THE FIRM'S SIZE INVESTMENT ASSESSMENT DEPENDING ON THE

LIKELIHOOD OF FINANCIALLY CONSTRAINED FIRMS

Dorina Koçi (Janku)[1]
Besa Shahini[2]

ABSTRACT

This paper aims to analyze the impact of influential variables on the firm's investment decision. In this case the "likelihood" of the firm to be financially constrained or not will be part of influential variables together with all other variables such as: the firm's activity sector, annual turnover, number of employees, age of the firm, etc. Therefore the main question to be raised is: What happens to investments of financially constrained firms? Do they increase, remain unchanged or decrease?

In order to achieve this aim, a survey process is undertaken on 320 small and medium enterprises distributed in the main district of Albania (strata choice). Regression analysis is applied, where the dependent variable is the volume of investment and together with 7 independent variables (qualitative and quantitative) is included as a dummy variable the fact if the firms is whether or not in terms of financial constraints.

As the findings of the paper can be mentioned the fact that investments of firms that are not in terms of financial constraints, are statistically significantly greater than the investment of firms that are financially constrained. Although the measure of the constrained effect is statistically significant, it is small; average around 0.087%.

Keywords: *investments, financial constraints, firms, turnover, credits, employer*
JEL Classification: *C18, G11, C32, D24, G21*

1. Introduction

A firm is considered financially constrained if it seeks any external financing, but faces obstacles in the capital market. It can also be said that a firm is more financially constrained than another, if the former requires more capital to lend, or if the company faces a higher cost of obtaining a given amount (Povel, 2001). Financial constraints are considered crucial to the survival of businesses. The more numerous the financial constraints facing a business, the greater is the probability that this business does not survive and then to exit the market. Access to external sources of funding has a positive effect on business growth in terms of sales, employment and capital. In the last two decades, an intense debate on the impact of financial constraints on firm investment decision was conducted. Regarding Fazzari et al. (1988), as long as financially constrained firms have limited access to external finance, their ability to exploit investment opportunities will be sensitive to the ability of these firms to finance these projects with internal

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[1]PhD, University of Tirana, Faculty of Economy, Department of Finance, e-mail: dafijanku@yahoo.com
[2] Prof. Dr., University of Tirana, Faculty of Economy, Department of Applied Statistics and Informatics, e-mail: besashahini@yahoo.com

resources, that means, it will depend on their cash flow. Specifically, according to this view, financially constrained firms' investments are more sensitive to changes in cash flows. The other view (Kaplan & Zingales, 1997) argues that the sensitivity of cash flow investment cannot be used as a method of measurement for financial constraints. Kaplan and Zingales (2000) suggest that there are other factors which can have significant impact. These factors relate to changes in environmental conditions, which are not observed, but that affect investments over time, e.g. changes in the firm's investment criteria, changes in preliminary savings of firms, etc.

In many countries of the world and particularly in Europe, the relation between financial constraints and firms' investments, has become the subject of scientific papers, research papers and articles, proving that these constraints play a crucial role in the behavior of the firms towards the investments they require to undertake. In this context, in this paper, the investment behavior of domestic firms toward the financial constraints they face will be analyzed, bringing thus a study in this area even in the case of Albania.

2. Data and methodology

The methodology used in this paper is based on primary data obtained through a direct survey of local business from the main districts of Albania such as: Tirana, Durres, Fier, Vlorë, Elbasan, Korçë, Shkodër. In case to study the firm's size investment of financially constrained and not financially constrained firms, a questionnaire was conducted and addressed to general managers and financiers of private firms. Based on the statistical selection theory, there were distributed 400 questionnaires, but only 321 completed questionnaires resulted in answers to all the questions, and were available for use in the study. The variables that were intended to be used in the regression equation consist of the operation's sector of the firm, realizes turnover, number of employees, age of the firm, the rate of financing with own capital, the rate of financing with a bank loan, the "likelihood" of the firm to be financially constrained or not.
Regression equation in this case will take the form:

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 \qquad (1)$$

Where:
Y = The amount of investment (in million ALL),
X_1 = Number of employees,
X_2 = The percentage of ownership capital financing,
X_3 = Age of the firm,
X_4 = Percentage of bank loan financing of the activity,
X_5 = Annual turnover (in million ALL),
X_6 = Activity sector (dummy variable: 1 = Service, 2 = Manufacture),
X_7 = Do you think that your firm faces a financial constraint? (Dummy var. 1 = Yes, 2 = No).

