

A Comparative Exploration of Accounting Institutions

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Abstract

Institutions shape the nature and form of the accounting practice; yet, little - if anything - is known about whether some institutional designs will be more effective in providing high-quality standards. Here, we examine three stylized institutions: (a) office-driven politicians, (b) private-sector self-regulation or (c) mission-driven regulators. Among other things, we show that office-driven politicians typically pass excessive disclosure, self-regulation leads to conservative-like disclosure with few disclosures of good news and a mission-driven regulator implements lower disclosure levels (than the other two regimes) when it is not properly insulated from external pressures. What we argue is this: a strong politically-independent body is required to produce high-quality socially-desirable standards.

1. Introduction

Accounting standards are the output of social institutions. Such institutions range from generally-accepted conventions, private standard-setting bodies and political bodies such as Congress or governmental regulatory agencies. The form of these institutions, and in particular both its underlying objectives and *modus operandi*, is the primary factor that explains accounting practice as we know it. However, researchers in the area have partially, if not entirely, ignored the institution when explaining accounting choice. The lack of research in this area is highly problematic. Accountants may well view certain accounting rules as “desirable,” but such normative claims will never emerge unless the institution is willing or able to implement them. Any normative approach, in this respect, requires a careful examination of its feasibility through a careful understanding of the institution.

The near-absence of research on institutions has made it very difficult to think about the proper design of an effective accounting institution. Rather than thinking about what the accounting standard, one should rather ask the more primitive question as to how the decision-making process over accounting standards should be structured. Should accounting be political, leaving the process of legislating over accounting matters to democratic or directly elected officials? Should accounting be controlled by a self-regulated body, where constituencies may propose and implement rules they view desirable? Or, should standard-setting be independent organizations with a clearly stated mission and whose decisions are not subject to political pressures or the opposition of the constituency? Indeed, these three stylized views of the institution are all in part descriptive of the institution as it exists today; Dennis Beresford, a former chairman of the FASB, explains that accounting institutions as we know them ultimately strike a delicate balancing act between politics, corporate pressures and an underlying mission (see Beresford (1991, 1995, 1997, 2001)).

Questions of institution design have been a long-standing theme in the practice of standard-setting, perhaps even more controversial than the accounting standards themselves. In one of the few papers to address these questions, Basu and Waymire (2008) narrate how the institution has evolved over time, moving from an inherently self-regulated convention, toward an institution subject to strong political tidal forces. On many occasions, standard-setting institutions have been criticized (e.g., the 1976 Metcalf report) or dramatically reformed (e.g., the 1934 SEC Act, the replacement of the APB by the FASB, or the evolution of international standard-setting boards). Over the recent years, these questions have emerged again at the front of the agenda, as

the widespread adoption of international standards has reiterated fundamental questions regarding the consequences of the institutional mechanism used by the IASB, and whether the structure of the FASB in the US should be altered.

This paper provides an exploratory study of the consequence of institutional form on accounting choice. The problem of understanding institutions is one that is very difficult and, quite frankly, will not be resolved within a single study or methodology. Yet, we strongly believe that simply ignoring the research question is far worse. In that manner, we hope that we provide some simple intuitions and open up the paradigm in a manner that would allow further literature to expand on the natural limitations of the analysis (many of which will be pointed out). When it is successfully completed, the broader research agenda should provide researchers with the required information to make a clear case for a particular institutional form.

We develop next the main aspects of our approach and some of the intuitions we develop. Our focus here is entirely limited to standards that take the form of a threshold below which (sufficiently) unfavorable uncertain economic outcomes are disclosed, as is suggested by prudence or conservatism. It is not our research program here to explain why accounting disclosure have this general form and, in terms of practical realism, such general form has been ubiquitous in accounting practice and among various institutions (Basu and Waymire (2008)). Depending of the location of this threshold, the standard may vary from almost no-disclosure (only the very worst news are disclosed), partial conservative disclosure (only below-average news are disclosed) or full disclosure (the cutoff is set so that bad *and* good news are disclosed). The basic idea of a cutoff is similar to Dye (2002), except that Dye does not allow the information system to provide the actual value of the event below the cutoff (only a “bad” signal is sent, not the true value). As possible examples of our model, one may interpret the cutoff as an impairment (similar to Goex and Wagenhofer (2009)) or a red light such that the auditor would require an extra disclosure. The information system *is* with significant loss of generality and we hope that future work can examine alternative standard forms.

We present three stylized competing institutional forms, although keeping in mind that, in the real life, actual institutions are probably a complex mesh of these clean settings. This being said, understanding these forms in a simplified environment provides some guidance toward which of these we may be willing to let the institution evolve.

The first institution form is one in which accounting is entirely driven by political concerns. Specifically, “politicians” may propose new standards and compete to win the office, although

they do not have a direct vested interest in the standard. Note that whom we label as politician may be a Congress representative, but it may also reflect an elected bureaucrat segregated, except at the voting stage, from accounting practice. In social sciences, this form is also known as an “institution-free” mechanism to the extent that the proposal is not made by those being regulated, and it is not subject to a proper due process to control the election process. Although such a process may seem a-priori undesirable for accounting choice, it is clearly not unusual or necessarily controversial; in the US, Congress, the President or judges are elected and make daily decisions that are of primary importance to the country.

The second institution form that we consider is one with self-regulation. A self-regulated body differs from electoral competition to the extent that the constituency itself, rather than an external politician, makes proposals subject to approval from the rest of the constituency. Organizations that are indicative of self-regulation are usually non-governmental bodies whose trustees and members have an actual say in choosing and implementing an agenda, and do not delegate this choice to an external party. Also, self-regulation is descriptive of situations in which a commonly-agreed norm or convention emerging from the approval of the parties directly involved. Accounting in the US prior to the SEC Act of 1934 was in large part self-regulated; other examples of self-regulation include industry standards. They typically do not involve an oversight by the government.

Finally, we consider a third institution in which the standard-setter has a clearly-stated mission, which may be to increase disclosure or increases the surplus available to investors. This mission-driven institution may still face the blocking pressures from the private sector and thus considers the political pressures when putting a new standard in the agenda. Mission-driven institutions are rare, but some well-known examples include the Central Bank (with a mission to preserve economic stability) or the Supreme Court (with a mission to preserve the integrity of the Constitution). While it is still a distant objective for accounting, the mission-driven institution may be one direction toward which the institution is evolving (in particular when it comes to international standards). In terms of what a mission-driven institution may actually look like, we believe that it would likely be shaped around the models of the Central Bank or the Supreme Court, with accounting experts having either research or accounting practice experience.

As we develop the formal model, we need to make a judgment on which constituencies are the most vocal agents pressuring in favor of particular standards. We think that the first-order concern when considering pressures on standard-setters is driven by financial reporting concerns and, as such, we put the focus of the model on owners who need to sell their assets and have private

information that may or may not be revealed in a new standard. Such owners may represent in practice various agents, such as preparers, management, undiversified investors, or banks having loans or possessing shares.

Banks are known to be an important pressure group, and we explicitly think about them as examples of owners. One extra (unmodeled) possibility is that banks may also push for some standards to improve loan origination and monitoring. This is not a problem that we explicitly consider here as a “first-order” effect for two main reasons. First, empirically, standards in which banks are most active concern primarily their own financial disclosures (e.g., the 2008 financial reclassifications of loans) and banks are far less active on disclosures that concern other firms. Second, banks tend to acquire their own private information outside of accounting standards; it is then unclear that extra disclosures, by removing the informed bank’s competitive advantage would actually be beneficial at the time of originating new loans.

Two other groups are implicitly considered as part of the mission-driven institution. First, we believe that the accounting profession, and more generally accounting experts, typically push for higher-quality disclosure. Second, diversified investors will support standards that increase the ex-ante surplus. Both of these concerns are assumed to be part of the objective of a mission-driven institution. However, we do not think that these groups play a large part of political and self-regulated institutions. Accountants are hired by firms to provide a service, and it is rare to see an accounting firm openly supporting an accounting standard that is strongly opposed by the private sector. Investors are well-known to be passive when it comes to exerting political pressures, in particular as compared to other groups (in particular, in the paper cited earlier, Beresford comments on the difficulties in getting active support from investor groups). In a sense, considering the accounting profession and investor groups separately is in part definitional, and conceptually distinguishes the political and self-regulated bodies, from the mission-driven institution.

We consider as two benchmarks a pure-exchange economy, in which accounting information serves only a reporting role, and a production economy, in which accounting information may help make productive decisions and there may be proprietary costs of disclosure.

We show that in a pure-exchange economy, electoral competition (institution 1) leads to a race-to-the-top with full transparency being proposed and passed by all politicians. This is caused by competition as a force for greater transparency. In the production economy, full-disclosure remains the sole equilibrium provided disclosure costs are not too large (again due to competitive concerns); however, this full-disclosure may feature excessive disclosure as compared to the level

that is socially desirable. If the disclosure costs are high or a large enough minority can block the standard-setting, the problem with political choice is that it fails to exhibit an equilibrium.

Under self-regulation, the pure-exchange economy features a very different outcome. Namely, the process is (endogenously) taken over by the average which benefits the most from the conflict of interests between higher-value and lower-value firm. This average firm uses the agenda-setting process to impose its preferred disclosure standard, leading to a disclosure regime such that all firms with average and above-average news not disclosing (this maximizes the average firm's market price) and all firms with below-average news disclosing. This conservative-like standard is the result of self-regulation and entails a loss of information. The analysis is mostly similar in the economy with production, and despite the fact that the socially-desirable disclosure level may be either greater or lower than this level.

