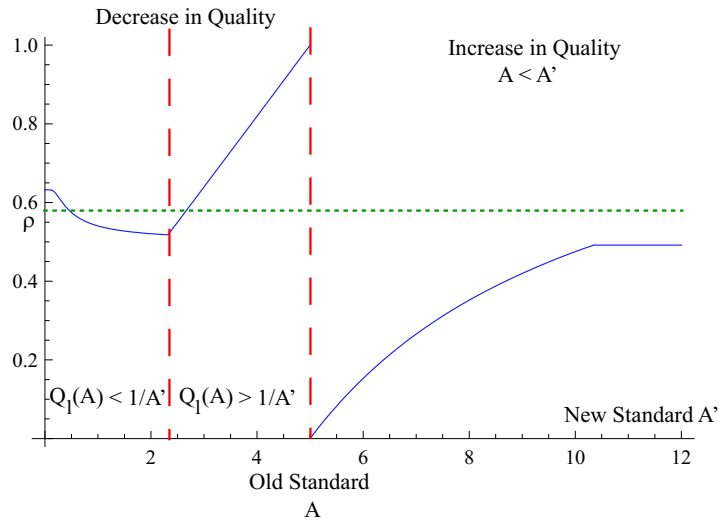


Figure 5: Fraction of favorable opinions A' against A

Proposition 4.1 *Under a liberal standard-setting regime, the quality of a standard cannot increase. For a current standard with quality A , there exists two thresholds $0 \leq \underline{A} \leq \phi(A)$ such that standards of quality $A' \in (0, \underline{A}) \cup (\phi(A), A)$ can be passed; further, $\underline{A} > 0$ if and only if $\rho < (e - 1)/e$.*

There are several important properties of liberal standards. Liberal standard can never improve in quality. One problem with liberal standards is that they do not make high-value firms benefit from improvements in the quality of the standard; thus liberal standards do not receive the support from the better firms in the economy. This implies that any improvement in the standard will face

the opposition of the relatively low-value firms but receive support from only a fraction of the high-value firms.

On the other hand, and regardless of the requirement for majority rules, liberal standards can decrease in quality. By requiring non-disclosure of v for a small fraction of high-value firms, a lower-quality standard can pit a majority of firms non-disclosing with a minority of higher-value firms that can no longer disclose. The latter is always certain to fail in an open consultation. Majority requirements may play a role, in that enforcing a qualified majority prevents all low-value firms from having the upper hand over all high-value firms, and thus it may prevent (at least when the standard is informative enough) a sharp decrease in the quality all the way up to a completely uninformative standard.

4.3. Dynamics of Liberal Standard Setting

We solve next for the dynamics of standard quality. To begin with, note that liberal standards are upwards rigid: by Proposition 4.1, there is no hope for a firm with higher value to increase its quality. On the other hand, it is always desirable for a firm with value below the unconditional expected value to pool with the greatest possible fraction of firms. As before, we consider separately qualified and simple majority rules.

Qualified Majority, i.e. $\rho \geq (e - 1)/e$

Suppose that a qualified majority is required. Then, the set of implementable standards in each period is given by $A' \in (\phi(A), A)$. Note that all firms with $v \in [0, 1/\phi(A)]$ benefit from forcing more high-value firms not to disclose v . Therefore, they would propose the greatest possible decrease in quality, i.e. $A' = \phi(A)$. Firms with value $v \in (1/\phi(A), 1/A)$, on the other hand, would lose by proposing a standard in which they do not disclose (because $Q_t(A') < A$) and thus they would prefer not to propose. This implies the following result.

Proposition 4.2 *Suppose $\rho \geq (e - 1)/e$ and the current standard has quality A . Assume that a firm with value θ makes the new standard proposal.*

- (i) *If $\theta \geq 1/\phi(A)$, the current standard is maintained, i.e. $A' = A$.*

(ii) If $\theta < 1/\phi(A)$, the current standard quality is reduced by the maximum implementable decrease in quality, i.e. $A' = \phi(A)$.

Corollary 4.1 *The standard becomes completely uninformative, or $A' = 0$, with probability one.*

We show first that liberal standards, regardless of the majority rule, tend to decrease in quality. While the actual decrease is stochastic and depends on whether high-value or low-value firms will make a proposal, this “race to the bottom” is irreversible and certain. In fact, when the standard becomes of sufficiently low quality, proposing $A' = \phi(A) = 0$ becomes feasible and thus the quality of the standard will attain zero quality almost surely in a finite number of periods.

Simple Majority, i.e. $\rho < (e - 1)/e$

Under a simple majority, as argued earlier, there exists a threshold $\underline{A} > 0$ such that any quality $A' \in (0, \underline{A})$ can be passed. Clearly, all firms proposing a standard in which they do not disclose v would want to include the greatest possible fraction of high-quality firms and thus would choose $A' = 0$. This dominates the status-quo for a proposer if and only if this proposer has value $v > 1/\alpha$. This leads to the following result.

