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INVESTMENT SOURCES CHOICE

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Abstract: When lump-sum investments made, the structure of firm capital is an important issue and different proportion equity and debt is possible. The profitability (NPV) of projects and market power of investor influences on the structure of investments.

Key words: capital structure, debt, equity, Miller-Modigliani theorem
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INTRODUCTION

Economics as science is often defined as field that aims to understand the wealth creation and distribution efficiently when resources are scarce.

The standard economic theory is usually preconditioned by assumptions of a given system of preferences and complete knowledge of available means and ways to come to the best desirable result (Hayek (1945)) [1]. Apart from this classic theoretical approach, in the real economic life there are many issues that are related to imperfect knowledge of a situation esp. in the realm of investments. This imperfectness concerns actions of economic agents, their goals and ways to achieve them. As knowledge and information implicated in virtually all fields of economic actions, the research on the information impact is made in the different aspects.

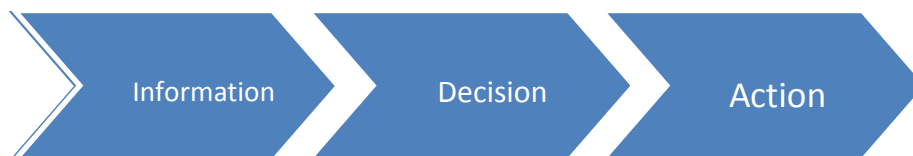


Exhibit 1. General decision schema

Informational economic issues traditionally deal with the following aspects of actions and interactions between economic agents:

- Price as informational signal (markets)
- Information and uncertainty (risk)
- Asymmetry of information (contracts)

When interacting economic agents send signals to each other and use a lot of ways to inform partners on their intentions, or (on the other hand) to hide what they want to do or to intent to do. The market prices are primary signals for market participants about goods and services proposed for sale. The price is observable, usually market participants knows current prices without problems, but the quality of goods or services circulating on market are difficult to perceive in some cases. When an entrepreneur wants to make a deal, his

private information may be of value for the counterpart but is hidden. Imperfect or asymmetric information situation explains inefficiencies of market and their failure.

Information pertains to the investment markets is an important issue because the result of investment decision heavily depends on the quality of investment projects and will be known only in the future. Securities market where investments goods circulate, asset prices may be a sufficient source of information for an investment decision only when markets are efficient (E. Fama, 1970) [2]. In other words, security prices are a signal of quality and reliability for investors and other sources are unnecessary.

There is still a question to discuss how information influences business choices of financial sources to be used. Let us outline some important issues that influence management choice when they decide what kind of finance to choose.

Miller and Modigliani (1958, 2011) [4] gave a variant of answer to the question. In particular, they argue that if preconditions listed below are fulfilled then the value of the assets is independent of investments structure that is the structure of capital has no importance. This assertion resides on these preliminary conditions:

- Security markets are efficient and well developed
- No uncertainty and no risks
- No taxes
- No barriers to get a loan, the same interest rate for all debts
- Absence of transaction costs and arbitrage is possible
- The goal of management is to maximize market value of the firm

Some of the listed above conditions are informational by their nature: market efficiency, known future profits, no risks, no uncertainty.

If one firm issued only shares, and another issued shares and bonds, in this case the value of both firms under consideration are equal and investors may invest without to take into the account the structure of firm capital. They may sell assets with higher prices and then buy cheaper assets with the same profitability making arbitrage.

So any proportion of debt and equity is appropriate as MM theorem allows, conditions are satisfied.

Usually if to take into consideration so called financial risk linked to debt and its tax exemption, then preferably debt is low.

From the point of view of investor, it is necessary to consider the effectiveness of new investment project. In a real economic situation, the conditions declared in the MM theorem usually are not fulfilled.

The difference between debt source and equity source exists and an investee knows about it. For example, in Russia as of 2008 the debt financing is about 12 %, far less comparing the 40 % of retained earnings and amortization source. In the table 1 the share of debt in investments changed from 17 % to 20 %, Total external funding became smaller: from 59 % in 2010 to 54,3 % in 2014.

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Table 1

Sources of capital funding in Russia (in percent)

Investments (in %)	2010 г	2012 г	2014 г
Equity (retained earnings etc.)	41,00	44,50	45,70
External fund sources	59,00	55,50	54,30
including			
Debt	17,40	15,70	20,50
Budget funding	19,50	17,90	17,00
Other sources	21,90	20,00	15,80
including in others			
Bonds issued	0,01	0,04	0,10
Shares issued	1,10	1,00	1,10

Source: Central Bank of Russian Federation

Myers (1993) asserts that there are several main stories explaining the structure of firm capital. In the discussion below the theory may explain at least the theory with NPV (static trade-off theory) as core concept and so called “pecking order theory” when internal sources are on the first place to choose.