Finally, under a mission-oriented standard, the institution may impose its desired standard but only provided it is reasonably insulated from external pressures. When pressures become too important, the standard-setter is required to pass a standard that benefits the average firm and, in particular, always passes a standard such that good news are not disclosed. In addition, because the agenda-setting game in the self-regulated institution no longer applies, the standard-setter is bound to obtain support from some lower-value firms and effectively chooses a standard with less disclosure than under self-regulation. With production, the standard-setter implements either the social optimum or, when cost of disclosure are large or political pressures are too intense, must implement a level of disclosure that is lower than the social optimum.

Literature Review

Our paper clearly highlights the political pressures the different institutions considered encounter and how it affects the standard process setting. It extends the accounting literature questioning the independence of the accounting standard-setters and the social choice models determining the collective choice arising from a given institution.

Zeff (2002) and (2005) provide detailed evidence of political pressures in the due process in the US. In the US the most authoritative source of accounting principles, the FASB, has set up a due process that gives all interested parties ample opportunities to express their viewpoints before a standard is issued. However although all constituents should equally weigh in the due process, some parties have more influence than others. One way to voice their opinion is the use of com-

ment letters. However, managers do not always express their views directly but instead, they may ask congressmen to get involved in the process. Former FASB Chairman Dennis Beresford (2001) states that Congressional intervention in the standard setting process has especially a strong influence over the Board. The Board's independence is therefore questioned as it seem to bow under the political pressure (Zeff (2002), Wyatt (1990)). The SEC's and Congress's veto power in the standard setting also questions the independence of the FASB (Newman (1981)). The first strong political pressure occurred when FASB proposed to require that stock options issued to employees be recorded as an expense on the income statement. Two bills were introduced in Congress: one would have prohibited recording of stock options as compensation expense and the other would have required it. The intervention of the Congress made FASB change its proposal and ended up requiring disclosure only. The next case involved the FASB project on derivatives. It resulted in bills being introduced both in the House and Senate. The bills, if they'd been signed into law, would have intervened in FASB's standard-setting process. Finally, in 2000 there were congressional hearings on FASB's proposal on business combinations. Thirteen percent of U.S. senators sent a letter to FASB urging it to postpone requiring implementation of the proposed standard on business combinations. More recently in 2009, the congressional involvement into the standard setting reached his peak when US Congress' House Financial Services Subcommittee asked FASB chairman Robert Herz to ease standards on fair-value measurements and other than temporary impairment. Paul Kanjorski, chairman of this subcommittee, said: "[...] If the regulators and standards setters do not act now to improve the standards, then the Congress will have no other option than to act itself."

In order to model political pressures we borrow features from the vast literature on social choice theory whose study is on collective decision-making, and focuses on the procedures and strategies for aggregating individual preferences (Arrow (1951)). The problem with social choice is finding good procedures that will turn individual preferences for different candidates into a single choice by the whole group. The institution-free setting does not consider the agenda setting as strategic. We select a winner of an election using a good procedure that will result in an outcome that reflects "the will of the people" and as a procedure we apply the Condorcet procedure, which selects the Condorcet winner, the candidate who would beat each of the other candidates in a run-off election, if such a candidate exists. However this institution-free setting is not entirely realistic when it comes to dealing with accounting standard setting. A sequential game of proposal making and voting will better capture the tensions at stake when deciding to implement a new standard.

Our second setting therefore features a strategic approach to bargaining. We introduce a multilateral bargaining game in the lines of Baron and Ferejohn (1989). It extends the standard bilateral bargaining model (Rubinstein (1982) and Binmore (1986)). A proposer is chosen randomly at each round, makes a proposal and then people vote on the given proposal. If accepted the game stops otherwise one moves to the next round where another proposal is voted. The sequential offers reflect the interaction between the different strategic proposers, who want to preserve their own interests. They will balance the benefits of accepting the current proposal against the benefits of delaying the process and confronting their current outcome to their expected continuation value. Finally the last setting defined as the mission-driven regulator also features an arms-length bargaining between the regulator and the firms that have to abide by the standards.

Although the understanding of strategic voting has received considerable attention, little has been done to model the unique characteristics of accounting institutions. Amershi, Demski and Wolfson (1982) provide some guidance in capturing the specificities of accounting institutions while clearly highlighting the impossibility to entirely capture the features of the accounting standard setting. We therefore do not claim to have one setting closer to the real standard setting but rather believe that the real world is a complex combination of the three settings. However the common denominator for all these institutions is the determination of mandatory disclosures. We show that the standard chosen in the different institutions is not necessarily in line with the desired choice to maximize social surplus. Demski (1973), Demski (1974) and Dye (1990) identify whether there is an optimal way to choose mandatory disclosures. Whereas Demski (1973) and (1974) look at the issue from a social choice point of view and shows the impossibility of ordering different disclosure regimes, Dye (1990) confronts voluntary disclosures to mandatory disclosures and assesses when voluntary disclosures would naturally arise and actually substitute mandatory disclosures. Our approach is different as our primary question is to understand how different accounting institutions work and then study the standard that will result from it and compare it to a social optimum. Fields and King (1996) also measures through simulations the impacts of different voting rules within the FASB. Economic consequences are similarly discussed in Dye and Sunder (2001) regarding the benefits and drawbacks of competing standard-setters.

Finally in the voting literature one does not favor any member of the legislature or any particular outcome unlike in the lobbying literature. Our paper sees the voting power as being able to pressure directly the congressmen or indirectly the different members of the FASB. Congressmen usually care about being reelected and if different firms lobby against a standard proposal, helping

their cause might secure the votes of not only the manager of the firm but also the employees and the entire industry in general. The FASB members are also appointed by FAF (Financial Accounting Foundation), represented by members originally auditors, consultants, bankers or academics. FASB members also take seriously into account the Congress and SEC's recommendations into determining the standard they want to implement. We do not model monetary contributions of firms to influence the due process as the funding of the different standard setters is not largely represented by voluntary monetary contributions. In that aspect our paper differs from models where campaign contributions buy the votes of influenceable voters or provide voters with information about candidates' positions (Austen-Smith (1987), Baron (1994) and Grossman and Helpman (1994)). Bernheim and Whinston (1986) also show how agents will use bribes to influence the decision-maker's choice.

We present next the different institutions. Section 2 studies the three institutions in the pure exchange economy. Section 3 extends the results in a production economy. Finally section 4 concludes.

2. The Pure-Exchange Economy

2.1. Reporting Environment

We develop first the main implications of the model in a pure-exchange economy, where accounting serves as a mechanism for financial reporting. That said, it is overly restrictive to interpret the pure-exchange economy presented here as one where accounting information does not have any real effects. What we mean by pure-exchange is that disclosure no longer affects real decisions at the time it is selected, ex-post. It is quite possible that some decisions may have been made prior to the disclosure choice, now viewed as sunk (as argued in Grossman and Hart (1980)). Conceptually, the pure-exchange economy is appropriate for researchers or regulators with the point of view that many decisions are ex-ante and/or that, with fleeting knowledge of actual firm's production problems, there is no information system that will unambiguously dominate all others on the grounds of efficiency (Demski (1973)). This view is also commonly advocated by accounting regulators who are unwilling to talk about economic consequences (Beresford (2001)). Within this paper, we do not pretend to make a judgment as to whether efficiency should or should not be formally modeled (we will do both); conceptually, however, the pure-exchange economy is

helpful to capture the amount of disclosure driven solely by reporting motives, before we introduce confounding welfare considerations driven by a one specified decision problem.

There is a set of owners who privately observe an unbiased signal \tilde{v} about future expected cash flows, where \tilde{v} is drawn from a Uniform distribution with support normalized to $[0, 1]$. Later in the text, we use v to emphasize a realization of the random variable \tilde{v} . Owners have an investment horizon shorter than that of the firm and must resell their claim on a competitive financial market prior to actual cash flows. Prior to the sale, a mandatory disclosure $r(v) \in \{v, \text{“ND”}\}$ is required from the firm, where “ND” stands for no-disclosure. The function $r(\cdot)$ is a description of the mandatory reporting regime in place and is *not* a choice variable for the firm or the owner. To remove distracting considerations about alternative sources of information, we assume that there is no possibility to make *credible* voluntary disclosures (via costly voluntary disclosure or signaling); for example, auditing, potential litigations and SEC enforcement actions are much stronger for items that are required by law and part of the financial statements. This is a limitation of our analysis.

Our focus here is on reporting regimes that prescribe disclosure of sufficiently unfavorable outcomes. In formal terms, a regime is defined as a threshold $A \in [0, 1]$ such that $r(v) = v$ if $v < A$ and $r(v) = \text{“ND”}$ if $v \geq A$. At one extreme, full-disclosure corresponds to $A = 1$; at the other extreme, no-disclosure corresponds $A = 0$. As an important intermediate case, $A = .5$ prescribes disclosure of all (below-average) outcomes that would lead to a negative revision in investor’s expectations. One interpretation given in Goex and Wagenhofer (2009) is that the threshold A is a level that would justify an asset impairment. For now, we assume that full-disclosure is potentially feasible so that we can trace any loss of information to institution form and not to exogenously assumed frictions.

Conditional on a disclosure R , owners sell their asset for a price $P(R) = \mathbb{E}(\tilde{v}|r(\tilde{v}) = R)$, i.e. $P(v) = v$ or $P(\text{ND}) = \mathbb{E}(\tilde{v}|r(\tilde{v}) \geq A) = (A + 1)/2$. An owner with private information prefers a reporting regime that increases $P(r(v))$.

