**Difficulties for small firms to invest in research prerogatives.**

**An empirical analysis of a sample of Italian firms.**

**Abstract**

It is a commonly accepted fact that a quite strong relation exists between research investments and the general wealth of a given area. The main goal of this study is to analyze and determine which financing sources better serve this need for innovation, taking a sample of 1,000 private firms in current economic downturn. Small firms from Southern Italy often have no access to debt capital on nondeterministic research activities, and more importantly it still seems like banks cannot afford to finance these kinds of operations, mainly because of their indeterminate nature. This research draws the conclusion that only self-evidently solvent firms have a chance of getting the financial help needed to innovate.

**Keywords:** capital investment, innovation, financing constraints, innovation capability

**Abbreviations:**

**1. Introduction**

It is a commonly accepted fact that investing in developing areas in such business areas which represent a push for innovation (or less specifically in research, development and human resources) reasonably implies subsequent economic growth. We can thus say that a quite strong relation exists between research investments and the general wealth of an area. The main goal of this study is to analyze and determine which financing sources better serve this need for innovation, taking a sample of 1,000 small private firms.

Small firms from Southern Italy often have no access to debt capital on non-deterministic research activities, and more importantly it still seems like banks cannot afford to finance these kinds of operations, mainly because of their indeterminate nature.

The research draws the conclusion that only self-evidently solvent firms have a chance of getting the financial help needed to innovate. Firms achieving a high quality standard or a good rating judgment have access to the necessary external funds and are able to start a business first, and possibly develop their own economic dimension later. This study generally addresses three questions:

1. How does financial support to innovation occur in a sample of small Italian firms?
2. What are the structural differences between a traditional company and an innovative one in relation to capital structure?
3. Which investments would companies choose, given a certain amount of available economic resources?

Today, the rate of change and the ability to innovate are considered as two of the decisive factors for understanding the process of economic growth of a region and the competitiveness of local firms. Corporate capital, as it is generally understood, can increase year after year if (and only if) firms have the opportunity to re-invest the biggest income they had produced for the creation of even bigger productions. The incomes, minus the "useless" outcomes, are equivalent to the savings that are then invested in productive factors. Part of these savings is actually lost while others are aimed at replacing the depreciation of the capital already in use (wear and obsolescence). In this way a useful accumulation of production factors will be achieved if the investment capacity exceeds amortization, wastage and annuity. In other words, accumulation of resources in firms means reinvesting on capital and workforce. The most popular macroeconomic theories assert that, in addition to the accumulation of physical factors such as work and money, it takes three more factors to make an economy able to produce more wealth than the previous year: quality of work, technology and efficiency.

First of all, it should be noted that the quality of work impacts considerably on the individual worker’s productivity and that, therefore, it is not possible to divide the production function by a constant related only to the number of employees in a country or a firm. The variable called "human capital" weighs the productive capacity of each worker and depends on the quality that a worker may statistically be able to prove in each specific region.

Technology allows the production of larger output quantities, while leaving the inputs used unchanged, and it is productivity in terms of knowledge of the ways to better utilize resources. On the other hand, we should define efficiency as the efficacy in the use of these resources as well as in the combination thereof. In essence, much of a firm’s efficiency depends on the resources used and the way in which they are used. It will be easier to understand this concept by defining efficiency as a minimization of inefficiency.

Harmonious long-term growth, therefore, can never be sustained based solely on the accumulation of production factors; human capital, technology and efficiency will be just as necessary. These last two factors can be simply incorporated in the definition of productivity.

Therefore one can also start revitalizing the economy of an area by trying to incentivize productivity, or better, investments in the search for higher productivity and, consequently, all uses in research, development and training. These types of expenses – which allow to create new or improved knowledge, the development of creative ideas, the creation of new products, processes and services – do not often have a tangible result, yet they drive economic growth. Even failure can give a positive contribution to the corpus necessary to avoid errors and stimulate innovation processes.

The author’s aim in this close examination is twofold: to conduct an analytical study on the structure of those firms that invest in innovation prerogatives and, if possible, to highlight their virtues. An analysis was carried out on the capital structure of 1,000 small local firms located in Campania and Apulia in order to formulate evidence supporting the aforementioned view. Since said firms are not listed in regulated markets, the effect of the investment on the firms’ economic value in intangibles could not be observed. However, a sufficiently detailed questionnaire allowed the author to quantify the amount of time and resources employed (and employable) by local companies in these innovation prerogatives. As for the type of firm, any discussion about the expected returns was avoided by adopting a predominantly concrete approach.

**2. Review of the library: Investment and financing of R&R**

In contrast to the theoretical trend started by Modigliani and Miller (1958) on the indifference between internal and external sources of capital, almost all of the studies cited below have found a relationship of direct proportionality between cash flow and investments in R&D and an inverse correlation between these innovation costs and financial leverage. All the authors end their research stating that internal financial resources are a key factor in decisions to invest in innovation prerogatives. On the basis of this evidence, by a process of abstraction, the theory that sees the magnitude of the firms’ net worth as one of the key factors of the future growth of an area could thus be proven.