The goal of the article is to define the conditions when the difference between investments sources matters using information about profit.

MAIN PART

Basically, when comparing debt financing and equity financing, I use the planned future profit I of a project and investor’s desirable rate of return r . If an entrepreneur wants to start a new project, he has two possibilities to get a credit or issue additional shares inviting co-owners. For simplicity we fix the lump-sum investment equal to unity: $I = 1$.

We consider the market is efficient, so a firm value V is defined as product of profit π and discount factor $1/(1 + r)$:

$$V = \pi / (1 + r).$$

Equity financing

When an investor chooses equity investment he gets a part of profit as a dividend and may get a share of value of the firm when selling his shares to others. In this case, the constraint to investment is the expected value must be more then invested money. If value consists of two projects – the assets in place (old project) that generates profit π_1 , and a new project that generates profit π_2 , then the total value will be $V = V_1 + V_2$. The participation condition for Investor is given below:

$$aV = a(V_2 + V_1) \geq I \quad (1)$$

where a is a share owned by the investor in the invested firm.

The share a has to comply with condition: $\frac{(1+r)I}{\pi_1 + \pi_2} \leq a$ for the investor.

On the other hand, the investment recipient demands new value has to be

$$(1-a)V \geq V_1 \text{ or}$$

$$(1+a)V_1 \geq (1-a)V_2 + 1 \quad (2)$$

Debt financing

When the recipient prefers debt financing $D = I$, he demands the profit of new project has to cover both received debt D and interest i :

$$\pi_2 \geq D + i \quad (3)$$

The investor demand is more conservative: the value V_1 of assets in place must cover both debt and interest i :

$$V_1 \geq D + i \quad (4)$$

Mixed financing

For the different condition existing on markets, there may be several situations. The investments of both kinds equity and debt exist in the area "E&D". There is also the area "E" where only equity financing is possible, and the area "D" where debt sourcing is available for the investee. In the area "N" no external financing exists at all. The cause of the last situation embedded in the insufficient level of the expected project profitability.

In the case the firm-recipient wants to get debt financing when its internal source is insufficient for the project and the project returns have to cover debt and percent payments. \rightarrow

Here I demonstrate a decision process in the simplified situation with no taxes when the firm may obtain internal and external sources to fund its projects (the area "E&D"). The firm funds a new project by S (retained earnings) and B (debt funding from a bank as external source).

The recipient will try to find acceptable and possibly optimal partition of investment I into S and B : $S + B = I$. In this case the firm's profit Π for the new project presents:

$$\Pi(S, B) = (S + B)^\alpha - (1 + i)B = r \cdot V$$

The first additive $I^\alpha = (S + B)^\alpha$ is the project production function - the source of profit, providing the unity price for the firm's product. The second one $-(1 + i)B$ is the debt payment. As we use retained earnings, then we do not pay any price to the outside equity investor, then the cost is zero. Remark: in the classical financial management books

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the price of equity is equal to its market price, in our case we suppose that owners pay the price to themselves.

If the firm management decides to optimize profit, then B as the negative member must be minimized. In case of optimal debt B , the less debt B is made then the greater profit must be, hence B must be as low as possible and if the retained earnings are sufficient then debt B is zero. (cf. Myers (1993), [4]).

In the case when creditor has no sufficient information on the productivity level “ α ” he may propose several contracts with different levels of interest repayments providing auto selection conditions (see Khrapko (2009) [5]). In this case it is possible, that the firm recipient will not get debt investments at all, even the firm has need of credit for the project.

CONCLUSION

If the conditions about information efficiency of the market are not applicable the decision on the structure matters for owners. In addition, if the firm is privately hold and has no shares trading on the market so the market price of equity is absent, then the firm profit is calculated using balance sheet. The use of retained earnings and amortization as the source for investments is free of charge and use of external debt funding is not attractive and necessary. In this case of “pecking order” investment story is more acceptable and the result of this may be illustrated by data in the table 1. The following algorithm may be recommended.

Algorithm for investment choice:

1. Use all internal sources for investment
2. If they cover the project funding, then start the project with own funds
3. If funds are not sufficient then try to find a creditor or issue bonds
4. If debt is insufficient then to invite new shareholders.

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