2.2. Standard-Setting by Politicians

The first institutional form that we examine is one in which the regulations emerge as an electoral competition between (at least) two politicians interested only in winning office (Black (1948)). In formal terms, we assume that two candidates, indexed by $i = 1, 2$, simultaneously

make a proposal A_i . Owners then vote over which of these proposals most increases their stock price. The candidate whose proposal receives more votes is selected and its proposal implemented. In addition, owners who are indifferent do not vote or, equivalently, vote for either candidate with probability .5. In the case of a tie, the two candidates are selected with equal probability. As is usual in this literature, we focus on pure-strategy equilibria, in which each candidate maximizes his probability of winning taking the other candidate's proposal as a given.

Under electoral competition, the decision over the reporting regime is delegated to external parties (the politicians) who has no vested interest in the final choice. The model of electoral competition is sometimes referred to as "institution-free," to the extent that the choice becomes entirely political and there is no commitment to any due process that may counteract such political forces. It presents a benchmark situation in which the standard-setting institution is weak relative to political bodies, or when members of the standard-setting body are chosen for a low fixed term and primarily office-driven.

How much electoral motives - relative to other institution forms discussed later - fit the observed institution is a matter of observation and empirical measurement; in particular, a scientific measurement of such electoral motives in practice is not our purpose in this paper. However, it is worth noting that the institutions that we observe are not entirely isolated from electoral motives. In practice, a large number of bills proposed in Congress provide instructions to standard-setters and the SEC can veto or alter certain proposals; standard-setters go through Congressional hearings on average once every two years (Beresford (2001)) and politicians sometimes directly legislate over accounting matters (Tweedie (2009)). Such electoral motives may also be part of the choice and renewal process of new standard-setters, in particular given that standard-setters operate for a limited term, and nominations must be implicitly approved by the various constituencies and elected regulators. We do not know the extent to which prospective standard-setters actively campaign for the job, but we strongly believe that trustees seek candidates whose ideas seem reasonably in line with those of the constituencies and the regulators.

Let us make the preliminary observation that both candidates should win with equal chance, or else the (on average) losing candidate would simply make the same proposal made by the other candidate. This implies the following preliminary Lemma.

Lemma 2.1 *In any equilibrium, each candidate wins with probability .5.*

Consider next, as one potential outcome of the game, that one candidate (say, candidate 1)

proposes partial or no disclosure, i.e. $A_1 < 1$. The best response of candidate 2 to such a proposal is to find another counter proposal A_2 that would guarantee an electoral win over A_1 , if such a proposal were to exist.

To construct this proposal, let us introduce a proposal $A_2 = A_1 + \epsilon$, where $\epsilon < 1 - A_1$. Under this alternative standard, candidate 2 demands a tighter standard than candidate 1, by proposing to require some disclosures from those owners that would otherwise not disclose under A_1 ; in doing so, candidate 2 also reduces mispricing and increases the no-disclosure price.

We make the following important observations: (i) all owners with $v < A_1$ are indifferent; (ii) all owners with $v \in (A_1, A_2)$ do not want to disclose provided ϵ is sufficiently small, and prefer A_1 ; (iii) all owners with $v \geq A_2$ prefer the higher no-disclosure market price under A_2 . It follows that only $A_2 - A_1 = \epsilon$ support candidate 1 vs. $1 - A_2 = 1 - \epsilon - A_1$ supporting candidate 2. As a result, candidate 2 can always guarantee electoral win by proposing some small increase ϵ in disclosure requirements. The strategy points to one of the distinctive features of electoral competition when applied to disclosure choice. By filtering out a suitably-chosen minority of lower-value non-disclosers, a candidate can strategically rally those owners that are not subject to the increased regulation but benefit from the increase in market price.

Lemma 2.2 *If $A_1 < 1$, there exists a proposal A_2 such that candidate 2 wins with certainty.*

Lemmas 2.1 and 2.2 imply that no candidate can propose a standard that is less than full-disclosure. Specifically, the only possible equilibrium standard must be of the form $A_1 = A_2 = 1$, with both candidates proposing full-disclosure.

To close the argument, the two candidates proposing full-disclosure must be evaluated as a potential equilibrium of the game. Consider candidate 2 deviating to $A_2 < 1$. Clearly, all owners with $v \in [A_2, .5(1 + A_2))$ prefer A_2 while all owners with $v \in (.5(1 + A_2), 1)$ prefer A_1 . As a result, exactly half of all owners prefer A_1 over A_2 , and a deviation of this form is not strictly desirable. These observations are summarized in the next Proposition.

Proposition 2.1 *There is a unique Nash equilibrium. Both candidates propose full-disclosure and $A = 1$ is always implemented.*

To state the result differently, there is one and only one regulation that may not be defeated by the competing candidate. The full-disclosure standard implies that the other candidate cannot skim some of the low-value non-disclosers to collect the support of the other non-disclosers. We

conclude with the following, somewhat counter-intuitive, prediction: namely, that the competition between politicians lead to very high disclosure requirements, in particular contrary to common criticisms of direct political intervention as a cause of poor accounting transparency.

Consistent with this basic prediction, the increased intervention of political bodies on accounting since the SEC Act of 1934 has been coincidental with a large increase in mandatory disclosure. Over the course of the last century, financial statements have grown from a few pages to hundreds of pages of SEC-required disclosures. Further, recent examples in which the regulation was entirely political, such as the Sarbanes-Oxley Act, seem to suggest increases in the amount and quality of financial information. From a more negative standpoint, this force toward disclosure is fully driven by electoral and reporting motives and occurs independently of any actual concerns about production or economic efficiency.

2.3. Standard-Setting by Self-Regulation

The electoral competition model assumes a direct control over the standard-setting process by politicians interested in keeping office. We examine next a different institution form in which those being regulated actively bargain over which reporting regime should be implemented. There is no longer an office-driven politician, but proposals over new standards are made by those same constituencies being regulated. The formal setting follows the widely-used Baron and Ferejohn (1989) model, hereafter BF. The choice is made over T rounds of bargaining, where, if no agreement is reached by the end of date T , no-disclosure is passed. At every round, a proposer is randomly chosen among the set of owners and its proposal is subject to a vote. If the proposal received more than half of the votes, it is implemented and, otherwise, the game moves to the next round and another proposer is drawn. The process continues until either no round is left or a proposal passes.

The BF model is sometimes referred to as “self-regulation.” Unlike with electoral competition, there is no external politician that can rule over the agenda and, instead, those same owners affected by the regulations step forward and may submit agenda items. In other words, the constituency has a direct say over both the agenda and the voting process. BF introduce the model as an (abstract) representation of the deliberations and bargaining game that occurs deep within the regulatory body.

There are certainly aspects of accounting regulation that are indicative of self-regulation. In the

US, accounting questions are often discussed in Congressional subcommittees, prior to proposing new bills, which have been one of the major applications of the BF model. The standard-setting institutions are non-governmental institutions which are accountable to their constituency. New agenda items are brought to the attention of standard-setting boards through the submission of “open” agenda comment letters (generally by private interests) and from the institution’s advisory boards where preparers form by far the largest group. This being said, we suspect that the actual level of self-regulation has decreased in the US over the twentieth century; apart for some minor state requirements, accounting was mostly a self-regulated convention prior to the 1934 SEC Act (Basu and Waymire (2008)), and then debates such as the replacement of the APB and the Metcalf report have increased the political supervision of standard-setters; in international standards, domestic regulators now form one of the largest group and the new 2011 chairman of the IASB is a former domestic regulator.

We develop next the notations of the model. The regulatory choice takes place over a large number of regulatory rounds $t = 0, \dots, T$. In each round, a proposer (or agenda-setter) is randomly chosen. The proposer strategically chooses a reporting regime $A \in [0, 1]$. Then, this regime is voted by all owners. The proposal can be passed or defeated. If more than half of all owners oppose the new regime, then the proposal is defeated, and the next regulation round begins with a new proposer being selected. Otherwise, the proposal is passed and the regulatory game ends with the implementation of the proposed reporting regime.

As an important parenthesis, note that firms are now forward-looking when deciding whether to support or oppose a current proposal. At the voting stage, firms vote “Yes” if the price conditional on the proposed regulation is greater than the expected price conditional on one more regulation round, and firms vote “No” otherwise. At the proposal stage, the proposer selected in the period considers which regulations could survive the voting stage; importantly, the proposer may propose one of these regulations, or propose a regulation that fails to wait for one more round of bargaining. To make these forward-looking concerns formally explicit, we define $V_t(x)$ as the expected price by a firm with $v = x$ at the beginning of round t (prior to the new proposer being selected). Essentially, $V_t(x)$ captures the value that a firm with $v = x$ anticipates if the bargaining round at $t - 1$ fails. Finally, to close the model, we assume that if the proposal fails in the last round, no disclosure regulation is implemented, i.e. $r(v) = “ND”$ for all v and all firms receive a pooled price of .5.¹

¹As an aside, this last assumption can be replaced by a full-disclosure regime or zero price for all firms with no

The model is solved by backward induction, starting from the last regulation round. At this last stage, firms know that failing to pass a regulation will lead to no-disclosure, i.e. a market price of .5 for all firms. This property has one important implication, namely all above-average owners with $v > .5$ support any $A > 0$. It follows that, in this last round, any regulation $A \in [0, 1]$ can be passed, as stated next.

Lemma 2.3 *In round T , any regulation $A \in (0, 1]$ can be passed.*

Since any regulation can pass, the proposer that sets the agenda in the last bargaining period becomes a de facto dictator and can impose any standard. Which regime A would the proposer pass? Clearly, the proposer's market price is better-off by pooling with the widest fractions of other owners with better news while requiring disclosure from those owners with less favorable news. That is, a proposer with value v proposes $A = v$ and achieves a market price $.5(v + 1)$.

