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Corporate Governance as a
Commitment and Signalling Device

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CORPORATE GOVERNANCE AS A COMMITMENT AND SIGNALLING DEVICE

Angelo Baglioni

Abstract. A model is presented, where firms issuing equity differ in the ability of their controlling shareholders to extract private benefits: this creates a lemon problem, leading to cross-subsidization across issuers. A governance institution is introduced, enabling large shareholders to (imperfectly) commit to the general interest of shareholders. The following main results are obtained. I) Controlling shareholders willing to apply such an institution are those with a level of private benefits either very low or very high: the former employ the institutional constraint as a signalling device, the latter as a commitment device. Those with an intermediate level of private benefits are not interested. II) A higher ownership concentration reduces the large shareholder's incentive to commit. III) Self-regulation dominates regulation.

Keywords: large shareholders, private benefits, (self-)regulation.
JEL Codes: G34, G38

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1 Introduction

The divergence of interests between large and small shareholders is a hot topic in corporate finance. Large shareholders exercise their control rights in order to maximize their own utility: this might not be congruent with the maximization of firm value, which is the interest of all shareholders. In the jargon of financial theory, this issue goes under the label of "private benefits" possibly extracted by controlling shareholders¹. Both corporate law and self-regulatory initiatives (like codes of conduct) have pushed towards the introduction of institutions which should be able, in principle, to reduce the scope for the extraction of private benefits by large shareholders: independent directors, committees, auditors, two-tier boards are the main examples.

Empirical evidence suggests that, when the adoption of those institutions are left to the discretion of companies, some of them are adopted by the large majority of firms, while others are much less common. For example, a recent analysis of the compliance with the Code of conduct, introduced by the Milan Stock Exchange, shows that almost all Italian listed firms have at least one independent director, and on average almost half of the board of directors is made up of independent ones (5 out of 11). To the contrary, the presentation of election lists by minority shareholders at general shareholders' meetings is much less diffused: less than half Italian listed firms (47%) have election lists, and even less reserve some seats in the board to minority shareholders. The same study shows that, while an audit committee and a compensation committee are present in almost all Italian listed firms, only a few (10%) employ a nomination committee².

¹In this paper the focus is on the possible extraction of private benefits by a dominant shareholder, which is a common problem in countries where firms exhibit a high level of ownership concentration (continental Europe). In other countries (U.S. and U.K.), the relevant divergence of interests may arise between managers and shareholders of public companies. The theory of control rights in corporate finance is surveyed by Tirole (2006), in particular chapters 9 and 10. Empirical estimates of the value of control are provided – among others – by Dyck - Zingales (2004) and Nenova (2003): the former exploits the difference between the price paid in a control block transaction and the market price of shares; the second is based on the price difference between multiple and limited voting shares.

²These data come from SpencerStuart (2006), and are based on the annual reports on corporate governance released by listed firms. Another analysis, made by the Milan Stock Exchange (Borsa Italiana, 2006), points to the same evidence: for instance, out of 40 companies included in the S&P/MIB Index, 19 have election lists, of which 16 reserve some seats to minority shareholders.

In some countries, the structure of the board of directors is left to the discretion of shareholders. In particular, companies incorporated in France and Italy are free to adopt a two-tier structure, but only a few ones have chosen to do so³. To the contrary, the two-tier structure is mandatory in Germany.

During the current year (2007), a new corporate act has entered into force in Italy⁴, mandating the presence of (at least) one independent director and one representative of minority shareholders in the board of listed firms. In U.K. the Combined Code (part of the Listing Rules issued by the FSA in 2003) recommends that at least half of the board is composed of independent non-executives. At European level, the Commission Recommendation of 15 February 2005 mandates the presence of "a sufficient number of" independent directors, and it recommends the creation of (nomination, remuneration and audit) committees, where the independent directors should play a key role. In the U.S. the Sarbanes - Oxley Act (2002) has introduced a tough regulation in matters previously left to self-regulation (e.g. the oversight of the audit sector, with the creation of the PCAOB). In general, the regulatory intervention in the area of corporate governance has become stronger, also as a response to some well known scandals.

The above stylized facts raise some interesting questions. Why a dominant shareholder might voluntarily want to reduce the scope for the extraction of private benefits? Which governance institutions are more likely to be adopted through self-regulation? More importantly, which ones are able to produce better outcomes? Should the introduction of such institutions be left to the discretion of shareholders or be imposed by the regulator?

This work provides some tentative answers, that may be summarized as follows. First, when the adoption of a governance institution - limiting the extraction of private benefits by dominant shareholders - is left to the discretion of large shareholders themselves, those more interested in applying such an institution are the ones with a level of private benefits either *very low* or *very high*. The former employ the institutional constraint as a *separating* device, enabling them to signal their quality to the market. The latter employ it as a *commitment* device, in order to overcome their own incentive distortion (like in any time inconsistency problem)⁵. Those with

³While in Italy this option has been introduced only recently (2003), in France it dates back to 1966.

⁴"Legge sul risparmio", n. 262/2005.

