The Interaction of Economic Decision

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Abstract

Any economic action shall take place on the basis of a succession of domain-specific decisions. In fact, economic decisions are made on two stages, with a strong interaction and correlation between them. The first level of importance is given to investment and financing decisions, backed by two other decisions, namely savings and consumption. In real activity, it is not possible to research each of the decisions separately.

In theory, however, the perfect capital market model was created, based on a set of criteria considered durable over time. It should be noted that even if the basis of decisions is made under pre-established assumptions, they are of good practical application. The authors' intention is to explain to the economic environment the characteristics of each decision and the importance of their practical compliance.

1. Introduction

In Economics, from the strategic point of view, two important decisions are taken: *the investment decision and financing decision***.** Supporting these decisions depends primarily on the existence of a capital, as a result of the savings and *consumption decisions made by the economic* agents, population and state. At their turn, saving and consumption are influenced by the prospect of increasing the individual budgets through the profitability ensured by the equity investments.

Therefore there is a close interaction between financial capital - physical capital, beneficial for all the components of economic activity and for the capital owners. To prove this interaction and the causal relationship of the economic decisions it is used the concept of the definite economic environment or perfect capital market comprising the following assumptions:

• The interest rate and the future cash flows of the investment projects are a priori and surely known; the interest rate on banking investments is equal to the credits because there are no transaction costs; the financial analysis focuses on the concepts of interest rate as the return risk-free rate and of a net present value;

• The market is perfectly competitive, none of the participants can influence in a sensitive manner its functioning (atomizing the market);

• The possibility of interest rate fluctuations and the risk of improper activity are excluded;

• The movement of capital is not affected by taxation and therefore there is no tax savings and there is a sole price.

To these assumptions should be added the assumption that people have a *rational economic behavior*, meaning that they want to gain the maximum possible profit from their investment activities. Perfect capital market, by its nature, makes possible for the investment decision to be analysed independently of the financing decision and to be understood in that way, and then to be reconsidered independently of the real economic environment. Although purely explanatory, the

analysis of the definite environment has certainly proved its utility in the substantiation of the practical decision making and it is increasingly used to the detriment of purely intuitive methods. In conclusion, the theoretical model of the "definite economic environment" leads to:

- ✓ the possibility of separating the investment decision from the financing decision;
- ✓ to the demonstration of the most important objective for the finance function: to maximize the value of the final equity
- ✓ and to a fundamental decision rule: net actuarial value.

2. Theoretical background - Consumption decision and saving decision

Having a capital aims to satisfy the individual consumption needs assigned on a temporal distribution. A rational investor manifests "care of tomorrow" which means that he will pursue the best possible combination between the pace of capital growth and the pace at which it is consumed.

The analysis of the interaction between economic decisions highlights the following causal stream: the creation of the capital – direction it towards the most profitable and safest destinations - capital growth through investment.

Temporal distribution of consumption is possible only through its alternation with saving, which means giving up the present consumption (C_0) for a larger future consumption (C_1) or the other way around. Investing or attracting capital can be achieved through the financial markets for some attractive interest rates.

For a loan, the present value of capital (W_0) is determined on future estimations is:

$$W_0 = V_0 + \frac{\Sigma CF}{(1+Rd)^n}$$

From the position of the debtor, the amount of the capital results from the return of the investments made in relation to the amount of the loan and its costs

$$W_0 = -V_0 + \frac{\Sigma CF}{(1+Rd)^n}$$

Graphically, the alternation saving - consumption is represented by the capital market line for a constant interest rate and equal for investments and loans. As saving means diminishing the present consumption for the future growth, the slope of the market line is negative: - $(1 + Rd)$. The increase in capital may be represented by straight lines parallel to the market line. Postponing – outrunning the consumption requires moving on the market line:

• moving up the LL line represents a **credit** because it is equivalent to a reduction of the current consumption at t_0 for another higher at t_1.

• moving down represents a **debit** because it produces an increase in consumption at t_0 because of the decrease of the potential consumption at t_1.

