Corporate Governance Solutions for Transition Economies: Representations and Warranties in Takeover Agreements*

Diana Pop†

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Abstract: *The decline of stock markets in the transition economies must make the phenomenon of ownership concentration go hand in hand with a more important due diligence and a search for solutions preserving the channel of external financing. In the absence of concrete formal procedures that pay back the restructuring effort, majority owners decisively affect the allocation of companies' wealth in detrimental of small shareholders. When mandatory bid rule is effective, completing takeovers at high prices makes capital markets shrink, affecting on long term the mere capitalist conception of the economic regime of transition economies. Some new forms of enforcement mechanisms have to be proposed in order to mitigate the classical corporate governance conflict between large and minority shareholders. Our approach aims to investigate an option asking for private law enforcement, which could encourage controlling shareholder to disclose the real status of the business being sold: representation and warranties in takeover agreements. In this respect, we propose a screening model, in the case of a cash–financing acquisition. The purpose of this formalization is to determine the features of the acquisition contract in equilibrium, defined by the amount of cash offered for control and by the fraction of liability assumed by the target in two different contexts: (i) when the buyer and the target have the same information; and (ii) when information asymmetry arises between the two parties. The model provides some theoretical predictions concerning the optimal amount of cash, the acquisition premium, and the overpayment of the target. It also contributes to the debate on the type of legal changes relevant for transition economies.*

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†Laboratoire d'Economie d'Orléans, Rue de Blois, BP 6739, 45067 Orléans, Cedex 2, France; Tel: +33 (0)2 38 41 70 37; E-mail: Diana.Pop@univ-orleans.fr

1. Introduction

The institutional changes brought by privatization in Central and Eastern Europe have stimulated so far much debate on corporate governance and the role of legal framework in corporate restructuring. Even if ownership concentration seems to induce a predictable unfavorable pattern for the overall performance, both at corporate and macroeconomic level, the governments of former socialist countries chose to converge towards the equilibrium of the European block-holder model. In the context of economic and political choices, all these countries missed a unique opportunity to confirm the thesis according to which the prevalence of widely held firms leads to better economic outcomes. In the absence of an experiment abetting the emergence of real dispersed shareholdings, the reforming effort is nowadays focused exclusively on the conflict between large and minority shareholders.

While protecting minority shareholders' interest is central to the companies' ability to attract additional financing in the future, in transition economies more emphasis was placed on the strategic role of dominant shareholders. Large shareholders were deemed to identify investment opportunities and come up with funds necessary to undertake profitable projects. Anxious to institute monitoring of privatized companies and to limit the waste of scarce resources, public authorities sustained the privatization scenarios by regulatory provisions that encouraged the block formation. Ironically, reconsidering the Berle and Means' (1932) ideas becomes an obsessive argument of the reforming programs. As a result, the reverse side of the generalized concentrated ownership which stems from the shut down of other alternative corporate governance mechanisms was (deliberately) overlooked.

The market for corporate control ranks among the mechanisms likely to face the most severe ineffectiveness. On one hand, the managers are shelled by large positions in the targets' capital against the disciplinary threat of takeovers. On the other hand, the entrenched control structures exacerbate the illiquidity problem faced by young markets. The potential value-increasing acquirers will not obtain the control unless they agree likewise with existing owners. As a consequence, when the ownership is very concentrated, the market approach is replaced by a political model based on negotiations between buyer and the controlling shareholder (Sercu and Van Hulle, 1995). Generally, the stocks are paid in cash for a price attractive enough to encourage the controlling shareholder to sell. When mandatory bid rule is effective, it either imposes a steep cost to acquirer or induces a decreasing valuation of the negotiated price. If by regulation the offer price must equal the best price paid to acquire *de facto* control, the blockholder does not receive any control premium. Consequently, completing takeovers at high prices makes capital markets shrink, affecting on long term the mere capitalist conception of the economic regime of transition economies.

In the absence of concrete formal procedures that pay back the restructuring effort,[1] majority owners decisively affect the allocation of companies' wealth in detrimental of small

[1] Minority investors try to benefit from the positive effect of the monitoring realized by blockholders without committing their own resources to this activity. In this respect, a part of the benefits of control are shared between the large and minority shareholders.

shareholders. Abusive practices as asset stripping, financial and operational tunneling are now anecdotic for all transition economies of Central and Eastern Europe (Estrin, 2002, Atanasov et al., 2005). The fierce criticism addressed to some emerging economies calls attention on the poor public enforcement of the elaborated rules of corporate governance, like Mandatory Bid Rule (Berglöf and Pajuste, 2003). Beyond any doubt, the contrast between the transition leaders and lagers renders the reforms of capital markets and governance principles one of the most demanding challenges.[2]

The central message of this analysis is that the corporate governance mechanisms in transition economies should be refined by implementing devices that allow for control transfer without forcing companies to go private. The decline of stock markets must make the phenomenon of ownership concentration go hand in hand with a more important due diligence and a search for solutions preserving the channel of external financing. Some new forms of enforcement mechanisms are expected to mitigate this classical corporate governance problem defined by Shleifer and Vishny (1997) in terms of financing effort and return. La Porta et al. (2003), Berglöf and Claessens (2004), Berglöf and Pajuste (2005) broaden the legal enforcement concept to private initiatives pertaining to contracting framework. With an adequate support from public authorities, private law enforcement is cited as a potential solution for sustaining the capital market development when the ubiquitous public offensive is questionable. A relevant alternative should therefore focus on the design of constraints on majority shareholders rather than of specific rights of minority investors so that to hamper neither strategic investors nor capital markets.