⁵Doidge - Karolyi - Stulz (2001) provide empirical evidence consistent with the view

an intermediate level of private benefits are not interested. Second, only those governance institutions, providing a *credible* commitment to neglect private benefits, may be used by some dominant shareholders to signal their quality; an institution carrying no real commitment is applied by all large shareholders, since the cost of a soft constraint is low⁶. Third, the separation outcome may be achieved only by self-regulation, leading to an improvement over regulation. Finally, the relationship between ownership concentration and the incentive to apply the institution is *negative*: the higher the equity stake of the controlling shareholder, the lower the incentive⁷.

The paper closest to mine is Graziano - Luporini (2005), analyzing the properties of different board structures: they interpret the two-tier structure as a way through which a large shareholder can commit to limit his own interference with management; their prediction is that shareholders more willing to commit are those with lower private benefits, since they have less to lose. The composition of the board of directors is analyzed by Dahya - Dimitrov - McConnell (2005), where the ability of a dominant shareholder to divert resources is limited by the presence of independent directors: controlling shareholders with lower equity stakes wish to have fewer independent directors in the a board, allowing them to divert more resources. Both these papers reach quite different conclusions from mine: the reason is that they overlook the impact of the ability to extract private benefits on the equilibrium price of corporate liabilities (in particular, of equity).

The issue of large shareholders' interference with managers has been raised by Burkart - Gromb - Panunzi (1997): however, in their framework the drawback of shareholders' interference is not related to their ability to

that foreign firms cross-list in the U.S., in order to exploit the stronger protection of minority shareholders as a commitment to limit the extraction of private benefits. Similar results are obtained by Reese - Weisbach (2001).

⁶Under this regard, the extremely large diffusion of non-executive "independent" directors in corporate boards raises some doubts, relative to their effectiveness in stopping opportunistic behavior of executives. Recent empirical evidence on self-regulation is not encouraging: the adoption of codes of conduct does not seem to have a significant impact on the market value of listed firms, pointing to a lack of credibility of such codes (see Nowak - Rott - Mahr, 2006 on Germany and deJong - DeJong - Mertens - Wasley, 2005 on the Netherlands).

⁷The empirical evidence provided by Santella - Drago - Paone (2006) on Italian listed non-financial firms is consistent with such prediction: they find that those firms with more concentrated ownership exhibit a lower level of compliance with some independence requirements of directors.

extract private benefits, but rather to the adverse effect on managers' incentive to exert effort. The theoretical literature on corporate boards is rapidly growing. For example, the two-tier board structure is considered by Adams - Ferreira (2005): managers are more willing to release information to a management board separated from the supervisory board (thus avoiding that the same information they reveal, in order to improve board decisions, is used for monitoring themselves). Other contributions are: Harris - Raviv (2005), Ozerturk (2005), Pirchegger - Schondube (2006), Hermalin - Weisbach (1998), Warther (1998). The empirical literature on corporate boards is surveyed by Hermalin - Weisbach (2003).

The plan of the paper is as follows. In Section 2 a basic lemon problem is presented, where issuers differ in their ability to extract private benefits of control. Section 3 introduces a regulation, imposing an (imperfect) commitment to pursue the general interest of shareholders. In Section 4 the adoption of a governance institution, implying such a type of commitment, is left to the discretion of controlling shareholders (through self-regulation): here our main results are derived. Finally, Section 5 provides a summary.

2 The basic model

2.1 Assumptions

Let us consider a population of entrepreneurs.

Assumption 1. Each entrepreneur is the owner of a firm with value $V = V_{\max} - B$, where B denotes his private benefits of control. He sells an (exogenous) equity stake $(1 - \alpha)$ to external dispersed investors (small shareholders), receiving a revenue denoted by R . He retains control over his own firm for any relevant values of his stake α (in particular, for α_h and α_l defined below).

Assumption 2. After issuing equity, entrepreneurs have to decide the optimal value of B ; this cannot be contracted ex ante, due to the incompleteness of contracts.

Assumption 3. The population is made up of two types of entrepreneurs: good and bad ($t \in \{g, b\}$). The proportion of g -type over total is k .

Assumption 4 (good type). The utility function of g -type is: $\alpha V + R$.

Assumption 5 (bad type). The utility function of b -type is $u(B) + \alpha V + R$, where: $u(B)$ is strictly concave, $u(0) = 0$, $\exists \hat{B} > 0$ such that $u'(\hat{B}) = 1$ (see

Figure 1).

Assumption 6 (hidden information). Entrepreneurs know their own type. Investors do not observe each entrepreneur's type.

Assumption 7. External investors are risk neutral. Due to competition among them, investors demand an expected return equal to the riskless rate of interest, which is normalized to zero.

All the above assumptions are common knowledge.