The present study did not envision the aforementioned relationships as valid.

What follows is a brief review of the literature on the subject of our study, i.e. how innovation prerogatives are financed in firms.

One of the first economists who noted the decisive role of human capital and the possibilities for innovation in the durability of a firm was Schumpeter (1942). He also highlighted the connection between self-financing and innovation by inductively cataloging them as more likely to be found in large firms capable of managing a surplus of resources, which is why the most innovative companies are also larger.

Specifically, however, it will be necessary to wait for more than half a century to have one of the most acclaimed in-depth essays in the field of innovation and financing. First and foremost, it is necessary to mention the studies by Hubbard (1998) and Hall (2002). They sought to understand the financial support of innovative business initiatives. The biggest strive is for market imperfections and informative frictions. It is not at all easy to identify a research and development plan because outcomes are only visible after the utter completion of the process. The limited availability of information, the intangibleness of the uses envisioned, the abstruse nature of the assessment of future prospects and the reluctance of firms themselves makes it difficult to quantify the connection between finance and investment in innovation. This calculation becomes even more opaque in the presence of small firms, which are generally family businesses, with little knowledge about the subdivision of financial support and internal activities as well as the activities restricted by bank credit, which is commonly addressed to traditional material activities.

The advantages in financing innovation through equity capital or, better, self-financing, consist mainly in the management of sources: since there are no creditors or deadlines, firms are more flexible in managing their resources and the pay-back periods of their investments. On the other hand, however, recurring only to cash flow to finance innovation impacts heavily on amounts. In other words, given the volatility of trade flows and incomes, regular investments are not presumable. Especially with regard to new highly innovative small firms, such investments will most likely not be a sufficient solution in financial support.

A recent analysis by Brown (2007) shows how US capital markets may be different from Italian ones. The US stock market, for example, is highly evolved and is based on market value and trading activity. In contrast, the financial markets of Europe, and especially Italy, are inextricably tied to bank credit based on personal relationships and on the guarantees. Italian banks have a tradition in financing physical capital, they are accustomed to small parties and base their preliminary activities on past events, experience and personal knowledge. For these reasons the Italian (bank-based) financial system is not easily associable with funding for research and development, as the issues related to intangibles are difficult to disentangle.

According to the first contribution by Schumpeter (1942), financing constraints are less stringent in larger firms, not only because these individuals have other alternatives for their capital structure, but also in virtue of the supposed greater soundness of larger firms. Guiso (1998) adds the variable of bargaining strength, which, as can be imagined, favours larger firms. Getting more credibility, lower rates and being deemed to be more solvent, large firms can afford to invest a larger portion of resources in innovation prerogatives.

The study performed by Ughetto (2007), who analyzes a sample of about a thousand Italian manufacturing firms, has proven the theory that within the subsample of smaller firms the cash flow variable is more significant in explaining R&D investment compared to larger firms. On the contrary, it is quite apparent that in larger firms there exists a lesser degree of elasticity between the cash flow generated in the current management and investment in intangibles.

Nearly 70 years have passed the first study by Schumpeter (1942), and several differing in-depth studies have been conducted on the connection between economic growth, the development of firms, investment in R&D and capital structure. As previously mentioned, R&D funding has always been an interesting object of study among the most important alternatives for growth, not only because of its impact on the endogenous growth of a firm but also because of financing constraints, especially from external sources (Arrow 1962). The majority of studies conducted on the subject ends up showing how difficult it is to finance intangible activities with external sources, even though sometimes the direct evidence of the firm’s capital structure and the materiality of its uses cannot be considered as valid (Hall 2002).

This examination starts from this premise and the studies by Hall (2008) and Hottenrnott and Peters (2009). Both of these contributions have tried to investigate and justify the types of difficulties in financing innovation. As suggested by the former author and carried out by the latter ones, this research analyzed the corporate choice in terms of investment on the basis of an additional sum of money made available. In other words, this analysis tested in practice how firms would use a hypothetical capital made available. Some companies opted for productive investment, while others reduced their debts and others invested it in research and development. The authors mentioned above (Hall and Hottenrnott & Peters) also tested the relationship between the use of surplus money, the type of firm, and the size and degree of innovation already achieved.

“What a firm would like to do with some additional cash?” It emphasizes and demonstrates the presence of complications regarding the access to external sources for the financial support of some business activities.

The economic literature finds that financing constraints may occur for several reasons arising mainly from the imperfections of capital markets. Information asymmetry is one of the major problems impeding the right market balance. By definition, investments in innovation are influenced and characterized by a large degree of uncertainty, by evident complexity and a high level of specificity, according to Meyer and Kuh (1957). For these reasons not only are lenders naturally reluctant about anatomizing complex projects (Stiglitz & Weiss - 1981), but they may also make financing less accessible, or at least, more expensive (Anton & Yao - 2002).

For this reason, internal funding sources to support innovation will be deemed more appropriate (Leland & Pyle -1977, Bhattacharya & Ritter -1983), often indispensable (Hall -1990 and 1992) but, however, not inexhaustible (Himmelberg & Petersen -1994). In addition to the authors cited, Carpenter and Petersen (2002) also highlight the problem of increased cost for the external supply of resources needed for investment in innovation, making this phenomenon similar to a strategic choice rather than a financial restraint.