A straightforward solution can be to make large shareholders bear more responsibility for their decisions and internalize a part of costs associated to discretionary behavior, especially when they decide to resell the control block.

Our approach aims to investigate an option asking for private law enforcement, which could encourage controlling shareholder to disclose the real status of the business being sold: *representation and warranties in takeover agreements*. Such agreements contain provisions allocating the acquisition risk between acquirer and the seller of control and thus reconcile their contradictory interests. The error of forecasting the acquisition outcome, especially in an unstable environment, should not concern only external investors.

The reminder of the paper is organized as follows. The main characteristics of takeover agreements involving representations and warranties are presented in Section 2. Section 3 presents a screening model in the case of a cash financing acquisition completed within a blockholder regime. The purpose of such formalization is to determine the acquisition price and the share of liability assumed by transaction parties in two different contexts: (i) when the strategic investor and the target have the same information and (ii) when information asymmetry arises between the two parties. Section 4 discusses the main implications of this

[2] For example, the EBRD transition indicators reveal that the countries ascending to EU and those become members in 2004 present comparable features regarding the success of privatization or price liberalization but have divergent Governance & Enterprise Restructuring, Competition, and Securities Markets & Non-bank Financial Institutions Indicators.

approach in terms of legal reforms. Final section concludes and identifies research patterns on this topic.

2. Representations and warranties in takeover agreements

The broad empirical evidence on acquisition profitability reveals that riders usually fail to obtain the anticipated financial results.[3] In order to promote more scrutiny on risk matters, in practice, a lot of control transactions are structured so that to reveal adequate information about targets. The theoretical models explaining the foundations of the financing policy of acquisitions conclude that cash offers, a privilege granted to sound companies and a trump card in the competition for control, bear the risk of overpaying for target. Conversely, the value of stock considerations depends on the combined cash flow of the new company, which eliminates such a risk. This stated advantage making stock offers an alternative to cash offers, namely their capacity to elicit private information from target, lies upon a restrictive approach of interactions characterizing the acquisition of control. For example, Kohers and Ang, 2000 discuss "earnout" arrangement that condition the size of cash offer by some performance criteria to be met in the future, as an inherent solution to the overpayment problem.

The uncertainty faced by acquirers regards the net value of target, i.e. the difference between the value of assets and that of debts. The objective of maximizing the shareholder value supposes implicitly the minimization of any unexpected liability, which could appear in the acquirer's balance sheet after completing the acquisition. Acquirers may often demand from seller *representations and warranties* consisting of a statement on the true value of assets, liabilities or financial conditions of target (debts, profits for the benefit of employees, intellectual property, tax or environmental liability).

One purpose of an acquisition agreement involving representation and warranties is to provide acquirer with a solution to recover, at least partially, damages arising out from past practices or from the breach of his representations. Consequently, the parties negotiate indemnities to be paid for any future loss connected to the target business. In practice, they outline complex sharing provisions stating which party is liable for covering certain losses, as well as the minimal and maximal thresholds of indemnities to be paid by target. It is common that the acquirer and target share liabilities exceeding a reasonable minimum amount that are limited to acquisition price. To insure the coverage of future potential liabilities of acquired company a part of acquisition price can be blocked in an escrow account. In this case, the access to the blocked funds could be difficult because such an agreement usually involves a bank that agrees to release the funds only if the seller does not make opposition to the claim. A practical solution allowing the acquirer to directly control the funds necessary to cover an indemnity claim is to defer the payment of a portion of acquisition price. However, the violation of the takeover agreement can lead to various

[3] For an overview on various studies performed on M&A transactions, the reader can refer to Bruner (2002).

penalties: legal action against target for pecuniary damages, the cancellation of deal and even the refund of acquisition price.

It is worth noting that it is the corporation itself who bears such liabilities, and not its directors and officers, shareholders or employees. In stock companies, either public or private, the limited liability rule protects shareholders against transfers higher than the proportional value of acquired shares. It is exactly that rule that gives incentives to shareholders to increase the risk exposure, compared with the Jensen and Meckling's (1976) benchmark where the single shareholder also manages the company. Such behaviour in the context of information asymmetries allows target shareholders to pocket amounts higher than the fair value of their shares.

The feasibility of takeover agreements in the case of public target with dispersed shareholdings is rather problematic. First, negotiating with small shareholders non-discriminating terms that limit their gain perspectives is hardly possible. Generally, acquisitions suffer from the free rider behaviour (Grossman et Hart, 1980) whenever transactions do not assure a full gain to target 'infinitesimal' shareholders. Besides, in the actual state of regulation applicable to public companies, even when a major shareholder can make such statements, his representations and warranties should not survive the closing. The equal treatment between major and minority shareholders make indemnification provisions null and void.