Chart no.1. Optimal ratio: Investment - consumption - financing
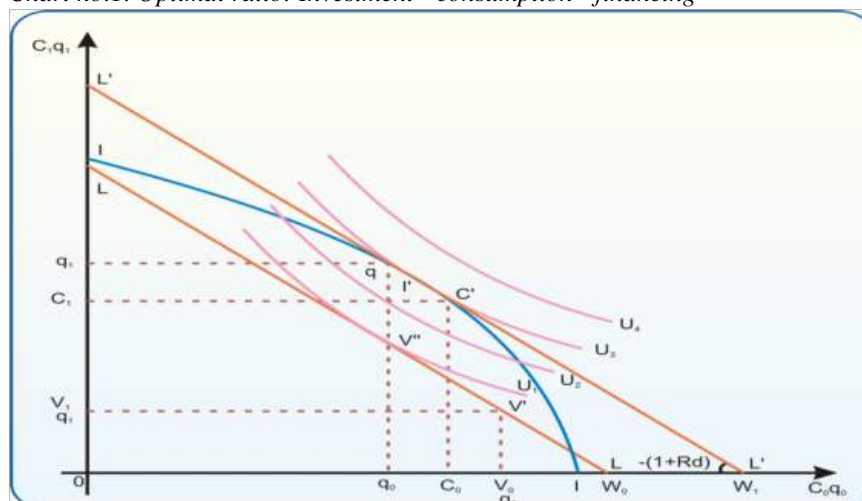
Source: (Vlad, 2015)

where: II - the curve of investment opportunities; LL (L'L ') - market line; U $_{1,2}$ - indifference (utility) curves; W - individual budget; q - investment opportunities; I' - optimal investment

The impulse for the present or future consumption besides from the profit (market interest rate) it is given also by the satisfaction the offer produces to the equity holder. The analysis of the financial practice reveals that an investor focuses on each invested unit (marginal profitability), often disregarding the absolute volume of the capital gain. Moving on the market line allows obtaining the maximum utility of the present capital without allowing its growth. Point **C'** of the chart represents the marginal rate of consumption (**U₃**) and is equal to the marginal rate of exchange substitution (**L'L'**).

Because for the financial markets, the interest rate is an exogenous factor determined by the developments in the real economy, it means it is limited to the distribution of consumption over time, but to increase the capital it is necessary to turn them into investments.

So for the capital market account must be taken into account the function of distribution of consumption, the possibility of savings and loans and of efficient investment of the capital.

3. Investment decision and financing decision

Investing represents the way of capital growth and the motive for savings for a larger future consumption.

In the broad sense, investments are of two types:
- productive investments;
- financial investments known as "investments".

Productive investment is made through investment opportunities, while others occur due to exchange opportunities. Investment possibilities are plotted by a concave curve which indicates that the marginal rate of return is decreasing. Logically, the subject will seek to increase his revenue, up to a maximum point, namely to L'L', which is as far as possible from the origin (LL).

To achieve this there must be taken two steps that can ensure to an individual both the optimal investments and the optimum consumption.

- Moving on the curve of investment opportunities (II) as long as the marginal rate of substitution of investment opportunities $\left(\frac{\Delta q_1}{\Delta q_0}\Big|_i\right)$ will be greater than the marginal rate of substitution from exchange $\left(\frac{\Delta C_1}{\Delta C_0}\Big|_L\right)$ or than the market interest rate which represents the slope - (1 + Rd) of the line L'L' (market line). When these two rates reach the balance point (point I') it means the optimum investment has been reached;

- After achieving the optimum investment possible, the subject pursues the optimum consumption. This is possible through the exchange that distributes the consumption over time. Graphically, this is represented by the utility curve U3, only one which may be tangential to the furthest market line that can be reached (L'L'). The position of I' point (optimum investment) from the point of tangency C' (L'L ∩ U3) indicates a downwards "shift", more specifically the individual must take a loan in order to achieve the optimal consumption (C'). At this point there occurs the following relationship: $\frac{\Delta C_1}{\Delta C_0}\Big|_{U(1)} = \frac{\Delta C_1}{\Delta C_0}\Big|_{L(2)}$ where (1) and (2) represent the marginal rate of substitution of consumption, namely into exchange.