Another problem, which is related to the financeability of intangibles, is represented by the “immateriality” of the activity at issue. In the case of insolvency, banks cannot try to collect their credit, even if indirectly, by inducing the firm sell off what is being financed. Alderson and Betker (1996) emphasize this aspect as one of the major problems that reduce the possibilities of financing an investment plan in R&D. On the other hand, banks prefer investing in physical activities that allow the implementation of a more realistic functionality timetable. In other words, banks can foresee from experience the impact of a physical investment on profitability, while it would be very difficult to foresee the time of completion or full implementation of immaterial investments. Lev (2001), Berger and Udell (1990) also share this view.

After these premises​​, the reasons why investments in innovation prerogatives are mainly funded through self-financing and equity capital can be linked to two main categories: (1) cost-cutting corporate strategies and (2) financial constraints (arising from difficulty of understanding, quantification problems, and dangers passed on to financiers).

Jensen (1986) supported the first thesis by arguing that managers prefer to invest in innovations mainly through surplus cash because often their interests are not oriented to maximize the value of the firm in the medium term. On the other side, however, Myers (1984) tries to prove the second thesis that the return of capital to support business activities depends on a hierarchy of depending sources, which in turn depend on costs and supply. In this sense, starting a bank-financed research plan means running into the wall of the incapability of valuating the future cash flows consequent to the same investment, with a consequent underestimation of the plan.

Jensen and Meckling (1976) also add some problems of “moral hazard” and “adverse selection” in the management of sources for innovation projects. If banks began to finance research and development, as supposed by Stiglitz and Weiss (1981), the chances of a distorted valuation of the likelihood of success could be very high, thus giving the firms more credit than they actually deserve. This would in turn give rise to anomalous uses of resources (moral hazard), since these projects are – by Leland and Pyle’s (1977) and Carpenter and Petersen’s (2002) definition – highly uncertain and with a very low probability of success, even lower than what a firm can foresee.

A final line of reasoning, demonstrated by Bhattacharya and Ritter’s (1985) study, argues the reluctance of firms to fund their R&D activities with external funds for strategic reasons, i.e. not to disclose information that may become counterproductive or be useful to competitors. Small-size economic operators especially tend to protect these resources (information) as they may be decisive for their future business.

**3. Data and methodology**

The dataset is composed of data derived from the annual consecutive financial statements for the years 2007-2010 and from the results of a questionnaire administered to firms. The questionnaire is related to the composition of investments in tangible and intangible assets in terms of monetary costs as well as time and human resources. The questionnaire (in appendix) also includes additional column where firms are asked what they would invest in if they had a money surplus.

The initial sample consists of 1,312 companies in the areas of production, trade and services having their operational headquarters in Campania and Apulia, in towns with less than 50,000 inhabitants. Following the standard practice in the literature and using a technique based on the distance from the first and third quartile (Muscettola & Pietrovito, 2012b), anomalous values have been minimized by leaving out of the scope of our analysis all firms with more than one value defined as "outlier", as well as firms with values that were not in line with the previous year and start-up firms (Muscettola & Naccarato, 2013). The final sample consists of 1,000 local firms with a lower net sales revenue than 2 million EUR and not operating in the areas of construction, extraction and financial, as per the following cataloging.

Unlike the studies listed above, this examination has a direct approach: questionnaires were administered and a parallel analysis of the capital structures of the firms interviewed was conducted in order to test the thesis of a direct proportionality between equity capital, financial borrowings and investments in future innovations.

Our analysis sample is divided as follows:

**Table 1**. Characteristics of the sample used in the research.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sector** | | **Net Sales** | | | | **Ages** | | | **Total** |
|  | | less than 5 million € | less than 2 million € | | less than 500.000 € | more than 20 years | more than 10 years | more than 5 years |
| Manufacturing | 104 | | 135 | 57 | | 66 | 192 | 38 | **296** |
| Trading | 94 | | 205 | 91 | | 64 | 265 | 61 | **390** |
| Agriculture | 4 | | 22 | 79 | | 6 | 62 | 37 | **105** |
| Services | 55 | | 85 | 69 | | 22 | 96 | 91 | **209** |
| **Total** | **257** | | **447** | **296** | | **158** | **615** | **227** | **1000** |

The following economic and social values have been reported in the area of ​​analysis:

**Table 2**. Characteristics of the area used in the research.

|  |  |  |  |
| --- | --- | --- | --- |
| GDP per capita | Bank branches /  No. of firms  x 1,000 | Bank employees /  No. of firms  x 1,000 | Employment Rate |
| 16, 360 euro | 3.32 | 28.76 | 65.76 % |

Among the most important characteristics of the sample of small Italian firms, which are still valid as extra-sample, we can identify a very concentrated ownership structure (often family-based), the limited impact of cash flow and a strong short-term and typically bank-based debt. These characteristics make the following hypothesis very plausible: investments in R&D may be determined by factors outside the business strategies and stemming from the conditions of credit market and the firm’s rating rather than depending on the validity of the research plan.