Such agreements are suitable in acquisitions between two private companies or in transactions involving a public acquirer and a private target or a subsidiary. Moreover, the simple control acquisition does not make the buyer automatically liable for the obligations of seller, as he is also protected by the limited liability rule. Liability is assigned to the buyer when he explicitly assumes the seller's obligations or the deal represents *de facto* a merger. However, the acquisition of a majority block exposes the buyer to the known or contingent liability of target, which generates sometimes damages of potential unlimited amount. Besides, the simple ownership of some assets can give raise to liabilities that could become major issues in corporate transaction within industries exposed to environmental risk.

Such unfavourable events that could take place after the acquisition call for propositions that address the efficiency and liquidity concerns of emerging markets for corporate control. The uncertainty regarding the assets value creates scope for implementing insurance mechanisms of some sort. Armed with this insight, in the next section we present a simple model, which formalize a private arrangement within takeover market.

2.1. *The characteristics of acquisition agreement under symmetric information*

We suppose that an external investor has an interest in acquiring the majority position in a company already controlled by a major shareholder.[4] In order to obtain the control, the acquirer proposes a takeover agreement based on the representations and warranties made

[4] In the interest of simplicity, we could consider only the mergers or the acquisition offers for all shares, after which the target ceases to exist as an independent entity.

by the controlling shareholder,[5] without making a corresponding public bid for the rest of target shares. The structure of private offer is of type "take it or leave it", organized in a single stage. The takeover is financed by cash, but the amount of cash depends on the willingness of target to guarantee the value of its assets by assuming a part of any future liability which could burden its assets and consequently the assets of acquirer. The interest rate is normalized to zero. Let us consider that the target is a part of a class of *a priori* identical companies in terms of risk, i.e. probability p to undergo a future liability L. The offer consists of an amount of cash C and a fraction of liability θ to be assumed for its contingent obligations. The certified value of assets increases the post acquisition value of acquirer at A.[6]

We suppose that the acquirer and target have constant absolute risk aversions.[7] Their Von Neumann-Morgenstern utility functions, defined on cash flow, are $u(x) = -\dfrac{\exp(-r_p x)}{r_p}$ and $v(x) = -\dfrac{\exp(-r_a x)}{r_a}$ respectively ($u\prime > 0$, $u\prime\prime < 0$, $u(0) = -1/r_p$, $v\prime > 0$, $v\prime\prime < 0$ and $v(0) = -1/r_a$). The parameters r_p and r_a are positive constants and we refer to these as the indices of absolute risk aversion for acquirer and target, respectively.

The model

In this framework of analysis, the optimal offer will be the solution of the program maximizing the utility of the acquirer under the participation constraint of the target. If any information is verifiable and if there is no conflict between the buyer and target, the two parties can get on the best strategy of acquisition. The buyer can conceive an efficient contract allowing an optimal sharing of liability which would have been assigned to the target in the absence of acquisition. The target will accept the acquirer's contract whenever the utility obtained from it is greater than the utility the major shareholder would get under a mandatory bid rule, which is his reservation utility. For highly concentrated capital, the bid price when the acquirer is bind to make a bid to all shares at the same price is defined by the recent evolution of target market price, which is equivalent to a null takeover premium (Burkart, 1999).

$$\begin{cases} \max\limits_{(C,\theta)} \left[pu\left(A - C - (1-\theta)L\right) + (1-p)\,u\left(A - C\right)\right] \\ \text{s.t. } pv\left(C - \theta L\right) + (1-p)\,v\left(C\right) \geq v_0 \qquad \text{(CP)} \end{cases}$$

[5] As the holder of the control block plays a pivotal role for the success of the acquisition, the design of acquisition mechanism does not depend on the majority vote rule of multiple agents sharing collectively the assets of the target.

[6] The value of assets is generally associated with a minimal amount of cash flow. We can reasonably consider that the buyer is capable of selling later those assets to get back this minimal value.

[7] Usually, the risk aversion decreases as wealth increases. Nevertheless, it is not unusual to receive claims for damages for the single reason that the acquirer is considered a "deep pocket" company. Unfounded accusations about a potential environmental problem or breach of intellectual property rights can have severe consequences for market valuation of the acquirer and ultimately for its fundamentals.

v_0	–	current utility of the target depending on the highest market price in the period preceding the offer, q_0;
$v(C-\theta L)=v_\theta$	–	utility function of target in the case a future liability arises;
$v(C)=v_C$	–	the utility function of target in the absence of a future liability.

The theory highlights the fact that interactions between buyer and target are based on a two-sided asymmetry of information. The principal can have its own information about his quality. The target is not directly interested in the quality of the buyer because it will have no more interest in the new company, as the acquisition consideration is cash. The value of cash does not depend on the profitability of the acquisition (Fishman, 1989). All these arguments lead to a standard symmetric information contract (see Macho-Stadler and Perez-Casttrillo, 1997, Laffont and Martimort, 2002).

