XVIII ICIEOM 2012
International Conference on Industrial Engineering and Operations Management
Guimarães - Portugal
July 9 - 11, 2012

Financing Patterns and Corporate Investment Relationship: A Brief Overview

Jorge Cunha*, António Paisana*

* Production and Systems Department, School of Engineering, University of Minho, Campus of Azurém, 4800-058 Guimarães, Portugal

Email: jscunha@dps.uminho.pt, apaisana@dps.uminho.pt,

Abstract

Investment is an important economic variable and, therefore, it is important to have an understanding of the factors that determine its evolution over time. One aspect that has been highlighted in recent research is that corporate investment behavior is influenced by the financial structure of firms. In fact, if the hypothesis of imperfect capital markets holds, there is no perfect substitutability between the various sources of funds, which may affect the investment expenses of firms and lead to a situation of underinvestment. In this paper, a brief overview of different explanations for the relationship between financing patterns and investment behavior of firms is presented.

Keywords: corporate investment; financing patterns; financing constraints; agency costs.

1. Introduction

An important aspect in the dynamics of world economies is the behavior of investment. In fact, the study of investment is important for several reasons (HASSETT, 2007). Firstly, investment is a source of economic growth for it expands the productive capacity of an economy leading to an increase in aggregate supply, employment levels and income. Secondly, investment is the more volatile component of aggregate demand and therefore is responsible for much of the variation in GDP of a country over the business cycle. Thus, knowing how investment may evolve in the future may prove extremely useful in defining economic stabilization policies. Thirdly, investment contributes to an increase in productivity, since it leads to a rise in the level of capital per worker. This is even more important when a country is near full employment, given that in this case, economic growth depends largely on increases in the productivity of inputs (especially labor). Simultaneously, additional investment usually means the adoption of new technologies or encourages transfers of technology. Finally, it is through capital expenditures that a number of economic policy measures affect the economy (e.g. changes in interest rates, the investment tax credit or accelerated depreciation allowances).

When analyzing investment behavior, a relevant question is whether the way it is financed, influences the amount of investment. In other words, it is important to understand whether planned investment by companies is constrained by available funding. In fact, in perfect capital markets, firms are always able to get funds to finance their investment projects, provided they have a positive NPV. By contrast, in imperfect capital markets, there is no perfect substitutability between the various forms of financing, which may affect the investment expenses of firms and lead to a situation of underinvestment. In this second situation, the financial structure of the firm becomes relevant and might have an impact in firms' investment decisions.

This paper analyses the link between corporate investment and financial structure of a firm, presenting possible explanations for the pattern of its corporate financing structure.

The remainder of the paper is organized as follows. Section 2 presents a brief overview of corporate financing patterns. Section 3 and Section 4 discusses in more detail possible, and alternative, explanations for these patterns respectively. Section 5 comprises the main conclusions and future research prospects.

2. Financing Patterns

This section presents data on how firms finance their investment expenditure. Figures from Table 1 suggest that firms tend to rely, to a large extent, on internal funds to finance their investments.

Table 1: Corporate financing patterns

	2003	2004	2005	2007	2008	2009
SOURCE OF FUNDS						
Internal Funds	*0,51*	*0,60*	*0,57*	*0,49*	*0,46*	*0,52*
Net Income	0,19	0,23	0,24	0,26	0,11	0,17
Depreciations	0,32	0,32	0,34	0,21	0,27	0,35
Variation of adjustments and provisions	0,00	0,05	-0,01	0,02	0,07	0,00
External Funds	*0,49*	*0,40*	*0,43*	*0,51*	*0,54*	*0,48*
Increases of equity	0,09	0,04	0,00	-0,09	-0,13	-021
Decrese in financial investments	0,07	0,11	0,19	0,23	0,27	0,27
Decrease in medium/long term debtors	0,10	0,00	0,00	0,01	0,00	0,00
Increases in medium/long term debt to credit institutions	0,14	0,06	0,00	0,10	0,14	0,08
Increase in other medium/long term debts	0,02	0,07	0,15	0,16	0,07	0,16
Decrease in fixed assets						
Sale of fixed assets	0,08	0,12	0,09	0,09	0,12	0,16
Decrease in working capital					0,08	0,03

Source: *Banco de Portugal* - Central Balance-Sheet Database

The question that arises is why firms adopt this behavior to finance their investments. One possible explanation relates to the existence of imperfections in capital markets. In this case, the decision on funding sources is relevant, since the cost of using internal or external funds may differ, giving rise to situations of financial constraints on companies. It can be said that a company faces financial constraints when it cannot obtain all the funding they need, regardless of their cost. In other words, financial restrictions refer to the situation in which profitable investment projects, that would be undertaken if there were sufficient internal funds, would be abandoned since the availability of external funds for the company may be limited, due to information imperfections in capital markets, and to the fact that the cost of external funds is greater than that of internal funds (KIM, 1999).

