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ABSTRACT

Small and medium family businesses represent about two third of Italian GDP and represent the highest percentage of employees. Therefore, they are the bedrock of the economy of this country. Nonetheless, the interest for this kind of firms has certain pros and cons, and today it has gained interest again, especially due to 2008 crisis.

The objective of the thesis is to detect the impact of family ownership to its firm performance through a qualitative and quantitative analysis of data collected from three companies. These three companies are well rooted in the territory, with a long past life in the city and province of Catania in the south of Italy. There have only been few studies made in this area due to the difficulty of data collection, geographical marginality and economical situations.

This academic paper points to bring more light to the field of family firms. The data for this analysis are collected through a survey divided into a qualitative and quantitative part. Quantitative data, all accounting items, have been collected through the Chamber of Commerce of Catania. They have been grouped and some have been elaborated in order to get synthetic ratios. Then they have been analised through the implementation of statistical methods and integrated with qualitative data.

This academic paper concluded that Leadership always positively impact firm performance. This impact is amplified by the firm size. Family member CEO and CFO with the presence of strong leadership should positively impact firm performance.

This thesis is articulated in 6 sections. The first three contain a general introduction to the topic and socio-historical-economic introduction to the geographic area of interest. It follows one section reporting the main findings from family firm literature. The central body of the thesis consists of one section divided into methodology, qualitative and quantitative data analysis and findings. Last two sections bear critics and conclusions.