From the completion of the two stages it results that:

- for optimum investment: $$\frac{\Delta q_1}{\Delta q_0}\Big|_I = \frac{\Delta C_1}{\Delta C_0}\Big|_L = -(1+Rd)$$

- for optimal consumption: $$\frac{\Delta C_1}{\Delta C_0}\Big|_U = \frac{\Delta C_1}{\Delta C_0}\Big|_L = -(1+Rd)$$

Thus, the optimum investment which supports the investment decision and the optimum consumption which supports the financing decision, are related to the same interest "Rd" and therefore they can be the subject to a separate analysis. The separation which is possible in the economic environment certainly raises the question whether it can have a practical application. In this regard there can be performed a demonstration by analysing the loan of capital, which is a frequent case in the real economy. The market Line L'L' will move due to the constraint imposed by the capital loan limits. The distance between various points in which investments can be made on the curve of possibilities (I.I) and the new position of the line represents the maximum loan for each case. The mentioned constraint influences the investors' consuming preferences (utility curves). In this manner are created two dependency relationships:

- between the investment decision and the consumer decision;
- and between optimum investment and individual preferences.

These dependency relationships cancel the possibility of separating the economic decisions.

Chart no.2. Loan constraint
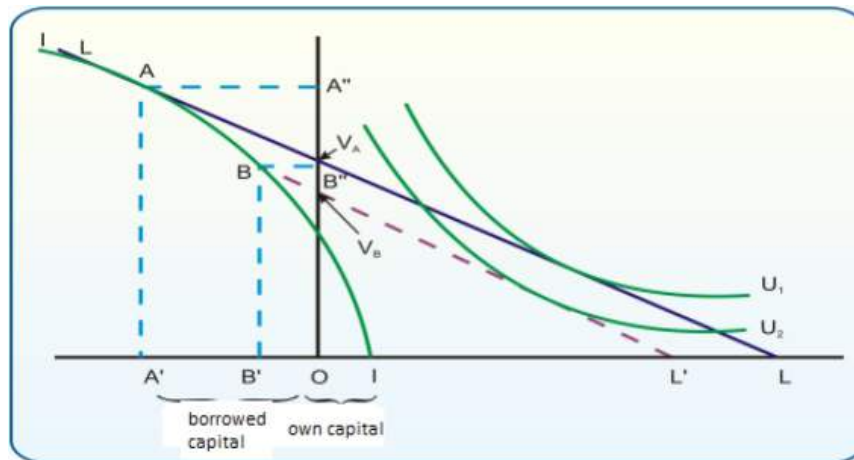
Source: (Vlad, 2015)

How to proceed in such a situation? If the consumption preferences are for the optimum investment A, then there will be allocated capital IA' consists of own capital (OI) and borrowed capital (OA'). The impossibility of lending the volume of the capital (OA') and its limitation to (OB') will move the optimal investment point to B which will move the individual preferences to U2. Thus, between the lack of coercion assumption and the one that there is coercion is created a value difference ($V_B < V_A$) generated by the loan repayment and its costs. The decision that may be taken in the presence of coercion is to maximize the actuarial value of returns and risks specific for the new optimal investment.

4. Conclusions

Understanding the decision-making mechanism is essential for the management of economic activities. It should be noted that there is no succession in decision making process, but there is an interactive system through which they influence each other and interact to one another. The investment decision, as the most important economic act, is based on market opportunities in terms of capacity sizing and what needs to be produced. The aim is to mobilize the necessary capital, which in turn can lead to the phenomenon of financial constraint, which may limit or distribute over time the implementation of the investment. In essence, it is necessary to establish the optimal rate between the rate of capital accumulation and the rate at which it is consumed so as to increase it by generating new production capacity. The 'secondary' decisions, i.e. consumption and savings, play their part in the creation of the funds needed for investment. Depending on the needs of the moment, the two decisions can be advanced or brought forward to achieve the essential economic objective of increasing capital through investment.

The consequences of capital investment are not only related to its holders but to the entire company as a beneficiary of economic activities. The theoretical exposition presented, even if it is carried out in the theoretical economic environment, has the advantage that it allows for separate analysis of the decisions in order to identify the characteristics of each of them. The assumption taken above is that of rational behavior of capital investors. The submitted economic model has demonstrated its practical applicability and it is an incentive for investors to abandon using the empirical unstudied methods in the effective capital placement.

5. References

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