Thus, firms face a hierarchy of financing sources, which invariably start with the use of the cheapest funds (internal funds), then debt financing and, finally, the issue of new shares (or equity capital) (MYERS, 1984).

The following section presents a more detailed explanation of the meaning of financial constraints.

3. Financing Constraints

One possible explanation for companies to face financing constraints is based on the assumption that information in capital markets is not perfect.

In the case of companies' investment plans, the basic idea is that asymmetric information problems between borrowers and lenders may lead to a situation of credit rationing, with the consequent limitation of investment expenditure, at least for certain types of companies. In fact, banks do not know with absolute certainty what would be the results obtained by companies with the money that they borrow. In this context, Stiglitz and Weiss (1981) showed that an increase in the interest rate charged to borrowers will generally increase the average risk of projects. This is due to two effects. Firstly, borrowers tend to move to more risky projects (adverse selection effect). Secondly, because less risky projects become relatively less attractive, therefore investors with safer projects are not applying to obtain bank credit (moral hazard effect). These two effects may cancel the direct gain that the bank could obtain by charging a higher interest rate. For this reason, the bank's profits are actually maximized at a rate at which there is an excess of quantity demanded. That is, there is market equilibrium with quantity rationing.

This concept of asymmetric information was applied to both debt markets (e.g. Stiglitz and Weiss, 1981) and equity markets (e.g. Myers and Majluf, 1984, Greenwald, Stiglitz and Weiss, 1984).

For a better understanding of the financial constraints model, based on Hubbard (1998), Bond and Meghir (1994), and Schaller (1993), a graphical analysis is presented that seeks to illustrate the link between the amount of capital of a company and its investment decisions.

Let us assume a company with net worth in the amount of W_0. The company faces two investment possibilities. The first is to invest the funds W_0 in a financial asset with interest rate r. Thus, after one period the firm obtains the amount $W_0(1+r)$. The second alternative is to invest in fixed capital. It is assumed that: (a) the production output occurs in the following period; (b) to produce it is necessary, among other things, capital, K; (c) if the project is undertaken, a positive output is expected; (d) in the next period two scenarios can happen: good and bad (this means that the quantity actually produced may be higher or lower than expected), (e) payments to external investors cannot be greater than the value of the output obtained in any of the two scenarios.

A neutral risk investor will choose the second investment alternative if the return will be greater than the return of the first alternative investment. In other words, in this case a company will not continue with an investment project if the value of output minus repayments to external investors exceed $(1+r)W_0$. In turn, if external investors are risk neutral and operate in a competitive market, they will require a rate of return on funds lent to the company of r.

Consider, now, what happens to the demand for capital when there are perfect capital markets and imperfect capital markets. In the case that a company can access a perfect capital market, the supply curve of funds, S, in Figure 1, is horizontal and cross the vertical axis for an interest rate r. This means that regardless of the source of funds (internal or external to the company), the cost to the company is exactly the same. This is the result obtained with the neoclassical investment model (e.g. Tobin-Q model, 1969), in which the equilibrium would occur at the intersection of the demand, D (with the typical decreasing configuration) and supply, S (with horizontal configuration) curves, i.e. we would have a capital stock K_0 for an interest rate r.

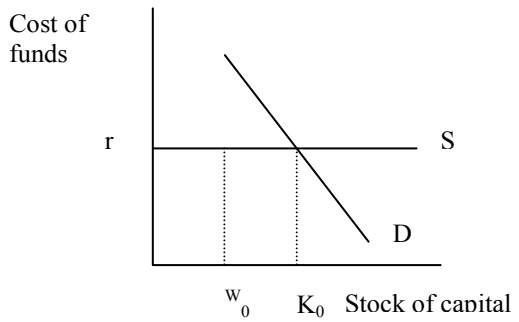

Figure 1: Relationship between a firm's net worth and the cost of funds, for the case of perfect capital markets (adapted from Hubbard, 1998).