Considering that the inverse function of v is h, the function h is an increasing and strictly convex function.

$$h:(-\infty,0)\rightarrowtail\mathbb{R},\ h(z)=-\frac{1}{r_a}\ln(-r_a z)\ \text{with}\ h\prime(z)=-\frac{1}{r_a z},\ h\prime\prime(z)=\frac{1}{r_a z^2}$$

Then, $C=h(v_C)$ and $\theta L=h(v_C)-h(v_\theta)$. Consequently, the maximization program of the buyer can be thus expressed in the following way:

$$\begin{cases}\max\limits_{(C,\theta)}\left[pu\left(A-h\left(v_\theta\right)-L\right)+(1-p)\,u\left(A-h\left(v_c\right)\right)\right]\\ \text{s.t. } pv_\theta+(1-p)\,v_C\geq v_0 \qquad\qquad (\text{CP})\end{cases}$$

Let us note λ the multiplier of Lagrange associated to the participation constraint (CP). By optimizing the Lagrangien of the problem of buyer with regard to v_C and v_θ, the following first order conditions are obtained:

$$(1-p)\,u\prime\left[A-h\left(v_C\right)\right]\cdot\left[-h\prime\left(v_C\right)\right]+\lambda(1-p)=0 \tag{1.1}$$

$$pu\prime\left[A-h\left(v_\theta\right)-L\right]\cdot\left[-h\prime\left(v_\theta\right)\right]+\lambda p=0 \tag{1.2}$$

The first equation gives the value of the multiplier λ, which is strictly positive:

$$\lambda=u\prime\left[A-h\left(v_C\right)\right]\cdot\left[h\prime\left(v_C\right)\right]=u\prime\left[A-h\left(v_\theta\right)-L\right]\cdot\left[h\prime\left(v_\theta\right)\right]>0 \tag{1.3}$$

$$\lambda=\frac{u\prime\left(A-C\right)}{v\prime\left(C\right)}=\frac{u\prime\left[A-C-(1-\theta)\,L\right]}{v\prime\left(C-\theta L\right)}=const. \tag{1.4}$$

The expression (1.4) is specific to Pareto efficient situations assuring a constant ratio of marginal utilities of the principal and agent, whichever is the final result of the exchange. Expressing the functions u et v the equation (1.4) is similar to $\dfrac{\exp\left[-r_p\left(A-C\right)\right]}{\exp\left(-r_a C\right)}=\dfrac{\exp\left[-r_p\left(A-C-(1-\theta)\,L\right)\right]}{\exp\left[-r_a\left(C-\theta L\right)\right]}$, from which the following first-best solution

$$\theta^*=\frac{r_p}{r_a+r_p}$$

As the multiplier of Lagrange is positive, the participation constraint is binding. In equilibrium, the value of the offer of cash C^* is obtained from the equation describing the participation constraint. C^* will be the solution of the following equation:

$$p\exp\left[-r_a\left(C-\frac{r_p}{r_a+r_p}L\right)\right]+(1-p)\exp\left(-r_aC\right)=\exp\left(-r_aq_0\right)$$

$$C^*=q_0+\frac{1}{r_a}\ln\left[1-p+p\exp\left(\frac{r_ar_p}{r_a+r_p}L\right)\right] \tag{1.5}$$

This relation shows that the buyer is going to pay a positive acquisition premium over the market price of target. This premium varies according to the risk aversion of two parties (r_p and r_a), the probability of occurrence of an event likely to affect the assets of the target (p), and value of the potential liability (L).

PROPOSITION 1. *In the presence of complete information between acquirer and target, the acquisition offer has the following characteristics:*

a) The optimal sharing of the successional liability of buyer is a function of the degree of absolute risk aversion of two parties; more exactly a fraction $r_p/(r_a+r_p)$ is assigned to the target and a fraction $r_a/(r_a+r_p)$ falls to the buyer;

b) The premium of acquisition is positive and equals $\frac{1}{r_a}\ln\left[1-p+p\exp\left(\frac{r_ar_p}{r_a+r_p}L\right)\right]$.

This model allows us to analyze the effect of risk on the size of the acquisition premium.

PROPOSITION 2. *The value of an acquisition offer is increasing strictly with regard to the damage probability and the acquirer's risk aversion.*

To measure the influence of an increase in risk and the acquirer's risk aversion to the acquisition price we calculate the first derivative of C^* with regard to p and r_p.

$$\frac{\partial C^*}{\partial p}=\frac{1}{r_a}\cdot\frac{\exp\left(\frac{r_ar_p}{r_a+r_p}L\right)-1}{1-p+p\exp\left(\frac{r_ar_p}{r_a+r_p}L\right)}>0 \tag{1.6}$$

$$\frac{\partial C^*}{\partial r_p}=\frac{pr_aL}{r_a+r_p}\cdot\frac{\exp\left(\frac{r_ar_p}{r_a+r_p}L\right)}{1-p+p\exp\left(\frac{r_ar_p}{r_a+r_p}L\right)}>0 \tag{1.7}$$

The effect of the probability of a damage and buyer's risk aversion brings forward the relation between the *acquisition premium* and the *fraction of liability* defining the acquisition contract. These effects make us intuitively consider the non-participation effect contained in the offer. The buyer proposes a higher amount of cash to give an incentive to the target to assume a more important fraction of the contingent liability and so to reduce the future potential losses affecting the result of acquisition. However, in equilibrium the cash offer is a

function of several parameters, because in this model p, L, r_a and r_p are supposed constant. The values of these parameters can vary exogenously from one acquisition to another. The analysis of the sensitivity of the acquisition premium at the variation of the probability of a damage and the degree of risk aversion aims to characterize the bilateral contract among various states of the nature. If information is perfect, the contract for acquisition is efficient, regardless of the class of risk of target or buyer.