Proposition 2.2 *In round T , the proposer $v \in (0, 1]$ proposes and passes $A = v$.*

The threat of no-disclosure in the last round of the regulatory game implies that all firms that are above-mean support the proposer's choice. This is an important, yet not fully understood, property of self-regulation. Beyond the vote, the ability to place new items on the agenda is extremely valuable to an owner. In particular, in a self-regulated institution, the determination of the agenda plays a critical role in giving rise to new accounting standards.

We can then compute the continuation price $V_T(x)$ at the start round T , as the expected price conditional on a new proposer, i.e.

$$\begin{aligned} V_T(x) &= \int_0^x (v + 1)/2 dv + \int_x^1 x dv \\ &= -\frac{3}{4}x^2 + \frac{3}{2}x \end{aligned}$$

This continuation price has several intuitive properties. The lowest value firm is almost sure to disclose and achieves zero surplus. That is, there is always full transparency and no mispricing "at the bottom." The average firm receives an expected price equal to $9/16$, i.e. strictly more than its actual value of $1/2$. The result follows from the partial transparency imposed on firms with below-average $v < 1/2$; in particular, the average firm strictly benefits from a self-regulated environment. The highest value firm averages out the identity of the last-period proposer, counting

change to the results.

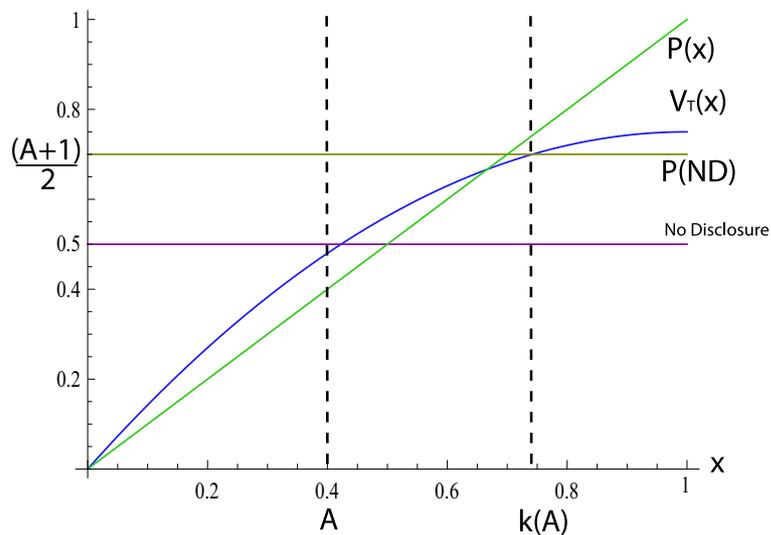
on an expected regulation $A = 1/2$ for a surplus of $3/4$. That is, there is the highest level of mispricing “at the top”. As compared to the average firm, high value firms are strictly worse-off under a self-regulated institution than under electoral competition.

One property of the value function is worth emphasizing, as it will play a key role in explaining the solution of the model. As the value of the firm increases, the probability of a lower-value proposer also increases, causing the continuation price to be concave in the private value. Said differently, the self-regulated institution redistributes value across firms; in equilibrium, it operates as an *increasing marginal tax* which gives away every marginal dollar of value in increasing proportion to (lower-value) non-disclosers.

We develop next the model further and examine the regulatory choice that emerges in earlier bargaining rounds. However, given that the formal proof is mostly technical and obscures the economic intuitions at play, we first provide some heuristic intuitions that rely on graphical analysis and economic reasoning.

The (concave) value function $V_T(x)$ is plotted in Figure 1 and represents how much each firm expects to receive if the $T - 1$ round of regulation fails. We examine several alternative regulations and consider which of these regulations may pass.

Figure 1: Continuation Value $V_T(x)$ vs Proposed Standard A



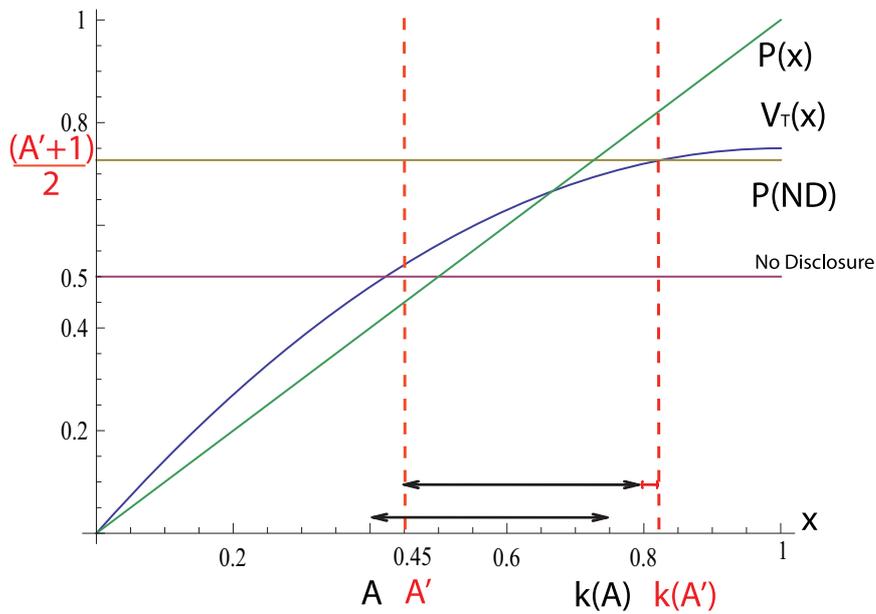
The no-disclosure regulation is represented as a horizontal line intersecting the vertical axis at .5. Because the average firm strictly prefers to wait for one more round, there are more than

half of all firms that oppose no-disclosure and thus the regulation may not pass. Returning to the earlier interpretation of $V_T(x)$ as an increasing marginal tax, such tax redistributes more value from high-value owners that it takes away from average owners; thus, the average owner expects to benefit from this marginal tax. For similar reasons, full-disclosure, which gives a surplus .5 to the average must also fail to pass.

Is there some partial disclosure that may pass at round $T - 1$? Any regulation that passes must get the support from the average firm and thus may not require disclosure of good news, i.e. $A < .5$. That is, we find that disclosure of good news does not occur in equilibrium. This occurs from two reasons. First, the average firm is pivotal in the choice process and its support must be obtained to pass new standards. Second, the average firm expects to benefit in the last round (from the increasing marginal tax) leading to a bias against disclosing its information, vs. waiting for one more round.

Let us next consider regulations that do not prescribe disclosure of all bad news, or $A < .5$, represented as a dotted line in Figure 1. All owners forced to disclose oppose the regulation and, in addition, owners between A and some cutoff $k(A)$ support A while owners with very high $v = x$ are better-off waiting and receiving $V_T(x)$. The total support in favor of A is $k(A) - A$ while all other owners oppose.

Figure 2: Continuation Value in $V_T(x)$ vs Proposed standard A'



We do not know yet whether $k(A) - A \geq .5$, so let us consider a small increase in A and examine how it affects $k(A) - A$. Technically, because of the concavity of the continuation price $V_T(x)$ discussed earlier, $k(A)$ must increase faster than A , leading to an increase in the total support for A as A increases toward $.5$. Figure 2 represents a higher level of disclosure A' and shows how the proportion of supporting firms increase.

This technical property can be explained by returning to the interpretation of the concavity of $V_T(x)$ as an increasing marginal tax rate in the final round. Thus, a high value firm compares every extra dollar today caused by an increase in the threshold to the increasing marginal tax rate in $T - 1$. This increasing marginal tax rate means that high value firms assign more value to every extra dollar of market value obtained today, vs. waiting for one more round. In turn, this implies that a greater fraction of non-disclosers begin supporting the standard than the fraction of new disclosers that now oppose it.

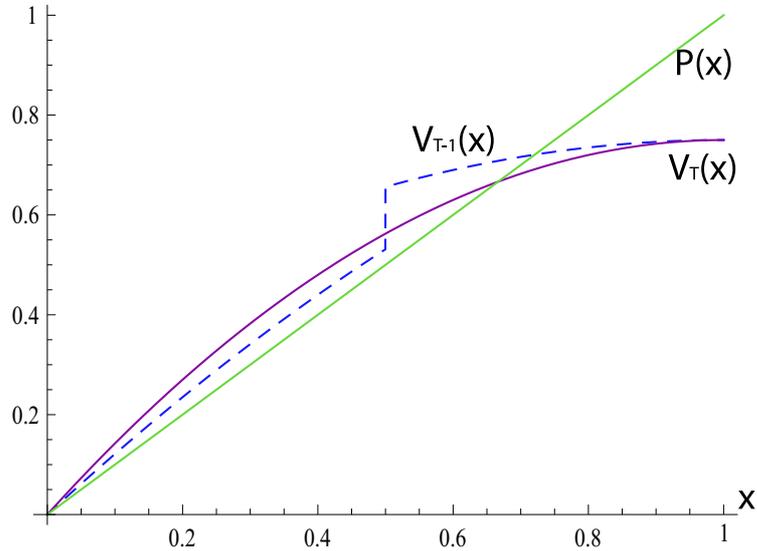
Continuing the argument, we observe that if $A = .5$, the support for a new standard is maximal (from our previous paragraph). Further, exactly half of all firms oppose, leading to $A = .5$ being the one and only standard that can pass at $T - 1$. There are again two forces that drive the result. One, the average firm is the pivotal voter, whose support must be guaranteed to pass a new standard; as a result standards $A > 1/2$ that disclose favorable news may not be passed. Two, high-value firms face the threat of the increasing marginal tax in the last period, and thus are increasingly favorable to every extra market price received in $T - 1$. The conjunction of these two forces implies that only a standard that prescribes disclosure of all bad news, but no good news is passed.