The global analysis of 1,000 firms composing the sample allowed us to calculate an average of the capital structure, expressed in *Figure 1*.

Figure 1: Average of the composition of the capital structure of the sample firms.

Despite the high volatility of the values ​​in the sample, a scarcer capitalization and the almost total lack of external funding sources other than bank borrowings or commercial debts can be noticed compared to the national average used as a comparison (and including even larger firms). It should be noted that the "debts to the shareholders" are also part of equity capital (“net worth”).

In appendix there is the questionnaire administered to the firms composing the sample. In addition to data on the quality of the investments, anagraphical information (year of establishment, number of employees, sector of activity) and annual financial statements relating to years 2007-2010 were collected. In collaboration with BCC Flumeri, a rating score was also assigned to each firm by taking into account their financial statement, the sectorial and qualitative analysis, the account report (Muscettola, 2013) and the evidence collected by the risk database of the Bank of Italy by using the "Mayflower credit risk assessment model” (Muscettola & Gallo, 2007).

The questionnaire was structured in accordance with the latest study by Bartoli and Ossoli (2009) and the major notions found in the literature. It divides the activities into two categories: tangible assets and intangible assets. In the former class we include all physical uses, such as property, plant and equipment, tangible assets and financial activities. In the latter category are human, mental, relational, social, organizational and figurative capital. This scheme discerns these activities, with the aim of investigating what we call "innovation prerogative" within intangible assets. It should be noted that a different order was followed in the formulation of the model, concealing the real purpose of the study to the interviewed companies.

The table 3 illustrates the structure of the questionnaire on the basis of possible investments.

Table 3: Structure of the questionnaire, type of activity and innovation prerogatives.

|  |  |  |
| --- | --- | --- |
| Type of assets | Type of capital | Innovation prerogatives |
| **Intangibles** | Informative capital | No |
| Intellectual capital | Yes |
| Values | No |
| Strategic capital | No |
| Organizational capital | Some |
| Relational capital | No |
| Market capital | NO |
| Innovation | Yes |
| Image capital | No |
| **Tangibles** | Material capital | NO |
| Financial capital | NO |

Depending on the type of capital (macro-categories of investment in table 3), the uses that may lay the foundation for innovation were identified. Within intangible investments, the specific investments listed in the following (table 4) micro-categories of assets play a major role in composing innovation prerogatives:

Table 4: micro-categories of assets that compose innovation prerogatives.

|  |
| --- |
| Knoledge |
| Skills |
| Experiences |
| Resourse development |
| Research |
| New product development |
| New systems development |
| Patents and trademakers |
| Functional analysis |

However, another group of application of funds was found to contribute only partially to innovation prerogatives. Investments in information and information systems, culture, and organizational learning, scenario analysis, planning and vision skills belong to this group. These investments indirectly create the knowledge bases needed to start a process of increasing productivity or internal capability development. The remaining investments do not impact on innovation prerogatives in this study.

**4. Empirical specifications**

The fundamental premise is that most of the investments made by a firm are not exactly traceable in the financial statements (Muscettola, 2014b) and in this study, by investment in any of the activities listed below we mean the use of time, money or, generally speaking, resources, aimed at that kind of function, regardless of duration, results or the amount of money spent.

Among the options listed in the following table 5, it was possible to tell apart the subsample of traditional firms from the subsample of firms with a greater propensity to innovation, thanks to the investments (emerging from the questionnaire) in that group of activities conceptually defined as "innovation prerogatives". Summing the answers given by 1,000 firms to each of the groups of activities listed in the questionnaire, it is possible to subdivide the observations as per the following table:

Table 5: answers given in the questionnaires by the firms analyzed.

|  |  |  |
| --- | --- | --- |
| Type of assets | Number of observations | |
|  | Investments made | Desired investments |
| Informative capital | 1,457 | 93 |
| Intellectual capital | 1,151 | 321 |
| Values | 581 | 31 |
| Strategic capital | 339 | 8 |
| Organizational capital | 1,483 | 161 |
| Relational capital | 459 | 79 |
| Market capital | 755 | 144 |
| Innovation | 879 | 306 |
| Image capital | 521 | 10 |
| Material capital | 2,066 | 1,002 |
| Financial capital | 1,330 | 1,321 |

In the field of the investments made, the priority given by management to ordinary business activities is evident: investment in equipment, supplies, workforce and raw materials. The answer to the question about the payment of debts (as investments in financial capital) both as investments already made (74% of respondents) and as investments still to be made with a surplus of money (62%) is very frequent, as a proof of the importance of this burden in the management of priorities. Given the trying financial situation of our times, local firms are chiefly interested in managing to survive (Muscettola, 2014a), albeit in an unproductive way, before being able to make any profitable investment.

By normalizing the data collected, the distribution of the observations in table 5 can be expressed graphically as per figure 2.

Figure 2: Weighted composition of the observations collected in the questionnaires.