In the case of an imperfect capital market (due to information problems) the supply curve of funds for investment is no longer horizontal and it has two segments. The first is a horizontal segment at the interest rate r, up to a level of funding W_0, corresponding to the net worth of the company. Simultaneously, it is assumed that information problems do not affect the investment decisions of companies, provided that the amount needed to finance the investment does not exceed the company's net worth. Moreover, as these can serve as collateral, the rate of return required by lenders equals the market real interest rate.

The second segment of the supply curve, S, starts when the level of funds exceed W_0 and is upward sloped. That is, the shadow cost to the company's external financing exceeds that of internal financing. The slope of supply curve, S, reflects information costs incurred by lenders to ensure they lend to

companies with good credit record. The higher the marginal cost of information the more inclined the ascending portion of the S curve will be. It can be seen, by looking at Figure 2 that, in the presence of information costs, the equilibrium capital stock for the company, K_1, is less than the equilibrium capital stock in the case of perfect capital markets, K_0. Therefore, the fundamental result of the financial constraints theory is that there is underinvestment in relation to the situation where there are no information problems in capital markets.

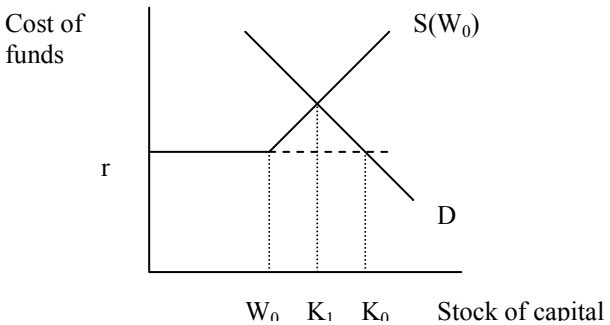

Figure 2: Relationship between a firm's net worth and the cost of funds, for the case of imperfect capital markets (adapted from Hubbard, 1998).

Figure 3 shows how the theory of financial constraints proposes to solve the problem of under-investment by companies in a scenario of imperfect information in capital markets. Again, the equilibrium capital stock in perfect markets is K_0. However, due to information costs and the amount of net worth of the company, W_0, the equilibrium capital stock is K_1. Assume now that net worth of the company increases from W_0 to W_1, keeping information costs constant. In this case, the supply of funds curve moves from $S(W_0)$ to $S(W_1)$. If the investment opportunities remain constant, the demand curve remains in D. Consequently, the increase in net worth, holding constant the cost of information and investment opportunities increases the capital stock from K_1 to K_2.

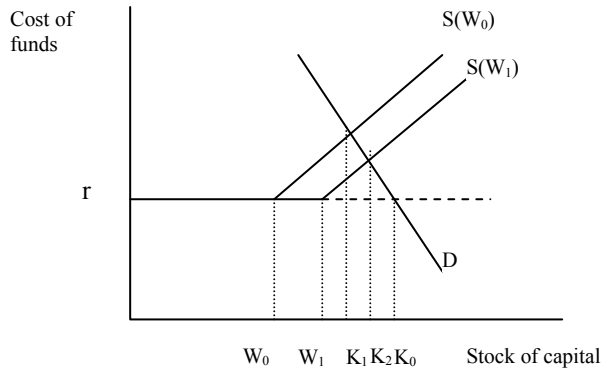

Figure 3: Effect over the financing costs of an increase in the company's net worth (adapted from Hubbard, 1998).

Note that for a company that does not face information costs or has an amount of net worth sufficient to finance their desired capital stock, the equilibrium stock of capital remains at K_0. That is, for firms facing negligible information costs, an increase in equity, regardless of changes in investment opportunities, has no effect on investment. For companies facing high investment costs, an increase in net worth leads to greater investment, *ceterius paribus*, while a decrease in net worth leads to less investment.

The model of financial restrictions has been tested empirically with encouraging results. Some examples are: Fazzari, Hubbard and Petersen (1988); Palenzuela and Iturriaga (1998); Goergen and Renneboog

(2001); Carpenter and Petersen (2002); Gelos and Werner (2002) Bo, Lensink and Sterken (2003); Bond, Elston, Mairesse and Mulkay (2003); Guariglia (2004); Mizen and Vermeulen (2004).

4. Alternative Explanations

Although, the explanation for the financing pattern of Portuguese firms shown and presented in the previous sections is robust, other explanations for the financial structure of firms can be found in the literature namely, the agency theory, flotation costs, distortions of the tax system, costs of financial distress, free cash flow.

4.1 Agency Theory

Agency relationships arise in companies that, due to their legal nature, motivates a separation between who is the owner (principal) and who in fact manages the company (agent).