We pursue the argument to its natural conclusion by recovering next which regulation would effectively be proposed at round $T - 1$. Firms with $v \geq .5$ can achieve $.75$ by passing $A = .5$, which is always greater than $V_T(\cdot)$; thus it is indeed desirable to pass this standard for owners with favorable information. In other words, proposers with better information demand conservatism because it takes away the possibility of a low-disclosure proposal in the final round. Vice-versa, owners with $v < .5$ are better-off waiting (or proposing any $A \neq .5$ that fails) since no regulation that is attractive to them can pass. We conclude that $A = .5$ passes with probability $.5$ at round $T - 1$, and a proposal fails with probability $.5$.

The value function $V_{T-1}(x)$ is then updated by taking an average of $V_T(x)$ (a proposer with $v < .5$) and $1_{x < .5}x + 1_{x \geq .5}.75$ (a proposer with $v \geq .5$), which is represented as a dotted line in Figure 3. One can recognize graphically that this updated value function has the same distinctive

features that made $A = .5$ the only standard that can pass, leading to a replay of the intuitions developed above and giving a simple recursive structure to the bargaining game.

Figure 3: Continuation Value $V_{T-1}(x)$



In the next Proposition, we establish these intuitions formally, and provide a formal solution of the model for any number of bargaining rounds $T > 1$.

Proposition 2.3 *In bargaining rounds 1 to $T - 1$, a proposer with $v \geq 1/2$ proposes and passes $A = 1/2$ and a proposer $v < 1/2$ makes a proposal that fails, leading to one more round of regulation. If round T is reached, a (last) proposer with value v proposes and passes $A = v$.*

We show that in all periods but the last, below-average owners choose a strategy that consists in delaying regulatory choices, in order to reach the final regulatory period where more attractive regulations can be passed. Lower-threshold regulations cannot be passed before because firms that are located slightly below $.5$ which are pivotal voters for low-quality regulations to pass, have an option value in waiting. Above-average owners, on the other hand, attempt to pass the regulation $A = .5$ prior to the last period, provided the agenda process (i.e., the identity of the current proposer) allows it.

Corollary 2.1 *As T becomes large, the probability that $A = .5$ is chosen converges to one.*

Corollary 2.1 states the main result of the analysis. If the number of regulatory rounds is large - meaning that in the limit no restrictions are imposed on the duration of the regulatory rounds -

then one and only one regulation is passed. The regulatory choice does not depend on the identity of proposers and features disclosure of below-average news and non-disclosure of above-average news. One interpretation of the finding is as a median voter result for the self-regulated institution. The regulation that passes is the one that maximizes the market price of the median firm which, then, is better-off preventing disclosures of good news firms.

The solution stands in sharp contrast with the electoral competition game. By removing competition as a source of new standards, the self-regulated institution is more prone to strategic manipulations of the agenda; such manipulations return the ex-post bargaining power to the median firm, and implies that a conservative standard is passed over full-disclosure. In essence, what we claim here is that excess non-recognition of favorable events may be a consequence of institutions that function outside of competitive pressures.

As an aside, it has been put forward that conservatism may have been the result of demands by the accounting (audit) profession. We disagree. Preparers are far more influent than auditors in standard-setting (recall that preparers *hire* auditors); in practice, auditors do not impose standards that are not supported by the preparer community. Further, the case that auditors may be subject to liability if they fail to disclose bad news is not convincing. First, auditor's fees will be competitively adjusted to greater liability, leading to an ambiguous outcome on auditor's remaining surplus. Second, it is entirely unclear whether requiring more disclosure over a greater set of outcomes would increase or decrease auditor's expected liability. In actual facts, it is extremely rare to see auditors in comment letters that would openly disagree with their clients when it comes to new standards. We reinforce this claim by noting the following: there is no empirical basis for the claim that conservatism is the outcome of the demands of accountants relative to the demands of the private sector.

The confusion about the real impact of accountants is, we believe, tied to a misunderstanding of who has real authority within the standard-setting organization. Accountants are naturally represented in the institution as experts, but the count of people is very different from the actual real authority, which is mostly held by Congress or by preparers. That a self-regulated institution should pick some intermediate level of disclosure is not driven by the demands of accountants, rather it can be explained from the demands of privately-informed owners.

2.4. Standard-Setting by a Mission-Driven Standard-Setter

The two institutional environments presented earlier describe standard-setters that are opportunistic in some form or another, either a standard-setter that is office-driven, or a standard-setter that is inherently driven by his own reporting interest (or acts as an intermediary for an interest group). We present next an alternative form of standard-setting institution that is driven by a clearly stated mission or objective function. In the model, we assume that the standard-setter has a mission to increase information available to the financial market, i.e. attempts to increase A as high as possible. However, we also assume that the mission-driven is also constrained by pressures by the private sector and must receive a support by at least a proportion $\alpha \in [0, 1]$ of those owners who are not indifferent to pass a new standard. Note that, later on as we develop the production economy, we will consider a standard-setter whose mission is to increase the ex-ante surplus of investors. The parameter α is a measure of the independence of the institution in the face of political resistance.

Developing an independent standard-setting institution isolated from politics has been the object of long-standing efforts by the accounting profession. One may, for example, think about a standard-setting institution that would be similar in form to central banks, whose mission is clearly stated (maintain economic stability). As of now, this objective remains a distant goal; yet, some developments in standard-setting are pushing toward this model. Both the FASB and the IASB have developed conceptual statements whose objectives are to define an underlying objective function. Over time, there have been not one but many instances in which standard-setters have clashed with political bodies (e.g., inflation accounting, stock option expensing, acquisition accounting, fair-value accounting). In our view, the establishment of international standards was partly driven by the need to separate the process of standard-setting from coordinated political pressures at the national level (in fact, Sir David Tweedie, in his 2008 speech to the AAA, explicitly mentions the need for a unique strong standard-setting institution as one important aspect to overcome external pressures).

The timing of the game is as follows. The standard-setter proposes a new standard A . If the standard-setter receives a proportion α of all votes by non-indifferent firms, the proposed standard is implemented. Otherwise, no standard is implemented and no-disclosure is implemented.²

For $\alpha \leq .5$, the analysis is similar to that obtained in the self-regulated institution (final

²Assuming that the standard-setter could repeatedly propose after a failed proposal would have no consequence on the results, so that we condense the game into a single proposal stage.

round), i.e. the standard-setter can acquire a majority of supporters and pass any standard; in this situation, the standard-setter will be able to pass the preferred standard $A = 1$. If a smaller fraction of opposing owners can veto the standard proposed by the standard-setter, then the standard-setter may no longer be able to pass $A = 1$.

Suppose that $\alpha > .5$. We consider two distinct cases. First, suppose that $A \in [.5, 1)$ is proposed, i.e. with some disclosure of good news. Then, all owners with $v < .5$ are required to disclose and thus oppose the new standard; it follows that such a standard will not pass. Second, suppose that $A \in (0, .5)$, then all firms required to disclose oppose, while all others favor the new regulation. It follows that there are $1 - A$ firms that support the standard-setter's proposal. Solving for the maximal A that can pass is obtained by $1 - A = \alpha$, or $A = 1 - \alpha$.

Proposition 2.4 *Suppose $\alpha \leq .5$, then $A = 1$ is implemented. Otherwise, $A = 1 - \alpha < .5$ is implemented (and no good news are ever disclosed).*

We show that the standard-setter can achieve its mission only when independence is high enough, but not when a large enough minority of firms can block or veto new regulations. In such cases, the standard-setter is bound to recover the support of the pivotal average firm and passes standard $A < .5$ that do not involve disclosure of good news. The greater the political constraint faced by the standard-setter, the less the standard-setter is able to push for disclosure. Interestingly, note that the switch from $A = 1$ to $A < .5$ occurs even if there is very little veto power, or A is very close but greater to $.5$; in particular, a mission-driven institution that requires any strict majority to pass a new standard who propose and pass $.5$.

Comparing to the two previous institutions, we have shown that a mission-driven institution only provides more disclosure when it is sufficiently independent. Otherwise, a mission-driven institution can be easily captured by lower-value firms, *even if it desires more disclosure*. We conclude in particular that an effective mission-driven institution requires to first provide a sufficient degree of independence.

3. Production Economy

3.1. Model and Preliminaries

Before we state the formal production economy, we make an important disclaimer. It is quite possible in practice that accounting serve primarily a role of reporting, and does not have social

value. As we have shown in the pure-exchange economy, regulations naturally emerge from the institution despite no pre-assumed social role for information. For this reason, by no mean is the production economy meant as a more factually realistic model of accounting choice, unless the use of accounting information is empirically validated.

We now embed some costs and benefits of disclosure which may give an additional social role for information. As before, current owners are short-lived and sell their assets before the cash flow date. New owners now need to make a post-disclosure decision $I \geq 0$ which leads to a final net cash flow $F = \tilde{v}I - I^2/2$. One may interpret as an investment or scale decision, or more abstractly any decision that would (optimally) be increased for greater values of \tilde{v} . For obvious reasons, we assume that old owners that did not disclose cannot tell the truth after selling the asset (they would likely be immediately sued by the buyers and have no strict incentives to do so). New investors do not have limited liability and consume F at the cash flow date. To be able to speak of environments with “too much” disclosure, we also introduce a cost of disclosure $c > 0$ which reduces the final cash flow F by c if a disclosure was made.

We develop several preliminaries to the analysis. The optimal investment strategy is given by the optimal choice of I conditional on all available information, i.e. I that maximizes $\mathbb{E}(vI - I^2/2|r(v))$. As is well-known $I^* = \mathbb{E}(v|r(v))$, as stated next.