From what can be deduced graphically, firms have nonetheless made ​​investments in intellectual activities, corporate image or activities aimed at future innovations, even in such an area as that of Southern of Italy and despite the economic downturn. This empirical evidence is clearer than a mere analysis of the financial statements.

**5. Empirical results**

Among the earliest evidence this examination has illustrated the capital structure of the firm: the composition of the average sources of the sample firm. We have told apart the firms that have not invested time and resources in intellectual activities, research activities or activities related to the development of human capital (and defined this kind of firm “traditional firm”) from the firms that have the prerequisites to be able to innovate called “innovative firm”. The first results of the research can be drawn from figure 3.

Conceptually, the sherolder’s debts were included into the firms’ equity capital (Muscettola & Pietrovito, 2013a). Nonetheless, the difference between the two types of firm is not surprising, even if in utter contrast with the empirical evidence drawn from supported literature. In this circumstance, it can clearly be seen that the sample firms investing in research, development and human capital have a greater amount of debt than traditional firms (32.8% on total liabilities against 25.8% of more traditional firms).

Firms with a better quality standing and with a more efficient internal organization are also given a more valuable counterpart rating by the local banking system and consequently have an easier access to bank credit.

Figure 3: Difference in the capital structure of traditional firms and innovative firms.

Therefore, it is not the banks that mainly finance research activities but, rather, it is the firms with a better rating that include training, human capital development and research of new products into their activities. The argument that banks are unable to assess future projects, especially if they are based on intangible assets, and that they consequently prefer traditional businesses holds true.

Figure 4: Trends of past and desired investments in innovation according to variations in the firms’ ranking scores (*Mayflower Rating*).

The positive and linear relationship between the risk of default perceived and defined by the rating score (*Mayflower Rating*) and the uses in activities that fall within innovation prerogatives is evident in Figure 4. The left-hand scale shows the performance of the counterpart rating, sorted in ascending order (from the riskiest to the most solvent firm). The right-hand scale shows the level of uses made ​​and desired in the intangible assets on which the present study is based.

Figure 5: Percentage breakdown of investments made by traditional and innovative firms.

By means of a conjectural distinction between the sample firms that invest in innovation prerogatives (*innovative firms*) and the firms that employ less time and resources in research, development and human capital (*traditional firms*), figure 5 displays the composition of the investments reported in the questionnaire.

Figure 6 shows the capital structure of the firms that have invested more in human capital, in contrast with the firms that minimize the uses in human resources and training. The difference in the structure of sources is especially evident in view of the commercial debts of firms that do not invest in human capital (32.3%) versus those which invest in training and human resources (26.2%). Conversely, debts to banks are less heavy for the former enterprises (27.2%) compared to the latter (33.6%).

Figure 6: Percentage breakdown of liabilities, distinguishing between firms that invest in human capital and firms that do not invest in human capital.

Figure 7: Distinction between durable capital and short-term payables

Below (*Figure 8*) is an analysis of the capital structure by telling apart firms with a strong capitalization (equity and sharolder’s debts higher than 50% of total assets) from highly indebted firms (total debt higher than 90% of total assets).

Figure 8: Breakdown of investments made by highly indebted firms and heavily capitalized firms.

*Figure 9* shows the most widely reported options in the questionnaires regarding the investment activities carried out over the last two years and the desired uses with a money surplus available. The difference between the two types of firms is minimal, and it can be noticed especially between the investments made in innovation and corporate image activities.

Figure 9: Type of investments made, broken down by type of firm (highly indebted firms and heavily capitalized firms).

As it turns out, heavily indebted firms would use their debts to finance their activities of innovation, research and development of human resources, in utter contrast with the American literature listed in Chapter 2 of this work.

**6. Conclusions**

The firms that create economic development in a more than proportional way compared to previous periods are the ones that invent new products and systems and/or improve their productivity. These assumptions are derived from investments (part of which are specific) in some kind of assets (especially intangible) such as research, training, skills and intellectual capacities. The study of the financial support for these activities allowed us to realize that what happens in other countries around the world (e.g. the US, the subject of previous studies) does not apply to Italian sample. The firms analysed in the present study are deeply influenced by the local banking system which, for better or for worse, plays the main role in the most important financial decisions of an area, and is even more important than the indebted firm itself.

The financiers’ low culture leads them to support massively those small enterprises which are only defined in terms of their past solvency. In other words, not only do local banks fail to properly valuate their clients’ plans for future development (like U.S. banks do), but they continue to rely heavily on a series of values ​​based on experience, the past and their trust in borrowers. That is why older firms can adequately be supplied by the banking system, regardless of their projects, their research and the quality of their financial statements.

This research was carried out with empirical data collected in the middle of a crisis that has actually sped up a process of strategic repositioning for the most dynamic firms. In these firms, the pressure to innovate is becoming a vital spur to the discovery of more extensive competitiveness levels. The survey conducted by the Bank of Italy in October 2010 seems to have found that many firms are focusing more on introducing changes in their production processes, in the development of new products and the improvement of organizational and management systems rather than surrendering to the economic downturn.