A few comments are in order. All entrepreneurs have to raise external funds in the form of *equity*: this enables us to focus on the conflict of interest between controlling and minority shareholders. After selling a share $1 - \alpha$ of equity to dispersed investors, an entrepreneur is supposed to retain the control over the firm, thanks to his stake α . He may exercise this control right either by directly running the firm or by interfering with managers delegated to run the firm (we abstract from the issues related to this delegation, as our focus is on conflicts between large and small shareholders). Minority shareholders get formal control rights as well, but they have no incentive to exercise them, as the cost of doing so would exceed the benefits.

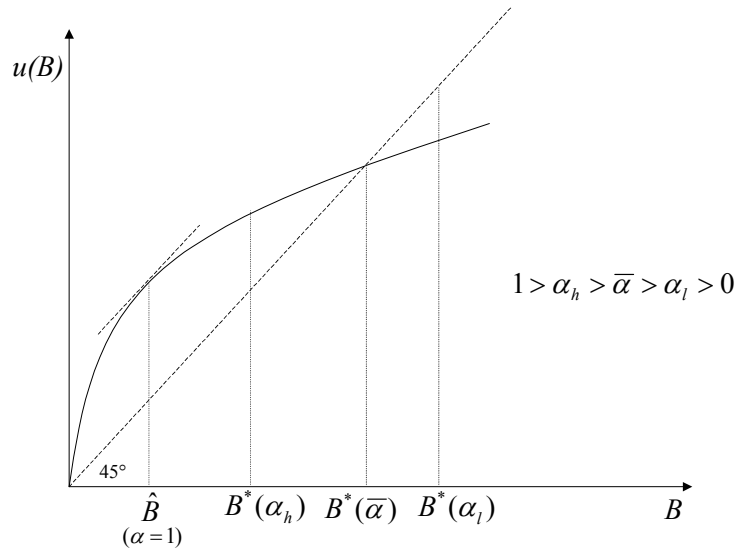


Fig.1 - Utility of private benefits (bad type)

All firms are assumed to be identical under all regards but one: while the goal of good entrepreneurs is to maximize the value of their firms, this goal is somewhat distorted for bad entrepreneurs. The latter are also interested in maximizing their own private benefits of control, for example: perks, empire building, deals with related parties, diversion of funds. The extraction of private benefits reduces the value of the firm. Moreover, the information regarding private benefits is typically not verifiable or simply too complex to describe in detail, so financial contracts cannot prescribe a specific level of B .

This framework is designed to capture the heterogeneity across firms: in some of them the ability or willingness of the dominant shareholder to extract private benefits of control are higher than in others; for simplicity, the utility function of a good type completely rules out private benefits. The determinants of these private benefits are not perfectly observable by external investors: for example, a small shareholder does not know whether the controlling party supports a merger because it is a good deal or because he wants to increase his own power. This asymmetry of information creates a "lemon problem" that we will address below.

2.2 The equilibrium level of private benefits

Lemma 1 states, within our framework, the well known result of Jensen - Meckling (1976): after selling equity, a b -type entrepreneur is induced to increase his own private benefits, as he is able to shift part of the cost to small shareholders, while retaining the full benefit. Let us denote B^* the equilibrium level of private benefits for a b -type (the level of private benefits of a g -type is trivially zero, due to assumption 4). While a full owner ($\alpha = 1$) sets his private benefits to a level \widehat{B} , an entrepreneur retaining a fraction of equity ($\alpha < 1$) extracts $B^* > \widehat{B}$.

Lemma 1 B^* is a decreasing function of α . In particular: $B^*(1) = \widehat{B}$ and $B^*(\alpha) > \widehat{B}$ for any $\alpha < 1$.

Proof. After issuing equity, R is given. Hence the decision problem of a b -type is:

$$\max_B u(B) + \alpha (V_{\max} - B) \quad (1)$$

and the FOC is:

$$u'(B^*) = \alpha \quad (2)$$

which implicitly defines $B^*(\alpha)$ as a decreasing function. $B^*(1) = \widehat{B}$ by definition (assumption 5). ■

We may now be more specific about the exogenous level of equity retained by each entrepreneur.

Assumption 8. The exogenous share of equity retained by an entrepreneur is either $\alpha_h \in (0, 1)$ or $\alpha_l \in (0, 1)$, with $\alpha_h > \bar{\alpha} > \alpha_l$, where $\bar{\alpha}$ is defined by: $B^*(\bar{\alpha}) = u[B^*(\bar{\alpha})]$. Within each group of entrepreneurs - those retaining a stake α_h and those retaining a stake α_l - the proportion of g -type is k .

Of course, the share of equity retained by an entrepreneur is public information. However, by observing α an investor is not able to infer his type (good or bad), since within each group of entrepreneurs - those retaining a high and those retaining a low fraction of equity - both types are present⁸. Assumption 8 enables us to state that: $B^*(\alpha_h) < B^*(\bar{\alpha}) < B^*(\alpha_l)$, $u[B^*(\alpha_h)] > B^*(\alpha_h)$, and $u[B^*(\alpha_l)] < B^*(\alpha_l)$ (see Figure 1).

