Choice between Bank Loans, Publicly Traded Debt and Equity in Mergers and Acquisitions

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Abstract
We model the acquirer's choice of financing to fund the payment of a M&A, where bank loans, bonds and equity are the external finance sources available in financial market. The M&A concluded with the same means of payment can be funded with different sources. Therefore, an acquisition paid totally with cash can be funded by different external sources. The acquirer's financing decision depends first on the target's reaction to the offer and his own capital structure. Considering asymmetric information on both sides, the decision is influenced by the acquirer's pecking order preference between borrowing from banks or issue bonds to finance the cash component for the offer for example. There exists signaling equilibria where the acquirer chooses his financing sources combination and uses it as a signal to the target and investors in the market to make optimal payment. We model the acquirer's choice between bank loans, public direct debt and equity to fund a M&A. Considering an asymmetric information between the acquirer and the target, the acquirer, chooses between borrowing from banks or issue bonds, or issue equity. The acquirer's capital structure and the credit market conditions determine his optimal combination financing for the M&A.

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JEL codes : G34, G32

1. Introduction

According to De Bondt (2005), corporate debt issue is positively correlated to the M&A operations in Europe. Actually, short-term debt securities issued have a high sensitivity to changes in M&A and in the short run to the relative financing cost and the availability of internal sources of finance. The financing decision of a M&A is driven by many explanations in the financial literature. As a financing decision (choice between cash, debt, and equity financing), Martynova and Renneboog (2009) find evidence only for the pecking order preferences, and the corporate governance environment that influences the costs of external capital for the M&A.

Several articles devoted to investment finance issue, show that securities are used under informational asymmetry. So, under an adverse price effect of equity issue, firms would prefer other alternative sources of financing if available. The pecking order theory Myers and Majluf (1984) argue that an equity issue conveys a signal that a firm is overvalued. Firms consider equity issuance as costly while investors see it as an adverse signal about the firm financial situation. From Myers (1984) we borrow the idea of the finance ranking between retained earnings, debt and equity. A firm follows a pecking order if it prefers internal to external financing and debt to equity if external financing is considered. However, in the pecking order theory, debt issues are derived by financing deficit which is not always the case. Cash available in the firm would not be enough to cover the M&A payment. According to

Martynova and Renneboog (2009), 63% of the acquisitions are paid with cash, one third of them are partially financed with external funds (70% with debt and 30% with equity). Of the firms financing their acquisitions with a combination of cash and stock, 37% use debt to finance the cash component of the payment.

The intuition behind our model is that information asymmetry exists between the acquirer and the target regarding each player's financial status. Since the acquirer does not have full information about the target, he would consider first his own capital structure to build his optimal financing for the M&A.

Similarly, the impact of the asymmetric information is important to the supply of external debt finance, since lenders could not have full information about borrowers. These may lead to agency problems linked to adverse selection and moral hazard problems. The choice of external funds depends on the bank monitoring and moral hazard as illustrated in many financial studies (Holmstrom and Tirole (1997), Manove et al. (2001)). It may be difficult to make an agreement among different creditors, since considering the nature of the debt contract (private, public, syndicated), asymmetric information about assets value of the firm and liquidation value may lead to contracting problems (Eckbo (2007)).

Nevertheless, Bolton and Freixas (2000) build an equilibrium where outside equity along with bonds and bank debt overlap. Therefore, our model focuses on the M&A's financing with loan debt, public debt and equity that can be decided differently from the payment preferred by the acquirer or the target. So, the acquirer's financing decision depends on his own capital structure and on the target's reaction to the offer considering asymmetric information on both sides. This paper is organized as follows. Section 2 summarizes the model setup and section 3 concludes.

2. Model Setup

As explained above, the model is designed in an attempt to explain the acquirer's preference to one or many financing options regarding his financial structure. Consider an acquirer with asset's value who decides to acquire another company the "target". We assume that the acquirer does not know the exact value of assets of the target. Similarly, the target does not know the exact value of the acquirer. The acquirer presents an offer to exchange the target's shares, which may be composed of cash and securities. The bank lenders and investors know only a set of possible types {0, 1}.
In an economy composed of banks, investors, and a target, the acquirer has to choose between equity and debt, a bank loan or public traded bonds, to raise outside funds to cover the acquisition. He has information about the probability of the M&A being a success and the quality of the operation. The same information is not known to the lenders and investors in the market. He can use cash, stock or a mix of cash and stock for the payment. The cash component is raised by outside public debt or a bank loan. We suppose that there is no competition and that the merging firms have different risk levels and different leverage ratios.