To fully understand the data highlighted in this work, they must be fit into a particular territorial and social context: Southern Italy, a place with a fascinating tradition, culture and history, but with a low level of productivity. Actually, the great minds and entrepreneurial spirit have always been evident in this area, but they were crushed by a plutocratic policy and an individualistic economy. Apart from all this, and excluding the desire not to deepen the credit assessment of local banks, what we have noticed is a deep interest in the functionality of research and a deep awareness of the importance of an innovative process. Local firms have understood what leads training and information but denounce a financial support system that completely eliminates these prospective values ​​from their priorities. 99.4% of respondents said that the purpose of borrowed funds is secondary, in the financiers’ opinion, to the requesting counterpart. This should make us think.

At a time of deep economic crisis, measures should be incentivized that encourage investment and innovation support as a lever of progress. In the long run, one of the most important factors of economic growth is the rate of technological, financial and substructure change. It is essential that the crisis does not block the firms’ innovation capability, a fundamentally important element in terms of international competitiveness, the lack of which makes firms even weaker in the face of competition.

**Acknowledgements**

The author wishes to thank Four Finance Sas for making available the test sample and for having assembled the 1,000 financial statements analyzed, Giovanna Di Pietro for the translation work, the BCC Flumeri for assisting in the suministración and collection of the questionnaires and Francesco Naccarato who kindly provided comments on earlier versions of this paper and for constructive suggestions. All errors and omissions as usual rest with the author.