2.2. *The acquisition agreement under asymmetric information*

Sometimes the seller can try to exclude some future events from his liability. If the representations and warranties are not true or complete, the probability of obtaining anticipated synergy is reduced and the acquisition can turn out catastrophically. This behavior becomes more likely if the risk of assets increases. Consequently, a good company will be ready to give a complete statement but a bad company will try to select the information provided to acquirer.

We assume that there are two types of target: a target of high-risk; and a target having a low-risk to undergo a future liability. The conflict between buyer and target concerns the risk sharing having opposite effects on the *ex-post* value of the bidder. If the acquirer proposes the efficient contracts, the high-risk target is tempted by the contract conceived for the sound target, because that one assures a higher utility.

We are going to present the model as a game, where the target can be of good or bad quality, which affect the propensity of assuming future liabilities.

The game

- *The players*

The external investor and the blockholder of target company

- *The order of the game*

1. Nature chooses the distribution of the companies: the good quality with a probability q; and the bad quality with a probability $1 - q$;
2. The buyer proposes a menu of contracts according to two characteristics: an amount of cash C_i and a percentage of liability θ_i which the target has to assume, $i = \{B, M\}$ for the good quality and bad quality target respectively;
3. The target accepts or rejects the offer;
4. Nature chooses the probability p_i that the assets of the target will be burdened by a future liability of a value L, with $p_B < p_M$.

The optimization program of the acquirer becomes

$$\begin{cases} \max\limits_{(C_B,\theta_B);(C_M,\theta_M)} q\left[p_B u\left(A-C_B-(1-\theta_B)L\right)+(1-p_B)\,u\left(A-C_B\right)\right]+ \\ \qquad +(1-q)\left[p_M u\left(A-C_M-(1-\theta_M)L\right)+(1-p_M)\,u\left(A-C_M\right)\right] \\ \text{s.t. } p_B v\left(C_B-\theta_B L\right)+(1-p_B)\,v\left(C_B\right)\geq p_B v\left(C_M-\theta_M L\right)+(1-p_B)\,v\left(C_M\right) \quad \text{(CIB)} \\ \quad p_M v\left(C_M-\theta_M L\right)+(1-p_M)\,v\left(C_M\right)\geq p_M v\left(C_B-\theta_B L\right)+(1-p_M)\,v\left(CB\right) \quad \text{(CIM)} \\ \quad p_B v\left(C_B-\theta_B L\right)+(1-p_B)\,v\left(C_B\right)\geq v_{B0} \quad \text{(CPB)} \\ \quad p_M v\left(C_M-\theta_M L\right)+(1-p_M)\,v\left(C_M\right)\geq v_{M0} \quad \text{(CPM)} \end{cases}$$

In what follows, we introduce the following notations:

v_i	–	the utility of the target of quality i;
v_{i0}	–	the current utility of the target of quality i, which is function of the highest market price in the period preceding the offer, q_{i0};
$v(C_i-\theta_i L)=v_{\theta i}$	–	the utility of the target of quality i, in the case of a future liability;
$v(C_i)=v_{Ci}$	–	the utility of the target of quality i, in the absence of a future liability.

The inverse function of v is h, defined as in section 2.1:

$$C_i=h(v_{Ci}) \text{ and } \theta_i L=h(v_{Ci})-h(v_{\theta i})$$

By replacing function h the maximization program becomes[8]

$$\begin{cases} \max\limits_{(C_B,\theta_B);(C_M,\theta_M)} q\left[p_B u\left(A-h\left(v_{\theta B}\right)-L\right)+(1-p_B)\,u\left(A-h\left(v_{\theta B}\right)\right)\right]+ \\ \qquad +(1-q)\left[p_M u\left(A-h\left(v_{\theta M}\right)-L\right)+(1-p_M)\,u\left(A-h\left(v_{\theta M}\right)\right)\right] \\ \text{s.t. } p_M v_{\theta M}+(1-p_M)\,v_{CM}\geq p_M v_{\theta B}+(1-p_M)\,v_{CB} \quad \text{(CIM)} \\ \quad p_B v_{\theta B}+(1-p_B)\,v_{CB}\geq v_{B0} \quad \text{(CPB)} \end{cases}$$