The key point of the agency theory is that although managers of a company act as agents of the owners, it is likely that there is no coincidence between their own objectives. This difference of objectives, which ultimately arise naturally if it is assumed that both seek to maximize their utility, can lead to what is known as agency costs. For example, Jensen and Meckling (1976) used an agency model in order to obtain a theory of the structure of ownership of a company. In developing the model, those authors identified two types of agency costs, resulting from conflicts of interest that are generated according to the sources of funding that the company uses.

The first conflict arises as a result of the issue of external equity financing and arises between managers and shareholders. If managers have a portion of the company less than one hundred percent, they have an incentive to use the resources of the company in order to obtain personal benefits (either monetary or non-monetary) or by making over-investments, which increases the size of the company, regardless of its profitability. One way to overcome the conflict of interests between managers and shareholders would be for the company to be owned and managed solely by the owner-manager. In this case, if more funds were needed, the owner-manager could resort to debt issuance.

However, this leads to the second type of conflict of interest, which is established between shareholders and bondholders. The implicit reasoning here is that the owner-manager tends to opt for investment projects that provide a high yield but are simultaneously more risky. If successful, the shareholders are left with most of the income generated by the project, whereas if they are unsuccessful, creditors would also support, the consequences. This stems from the limited liability that is associated with credit agreements. To the extent that bondholders anticipate this behavior by shareholders, they require a premium on the issuance of debt and/or the inclusion of clauses in the credit agreement that restrict the future behavior of management in various ways. These are the agency cost of debt.

4.2 Flotation/Issuing Costs

One reason for companies to prefer finance capital expenditure using internal funds is related to the costs of issuing new securities (either shares or bonds). These costs are reflected in aspects such as underwriting commissions of the issue, registration fees, taxes, and various administrative, accounting and legal costs.

On one hand, the issuance costs vary inversely with the size of the issuance of securities. Specifically, the lower the supply of securities the higher the unit costs of issuance. On the other hand, the costs of issuance tend to be higher for IPOs than for regular offerings of larger history of use of the capital market (BREALEY et al., 2008).

Thus, it can be concluded that the costs of issuing and trading of new securities may be particularly important in creating a hierarchy of financing sources for small and medium enterprises (OLINER and RUDEBUSCH, 1992).

4.3 Tax Advantages

Another justification for the importance of the company's financial structure, relates to possible distortions caused by the tax system, benefiting certain sources of funding in particular.

In this context, one can distinguish between two possible situations (POTERBA and SUMMERS, 1983). The first one is related to the choice of resorting to equity financing, either internal or external to the company. If the rate of personal tax levied on income from capital gains is below the rate of personal tax levied on dividends, then individuals prefer to obtain income through capital gains. Thus, the demand for shares by investors is addressed mainly to companies that reinvest most profits, as this will tend to increase firm value and thus lead to an appreciation of its share price. For the company, this translates into an advantage in terms of the cost of equity financing by internal sources over external equity.

The second distortion caused by the tax system is related to the choice of funding by new external equity or debt. To the extent that interest expenses on a loan are accepted as a cost for tax purposes and the same does not apply for the cost of equity, there is a bias in favor of debt financing. In fact, the actual cost of debt financing becomes lower than equity financing, since the state subsidizes a portion of the costs incurred with the debt (debt service).

In conclusion, if these two distortions caused by the tax system are met in practice, it reinforces the possibility of a company facing a hierarchy of financing. In this context, and faced with the need to obtain funds, companies follow the following order of preference: internal funds, debt, and issuance of new equity.

4.4 Cost of Financial Distress

Another justification that has been advanced in the literature to explain the importance of the financial situation of a company on their investment behavior is related to the possible negative effects of over-indebtedness. These are reflected, for example, in situations of financial stress and, ultimately, the bankruptcy of the company.

This explanation appears strongly influenced by the debate generated around the effects that high levels of indebtedness of firms might have on economic activity in general. In fact, a high level of debt leads to an increased likelihood of defaults on debt by firms. The question that arises is what happens to companies that enter a state of financial difficulties. If the company has good economic prospects for the future, financial distress has no significant real impact given that the company's debt will be renegotiated in order to guarantee the company survival. However, if such renegotiation is difficult, due to conflicting rights of creditors, there may be a tendency to liquidate the company, even if it is socially inefficient (HOSHI, KASHYAP and SCHARFSTEIN, 1990).