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1. INTRODUCTION

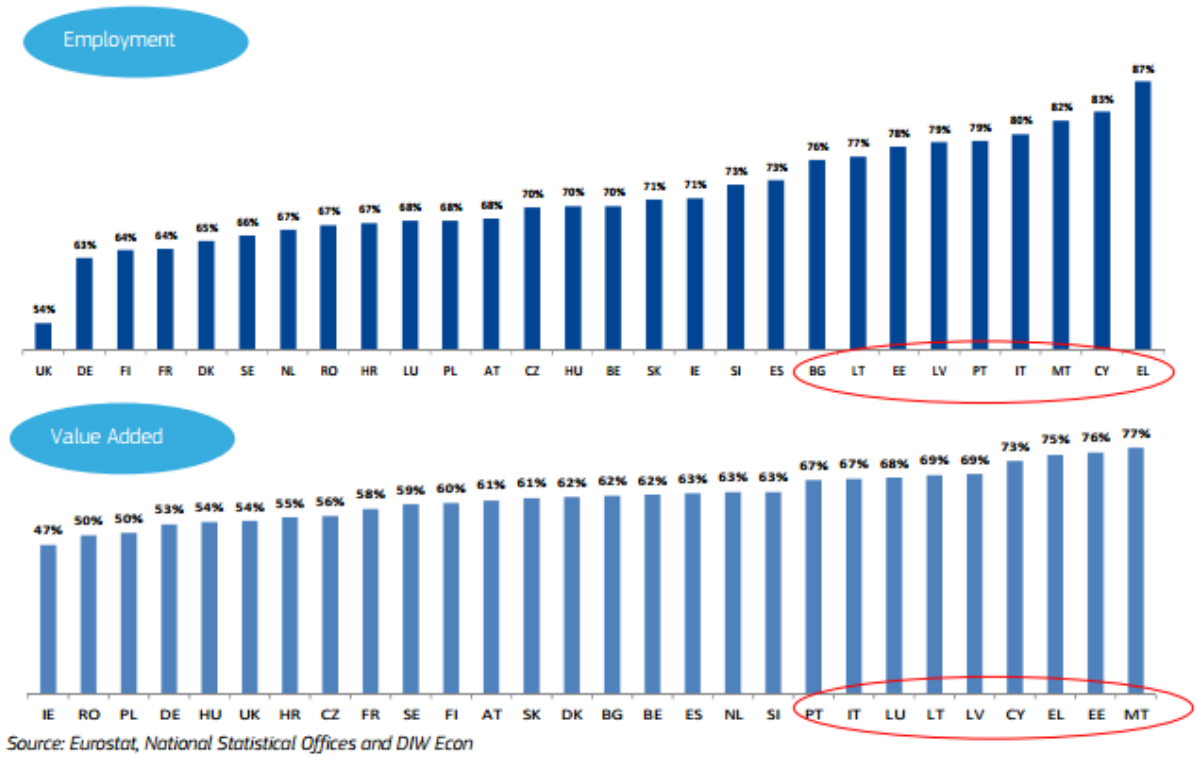
1.1 BACKGROUND

In many countries, family firms represent a large portion of the economy. In Italy, well-known companies like Ferrero, Barilla, Fiat, Luxottica, Benetton have been founded by a family and are still owned by the founding family with large percentages of shares. This situation is not much different in other countries in Europe, like France with Lactalis, Hermès and Pernod Ricard, Spain with Zara, Banco Santander, and El Corte Inglès, Denmark with Lego, Maersk and Danfoss.

Nonetheless, it is more common to think about family firms are medium or small, sometimes as micro, companies because they usually start up as a small, family business and because their size is usually small. Another characteristic associated with family firm is the problem of the growth commonly linked to the difficulties in obtaining finances and the cost of debt, the reluctance of the family in opening the social capital to third parts, the generational conflict inside the family and the consequent generational succession problem.

In 2013, the Italian added value worth about 678 billion euros and it is composed of the following, 31% big companies (more than 250 employees), 38.4% small and medium companies (between 10 and 250 employees), 30.6% micro-companies (less than 10 employees). SME class (micro, small and medium enterprises jointly) represents more than two third of the added value of the country and “more than 75% of total employment in the nonfinancial business sector” (European Commission 2015), thus they represent the bedrock of this economy. Among them, the micro-enterprises represent a vast majority (ISTAT 2015).

Figure 1: Share of SME employment and value added in total employment and value added of non - financial business sector – 2014



Source: Eurostat, National Statistical Offices and DIW Econ

Furthermore, according to the Italian Institute for Statistics (ISTAT) about 70% of SMEs and more than 80% of micro-enterprises are family owned and managed. When the number of employees overcomes 50 units, the percentage of family ownership sensibly decreases. The average size of Italian companies is smaller than the rest of Europe, giving to the economy a pulverized aspect, being that the 70% of value added is created by numerous firms. Inside the country there are differences, the majority of SMEs are located in the south of Italy (SVIMEZ 2016). The mentioned characteristics make Italian SMEs so important.

This inhomogeneity has its origin in an ancient difference between north and south of Italy. The first has always benefited from higher infrastructural investments than the south. This condition jointly with the geographical characteristics of Italy favoured the economic development of the north at the expenses of south. For this reason, southern products became averagely less competitive than the northern ones. Thus, southern firms are on average smaller, because they had to move to higher market segments and niches in order to survive and win the competition,

making impossible for them to compete in quantity with growing countries of the North Africa and Turkey.

The crisis started in 2008 worsens the situation. Many companies went out of the market because they were unable to compete, over-debt or difficulty in getting more credit. The companies, who went through the crisis successfully, went out of the crisis stronger and more steady from a financial and economic point of view (SVIMEZ 2016). In the south of Italy, the vast majority of these companies are family owned and managed (Confindustria – Cerved 2016).

1.2 RESEARCH PROBLEM AND OBJECTIVES

The scope of this thesis is to detect how family ownership impacts on SME performance. More specifically on the financial performance overall and on the core business performance.

This research is geographically limited to the area of the city and province of Catania, a city located in the island of Sicily, in the south of Italy. This choice has been made for various of different reasons. Firstly, the field of research of family firms is not mature yet, there are many gaps to be filled and still many future researches to be developed especially regarding small firms. The narrowness of this field is principally dictated by the difficulty in collecting data, when firms are not listed. In fact, due to their dimension, in many countries these companies have lighter legal duties about producing, depositing and making public their balance sheets and financial statements. Moreover, existing literatures such as King and Santor (2008), Villalonga and Amit (2006 a-b), Maury (2006), Anderson and Reeb (2003), DeAngelo and DeAngelo (2000) are still debating about the quality of the impact of family ownership on its firm performance. Secondly, as already stated, SMEs are the bedrock of the Italian economy, especially in the southern area, as well as in other world economies, making this topic more interesting and relevant from an academic and practical point of view. Lastly, due to its geographical marginality, the area of inquiry is rarely made object of researches by the scholars, despite being one of the few Western European lands still considered underdeveloped by the European Community.