The regression model we use is linear, where one of the main assumptions in this case is that, in the model the variables should have a normal distribution. Regarding data processing, it was found that quantitative variables in the model do not have a normal distribution, so we got logarithm values on a 10 basis (log10) for each variable. In this way the regression equation of the model takes the form:

$$\log Y = b_0 + b_1\log X_1 + b_2\log X_2 + b_3\log X_3 + b_4\log X_4 + b_5\log X_5 + b_6X_6 + b_7X_7 \qquad (2)$$

On the basis of calculations carried out the equation is as follows:

Logy = 1.018 + 0.464 Log Employee +0.223 Log Self-financing -0.454 Log Age +0.066 Log Bank Loan +0.657 Log Annual Turnover +0.049 Sector -0.087 Financial Constraints   (3)

Table 1: Model Summary

Model	R	R^2	R^2 adjusted	Std. Error of the Estimate
1	. 758ᵃ	.575	**.559**	.59485

Source: Author's calculations through SPSS

Table 2: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	90.325	7	12.904	**36.466**	**.000**
Residual	66.877	189	.354		
Total	157.202	196			

Source: Author's calculations through SPSS

Table 3: Regression coefficients

	Unstandardized Coefficients		**Standardized Coefficients**		
	B	Std. Error	Beta	t	Sig.
Constant	**-1.018**	.534		-1.908	**.058**
Log employees (x_1) *	**.464***	.120	.294	3.860	**.000***
Log self-financing (x_2)	**.223**	.267	.043	.834	**.405**
Log age (x_3)*	**-.454***	.166	-.138	-2.728	**.007***
Log bank loan (x_4)**	**.066****	.039	.092	1.690	**.093****
Log annual turnover (x5)*	**.657***	.095	.521	6.938	**.000***
Sector (x_6)	**.049**	.091	.027	.537	**.592**
Is your firm in financial constraint conditions? (x_7) *	**0.087***	.009	0.484	3.996	**.032***

Source: Author's calculations through SPSS

R^2 (adjusted) = 55.9% and it is statistically significant sig. = 0 <0:05, which means that variation in the variables X explains in a statistically significant manner at 55.9%, the variation of the variable "Investment" by the regression equation. In statistical terms, the results of this regression should be considered in decision-making, because not only in general the equation explains the reality considerably and statistically significant, but the coefficients of each variable are almost all statistically significant regarding the individual relationship of each variable X with variable Y.

Among other things, the results of the equation are to be assessed as far as correlations between independent variables are too small, so in this way ensure that the model does not suffer from multicolinearity.

Table 4: The correlation matrix of regression equation variables.

	Is your firm in financial constraint terms	Sector	X_1log employee	X_2log Self-financing	X_3log Age	X_4log Bank loan	X_5log Annual turnover
Is your firm in financial constraint terms?	1.000	-.007	.032	-.093	-.049	.094	-.148
Sector	-.007	1.000	-.098	.097	.041	-.075	-.093
X_1log employees	.032	-.098	1.000	.180	-.126	-.153	-.647
X_2log self-financing	-.093	.097	.180	1.000	-.142	.133	.023
X_3log age	-.049	.041	-.126	-.142	1.000	-.008	-.123
X_4log bank loan	.094	-.075	-.153	.133	-.008	1.000	-.148
X_5log annual turnover	-.146	-.093	-.647	.023	-.123	-.148	1.000

Source: Author's calculations through SPSS

3. The findings of the model

There is a positive correlation between the number of employees in a company and the amount of investment undertaken by firms. If the number of employees grows on average by 1%, the investments grow on average by 0464% when all other variables are held constant. This relation is statistically significant.

The average growth by 1% in the financing of firm's investments with own capital, grow the firm's investments on average by 0.223%, when all other variables are held constant. However, this relation is considered statistically insignificant, so in reality we cannot say that investments are significantly explained by the proportion of own capital funding.

Regarding the age of the firm, if the number of years of activity of the firm increases on average by 1%, then the investment decreases on average by 0454%, when all other variables are held constant. It is estimated as a statistically significant relation.

The average growth of the financing activity with bank loans by 1%, increases the firm's investments by an average of 0.066%, when all other variables are held constant. The positive relation between these two variables is evaluated as statistically significant. If the annual turnover grows by an average of 1%, the firm's investments grow by an average of 0.657%, when all other variables are held constant, and also this relation is statistically significant.

The investments of firms that operate in the manufacturing sector are, on average, 0.049% higher than those of the firm operating in the service sector. However, this conclusion is evidenced only to our sample and a general conclusion cannot be reached, because this coefficient is statistically insignificant.
Investment of firms that are not in terms of financial constraints, are 0.087% higher than the investment of firms that are regarded as financially constrained firms. This relation is positive and also statistically significant.

4. Conclusions

In this study, we estimate the impact of financial constraints on investment decision making, using primary data, obtained by direct surveys of firms. In this survey, we used a qualitative indication of the existence of financial constraints, based on the assessments of firms themselves,

which allows us to avoid the traditional problems associated with the interpretation of the cash flow effects. The study shows that the probability of a firm to undertake investments reduces by the existence of financial constraints. The estimated reduction is amounted to 0.087%, when every other variable is held constant. This means that the investments of firms that are not in terms of financial constraints, are greater than the investment of firms that are regarded as financially constrained. Firms that have financial constraints declare the decrease or constancy of their investments and firms that do not have financial constraints declare the increase of the level of their investments. Furthermore this relation is estimated as statistically significant. Our findings show that the increase of the firm's investment is significantly explained by the proportion of loan bank financing and not by the own capital financing of the firm's activity.

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