Lemma 3.1 *Let $I^D(v)$ denote the optimal investment for a firm disclosing v and I^{ND} denote the optimal investment for a firm not disclosing. Then, $I^D(v) = v$ and $I^{ND} = (1 + A)/2$.*

Substituting in this investment policy to obtain the no-disclosure price and the disclosure price, we obtain that:

$$\begin{aligned} P(ND) &= (A + 1)^2/8 \\ P(v) &= v^2/2 - c \end{aligned}$$

Let σ be the social surplus in the production economy or, equivalently, the expected surplus to an uninformed or diversified investor. Then:

$$\sigma = (1 - A)P(ND) + \int_0^A (v^2/2 - c)dv \quad (3.1)$$

Maximizing this social surplus provides the (second-best) level of surplus in the economy with incomplete information, stated below.

Proposition 3.1 *Social surplus is maximized at: $A^* = \max(0, 1 - 2\sqrt{2c}) < 1$.*

The level of disclosure that maximizes social surplus has a simple comparative static. The greater the disclosure cost, the less it is desirable to disclose. Note as well that A^* is concave in c ; this is because the level of disclosure is reduced in response to an increase in c . In the rest of the analysis, we use A^* as a natural benchmark against which we may compare the output of various standard-setting institutions.

3.2. Standard-Setting by Politicians

The model under electoral competition is now revisited in the economy with production. We somewhat generalize the model (for reasons that will become apparent later) by considering that one candidate is potentially asymmetric - for example an incumbent or someone with some political advantage - and can be elected with $\alpha \in (0, .5]$ of the votes.

The argument that full-disclosure and full-disclosure only may be an equilibrium is identical to the pure-exchange economy and is not repeated here (and holds even for $\alpha < .5$). However, what may change is now whether full-disclosure is an equilibrium, as noted below.

Proposition 3.2 *Under electoral competition, full-disclosure ($A = 1$) is the unique equilibrium if and only if $\alpha \leq 1 - .5\sqrt{1 + 8c}$. Otherwise, the electoral competition game does not have a pure-strategy Nash equilibrium.*

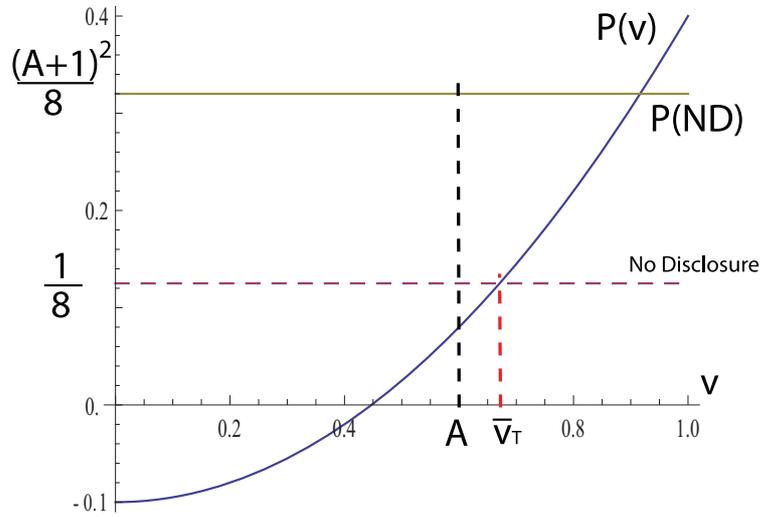
Proposition 3.2 is intriguing to the extent that it suggests that the primary problem with a purely political standard-setting institution is excessive, not insufficient, accounting disclosure, often above the level that is socially desirable and that would maximize the surplus of investors. However, such outcome occurs only when $\alpha \leq 1 - .5\sqrt{1 + 8c} < .5$. That is, the voting process must be inherently asymmetric with one candidate winning with a lesser popular support. This situation can explain why regulations such as Sarbanes-Oxley may be requiring too much reporting quality, at least beyond the cost-benefit trade-offs. By contrast, when politicians are fully symmetric or disclosure costs are large enough, the political process does not have a pure-strategy equilibrium (and, in particular, will not lead to A^* with certainty). These are situations of high regulatory uncertainty in which the regulation would not lead to a long-term agreement.

3.3. Standard-Setting by Self-Regulation

We now extend the BF model in the case of production and costs of disclosure. As before, we approach the game by backward induction and consider the proposal strategy in round T (final round). If the last proposal fails, firms obtain a payoff equal to $P(ND) = 1/8$. As compared to pure-exchange, firms bear a deadweight cost when the regulation fails because inefficient investment decisions were made: above-average firms invest too little while below-average firms invest too much.

To capture which proposal will be made at round T , we begin by asking which proposals may pass round T . For a standard $A > 0$, the market price is given by $P(v) = v^2/2 - c$ for a disclosing firm with $v < A$ and $P(ND) = (A + 1)^2/8$ for a non-disclosing firm with $v \geq A$. This market price is represented in Figure 4 and is compared to $1/8$. All firms whose market price conditional A lies above $1/8$ vote in favor while all firms whose market price lies below oppose. It is immediate that $P(ND) > 1/8$ so that all non-disclosers favor; the intuition for this finding is similar to the pure-exchange economy.

Figure 4: Exit Option at round T vs Proposed Standard A



We turn next toward the disclosers. Solving for the indifference point, $v^2/2 - c = 1/8$, we obtain the critical threshold $\bar{v}_T = .5\sqrt{1 + 8c}$ below which a discloser would oppose the regulation. This implies that all firms with $v < \min(\bar{v}_T, A)$ oppose A . Note that, as is intuitive, the greater the cost of disclosure c , the more disclosers tend to oppose the new regulation. When $c \approx 0$, $\bar{v}_T = .5$

but for all other cases, $\bar{v}_T > .5$.

This observation is the following important difference with the economy with disclosure costs. Any $A > .5$ will suffer from the opposition of all owners between with 0 and $\min(A, \bar{v}_T)$ and will not pass. Thus, disclosure costs amend the previous result by implying that, even in the last round of the game, no above-average news can be disclosed. In turn, only $A \in (0, .5]$ can be passed using the support of all above-average firms.

Lemma 3.2 *In round T , A can pass if and only $A \in (0, .5]$.*

Having noted that all standards with $A \leq .5$ can pass, it is immediate to derive what should be the proposal strategy adopted by each proposer. All owners with $v < .5$ propose $A = v$ to maximize their perceived market price. The higher-value owners, who propose with probability $.5$, attempt to push A as high as they can, toward their v , and thus propose $A = .5$. This implies the following Lemma.

Lemma 3.3 *Firms with a type $v < .5$ propose $A = v$ and the legislation is accepted. Firms with a type $v \geq .5$, they propose $A = .5$.*

The presence of disclosure costs has the effect of shifting more power toward the average firm earlier in the game, since it makes disclosing firms with $v > .5$ more resilient to pass standards favorable to high v . A conservative-like standard emerges even in the last round.

Let us now emphasize three key features of $V_T(x)$ that - as we will soon see - will be true not only for $V_T(x)$ but also for all $V_t(x)$ in earlier rounds. First, the conservative-like process implies that no good news is ever disclosed so that $V_T(x)$ is constant on $[.5, 1]$ (1); we can then denote $V_T(.5) = V_T(1) = p_T$ and, for later use, we denote $V_t(1) = p_t$ for $t < T$. In other words, the early accounting signal does not differentiate between good news and average news. Second, $V_T(x) < v^2/2 - c$ for any $x < .5$ (2); namely, all firms that have below-average firm prefer to wait than disclosing their information. Again, this property is remindful of the pure-exchange economy and states that, for those firms, the reporting motives dominate the production value of disclosing information. Third, $p_T > P(.5) = 1/8 - c$ (3), i.e. the average firm is better-off bargaining further (and hoping for some non-disclosure) than disclosing. This again hints toward the ability of the average firm to partially take over the self-regulated process to its advantage.

We now claim that these three fundamental properties remain true for $V_t(x)$ at $t < T$ and, to prove it, formally, we proceed recursively assuming that these are true at $V_{t+1}(\cdot)$. To validate the

(reverse) recursion, we then need to show that the property is then true at $V_t(\cdot)$. We develop the analysis in text because, as an aside, it conveys some useful economic intuitions (and it is actually mathematically simpler than under pure-exchange).

Consider round t subject to $V_{t+1}(\cdot)$ verifying properties (1), (2) and (3). Property (1) also implies we may say that $p_{t+1} = V_{t+1}(1) = V_{t+1}(.5)$, and p_{t+1} is the expected price for any above-average firm if round t fails.

Let us first consider a proposal $A > .5$ at round t . By (2), all owners with $v < .5$ oppose (they prefer waiting over disclosure) and by (3) some firms that are close to $.5$ oppose as well. It follows that such standard may never pass. In particular, the satisfaction of (2) and (3) on $V_{t+1}(\cdot)$ implies that at an earlier round, still no disclosure of above-average news may pass.

To continue the analysis, consider $A = .5$; this standard clearly received the support of all firms with $v \geq .5$ and thus will pass. Recall that in the pure-exchange, this was the only standard that could pass. However, this is no longer true here.

To see this, consider $A < .5$. We know from property (1) that all firms $v \geq .5$ face the same continuation price p_{t+1} and thus would vote in exactly the same manner. This implies in particular that $A < .5$ passes if and only if it received the support of the group of above-average firms, i.e. $P(ND) = (A + 1)^2/8 \geq p_{t+1}$. There exists a minimal level of A such that this is possible, given below.