The research has been further narrowed down, focusing only on three companies and they are operating in the secondary sector, have successfully passed the crisis, and are well linked to the reality of the territory where they operate. Two of them have a life span of about a century, while the third has a life span of only four decades. The three companies are: *Biriaco1895 spa*[1], today called *NAVIMEC srl*[2], *Dacca spa* and *Dolfin spa*. The first company operates in the shipbuilding industry and specialized precision and naval mechanics industry (www.biriaco1895.com). The second company produces disposable plastic dishes, cups and cutlery and turned the unfavourable geographical position in one of their critical factors of success. The third company is a confectionery company that produces confectionery, chocolate products, candies, ice creams and ice products, panettoni[3] and much more. An organic description of three companies is presented in the historic introduction.

More specifically, in order to detect the impact of the family ownership on firm performance, this thesis moves on three lines, that correspond to the three main research questions. They are:

- How do a family CEO and a family CFO impacts the firm performance in the presence and absence of leadership?
- Does family leadership in generations after the first one positively impact firm performance?
- Does a particular combination of size and family leadership impact firm performance?

1.3 METHODOLOGY

Qualitative data for this work have been collected through a survey that has been personally presented to a manager or CEO from each of the three companies. The survey has been conducted in an informal way, as a talking, with the aim of catching the interest and involves the interviewed mangers in the research, always keeping the focus on professionalism and

[1] Spa is an Italian "share-based company". Its common law equivalent is a joint stock company.
[2] Srl is an Italian company agreement which common law equivalent is the limited liability partnership (LLP).
[3] Panettone is a traditional Italian Christmas fluffy cake.

quality of data collection. While, the majority of quantitative data corresponding to accounting items have been collected at the Chamber of Commerce of Catania.

The analysis is divided into two parts: one qualitative and one quantitative. In the end, they will be compared. The first will discuss the findings regarding the survey, while the second will analyze accounting items collected and elaborated.

1.4 OUTLINE

This thesis is organized as follow: the first section is a social, economic and historical introduction of the geographic area of interest for this thesis, jointly with a small description of the sample companies. These introductions have been necessary with the scope of offering to the reader the minimum knowledge needed to better understand and contextualize the findings of this thesis. This is followed by the literature review about family firms and the impact of family ownership on firm performance in a broader way. The last section is dedicated to data collection, methodology, data analysis and findings. The third part is bipartite. In fact, all sections will be dedicated first to qualitative data and then to quantitative data. The fourth part reports some critics and limits to this academic paper as well as some suggestions for future researches and conclusions.

2. AN ACTIVE CITY[4]

Italy can be divided into three macro-economic regions: the north, the centre and the south including the islands of Sicily and Sardinia. The north as well called *settentrione* in Italian is the richest and most developed part of Italy, the centre is the second and the south, also called *meridione* or *mezzogiorno* in Italian, is the least developed part. This macro-economic region includes *Abruzzo*, *Molise*, *Campania*, *Basilicata*, *Puglia*, *Calabria*, *Sicilia* and *Sardegna* (ISTAT 2016). This area roughly corresponds to territory of the Kingdom of Two Sicilies, annexed to the Kingdom of Sardinia in 1861 giving birth to the Kingdom of Italy.

The economy of the new-born Italian kingdom was primarily agricultural, with a slowly developing industry, with a flourish south and an over debt north due to wars. In less than 50 years this equilibrium was overturned. After WWII, the country passes the turning point: the industrial sector overcomes the primary one in weight and economic relevance, while the terciary sector stats growing. This development and new wealth created were unevenly distributed; the settentrione and the centre are the involved areas. The meriodione was only marginally impacted. As a consequence, a flux of emigration from the south to the north began. Millions of people migrated looking for a job and better life conditions. These three decades are called as "The Italian Miracle".