2.3 Full information: the time inconsistency issue

Let us momentarily remove Assumption 6 and assume that each entrepreneur's type is public information. This enables us to focus on the inefficient choice of private benefits by bad entrepreneurs. Their problem may be seen as a time inconsistency issue. If their level of private benefits were selected *before* issuing equity, the optimal level would be \widehat{B} : a larger level is fully incorporated in the market price of shares, and bad entrepreneurs would take this negative effect into account. But *after* issuing equity the revenue from the sale of shares is given, so the equilibrium level of private benefits is actually $B^* > \widehat{B}$. Therefore, if bad entrepreneurs were able to commit to \widehat{B} prior to issuing equity, they would do so⁹; unfortunately, such a solution is precluded by the incompleteness of contracts. The bottom line is that bad entrepreneurs bear the full cost of the incentive distortion, created by the

⁸ Assuming that the proportion (k) of g -type is the same across the two groups simplifies the exposition, without altering any of the results obtained in the paper.

⁹ This has become a standard outcome when time inconsistency is an issue, following the seminal contribution of Kydland - Prescott (1977). The literature on time inconsistency points to two kinds of solution to this problem: either a commitment device (like a binding rule), or reputation (built up by "behaving" in a dynamic context). In this work only the first solution will be explored: a corporate governance institution - incorporated in a statutory or legal rule - will be interpreted below as a commitment device. The second solution seems less suitable to be applied in this context, where the current large shareholder might be substituted by another one any time in the future.

ability to extract private benefits together with the sale of equity to external investors. This point is formalized in Lemma 2.

Lemma 2 *In the equilibrium with full information, bad entrepreneurs' utility level is $V_{\max} + u[B^*(\alpha)] - B^*(\alpha)$, for $\alpha = \alpha_h, \alpha_l$. If they were able to commit to a specific level of B prior to issuing equity, bad entrepreneurs' utility level would be $V_{\max} + u(\widehat{B}) - \widehat{B}$. It is $V_{\max} + u[B^*(\alpha)] - B^*(\alpha) < V_{\max} + u(\widehat{B}) - \widehat{B}$.*

Proof. Thanks to assumption 7, the selling price of the equity share $(1 - \alpha)$ must equal the payoff that external investors expect from holding equity. The level of private benefits is fully anticipated by investors. Therefore, for any given level of B , a b -type earns a revenue from the equity sale equal to $R_b(\alpha) = (1 - \alpha)(V_{\max} - B)$, and his utility level is $u(B) + \alpha(V_{\max} - B) + R_b(\alpha) = V_{\max} + u(B) - B$. From assumption 5, it follows that $\widehat{B} = \arg \max [V_{\max} + u(B) - B]$; hence \widehat{B} is the optimal level of private benefits under commitment. From Lemma 1, the equilibrium level of private benefits is $B^*(\alpha) > \widehat{B}$, for $\alpha = \alpha_h, \alpha_l$; so the equilibrium level of utility is $V_{\max} + u[B^*(\alpha)] - B^*(\alpha) < V_{\max} + u(\widehat{B}) - \widehat{B}$. ■

Good entrepreneurs do not suffer the above problem, since they do not extract private benefits. Their revenue from the equity sale is $R_g(\alpha) = (1 - \alpha)V_{\max}$, and in equilibrium their utility level is $\alpha V_{\max} + R_g(\alpha) = V_{\max}$.

2.4 Hidden information: the cross-subsidization outcome

Let us now introduce Assumption 6 (hidden information). The consequence is that bad entrepreneurs are subsidized by good ones.

Proposition 1 *In the equilibrium with hidden information there is cross-subsidization. Good (bad) entrepreneurs have a lower (higher) utility level than in the equilibrium with full information.*

Proof. With hidden information, the revenue from the equity sale is the following for both types ($t = g, b$):

$$\begin{aligned} R_{HI}(\alpha) &= (1 - \alpha) [kV_{\max} + (1 - k)(V_{\max} - B^*(\alpha))] = \\ &= (1 - \alpha) [V_{\max} - (1 - k)B^*(\alpha)] \end{aligned} \quad (3)$$

since with probability k ($1 - k$) an investor buys shares issued by a g -type (b -type). For $\alpha = \alpha_h, \alpha_l$, it is $R_g(\alpha) > R_{HI}(\alpha) > R_b(\alpha)$, and the equilibrium levels of entrepreneurs' utility are the following:

$$\begin{aligned} & - g\text{-type: } \alpha V_{\max} + R_{HI}(\alpha) = V_{\max} - (1 - \alpha)(1 - k) B^*(\alpha) < V_{\max}; \\ & - b\text{-type: } u[B^*(\alpha)] + \alpha(V_{\max} - B^*(\alpha)) + R_{HI}(\alpha) = \\ & = V_{\max} + u[B^*(\alpha)] - [1 - k(1 - \alpha)] B^*(\alpha) > V_{\max} + u[B^*(\alpha)] - B^*(\alpha). \quad \blacksquare \end{aligned}$$

As in any "lemon problem", issuers know the true (fundamental) value of their shares, while external investors do not: hence both types issue equity at the same price (within each group: those with $\alpha = \alpha_h$ and those with $\alpha = \alpha_l$)¹⁰, leading to an under(over)-evaluation of the shares issued by good (bad) firms. As a consequence, good entrepreneurs bear part of the cost due to the extraction of private benefits by bad ones.