**References**

1. Aghion, P., & Howitt, P., (1992). A Model of Growth Through Creative Destruction. *Econometrica*, **60**, 323-351.
2. Angelini, P., & Generale, A., (2005). Firm size distribution: do financial constraints explain it all? Evidence from survey data. *Temi di discussione Banca d’Italia*, n. 549, June 2005.
3. Arellano, M., & Bond, S., (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *Review of Economic Studies*, **58**, 277-297.
4. Bagella, M., Becchetti, L., & Caggese A., (2001). Financial constraints on investments: a three pillar approach. *Research in Economics*, **55**, 219-254.
5. Bartoli, F., & Ossoli, G., (2009). Valore d'impresa e valore intangibile. Una metodologia per la valutazione delle aziende: guida alla misurazione e alla pianificazione del valore. Francoangeli.
6. Benfratello, L., Schiantarelli, F., & Sembenelli, A., (2006). Banks and innovation: microeconomic evidence on Italian firms. IZA discussion paper n. 2032.
7. Berger, A. N , & Udell, G. F., (1990). Collateral, Loan Quality and Bank Risk. *Journal of Monetary Economics* **25**, 21-42.
8. Berger, A. N., & Udell, G. F., (1995). Relationship lending and lines of credit in small firm finance. *The Journal of Business*, **68** (3), 351-381.
9. Bester, H., (1985). Screening vs. rationing in credit markets with imperfect information. *American Economic review*, **75**, 850-855.
10. Bhattacharya S., Ritter, J., (1983). Innovation and communications: signalling with partial disclosure. *Review of Economic Studies*, **50**, 331-346.
11. Bond, S., Meghir, C., (1994). Dynamic investment models and the firm’s financial policy. *Review of Economic Studies*, **61**, 197-222.
12. Bond, S., Harhoff, D., & Van Reenen, J., (1999). Investment, R&D and financial constraints in Britain and Germany. Institute of Fiscal Studies, London, working paper n. 99/5.
13. Bond, S., Elston, J.A., Mairesse, J., & Mulkay, B., (2003). Financial factors and investment in Belgium, France, Germany and the United Kingdom: a comparison using company panel data. *The Review of Economics and Statistics*, **85**(1), 153-165.
14. Brown, J. R., Fazzari, S. M, & Petersen, B.C., (2007). Financing innovation and growth: cash flow, external equity and the 1990s R&D boom. Mimeo.
15. Carpenter, R., & Petersen, B., (2002). Capital market imperfections, high-tech investment and new equity financing. *Economic Journal*, **112**, 54-72.
16. Chirinko, R. S., & Schaller, H., (1995). Why does liquidity matter in investment equations? *Journal of Money, Credit and Banking*, **27**, 527– 548.
17. Cornell, B., & Shapiro, A., (1988). Financing corporate growth. *Journal of Applied Corporate Finance*, **1** (2), 6-22.
18. Detragiache, E., Garella, P., & Guiso, L., (2000). Multiple versus single banking relationships: Theory and evidence. *Journal of Finance*, **55**, 1133–1161.
19. Devereux, M., & Schiantarelli, F., (1989). Investment, financial factors and cash flow: evidence from UK panel data. In Hubbard R.G (eds.). Asymmetric information, corporate finance, and investment. Chicago: University of Chicago Press.
20. Elliot, J. W., (1971). Funds flow versus expectational theories of research and development expenditures in the firm. *Southern Economic Journal*, **37**, 409-422.
21. Fazzari, S. M, Hubbard, G., & Petersen, B., (1988). Financing constraints and corporate investment. *Brookings Papers on Economic Activity*, **1**, 141-195.
22. Fazzari, S. M, Hubbard, G., & Petersen, B., (2000). Investment-Cash Flow Sensitivities are Useful: A Comment, *Quarterly Journal of Economics*, **115**, 695-705.
23. Guiso, L., (1998). High-Tech firms and credit rationing. *Journal of Economic Behaviour and Organization*, **35**, 39-59.
24. Hall, B. H., (1992). Research and Development at the firm level: does the source of financing matter? NBER working paper n. 4096.
25. Hall, B. H., Mairesse, J., Branstetter, L., & Crepon, B., (1999). Does cash flow cause investment and R&D: an exploration using panel data for French, Japanese and United States scientific firms. In Audretsch D.B. and Thurik R. (Eds.). Innovation, Industry evolution, and Employment. Cambridge, UK: Cambridge University Press.
26. Hall, B.H., (2002). The financing of research and development. *Oxford Review of Economic Policy*, **18** (1), 35-51.
27. Hao, K.Y., & Jaffe, A.B., (1993). Effect of liquidity on firm’s R&D spending. *Economics of Innovation and New Technology*, **2**, 275-282.
28. Haroff, D., (1998). Are there financing constraints for innovation and investment in German manufacturing firms? *Annales d’Economie et de Statistique*, **49/50**, 421-456.
29. Herrera, A. M., & Minetti, R., (2007). Informed Finance and Technological change: evidence from credit relationships. *Journal of financial economics*, **83**, 223-269.
30. Himmelberg, C.P., & Petersen, B.C, (1994). R&D and internal finance: a panel study of small firms in hightech industries. *The Review of Economics and Statistics*, **76**(1), 38-51.
31. Hoshi, T., Kashyap, A., & Scharfstein, D., (1991). Corporate structure, liquidity and investment: evidence from Japanese industrial groups. *Quarterly Journal of Economics*, **56**, 33-60.
32. Hubbard, G., (1998). Capital market imperfections and investment. *Journal of Economic Literature*, **35**, 193-225.
33. Jensen, M., & Meckling, W., (1976). Theory of the firm, managerial behavior, agency costs and ownership structure. *Journal of financial economics*, **5**, 305-360.
34. Jensen, M., (1986). Agency costs of free cash flow, corporate finance and takeovers. *American Economic Review*, **76**, 323-329.
35. Kaplan, S., & Zingales, L., (1997). Do investment cash flow sensitivities provide useful measures of financing constraints. *Quarterly Journal of Economics*, **112**, 169-215.
36. Leland, H. E., & Pile, D. H, (1977). Informational asymmetries, financial structure and financial intermediation. *Journal of Finance*, **32**, 371-387.
37. Lev, B., (2001). Intangibles: Management, Measurement and Reporting. Washington D.C., Brookings Institution Papers.
38. Levine, R., (2005). Finance and growth: theory and evidence. In Aghion P. and Durlauf. S (Eds.). Handbook of economic growth, Amsterdam: North-Holland Elsevier Publishers.
39. Mocnik, D., (2001). Asset specificity and a firm’s borrowing ability: an empirical analysis of manufacturing firms. *Journal of Economic Behaviour and Organization*, **45**, 69-81.
40. Modigliani, F., & Miller, M., (1958). The cost of capital, corporation finance and the theory of investment. *American Economic Review*, **48**, 261-297.
41. Mueller, D. C., (1967). The firm’s decision process: an econometric investigation. *Quarterly Journal of Economics*, **81**, 58-87.
42. Mulkay, B., Hall, B.H., & Mairesse, J., (2001). Investment and R&D in France and in the United States. In Deutsche Bundesbank (ed.). Investing today for the world of tomorrow. Springer.
43. Muscettola, M., & Gallo, M. (2008). *Analisi e gestione del rischio di credito. Il progetto Mayflower*. FrancoAngeli Editore.
44. Muscettola, M., & Pietrovito, F. (2012a). Le caratteristiche delle imprese insolventi. *Sinergie Rapporti di ricerca*, 36.
45. Muscettola, M., & Pietrovito, F. (2012 b). La rilevanza delle variabili finanziarie nel rating: i risultati di un’analisi empirica sulle PMI italiane. *Sinergie Rapporti di ricerca*, 36.
46. Muscettola, M., & Naccarato, F. (2013). Probability of Default and Probability of Excellence, an Inverse Model of Rating. One More Tool to Overcome the Crisis: an Empirical Analysis. *Volume 2 – Issue 2, 2013 - Special Issue - Selected papers of the 1st B.S.Lab International Symposium edited by Business System Review.* http://dx.doi.org/*10.7350/BSR.BV06.2013.*
47. Muscettola, M., (2013). Leverage Risk. The weight of borrower capital distinguishes the solvency of firms: an empirical analysis on a sample of 4,500 Italian SMEs. *International Journal of Economics and Finance*; Vol. 5, No. 12; 2013. <http://dx.doi.org/10.5539/ijef.v5n12p24>.
48. Muscettola, M., (2014). Structure of assets and capital structure. What are the relations with each oter? An empirical analysis of a sample of Italy. European *Journal of Economics and Finance*; Vol. 5, No. 12; 2013. <http://dx.doi.org/10.5539/ijef.v5n12p24>.
49. Myers, S., (1984). The capital structure puzzle. *Journal of Finance*, **39**, 575-592.
50. Oliner, S.D., & Rudebusch, G. D., (1992). Sources of the financing hierarchy for business investment. *The Review of Economics and Statistics*, **74**, 643– 654.
51. Romer, P., (1990). Endogenous Technological Change. *Journal of Political Economy*, **98**, S71-S102.
52. Scellato, G., (2007). Patents, firm size and financial constraints: an empirical analysis for a panel of Italian manufacturing firms. *Cambridge Journal of Economics*, **31**, 55-76.
53. Scherer, F. M., (1965). Firm size, market structure, opportunity and the output of patented inventions. *American Economic Review,* **55**, 1097-1125.
54. Schumpeter, J.A, (1942). Capitalism, socialism, and democracy. New York: Harper and Row.
55. Stiglitz, J., Weiss, A., (1981). Credit rationing in markets with imperfect information. *American Economic Review*, **71**, 393-410.
56. Ughetto, E., (2007). The financing of innovative activities by banking institutions: policy issues and regulatory options. In B. Laperche and D. Uzunidis (Eds.). Powerful finance and innovation trends in a highrisk economy. Palgrave Macmillan, forthcoming.
57. Vogt, S.C., (1994). The cash flow/investment relationship: evidence from U.S. manufacturing firms. *Financial Management*, **23**, 3-20.