The acquisition requires funds I at date $t = 0$ and yielding returns at $t = 1$ and at $t = 2$. Returns of the M&A can take only two values high state π_H and low state π_L, with $\pi_H > \pi_L$. The acquiring firm and the target firm can be risky or safe, so we consider four possible state of nature for the M&A, (H, H), (H, L), (L, H), (L, L). The acquisition can be liquidated at $t = 1$ but the liquidation value at $t = 2$ is equal to zero. At $t = 2$ the possible likelihood values for $p2$ is simply (0, 1). Firms are said to be risky and

have a second-period return of π_L ($p2 = 0$). If firms are of a good quality, they obtain π_H during the second period ($p2 = 1$).

Agents have different information (prior valuation) on the value of $p2$ which is publicly observable at t= 2 and is private information to the acquirer at $t = 0$. The value of $p2$ is revealed only at $t = 1$ to a bank that has lent to the firm at $t = 0$, and only at $t = 2$ to other security holders. At date $t = 0$, creditors prior beliefs about the value of $p2$ are that $p2 = 1$ with probability n and $p2 = 0$ with probability (1 - n) so that $E[p2] = n$.

2.1 Acquirer financial options

At $t = 0$, the acquirer decides to go through a M&A with an external financing. The acquirer makes his valuation of the potential target. The acquirer decides to make a cash/stock offer. He has two options, bank loan or bond financing for cash or issue common stock At $t = 1$, the operation is realized. At this phase, the operation may be aborted and then liquidated. At $t = 1$, the acquirer continues the M&A process and the new entity should be able to generate returns at $t = 2$.

Bond financing: A bond issue specifies a repayment to bondholders of $R1$ at date $t = 1$ and a repayment of $R2$ at date $t = 2$. If the firm is not able to meet its last period repayments, the bondholders appropriate the firm accumulated, undistributed cash flows. Firms are allowed to roll over their bonds by making new bond issues at $t = 2$. The dilution costs should be lower in this case. When the firm's debt is high, it may be forced into bankruptcy and liquidation. It is efficient to liquidate the firm when it is bad ($p2 = 0$), not when it is good ($p2 = 1$). The firm is always liquidated following default (there is a bankruptcy cost for good firms in making large bond issues).

Bank loan: A bank loan specifies a repayment schedule $r1$ at $t = 1$, $r2$ at $t = 2$. If the acquirer defaults on its first period repayment, the bank is able to observe the type of the M&A (through monitoring) and decides whether to liquidate or let the acquirer continue. If it lets him continue, it can appropriate all last period returns (through a debt/equity swap for example). The bank observes the acquirer type at date $t = 1$, it lets him continue if and only if he is good. Distinction between bank debt and bonds is that bank debt is more flexible (or easier to restructure) and that the bank can monitor and control the actions of the acquirer. The bank, endowed with superior information and with a greater ability to restructure its loans, will choose to liquidate only bad firms. The priority structure in bankruptcy is as commonly observed, bank debt has priority over bonds, and equity holders are residual claimants. Bank lending dominates bond financing in terms of expected bankruptcy costs. It also dominates in terms of dilution costs since, following a restructuring, the bank knows the true continuation value of the M&A and is therefore able to price it correctly. The main drawback of bank lending is the cost of intermediation that must be borne by the firm and that is easier to restructure than bond issues.

Equity issue: The acquirer can only issue common stock. Share S give the shareholders control rights for the new entity. Under equity financing there are no bankruptcy costs. There may be higher dilution costs.

2.2 Acquirer's choice of financing

The acquirer's financing decision depends on his payment offer and the target's reaction to the offer. Clearly, bank loans and bonds are used to finance a total cash payment or the cash component in

a mix payment. Otherwise, common shares will be used to finance the M&A payment. The acquirer behaves according to a preference order.
We consider the acquirer's assets in place of γi whose value can be 0 or 1 and the target's assets σ_i whose value can be either 0 or 1. The acquirer needs an amount M to fund his M&A. We introduce private information by considering that the acquirer observes the real state of nature of the M&A that other agents do not. The ex post value new entity can be either 2 (both assets in place are worth 1), 1 (only one of the assets in place is worth 1) and 0 (neither asset has a value of 1).