3 Governance regulation as a commitment device

There are several governance institutions enabling a controlling shareholder to reduce his own direct influence over the management of the firm. In recent years, an increasing role has been assigned to "independent" directors: these are supposed to act in the interest of all shareholders and to exercise a control function, avoiding that the private benefits of some stakeholders prevail over the maximization of the firm value. Sometimes the corporate law mandates the presence of an audit committee, made up in prevalence – or even entirely – of independent directors¹¹. Other committees within the board take up specific issues, like compensation and nomination: again, independent directors should play a relevant role. In some countries (e.g. Germany), the board of directors has a two-tier structure, with a Management Board (MB) and a Supervisory Board (SB): controlling shareholders are supposed to be represented only in the SB, with the power of appointing and dismissing the members of the MB; the latter are entitled to run the firm (while some strategic decisions and the balance sheet approval are retained

¹⁰Remember that α is public information, while t is private information of each issuer. Note also that the hidden information problem affects the market price of shares, while it does not affect the equilibrium level of private benefits.

¹¹See the Sarbanes - Oxley Act in the U.S. and the EU Commission Recommendation of February 15, 2005.

by the SB)¹².

These governance institutions may be interpreted as a way through which a controlling shareholder is committed to let the general interest of shareholders – namely the maximization of the firm value – prevail over his own private benefits. Corporate rules (whether included in the law, in codes of conduct or in charters) cannot directly specify a particular value of B , since the level of private benefits is not verifiable: the incompleteness of contracts carries over to the corporate law¹³. The regulation can assign some relevant decisions to an agent different from the dominant shareholder, and introduce checks and balances into the governance structure, which should in principle avoid the extraction of private benefits by the controlling shareholder.

However, the governance institutions which should implement this principle are not perfect. As it is well known, there are several means through which a large shareholder might affect some managerial decisions, in such a way that his own interest prevails: e.g. his influence over the selection of independent directors, the power of dismissing managers, or the ability to collude with them.

In this section we consider a governance institution which is mandated by the corporate law. This assumption will be relaxed in the next section, where entrepreneurs are supposed to be free to apply a governance rule: our main results will there be obtained. We introduce here the following assumption (modifying assumption 2), where the parameter π measures the degree of commitment incorporated into the governance institution; in other words, π provides a measure of the effectiveness, and of the credibility, of the commitment imposed by the corporate regulation¹⁴.

Assumption 9 (regulation). After issuing equity, with probability π the level of B is decided by a third party, with utility function V ; with probability $1 - \pi$ the level of B is decided by the large shareholder.

The regulation applies to all firms. However those firms, where the controlling shareholder is of type g , are unaffected: here the level of private benefits is zero in any case. The regulation is instead binding on those firms

¹²For a comparative analysis of the legal framework of corporate governance in the US, Europe and Japan, see Kraakman *et al.* (2004); see also Baums - Scott (2005), Hopt - Leyens (2004), and Enriques - Volpin (2007).

¹³The concept of incomplete law – and its implications for the regulation of financial markets – is analyzed in Pistor - Xu (2003).

¹⁴Of course, perfect commitment is incorporated into the model as the particular case where $\pi = 1$.

where the controlling shareholder is of type b : here private benefits are set to a level $B = 0$ with probability π , and $B = B^*(\alpha)$ otherwise. The following proposition shows how the regulation affects the equilibrium with hidden information.

Proposition 2 *The equilibrium with regulation still implies cross-subsidization. However, the regulation raises the utility level of a g -type, and it lowers the utility of a b -type retaining a stake α_h ; the effect on a b -type retaining α_l is ambiguous.*

Proof. For both types ($t = g, b$), the revenue from the equity sale is $R_C(\alpha)$ (C stands for commitment):

$$\begin{aligned} R_C(\alpha) &= (1 - \alpha) \{kV_{\max} + (1 - k) [\pi V_{\max} + (1 - \pi)(V_{\max} - B^*(\alpha))]\} = \\ &= (1 - \alpha) [V_{\max} - (1 - k)(1 - \pi) B^*(\alpha)] \end{aligned} \quad (4)$$

and $R_g(\alpha) > R_C(\alpha) > R_b(\alpha)$ (for $\alpha = \alpha_h, \alpha_l$). The equilibrium levels of utility are as follows:

- g -type: $\alpha V_{\max} + R_C(\alpha) = V_{\max} - (1 - \alpha)(1 - k)(1 - \pi) B^*(\alpha) > V_{\max} - (1 - \alpha)(1 - k) B^*(\alpha)$, for $\alpha = \alpha_h, \alpha_l$;
- b -type: $\pi \alpha V_{\max} + (1 - \pi) \{u[B^*(\alpha)] + \alpha(V_{\max} - B^*(\alpha))\} + R_C(\alpha) =$
 $= V_{\max} + (1 - \pi) \{u[B^*(\alpha)] - [1 - k(1 - \alpha)] B^*(\alpha)\}.$
 $V_{\max} + (1 - \pi) \{u[B^*(\alpha_h)] - [1 - k(1 - \alpha_h)] B^*(\alpha_h)\} <$
 $< V_{\max} + \{u[B^*(\alpha_h)] - [1 - k(1 - \alpha_h)] B^*(\alpha_h)\}$, since the term in brackets is positive;
- $V_{\max} + (1 - \pi) \{u[B^*(\alpha_l)] - [1 - k(1 - \alpha_l)] B^*(\alpha_l)\} \lesseqgtr$
 $\lesseqgtr V_{\max} + \{u[B^*(\alpha_l)] - [1 - k(1 - \alpha_l)] B^*(\alpha_l)\}$, since the sign of the term in brackets is undetermined. ■

Note that $R_C(\alpha) > R_{HI}(\alpha)$, and $R_C(\alpha)$ is increasing in π . The regulation cannot avoid cross-subsidization, as the market price of equity is the same for both types of firms (within each group: those with $\alpha = \alpha_h$ and those with $\alpha = \alpha_l$). However, the revenue from issuing equity is increased by the governance institution, and the increase is larger the more binding is its commitment power. The payoff of a good entrepreneur is increased accordingly. The effect on the payoff of a bad entrepreneur is not clear-cut, since the gain from the higher market price of equity has to be balanced with the cost of the constraint: the balance is negative for those retaining α_h , and it is ambiguous for those retaining α_l .

4 Self-regulation as a separating tool

Several governance features are left to self-regulation, through best practice codes, and to private initiative. Other features are imposed by the corporate law. For example, the number of independent directors is largely left to the discretion of shareholders, since the regulation generally mandates only a minimum number. In some countries (France and Italy) the corporations are free to choose between a one-tier and a two-tier board structure¹⁵, while in many countries one of the two structures is imposed by the regulation (for example: one-tier in the U.S. and U.K., two-tier in Germany). External and internal auditing is regulated, but several details are left to private decisions (like the choice of the auditor). So the authorities have often to decide the border between regulatory imposition and self-regulation.

In this section we analyze the impact of a discretionary governance institution: corporations are supposed to be free to apply it, for example through clauses inserted in their charters. In particular, we assume that a governance institution is available, and large shareholders have to decide whether to apply it or not¹⁶. It is reasonable to assume that such decision is taken *before* issuing equity, reflecting the fact that the adoption of governance rules is a long run decision, that cannot easily be modified afterwards. By applying the governance institution, a large shareholder voluntarily commits to let the general interest of shareholders prevail over his own private benefits (if any).

Formally, the following assumption – where the parameter π continues to measure the degree of commitment incorporated into the governance institution – replaces assumption 9 (Figure 2 shows the timing of events).

Assumption 10 (self-regulation). Before issuing equity, the large shareholder decides whether to apply (A) or not (NA) the governance institution, and this choice is public information. The consequences of his choice are as follows.

- *If he plays A: after issuing equity, with probability π the level of B is decided by a third party, with utility function V ; with probability $1 - \pi$*

¹⁵Actually, Italian companies may opt either for one of such two structures or for the traditional model, where the company is run by the "consiglio d'amministrazione", with the "collegio sindacale" playing an internal control function. Most Italian firms still rely on this traditional governance structure.

¹⁶We are of course abstracting from the specific ways through which a large shareholder can have a determinant influence over such decision (this kind of decisions are generally taken in the shareholders' meeting).

the level of B is decided by the large shareholder himself.

- If he plays NA : after issuing equity, he decides the optimal value of B .

Assumption 10 implies that, in a firm where the controlling shareholder is of type b and he plays A , private benefits are set to a level $B = 0$ with probability π and $B = B^*(\alpha)$ otherwise; to the contrary, if he plays NA , it is $B = B^*(\alpha)$. Those firms, where the controlling shareholder is of type g , are not affected by the choice A, NA : the constraint possibly introduced through the governance institution is not binding for them.

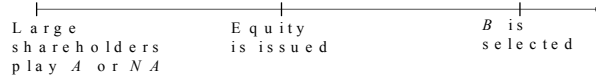


Fig.2 - Self-regulation: timing of events

Proposition 3 *The equilibrium with self-regulation is as follows.*

(A) *If $\pi \geq \bar{\pi}$ (where $\bar{\pi}$ is defined in (5) below):*

(A.1) *within the group of entrepreneurs retaining an equity stake α_h , a separating equilibrium obtains, where good ones play A and bad ones play NA ; they have the same utility levels as with full information;*

(A.2) *within the group of entrepreneurs retaining an equity stake α_l , a pooling equilibrium obtains, where all play A and they have the same utility levels as with regulation.*

(B) *If $\pi < \bar{\pi}$, $\exists \bar{k} \in (0, 1)$ such that if $k \geq \bar{k}$ a pooling equilibrium obtains in both groups (α_h and α_l), where all entrepreneurs play A and they have the same utility levels as with regulation.*