We note with λ and μ the Lagrange multipliers associated with (CIM) and (CPB) respectively. By optimizing the Lagrangien of the problem of the bidder with regard to $v_{\theta B}$, v_{CB}, $v_{\theta M}$, v_{CM}, we obtain the following system:

$$qp_B u\prime\left[A-h\left(v_{\theta B}\right)-L\right]\cdot\left[-h\prime\left(v_{\theta B}\right)\right]-\lambda p_M+\mu p_B=0 \tag{2.1}$$

$$q\left(1-p_B\right)u\prime\left[A-h\left(v_{CB}\right)\right]\cdot\left[-h\prime\left(v_{CB}\right)\right]-\lambda\left(1-p_M\right)+\mu\left(1-p_B\right)=0 \tag{2.2}$$

$$(1-q)\,p_M u\prime\left[A-h\left(v_{\theta M}\right)-L\right]\cdot\left[-h\prime\left(v_{\theta M}\right)\right]+\lambda p_M=0 \tag{2.3}$$

$$(1-q)\left(1-p_M\right)u\prime\left[A-h\left(v_{CM}\right)\right]\cdot\left[-h\prime\left(v_{CM}\right)\right]+\lambda\left(1-p_M\right)=0 \tag{2.4}$$

[8] Following the example of Laffont and Martimort (2002), at the beginning we assume that the participation constraint of the bad quality target and the incentive constraint of good quality target are not binding, and we verify *ex post* that this prediction is indeed true.

By using the last two equations (2.3) and (2.4) of this system, we can easily find the value of the multiplier λ

$$(1-q)\,u\prime\left[A-h\left(v_{CM}\right)\right]\cdot\left[h\prime\left(v_{CM}\right)\right]=(1-q)\,u\prime\left[A-h\left(v_{\theta M}\right)-L\right]\cdot\left[h\prime\left(v_{\theta M}\right)\right]>0 \quad (2.5)$$

Consequently, the incentive constraint of the high-risk target (CIM) is binding.

$$p_M v_{\theta M}+\left(1-p_M\right)v_{CM}=p_M v_{\theta B}+\left(1-p_M\right)v_{CB} \quad (2.6)$$

By using equations (2.1) and (2.2), we can determine the value of the multiplier μ:

$$\mu=qp_B u\prime\left[A-h\left(v_{\theta B}\right)-L\right]\cdot\left[h\prime\left(v_{\theta B}\right)\right]+q\left(1-p_B\right)u\prime\left[A-h\left(v_{CB}\right)\right]\cdot\left[h\prime\left(v_{CB}\right)\right]+\lambda>0 \quad (2.7)$$

Consequently, the participation constraint of the low-risk target (CPB) is also binding.

$$p_B v_{\theta B}+\left(1-p_B\right)v_{CB}=v_{B0} \quad (2.8)$$

The percentage of liability assumed by the high-risk target can be obtained from the equation (2.5)

$$\theta_M^{SB}=\theta_M^*=\frac{r_p}{r_a+r_p}$$

Proposition 3. *Under asymmetric information, the acquirer agrees to share the risk with the bad quality target as in the case of the efficient acquisition contract.*

The fact that the participation constraint of the low-risk target (CPB) and incentive constraint of the high-risk target (CIM) are binding implies that the variables $v_{\theta B}$, v_{CB}, $v_{\theta M}$, v_{CM} can be expressed in the function of $\Delta v_B = v_{CB} - v_{\theta B}$:

$$v_{\theta B}=v_{B0}-\left(1-p_B\right)\Delta v_B \quad (2.9)$$

$$v_{CB}=v_{B0}+p_B\Delta v_B \quad (2.10)$$

By combining the relations (2.6), (2.8), (2.9) and (2.10), the utility of the bad quality target can be determined:

$$v_M=v_{B0}-\left(v_{CB}-v_{\theta B}\right)\left(p_M-p_B\right)=v_{B0}-\Delta v_B\Delta p \quad (2.11)$$

By integrating these relations into the objective function of the bidder and by optimizing with respect to Δv_B, we obtain the expression of the second-best optimum Δv_B^{SB}, as the solution to the following equation:

$$q\left[p_B\frac{\partial u}{\partial h}\frac{\partial h}{\partial v_{\theta B}}\frac{\partial v_{\theta B}}{\partial \Delta v_B}+\left(1-p_B\right)\frac{\partial u}{\partial h}\frac{\partial h}{\partial v_{CB}}\frac{\partial v_{CB}}{\partial \Delta v_B}\right]+$$

$$+(1-q)\left[p_M \frac{\partial u}{\partial h}\frac{\partial h}{\partial v_{\theta M}}\frac{\partial v_{\theta M}}{\partial \Delta v_B}+(1-p_M)\frac{\partial u}{\partial h}\frac{\partial h}{\partial v_{CM}}\frac{\partial v_{CM}}{\partial \Delta v_B}\right]=0$$

Expressing the functions u, h and v in the above equation, this becomes:

$$\frac{(1-q)\,\Delta p}{qp_B\,(1-p_B)}\left[\Delta v_{CM}^{SB}\right]^{-(r_a+r_p)/r_a}=\left[\Delta v_{CB}^{SB}\right]^{-(r_a+r_p)/r_a}-\exp\left(r_pL\right)\left[\Delta v_{\theta B}^{SB}\right]^{-(r_a+r_p)/r_a} \tag{2.12}$$

where

$v_{CM}^{SB}=\dfrac{v_{B0}-\Delta v_B^{SB}\Delta p}{1-p_M+p_M\exp\left(\frac{r_ar_p}{r_a+r_p}\right)L}$, $v_{CB}^{SB}=v_{B0}+p_B\Delta v_B^{SB}$, $v_{\theta B}^{SB}=v_{B0}-(1-p_B)\,\Delta v_B^{SB}$.