Optimal contract with equity issue: The amount the acquirer will issue to finance the M&A is where the share S gives the shareholders control rights for the new entity. He conveys a signal of his own value to the market that may be considered as negative. In this case, he may face a drop in his share price following the M&A. In state L, the acquirer will always issue since at worst investors correctly believe that his state of nature is L and are still willing to invest 1$ in the M&A :

$$\frac{1}{(\gamma_L + \sigma_L)} \tag{1}$$

of the new shares. We make an assumption of a zero discount rate in the market.
The payoff to the firm equal to:

$$(\gamma_L + \sigma_L)\,(1 - \frac{1}{(\gamma_L + \sigma_L)} = \gamma_L + \sigma_L - 1 \tag{2}$$

If in equilibrium, the acquirer needs to issue shares in both state of nature, investors would not be able to observe the real state of the M&A. So they would value the firms' assets at:

$$0.5\,(\gamma_L + \sigma_L) + 0.5\,(\gamma_H + \sigma_H) \tag{3}$$

In this case, the M&A is overvalued by investors in state L, and undervalued in state H. If the acquirer in state H, issue equity, he obtains a payoff equal to:

$$(\gamma_H + \sigma_H)\,(1 - \frac{1}{\sum(\gamma_i + \sigma_i)} = \gamma_H + \sigma_H - 1 - \frac{(\gamma_H + \sigma_H) - (\gamma_L + \sigma_L)}{\sum(\gamma_i + \sigma_i)} \tag{4}$$

The last term represent the dilution costs relative to the new equity issue. So if:

$$\gamma_H + \sigma_H - 1 < \frac{(\gamma_H + \sigma_H) - (\gamma_L + \sigma_L)}{\sum(\gamma_i + \sigma_i)} \tag{5}$$

the acquirer issues only in the state of nature L.
If:

$$\gamma_H + \sigma_H - 1 \geq \frac{(\gamma_H + \sigma_H) - (\gamma_L + \sigma_L)}{\sum(\gamma_i + \sigma_i)} \tag{6}$$

the acquirer issues whether his state of nature is L or H.

Optimal contract with a loan financing vs. public debt: The optimal contracting problem for a H firm is to offer a feasible repayment schedule with a possible continuation at *t* = 1. To avoid being imitated by a L acquirer, an acquirer H would proceed by signaling his type with guarantees (collateral) to cover any future bankruptcy costs. In a state of nature L, the acquirer will not imitate an acquirer H to avoid high bankruptcy costs.

$$\max [\, p_1 \ (\pi_H - r_H^1) + (1 - p_1)(\pi_L - r_L^1) + p_2(\pi_H - r_H^2) + (1 - p_2)(\pi_L - r_L^2) \qquad (7)$$

The optimal contract of the acquirer H is conditional to the observation of the bank and allowing the acquirer to continue with a probability ß, and financial leverage of the target. The use of debt financing depends also on the target's approval to a cash payment.

$$\max [\, p_1 \ (\pi_H - r_H^1) + (1 - p_1)(\pi_L - r_L^1) + n(\pi_H - r_H^2) + (1 - n)(\pi_L - r_L^2) \qquad (7)$$

Subject to

$$\beta \ r_H^2 + (1 - \beta)\, r_L^2 > 1 \qquad (8)$$

$$p_1 \ r_H^1 + (1 - p_1)\, r_L^1 + n\, r_H^2 + (1 - n)\, r_L^2 \ \leq \gamma_i + \sigma_i \qquad (9)$$

The acquirer needs financing for the cash component of his payment offer to the target. Loan financing would be interesting to the acquirer in a way that allows him to have a second period with a possible loan restructuring and make the market respond positively to the M&A announcement.

External finance is optimal when it minimizes the difference in value of repayment across states of nature. Whether combined to a bank loan or not, the acquirer would turn to issue direct public debt, only if it satisfies the investor's participation constraint and reduces the total payments to the acquirer. The investor needs to maximize his participation so that:

$$\breve{I} \ll p_1 \ R_H^1 + (1 - p_1)\, R_L^1 + n\, R_H^2 + (1 - n)\, R_L^2 \qquad (10)$$

For the investor, the optimal contract is whenever $R_H^1 = \pi_H$, $R_L^2 = \pi_L$ and $R_L^2 = \pi_L$. For the acquirer, a direct public finance is feasible whenever he can avoid the bank monitoring costs E.

$$p_1 \ R_H^1 + (1 - p_1)\, R_L^1 + (1 - n)\, R_L^2 \leq p_1 \ r_H^1 + (1 - p_1)\, r_L^1 + (1 - n) r_L^2 + E \qquad (11)$$

3. Conclusion

This model is an attempt to explore the financing decision in M&A within a simple framework. We have emphasized the acquirer's states and preferences to the financing decision. The acquirer's preference depends on the informational asymmetry problem that he would face with the market and the bank. The acquirer issues equity if the relative dilution costs are not high relatively to the assets in place. Public debt financing is a feasible alternative for the acquirer with no need for flexible debt finance. Thus, the basic model proposal could provide an avenue for further research to analyze the M&A finance and payment dynamics in a well-established equilibrium. The target's preference and financial structure were highlighted less in this paper. However, it is much in evidence

that the target's influence within the negotiation and hence its impact deserves to be considered furthermore in exploring the M&A financing decision.

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