**Appendix**

|  |  |  |
| --- | --- | --- |
|  | WERE ANY INVESTMENTS (COST, TIME, RESOURCES) MADE DURING THE LAST 24 MONTHS IN ONE OF THE FOLLOWING ACTIVITIES? | WHAT YOU INVEST ON IF YOU HAD AN ADDITIONAL CAPITAL TO SPEND? (MAX 5 ANSWERS) |
| Informative capital | | |
| INFORMATION |  |  |
| COMMUNICATION TECHNOLOGY |  |  |
| COMPUTER SYSTEMS |  |  |
| DATABASE |  |  |
| SOFTWARE |  |  |
| BACKGROUND ANALYSIS |  |  |
| KNOW-HOW |  |  |
| Intellectual capital | | |
| KNOWLEDGE |  |  |
| SKILLS |  |  |
| EXPERIENCES |  |  |
| ORGANIZATIONAL LEARNING |  |  |
| Values | | |
| SYSTEM OF VALUES |  |  |
| ORGANIZATIONAL CULTURE |  |  |
| LINE-UP |  |  |
| INVOLVEMENT |  |  |
| MOTIVATION |  |  |
| LOYALTY MARKETING |  |  |
| Strategic capital | | |
| VISION |  |  |
| DECISION –MAKING SKILLS |  |  |
| CAPACITY PLANNING |  |  |
| MANAGEMENT PROCESSES |  |  |
| Organizational capital | | |
| ORGANIZATIONAL STRUCTURE |  |  |
| OPERATIONAL PROCESSES |  |  |
| RESOURCE MANAGEMENT |  |  |
| RESOURCE DEVELOPMENT |  |  |
| INTERNAL COMMUNICATION |  |  |
| REWARD SYSTEM |  |  |
| LEADERSHIP |  |  |
| Relational capital | | |
| EXTERNAL COMMUNICATION |  |  |
| NETWORKS AND RELATIONSHIPS |  |  |
| INTEGRATION OF SUPPLY CHAIN |  |  |
| TRADE AGREEMENTS |  |  |
| COMAKERSHIP |  |  |
| Market capital | | |
| STRATEGIC MARKETING |  |  |
| OPERATIVE MARKETING |  |  |
| RELATIONSHIP MARKETING |  |  |
| CUSTUMER SATISTACTION |  |  |
| TRUST |  |  |
| FIDELITY |  |  |
| CUSTOMER LOYALTY |  |  |
| Innovation | | |
| RESEARCH |  |  |
| NEW PRODUCT DEVELOPMENT |  |  |
| NEW SYSTEMS DEVELOPMENT |  |  |
| PATENTS AND TRADEMARKS |  |  |
| FUNCTIONAL ANALYSIS |  |  |
| Image capital | | |
| BRAND |  |  |
| REPUTATION |  |  |
| SOCIAL AND ETHICAL RESPONSABILITY |  |  |
| Material capital | | |
| BUILDING INFRASTRUCTURES |  |  |
| INVENTORIES |  |  |
| WORKFORCE |  |  |
| PURCHASING RAW MATERIALS |  |  |
| Financial capital | | |
| MORE CASH |  |  |
| PAYMENT OF DEBTS |  |  |
| MORE CAPITALIZATION |  |  |
| FINANCIAL INVESTMENTS |  |  |
| MORE PROFITS |  |  |

|  |  |
| --- | --- |
| **Type of capital** | EURO |
| Trade payables |  |
| Short-term financings |  |
| Long-term financings |  |
| Net worth |  |
| Shareholders debt |  |
| Employee severance indemnities |  |
| Total liabilities and equity |  |

**Copyrights**

Copyright for this article is retained by the author(s), with first publication rights granted to the journal. This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license.