The form of the equation (2.12) does not allow the deduction of an analytical expression of the second-best optimum. It becomes impossible to present an exact measure of the difference between the second-best solution and the optimal solution obtained in the previous paragraph.

By way of conclusion, we suggest some intuitions concerning the second-best optimum. These intuitions are similar to the classical results of the models of the asymmetric information and are directly connected to the likely values of the parameters of the equation (2.12).

The form of the utility functions always assures a positive value of the difference of utility Δv_B. Consequently the indifference curve of the high-risk agent crosses the incentive compatibility line below the crossing point corresponding to the sound agent.

In Figure 1 we observe that the amount of cash proposed to the bad quality target exceeds the amount which would have been paid if information were perfect for the same level of liability. As long as the participation constraint of the high-risk target is not biding, the optimal amount of cash proposed under asymmetric information assures him a utility higher than its reservation utility. Consequently, we can infer that because of the information asymmetry between the two parties, the bidder is forced to overpay for control.

The acquirer seems to have an interest in allowing a higher fraction of liability for the sound target in order to reduce the overpayment of the bad-quality target. Compared with the optimal contract, the acquisition of the sound target is financed with more cash, but this difference rewards the seller, at least partially, for the supplement of liability assumed.

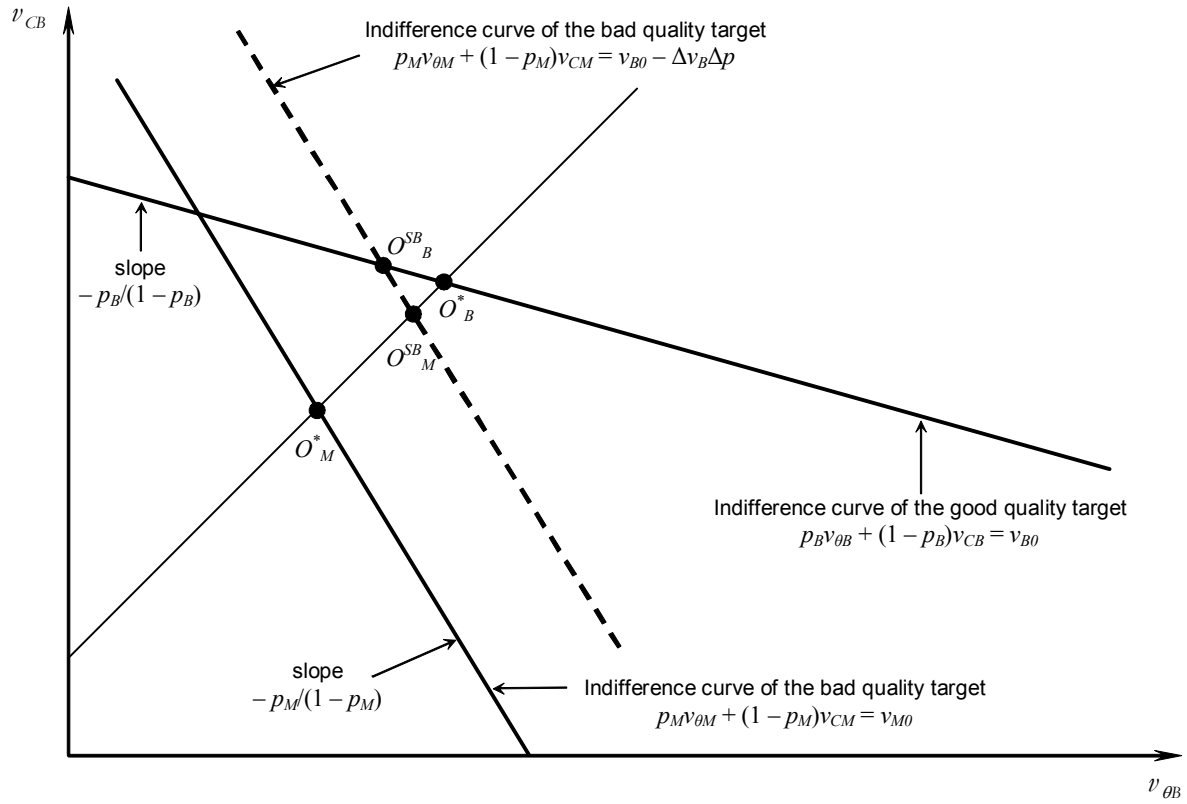
Even if the overpayment is not completely canceled, it seems to be lower than the overpayment implied by a pooling contract acceptable for a low-risk target.

If $v_{B0}-\Delta v_B^{SB}\Delta p<v_{M0}$, the participation constraint of the bad quality target is also binding. In this case both transfers are efficient ones.

3. Policy implications for M&A regulation

Facilitating private enforcement on the market for corporate control arouses serious reflection on the legal reform strategy relevant for transition economies. If the legal mechanism is to be reformed, the solution derived from the standard screening model presented in the above section can offer some insights on the scope of the implied changes.