Proof. (A.1) Let $\alpha = \alpha_h$. By playing A , good entrepreneurs signal their type to investors. Hence a separating equilibrium obtains, where the revenue from the equity sale is $R_g(\alpha_h) = (1 - \alpha_h)V_{\max}$ for a g -type and $R_b(\alpha_h) = (1 - \alpha_h)[V_{\max} - B^*(\alpha_h)]$ for a b -type, and their utility levels are V_{\max} and $V_{\max} + u[B^*(\alpha_h)] - B^*(\alpha_h)$ respectively (as in the full information equilibrium of section 2.3). We have to check that the incentive compatibility constraints (IC) for both types are met: a b -type does not have an incentive to "mimic" a g -type by playing A , and vice-versa. By playing A , a b -type would get $\pi\alpha_h V_{\max} + (1 - \pi)\{u[B^*(\alpha_h)] + \alpha_h(V_{\max} - B^*(\alpha_h))\} +$

$R_g(\alpha_h) = V_{\max} + (1 - \pi) \{u [B^*(\alpha_h)] - \alpha_h B^*(\alpha_h)\}$, hence IC for a b -type is: $V_{\max} + u [B^*(\alpha_h)] - B^*(\alpha_h) \geq V_{\max} + (1 - \pi) \{u [B^*(\alpha_h)] - \alpha_h B^*(\alpha_h)\}$, which is equivalent to:

$$\pi \geq \frac{B^*(\alpha_h) - \alpha_h B^*(\alpha_h)}{u [B^*(\alpha_h)] - \alpha_h B^*(\alpha_h)} \equiv \bar{\pi} \quad (5)$$

By playing NA , a g -type would get $\alpha_h V_{\max} + R_b(\alpha_h) = V_{\max} - (1 - \alpha_h) B^*(\alpha_h)$; hence IC for a g -type is: $V_{\max} \geq V_{\max} - (1 - \alpha_h) B^*(\alpha_h)$, which is trivially met.

(A.2) Let $\alpha = \alpha_l$. Condition (5) cannot hold, since $u [B^*(\alpha_l)] < B^*(\alpha_l)$; so the separating equilibrium breaks down. Hence a pooling equilibrium obtains, where the revenue from the equity sale is $R_C(\alpha_l)$ (see equation 4) for both types, and utility levels are the following (see the proof of Proposition 2):

$$\begin{aligned} & V_{\max} - (1 - \alpha_l) (1 - k) (1 - \pi) B^*(\alpha_l) \text{ for a } g\text{-type,} \\ & V_{\max} + (1 - \pi) \{u [B^*(\alpha_l)] - [1 - k (1 - \alpha_l)] B^*(\alpha_l)\} \text{ for a } b\text{-type.} \end{aligned}$$

As for the out-of-equilibrium beliefs of investors, it is reasonable to assume that they believe a deviating entrepreneur (playing NA) to be a b -type: he signals that he is unwilling to give up his private benefits (with probability π). Therefore, a g -type does not deviate, as he would get $\alpha_l V_{\max} + R_b(\alpha_l)$ instead of $\alpha_l V_{\max} + R_C(\alpha_l)$, where $R_b(\alpha_l) < R_C(\alpha_l)$. A b -type does not deviate if:

$$\begin{aligned} & V_{\max} + (1 - \pi) \{u [B^*(\alpha_l)] - [1 - k (1 - \alpha_l)] B^*(\alpha_l)\} \\ & \geq V_{\max} + u [B^*(\alpha_l)] - B^*(\alpha_l) \end{aligned} \quad (6)$$

which holds for $k = 0$, and the LHS is increasing in k ; hence condition (6) holds for any $k \geq 0$ (and any π).

(B) For the group of entrepreneurs retaining an equity stake α_l , the proof is the same as in (A.2).

For the group of entrepreneurs retaining an equity stake α_h , the proof is the same as in (A.2) with α_h replacing α_l , except for the following:

- (i) the separating equilibrium breaks down because $\pi < \bar{\pi}$;
- (ii) for $k = 0$ condition (6) fails to hold, while for $k = 1$ it holds with strict inequality¹⁷; hence $\exists \bar{k} \in (0, 1)$ such that (6) is met iff $k \geq \bar{k}$. ■

Corollary 1 *Regulation is weakly Pareto-dominated by self-regulation.*

¹⁷For $k = 1$, condition (6) boils down to $\pi \leq \bar{\pi}$, which is true by assumption.