As the debt of a company increases, *ceterius paribus* the likelihood of a company facing financial distress increases. In this case, the company may incur in direct costs of bankruptcy, such as legal expenses, and indirect costs, such as the interruption of operations, loss of suppliers and customers and the imposition of restrictions on funding. The present value of these costs must be reflected in the cost of funding. Therefore, in order to minimize these costs and avoiding the risk of bankruptcy, firms may choose to finance, preferably, with internal funds.

4.5 Free Cash Flow

Jensen (1986) proposed a different explanation for the impact of debt over companies. For this author, a high level of debt forces firms to become more efficient, avoiding waste of resources and contributing to improved economic performance.

In fact, if managers distribute most of the income generated by a company to shareholders, few resources are left on which to exercise a discretionary management. Thus, managers see their power reduced. Furthermore, this reduction in power is even more pronounced when they need new financing, because

managers become more subject to monitoring activities by external investors, which may involve an increase in the cost of external funds.

In this sense, it is reasonable to assume that managers may be tempted to finance investment projects based on retained earnings and not distribute them to shareholders. This allows managers a greater control and flexibility over the company's resources. One consequence of this type of behavior is a possible decrease in the efficiency of the company, which may arise from investments in projects with negative NPV but that lead to the growth of the company.

While competition in product and input markets can be a disciplining force for companies seeking greater efficiency, since that competition tends to drive prices towards the minimum average cost, Jensen (1986) considers that these disciplining forces are often weaker in new activities and activities that involve substantial economic rents. In these cases, monitoring by the internal control system of the company and by the corporate control market may be more important.

Thus, the fundamental problem is how to motivate managers to return money to shareholders rather than invest below the cost of capital or wasting it on organization inefficiencies. In this sense, Jensen (1986) draws attention to the role that debt issuance may have as a factor motivating the company's efficiency. That is, in spite of the disadvantages that borrowing may represent, it also brings some benefits, including the motivation of managers and their companies in becoming more efficient.

The explanation for the control power of debt on managers is as follows. The debt issue permits, effectively, managers fulfill their promise not to withhold future cash flows, since they are required to pay interest and repayment of borrowed capital. Thus, in practice debt is in fact a substitute for dividends. By issuing debt rather than equity shares, managers are complying with their promise to pay future cash flows in a way that cannot be achieved by simple increases in dividends. Thus, a higher level of debt reduces the agency costs of free cash flow by reducing cash flow available that can be spent on a discretionary basis by the managers.

Jensen (1986), therefore, concludes that these debt control effects are a potential determinant of the capital structure of firms. Two recent studies support this hypothesis. Brio, Miguel and Pindado (2003) developed a model to assess the relationship between investment and firm value and tested, explicitly, the free cash flow hypothesis. Using an unbalanced panel comprising 133 Spanish quoted companies, they concluded that "high free cash flow firms sustain a decrease in value when they invest, whereas low free cash flow firms that invest experience an increase in value". Also Chung, Firth and Kim (2005), using 22,576 company year observations over the period 1984–1996 for US companies, confirm that low-growth companies with high free cash flow tend to use "income-increasing discretionary accruals to offset the low or negative earnings that result from inevitably accompany investments with negative net present values", therefore corroborating the free cash flow hypothesis.

5. Conclusion

Corporate investment is essential for the growth of any economy. Therefore, it is of paramount importance to have an understanding of its main determinants. One aspect that has been highlighted in the last two decades is the impact of the financial structure of a firm on its investment expenses. Particular attention has been given to the hypothesis that firms face financial restrictions.

It is said that companies face financial restrictions when they cannot get all the funding they need, regardless of their opportunity cost. This means that companies reveal a hierarchy of preferences in the choice of sources for financing their investment plans because the costs differ as to their origins. Thus, companies begin to use the funds that have lower cost, which correspond to internal funds, then resort to borrowing, and ultimately to the use of funds with higher costs - new equity increases.

In terms of investment decisions, it might happen that companies see themselves unable to rely on external funds to finance their investment plans due to information problems in financial markets, leading

to a situation of underinvestment. Hence, it is likely that the financial structure of a firm has an impact on its investment decisions.

Other alternative explanations exist in the literature that were analyzed in this paper namely the agency theory, flotation costs, distortions of the tax system, the impact of financial distress and the role of free cash flow.

The next step in this area of research is to empirically test, for a sample of Portuguese firms, the impact of these alternative explanations on corporate investment. The idea is to identify the relative importance that each factor has on investment expenses of firms. In other words, the aim is to find out which are the possible driving determinants in a firms' investment-financial structure relationship.

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