Figure 1: The optimal acquisition contract under asymmetric information



The legal tradition from this countries stands as the main potential limit of such a proposition. One of the main hypotheses made in principal-agent theory is that the principal has not to worry about the punishment in the case of a breach of contract, as far as this one is inflicted by a court of law. Nevertheless, the institutional failure in enforcing business discipline was the main argument that encouraged us to search for private solutions. Another peculiarity of transition regimes is the lack of a legal groundwork when dealing with liabilities for damages.[9] According to the specificity of legal regime, the way the court has resolved past conflicts can have significantly weight in treating the new ones. Last but not least, the effectiveness of private contracting involving representations and warranties in mergers and acquisitions depends sometimes on the citizens' will to initiate "popular" enforcement actions. For some damages, like those linked to environmental risks, citizen suits have practical importance, as they can successfully complement public enforcement. When public standards and pursuits are inadequate, the ability to ask for penalties is often confided to private groups, broadly speaking to citizens. Hay and Shleifer (1998) designate the identity of groups likely to promote private enforcement a crucial aspect of legal reforms.

Another important implication of the model concerns the degree of the acquirer's risk

[9] Hay and al. (1996) underline the need for developed body of precedent in the field of liability for damages.

aversion. Many external investors who are nowadays exerting control in privatized companies from transition economies are investments trusts or have broadly diversified portfolios across industries and countries. In our model, a risk neutral acquirer will accept all the risk but will pay no acquisition premium to a risk adverse target. Simply, the situation is amenable to being compared with the violation of equality rules promoted by general principles of company laws. The conferral of such a right is equivalent to allowing the acquirer to arbitrarily select shareholders in order to secure the control of target.[10] Consequently, the regulatory propositions should rule out contracts where the former owner bears no responsibility for his past acts.

Finally, the historical experience of certain regulators combined with the implications of this approach may help the debate on the inapplicability of mandatory bid rule in the context of privatization. According to the Romanian Takeover Law the acquisition of the majority block from the Government exempt the buyer from making a public offer for the rest of shares. Berglöf and Pajuste (2003) cite this exception among the main critics addressed to the degree of public rules enforcement in that country. In the light of our findings, the excepted transactions become legitimate whenever the State directly negotiates with external investor providing warranties and protection. A specific example of such guaranties could regard tax liabilities of the public company that are to be privatized. Nevertheless, the privatization *via* stock exchange should comply with general principles applicable to mandatory public offers.

Through this mechanism, private parties can participate to the effort of implementing business discipline. Nevertheless, the proposed solution is not a panacea, and does not represent a substitute to public enforcement of regulations. It can work as a complement (Hay et al., 1996; La Porta et al., 2003) when there are liability standards specified by public authorities.

4. Conclusion

In emerging economies, governments have manifested an apparent concern over the interests of minority shareholders. Unfortunately, the restrictive public regulation imported from developed countries has been accompanied by poor or no enforcement that benefit especially to large shareholders. The challenge of preserving the class of small shareholders turns out into an opportunity to propose major changes of the actual regulatory environment. Private enforcement complementing the public one seems a promising solution.

The literature dealing with acquisition of control block has certain limits, which justify the theoretical development of this article. Under a strict Mandatory Bid Rule regime, the large shareholders are encouraged to adopt an opportunistic behavior so that to pocket financial advantages before reselling their majority position. Such a behavior could have sometimes long term negative effects that are transferred to acquirers. Certainly, the error of forecasting the result of acquisition can no longer concern only the buyer.

[10] The rationales for equality rules in takeover regulation are discussed in Davies (2002).

If the information is symmetric, the obtained results seem relevant. The two parties share successional liability of the buyer according to their risk aversions. Besides, the buyer proposes a positive acquisition premium. This acquisition premium must not be associated with the phenomenon of overpayment for control, because it could be considered as a risk premium encouraging the shareholder to reveal the potential sources of economic loss. The difficulty of obtaining a general analytical solution under asymmetric information causes that comparison between the features of the efficient contract and the second best solutions to be held in suspense. Even though our result does not have the elegance of an analytical solution, it can be a tool for assessing these differences. The main intuition leads us to the overpayment problem, regularly revealed in financial literature. Its importance could be estimated according to the difference between the second-best solution and the efficient one.

The problem of sharing the liability could be crucial in the process of control transfer because of the adverse effect of the asymmetric information on the acquisition contract. These constraints make us plead for a sustained risk management: on the one hand, by dividing the deal risks by the contract; and on the other hand, by concluding new insurance contracts especially conceived for acquisitions. The intervention of a third party turns out to be desirable especially when the amount blocked in the escrow account is not sufficient. This intervention is even indispensable when the buyer can not sue the seller, the seller is a capital risk fund, the sold stocks belong to an investment fund liquidating its position, the seller is located in a foreign jurisdiction or the target is a publicly traded company. An extension of the model by permitting an insurance company to take part in the contract seems an interesting subject for future research. The representation and warranties insurance could reconcile the buyer and seller and so catalyze deals which sometimes could be abandoned.

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