Lemma 3.4 *Suppose $V_{t+1}(\cdot)$ satisfies (1)-(3). At round t , $A \geq 0$ can pass if and only if $A \in [k_t, .5]$, where $k_t = 2\sqrt{2p_{t+1}} - 1$.*

The Lemma says the following. The greater the market price achieved by the above-average group, the more this group prefers to reject a proposal $A < .5$ over accepting a low-disclosure standard. As a special case, if $p_{t+1} = 1/8$ (which occurs when $t = T$), we recover the statement made in Lemma 3.3 that all $A \in [0, .5]$ may pass. The next Lemma follows immediately.

Applying the logic developed earlier, we then know that all firms with $v < k_{t+1}$ are better-off waiting for one period (by property (2)), all firms with $v \in [k_{t+1}, .5]$ pass their preferred standard $A = v$ and all firms with $v > .5$ pass the maximal feasible disclosure standard $A = .5$.

Lemma 3.5 *Suppose $V_{t+1}(\cdot)$ satisfies (1)-(3). At round t , owners with value $v < k_{t+1}$ wait for one round, owners with $v \in [k_t, .5]$ pass $A = v$ and owners with $v > .5$ pass $A = .5$.*

What remains to be done to verify the recursion hypothesis is to check whether, as a result of the proposal strategy in Lemma 3.5, $V_t(\cdot)$ does verify (1)-(3).

Property (1) is by far the easiest to check. Regardless of who the proposer is, there is never any disclosure over above-average outcomes; further, if $v < k_t$, all firms with $v > .5$ expect to obtain p_{t+1} which again does not depend on v . Thus, property (1) is indeed verified and, no information about favorable events in previous periods, does imply that no further information will be provided in earlier rounds.

Properties (2) and (3) are also fairly straightforward. When disclosing, a firm with $v \leq .5$ will obtain $v^2/2 - c$ which is strictly less than the least informative standard $A = 0$. In particular, for those firms, the value function $V_t(x)$ must be an average between disclosure, some non-disclosure standard $A \in [k_t, .5]$ and $V_{t+1}(x)$. The two last terms are greater than the surplus conditional on disclosure, and thus it must remain true that the weakly below-average firms prefer waiting over disclosing.

Putting these observations together, we have verified that the recursion hypothesis indeed holds true, as summarized in the next Proposition.

Proposition 3.3 *There exists $\{k_t\}_{t=1}^T$ such that, at every round t , owners with value $v < k_t$ wait for one round, owners with $v \in [k_t, .5]$ pass $A = v$ and owners with $v > .5$ pass $A = .5$.*

The result is slightly different from the pure-exchange environment to the extent that disclosure costs bias the model toward some standards where some moderately bad events are not disclosed. However, similar to the pure-exchange model, no favorable events is ever disclosed.

To obtain a complete resolution of the model, we examine now whether we can further characterize the sequences $\{k_t, p_t\}$. Recall that k_t indicates the lowest possible standard that may be passed at round t and p_{t+1} indicates the expected price received by firms with $v \geq .5$ if round t fails.

From Lemma 3.5, we know that $k_t = 2\sqrt{2p_{t+1}} - 1$. We also know that p_t is given by the expected price at the beginning of round t of a firm with $v \geq .5$. This in turn may be recovered from Proposition 3.3 by considering the proposal strategy, i.e. (i) with probability $1 - k_t$, round t fails leading to an expected price p_{t+1} in the next round, (ii) when the proposer is with $v \in [k_t, .5]$, the standard $A = v$ is passed leading to a price $P^{ND} = (v + 1)^2/2$, (iii) finally, with probability $.5$, the standard $A = .5$ is passed, leading to a surplus $(.5 + 1)^2/8$. Taking an average over each of these events yields the following recursion equation for p_t ,

$$p_t = (1 - k_t)p_{t+1} + \int_{k_t}^{.5} (1 + x)^2 / 8 dx + .5(1 + .5)^2 / 8$$

Substituting in $k_t = 2\sqrt{2p_{t+1}} - 1$, we have that:

$$p_t = \frac{9}{32} + 2p_{t+1} - \frac{8}{3}\sqrt{2}p_{t+1}^{3/2}$$

This recursive Equation has a unique stable fixed point given by:

$$p_{LT} = \frac{9}{32}$$

In particular as T becomes large, p_1 converges to $9/32$. From Lemma 3.5, it follows that $k_1 = 2\sqrt{2p_2} - 1$ must then converges to exactly $.5$. We thus obtain the following result.

Proposition 3.4 *As the number of rounds T becomes large, the standard $A = .5$ is passed with probability one.*

The result is at first sight surprising. The production economy features both production costs and benefits of disclosure; as a result of these forces, the ex-ante socially desirable level of disclosure A^* may be above or below $.5$. Yet, as we show here, the output of the (multi-round) self-regulated institution produces $A = .5$ nevertheless, completely ignoring the costs or benefits of disclosure, just like in the pure exchange economy. Further, this occurs despite the fact that for any finite number of round, these aspects do play some role (through k_t).

The intuition is that the emergence of $A = .5$ in the pure-exchange as an equilibrium goes much deeper than simply ignoring costs and benefits of disclosure. The key is that the self-regulated institution transfers proposal ability to the private sector and, in doing so, endogenously gives agenda-setting power to the average firm. Even with production, this average firm remains better-off by pooling with higher value firms and pushes toward $A = .5$. For a finite number of rounds, the median firm still faces some chance of having the last round being attained and implementing a low-quality standard, thus the median firm will support some lower level of disclosure. But, as the number of rounds increases, this possibility becomes increasingly remote, and thus the behavior of the institution is to favor a purely conservative disclosure.

3.4. Standard-Setting by a Mission-Driven Standard-Setter

Let us now consider a mission-driven institution in the production economy. Since the economy now features a clearly defined surplus-maximizing disclosure level, we make the assumption that the regulator is benevolent and maximizes social surplus (trying to reach as close as possible to A^*). It is worth noting that the result generalizes very easily to situations in which the regulator simply values more disclosure.

The regulator makes a proposal and firms decide whether or not to support that proposal. The proposal passes if at least α of non-indifferent firms support the proposal; otherwise, no-disclosure is passed and firms receive, in the production economy, a surplus of $1/8$.

In order not to reprove aspects that were shown earlier, we first recall some results obtained before. As we have shown, if firms face $1/8$ as the alternative if a proposal fails, then a firm will oppose disclosure if and only if $v < \bar{v}_T = .5\sqrt{1+8c}$. The support in favor of A is thus given by $1 - \min(A, \bar{v}_T)$. In particular, the support in favor of A is weakly decreasing in A : it is increasingly difficult to pass more disclosure.

To begin with, let us define \bar{A} as the maximal standard that the standard-setter may pass (this would be the chosen standard if the standard-setter were to focus only on price efficiency and not surplus). Solving for the greatest A such that $\alpha \geq 1 - \min(A, \bar{v}_T)$ yields the following preliminary Lemma.

Lemma 3.6 *If $\alpha \leq .5\sqrt{1+8c}$, $\bar{A} = 1$. Otherwise, $\bar{A} = 1 - \alpha < .5$.*

Lemma 3.6 links the independence α of the standard-setter to the maximal disclosure level that is feasible. When the standard-setter is more independent relative to the disclosure costs, it is possible to pass full-disclosure. As the standard-setter becomes more politically-constrained, the maximal level of disclosure decreases. Interestingly, note that any standard-setter that is not unconstrained, i.e. with $\alpha \leq .5\sqrt{1+8c}$, is unable to disclose any favorable events (and the level of disclosure is discontinuous in α for α close to $.5\sqrt{1+8c}$). Again, this is due to the fact that the average firm is a pivotal voter and thus the institution must ensure its support in the face of political pressures.

Having derived \bar{A} , it is clear that the standard-setter can pass any $A \in [0, \bar{A}]$. Thus, if the standard-setter is willing to maximize social surplus, the best standard that is feasible is given by $\min(A^*, \bar{A})$, as stated next.

Proposition 3.5 *If $\alpha \leq \max(.5\sqrt{1+8c}, 2\sqrt{2c})$, $A = A^*$ is passed. Otherwise, $A = 1 - \alpha < A^*$ (and less than .5) is passed. In particular, $\alpha \leq .5$ implies $A = A^*$.*

The first part of the result is not surprising. A sufficiently independent standard-setter (if this is politically feasible) can pass the socially preferred level of disclosure A^* against potential pressures. It is slightly less intuitive that, contrary to what one may think, this condition is easier to verify when c is high, despite the fact that higher cost of disclosure tends to generate more opposition to disclosure regulation. This occurs because the level of disclosure targeted by the standard-setter decreases faster than the political opposition increases, leading to the social optimum being more easily reachable. Further, we add to this result by noting that complete independence is not required. In fact, $\alpha \leq .5$ is sufficient to attain the social optimum. In other words, the standard-setter will pass A^* as long as a minority of firms cannot oppose new standards. This is demanding (for example, new economy firms were a minority but still managed to oppose stock option expensing) but it is a sign that simple majority support may be enough for the standard-setting institution to operate effectively.

When minorities have a greater ability to block new standards, the standard-setting institution will be constrained to pass standards that yield less disclosure than socially preferred, in fact with some non-disclosure of unfavorable events. Comparing to the other two institutions discussed earlier, a politically-constrained mission-driven institution, even if is inherently benevolent, will pass less disclosure than the purely political or self-regulated institutions. With regards to the latter, the mission-driven institution loses the implicit threat of a low regulation being proposed by low-quality firms which in turn makes some firms more resilient to sign off on current proposals. At a conceptual level, the result provides a clear warning than mission-driven institution are not a solution, if they are not properly insulated from (the most) vocal minorities.