Proof. We only need to check that utility levels in (A.1) are higher than those achieved with regulation. For a g -type:

$$V_{\max} > V_{\max} - (1 - \alpha_h)(1 - k)(1 - \pi)B^*(\alpha_h)$$

For a b -type:

$$V_{\max} + u[B^*(\alpha_h)] - B^*(\alpha_h) \geq V_{\max} + (1 - \pi)\{u[B^*(\alpha_h)] - [1 - k(1 - \alpha_h)]B^*(\alpha_h)\}$$

this inequality is met for $k = 1$ (given $\pi \geq \bar{\pi}$), and the RHS is increasing in k , so it is met (with strict inequality) for any $k < 1$ as well. ■

Proposition 3 shows our main point: self-regulation may be used as a separating tool, within the group of entrepreneurs retaining a high equity stake (α_h); then good entrepreneurs avoid subsidizing bad ones. The reason behind such result relies in the different cost of the governance institution, introduced in order to prevent large shareholders from pursuing their own private benefits: this is costly for a bad type (constrained to give up $u[B^*(\alpha_h)]$ with probability π) and it is costless for a good type.

Separation does not emerge within the group of entrepreneurs retaining a low equity stake (α_l). The different outcome across the two groups (α_h and α_l) deserves an explanation. As we noted above (paragraph 2.3), a bad entrepreneur would commit to set $B = \hat{B}$, if he were able to do so: \hat{B} is the first best level of private benefits (the one chosen by an owner retaining the whole equity, i.e. $\alpha = 1$). The governance institution provides a commitment device, but this is imperfect: in particular, it implies a constraint to set $B = 0$ (with probability π). Therefore only those entrepreneurs, starting from a high level of private benefits ($B^*(\alpha_l)$), are willing to implement such a commitment device: the distortion due to private benefits ($B^*(\alpha_l) - \hat{B}$) is large, and the commitment enables them to avoid such distortion. To the contrary, those facing a lower distortion ($B^*(\alpha_h) - \hat{B}$) are not willing to give up their private benefits altogether¹⁸.

The bottom line is that the governance institution is applied by those firms where controlling shareholders either do not have private benefits (g -type) or they start from a high level of private benefits, as they retain a small fraction of equity (b -type, α_l); it is not applied by those firms where the controlling shareholder extract a low level of private benefits, retaining a large share of equity (b -type, α_h).

It is worth noting that the separation outcome can be reached only if the

¹⁸Note that a bad entrepreneur with a high share of equity (α_h) is not willing to commit, even though by committing he would be able to "mimic" a good type and sell shares at price $R_g(\alpha_h)$ instead of $R_b(\alpha_h)$.

commitment power of the governance institution is strong enough ($\pi \geq \bar{\pi}$): otherwise, the cost of the constraint to set $B = 0$ is too low for bad types, compared with the benefit of issuing equity at a higher price by "imitating" good types. In the latter case, a pooling equilibrium obtains (provided k is large enough), where all firms apply the governance institution. The condition $\pi \geq \bar{\pi}$ is weaker the larger α_h : a higher concentration of ownership makes the separating equilibrium more likely¹⁹.

Corollary 1 highlights that the outcome of self-regulation is superior (at least equivalent) to the one obtained by regulation. Intuitively, as far as the governance institution is useful as a commitment device, it is applied by firms without any need to be imposed: under this regard, regulation and self-regulation are equivalent. But only self-regulation makes the governance institution be useful as a separating device, leading to a better outcome than regulation.

5 Summary and conclusions

The model presented here follows the approach introduced by Jensen - Meckling (1976), where the ability to extract private benefits raises the cost of equity funding, so it hurts issuers themselves; the incentive distortion, leading to an excess level of benefits, is higher the lower the equity stake retained by the controlling shareholder. Their framework is extended by adding the assumption that two types of firms sell equity to outside investors: those where controlling shareholders are able to extract private benefits (bad type), and those where they are not able - or willing - to do so (good type). Since investors cannot distinguish between the two types of issuers, a "lemon problem" emerges, where bad firms are subsidized by good ones. A governance institution is introduced in this context: by adopting it, a controlling shareholder commits to act in the general interest of shareholders, neglecting his own private benefits (if any). The commitment device is in general imperfect: it leaves the controlling shareholder some room for pursuing his own private benefits. The following results are obtained.

First, the governance institution is useful as a *commitment* device for those (bad) controlling shareholders retaining a *small* share of equity: they start from a *high* level of private benefits, so they are ready to bind themselves

¹⁹By derivating (5), the reader can check that $\bar{\pi}$ is decreasing in α_h (in the limit, when $\alpha = \bar{\alpha}$ it is $\bar{\pi} = 1$, when $\alpha = 1$ it is $\bar{\pi} = 0$).

as a remedy to their incentive distortion. To the contrary, those with a large share of equity do not want to put a constraint on themselves, since they start from a lower level of private benefits, not too far from the first best level (i.e. the level prevailing absent separation between ownership and control).

Second, the governance institution may be useful as a *separating* device for those (good) controlling shareholders unable to extract private benefits. By applying it, they signal their type and issue equity at a higher price, thus avoiding to subsidize the other type of firms. This separation outcome may be achieved only if the commitment power of the governance institution is not too low.

Third, self-regulation is superior to regulation: issuers' payoffs are weakly larger with the former than with the latter. As far as the governance institution is useful as a commitment device, it is applied by firms without any imposition by the law: then self-regulation and regulation reach the same outcome. However, separation may be achieved only by self-regulation, leading to an improvement over regulation.

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