Proposition 4.3 *Suppose $\rho < (e - 1)/e$ and the current standard has quality A . Assume that a firm with value θ makes the new standard proposal.*

(i) *If $\theta \geq 1/\alpha$, the current standard is maintained, i.e. $A' = A$.*

(ii) *If $\theta < 1/\alpha$, the current standard quality is reduced to a completely uninformative standard or $A' = 0$.*

The intuition for the decrease in standard quality under a simple majority is similar to that under a qualified majority. However, the decrease in standard quality is now much faster: if a firm with value less than the unconditional expected value proposes (which is an event with probability $(e - 1)/e > 1/2$) the new standard that passes implies no information. That is, all relative low-value firms pool with high-value firms. The completely uninformative standard is attained very fast, with an informative standard having less than 50% chances of surviving a single period of regulation.

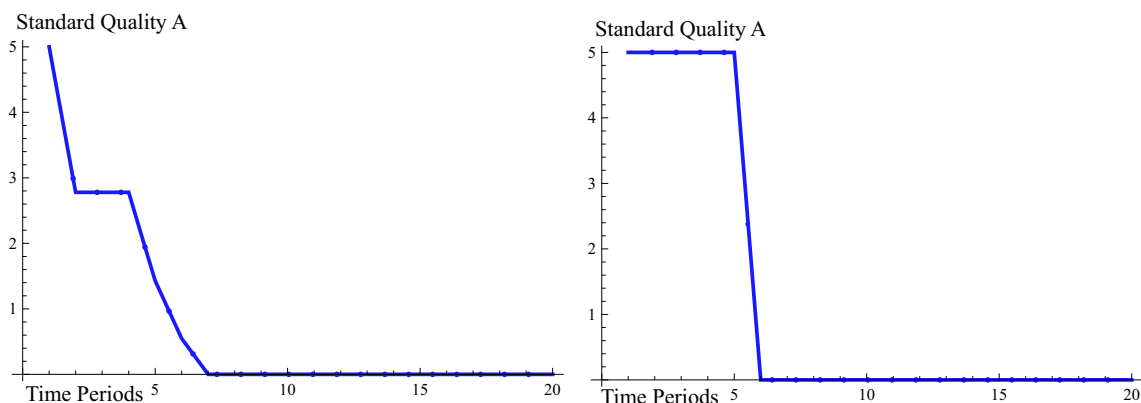


Figure 6: Dynamics of Current Standard over 20 periods: Qualified Majority (left, $\alpha = 1, \rho = .65$) and Simple Majority (right, $\alpha = 1, \rho = .6$).

In Figure 4.3, we simulated the model for 20 periods, starting from an initial quality of $A = 5$. For both cases, standards decrease in quality; however, they do not decrease at the same rate. On the left-hand side, we consider a qualified majority rule. Then, the standard decreases in quality initially slowly (with the flat region corresponding to high-value firms proposing). This decrease continues until the standard attains a sufficiently low quality so that a completely uninformative standard can be passed. On the right-hand side, the standard quality falls to zero as soon as a firm with value below average has the opportunity to propose. The standard immediately attains zero quality.

To conclude, the fact that a liberal standard would become completely uninformative (given enough time) would suggest that liberal standards would be unlikely to survive for long. Once a completely uninformative liberal standard is attained, we would expect firms to start proposing conservative standards (in the ranges analyzed in the previous Section), leading to a quick disappearance of the liberal standards in favor of more informative conservative standards. In fact, once $A = 0$ is reached, and if firms are allowed to propose conservative standards, our earlier results imply that a conservative standard with $A' \in [0, 1/\alpha]$ would be passed with probability one. This would imply an immediate reversal to a conservative standard once the liberal standard has collapsed.¹⁷

¹⁷In fact, if we were to allow liberal standards to reverse to conservative standards even before $A = 0$ is reached, the reversal to conservatism would occur much faster.

5. Concluding Remarks

In this paper, we propose a theory that explains the formation and evolution of conservative accounting practices. In doing so, we have taken the view of regarding the standard-setting process as an ongoing legislative process, rather than a normative question. We show that standards will evolve over time leading to regulatory cycles with time variation in levels of mandatory disclosure. Such cycles will depend on characteristics of the standard-setting due process and macroeconomic conditions. Our theory should help us better understand the institutional determinants of mandatory disclosures.

Due to nature of our modeling assumptions, we have restricted our attention to one particular aspect of standards, specifically the mandatory disclosures of profits versus losses that collectively constitute conservatism. There are other aspects of accounting standards that would provide interesting areas for further research. For example, standards also speak to the trade-offs between reliability, relevance and timely disclosure, or the amount of discretion to be given to preparers; modelling these other aspects in a legislative environment could help understand such other characteristics of standards.

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