4. Conclusion

Although the idea is certainly open to theoretical speculation, it is ultimately very difficult to empirically measure what the best accounting standard should be, let alone what practical rules would implement it. Popular claims in favor of one particular accounting treatments are typically driven by self-interested motives (sometimes unconsciously) and the notion of a surplus-maximizing policy remains evasive. Researchers have made repeated attempts to approach this question, but such normative questions remain unsettled.

We propose in this paper a research agenda that would shift the debate from the actual standards toward the institutions that create accounting standards. Even if normative research were to ultimately agree on accounting standards, such insights will not be put to use unless the institutional form allows it. A sound discussion of the institutional determinant of accounting is required for the normative agenda to be successful. Vice-versa, deficient institutions give us a causal explanation as to why and how policy-making may fail.

And, yet, even though we have tried to make some exploratory progress toward understanding alternative accounting institutions, we still know very little about them and much remains to be done. Should there be one regulatory body or two competing institutions? We do not know. Should accounting be regulated, or will the market provide disclosure on its own and overcome reporting motives? We do not know. How should accounting institutions interact with other institutions that regulate the judiciary or banking system? We, again, do not know. Yet, while the number of unanswered questions is daunting, these issues offer a rich research agenda, that we hope, will help future regulators make a convincing case about the form of accounting policy-making.

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Appendix

Before solving the model explicitly in section 2.3, we introduce some technical preliminaries that rely on some properties of an educated guess about the expected market price at the beginning of a regulatory round. By way of notation, let us define as $V_t(x)$ as the expected market price at the start of round t for a firm with value x . In short-hand, we refer to this function as the continuation price.

As suggested earlier, we make a “guess” (which will be verified later on) that $V_t(x)$ can be explicitly written as a function that is quadratic in parts.

$$G_t(x) = (1/2)^{T-t} \left(-\frac{3}{4}x^2 + \frac{3}{2}x \right) + (1 - (1/2)^{T-t}) (1_{x < 1/2}x + 1_{x \geq 1/2}3/4) \quad (4.1)$$

The first important property of $G_t(x)$ is that it admits a simple solution for the regulatory choice game in which one and only one reporting regime may be proposed and passed in the current round.

Lemma 4.1 *Suppose that the continuation price at round $t < T$ is given by $G_t(x)$. Then, at round t , a proposer with value $v \geq 1/2$ proposes and passes $A = 1/2$ and a proposer with value $v < 1/2$ chooses a proposal that fails (for example $A = 1$) leading to the next round.*

Proof of Lemma 4.1: The main idea of the proof is to show that, conditional on a continuation price equal to $G_t(\cdot)$, only the regulation $A = 1/2$ may pass. We decompose the proof in several steps.

Step 1. Preferences of Disclosers. We examine whether a firm with value v prefers to disclose its information over continuing for one more round. Specifically, a firm with value v prefers to disclose if $v > G_t(v)$. Note that $G_t(v) > v$ for all $v \leq 1/2$, i.e. all firms with below-average values oppose a regulation that requires them to disclose. In addition, we know that: (a) $G_t(\cdot)$ is continuous, strictly increasing and concave on $(1/2, 1)$, (b) $G_t(1/2) > 1/2$ and $G_t(1) = 3/4 < 1$. Therefore, there exists a unique $v_0 \in (1/2, 1)$ defined by $G_t(v_0) = v_0$ such that all firms with $v < v_0$ oppose disclosure of their information while all firms with $v > v_0$ support disclosure of their information.

Step 2. Preferences of Non-Disclosers. We examine whether a firm with value v prefers not to disclose under regime A . In this regime, the non-disclosure market price is $(A + 1)/2$ so that the firm supports the regime if $(A + 1)/2 > G_t(v)$. First, suppose that $A \geq 1/2$. Then, $(A + 1)/2 = 3/4 \geq G_t(x)$ therefore all non-disclosers support the regulation. Second, suppose that $A \in [(1/2)^{T+2-t}, 1/2]$. By developing $G_t(1/2)$, this condition can be rewritten equivalently as $(A + 1)/2 \in [G_t(1/2), 3/4]$. Again, we know that: (a) $G_t(\cdot)$ is continuous, strictly increasing and concave on $[1/2, 1]$, (b) $G_t(1/2) \leq (A + 1)/2$ and $G_t(1) = 3/4 \geq (A + 1)/2$. Therefore, there exists a unique $v_1 \in (1/2, 1)$ defined by $G_t(v_1) = (A + 1)/2$ such that all non-disclosing firms with $v < v_1$ support the non-disclosure regime while all non-disclosing firms with $v > v_1$ oppose the non-disclosure regime. For further reference, the threshold is given by:

$$(1/2)^{T-t-1} \left(-\frac{3}{4}(v_1)^2 + \frac{3}{2}v_1 \right) + (1 - (1/2)^{T-t-1})3/4 = (A + 1)/2$$

This Equation is quadratic with a unique solution in $[1/2, 1]$.

$$v_1 = 1 - \sqrt{\frac{1 - 2A}{(1/2)^{T-t-1}}} \quad (4.2)$$

Third, suppose that $A < 2G_t(1/2)$. Let us now simply note that $\lim_{x \rightarrow (1/2)^-} G_t(x) < (A + 1)/2$, so that strictly more than half of all firms are non-disclosers that oppose such a regime; we do not need to consider these regimes further since they cannot pass.

Step 3. Regulatory Choice High A. Consider a regulation with $A > 1/2$, and let us examine the support for this regulation. Then, (a) all non-disclosers support (by Step 2); (b) all disclosers with $v \in (v_0, A)$ support as well (by Step 1), (c) all disclosers with $v < \min(v_0, A)$ oppose (by Step 1). First, suppose that $v_0 \geq A$. Then, $1 - A$ non-disclosers support while A disclosers oppose: the regulation cannot pass since more than half of all firms oppose. Second, suppose that $v_0 < A$. Then, $1 - v_0$ firms support while v_0 firms oppose. Since $v_0 > 1/2$, more than half of all firms oppose and, again, the regulation cannot pass.

Step 4. Regulatory Choice Low A. Consider a regulation with $A \in [2G_t(1/2) - 1, 1/2]$, and let us examine the support for this regulation. Then, all firms with v between A and v_1 support while other firms oppose (by steps 1 and 2). Therefore, the support for the regulation is given by $L(A) = v_1 - A$, i.e.

$$L(A) = 1 - \sqrt{\frac{1 - 2A}{(1/2)^{T-t-1}}} - A \quad (4.3)$$

This function is convex in A , therefore it may be maximal at only $A = 0$ or $A = 1/2$. The first candidate $A = 0$ implies a market price of $1/2$, because $\lim_{x \rightarrow (1/2)^-} G_t(1/2) > 1/2$ and G_t is continuous on $[0, 1/2)$, $L(0) < 1/2$. The second candidate follows from Steps 1 and 2 and implies that $L(A) \geq 1/2$ for any $A \in [2G_t(1/2) - 1, 1/2)$ and only $A = 1/2$ may pass the voting stage.

Step 5. Proposal Choice. From Step 3 and 4, we know that only $A = 1/2$ may pass. Since $G_t(x) \leq 3/4$, all firms with $v \geq 1/2$ propose $A = 1/2$. By step 1, all firms with $v < 1/2$ are better-off if they do not disclose, i.e. if they do not pass $A = 1/2$, i.e. they choose to pass any regulation $A \neq 1/2$ which fails and leads to the next round. \square

Lemma 4.2 *Let $t \in (1, T)$ and suppose that the continuation price is given by $G_t(x)$. Then, the continuation price at $t - 1$ is given by $G_{t-1}(x)$.*

Proof of Lemma 4.2: At round t , Lemma 4.1 implies that $A = 1/2$ is passed if the proposer has value $v \geq 1/2$ and, otherwise, the proposer delays the regulatory choice by one period. Therefore, the continuation price at round $t - 1$ is given by:

$$\begin{aligned}\hat{V}_{t-1}(x) &= 1/2G_t(x) + 1/2(1_{x < 1/2}x + 1_{x \geq 1/2}3/4) \\ &= (1/2)^{T-t-1}(-\frac{3}{4}x^2 + \frac{3}{2}x) + (1/2 - (1/2)^{T-t})(1_{x < 1/2}x + 1_{x \geq 1/2}3/4) + 1/2(1_{x < 1/2}x + 1_{x \geq 1/2}3/4) \\ &= (1/2)^{T-t}(-\frac{3}{4}x^2 + \frac{3}{2}x) + (1 - (1/2)^{T-t})(1_{x < 1/2}x + 1_{x \geq 1/2}3/4)\end{aligned}$$

This last term is the expression of $G_{t-1}(x)$ which concludes the proof. \square

Lemma 4.3 *Suppose that for some t , $V_t(x) = G_t(x)$, then, for all $t' \leq t$, $V_{t'}(x) = G_{t'}(x)$ and the regulatory choice is such that $A = 1/2$ is passed with probability $1/2$ and the regulation proposed fails with probability $1/2$.*

Proof of Lemma 4.3: The induction hypothesis is “ $V_{t'}(x) = G_{t'}(x)$ ”. By assumption, it is satisfied at $t' = t$. Further, when satisfied at t' , it is satisfied at $t' + 1$ by Lemma 4.2; this implied by induction that $V_{t'}(x) = G_{t'}(x)$ for all $t' \geq t$. The regulatory choices at t' then follows from Lemma 4.1. \square

To complete the resolution of the model in section 2.3, we simply need to solve the model starting from the last period, derive the regulatory choice and update the continuation prices in the previous period until we (hopefully) reach a point such that $G_t(x) = V_t(x)$. Once such a point is reached, we may then use Lemma 4.3 to derive the regulatory choices for all remaining periods up to the first period of the game.