During the 80s, jointly with the end of the industrialization process, started the tertiarization process with the development of banking, insurance, commercial, financial and communication services. (SVIMEZ 2016) The tertiarization does not depend on a strong investment in infrastructure, therefore, it impacted more homogeneously all the country, even if maintaining a stronger pace in the north and the centre.

During the years of the real estate bubble, the gap between north and south was slowly being filled. After the crisis, the economic picture of the mezzogiorno is quite depressed. The economic resources and productivity potential has been depauperated. The drop in public

[4] If not expressly stated, the source used for redacting this section is Confindustria (2010).

investments for caused a deterioration of the poor industrial fabric and its competitiveness. The length of the crisis, jointly with the cited factors downsized the southern economy (SVIMEZ 2015). During 2014, Italy started growing again with difficulty. This trend did not interest the south. The first half of 2016 is the turning point for the economic recovery of the meridione. Inefficient and over-debt companies went out of the market. (Confindustria – Cerved 2016).

The worse conditions of southern economy mainly derive from bad public management system that has always been a chronic problem and is deeply rooted in the society of the south of Italy. Corruption, wastes of public money has always been a huge issue in the south of Italy. These problems strongly contribute to enlarge the gap between the meridione and the rest of the country, enormously burden the economic growth (Confindustria 2016; SVIMEZ 2015). Today, the meridione is still predominantly agricultural with a developing fourth sector: many startups are flourishing during last years. Nonetheless, there are some micro-areas that have a better and stronger economy than the average of the mezzogiorno. Among these, in Sicily, stands out the city of Catania in the homonymous province, a city on the east coast of the island located between the Ionian shore and the Etna volcano.

Since Italian unification, the city of Catania went through flourish and depressed years. Between the years 1861 and 1880 about, the city flourishes thanks to large investments in infrastructures: the city is the first one in Sicily to be lighted at night, to install a telephone, to have electricity. Bridges and a viaduct over the sea have been built in order to develop the freight transport. Moreover, as a consequence of the new city bourgeoisie eager of cultural and society events a new city theatre is projected and realised, as well as city park in the heart of the city. During those years, thanks to the fertile commercial condition many foreign families move to Catania in order to invest and do business. The city is the most cosmopolitan of Sicily and one of the most cosmopolitan among the southern cities in 1870. Families from France, England, Germany, Switzerland, but also Denmark and Hungary decided to move to Catania. This demonstrates the direct and strict link that families have with businesses in the city.

After two decades of stagnation that go from the end of the 19th century until the beginning of the 20th century, a new wave of investments in infrastructure gives new lymph to the economy of Catania. The city airport is built and then expanded, the harbour is expanded, railways that

go from the inner part of the province of Catania to the coast are built in order to convey all the products, mainly agricultural, from the countryside to the coast where processing facilities were installed (Granata 1973). During this span of time of about 60 years, the main economic activities are strictly linked to the earth. In fact, the agriculture and the extraction of brimstone and their processing industries dominate the economy. There is not a strong industrial sector that can be resumed in the brimstone processing.

During the Fascism period (1919-1945), the city of Catania experiences a decade and a half of economic growth followed by a period of economic and cultural decay due to the high emigration, especially, of intellectual people. Moreover, the city undergoes a transformation: the service sector develops rapidly at the expenses of the industrial sector. The war made things worst. In fact, Catania has been one of the most bombed cities in Italy. The city of the post war period is socially reckless, poor in raw materials and economic resources, with a deficit of electricity power and obsolete machines. Starting from the 50s, the city reconstruction works as economic driver and Catania started growing again valorising traditional economic sectors: agriculture and handcraft. Catania city was economically attractive because it never really depended on public funds and helps. The so-called "assisted entrepreneurship" was never a strong reality. Public helps and funds ended up drugging the economic system feeding politic clientele system and Mafia power. This phenomenon touched also Catania. Nonetheless, the visitors of the city nicknamed Catania "*la Milano del Sud*", which means the Milan of the south, for its dynamic economy.

In this climate, the healthy part of the economy managed to venture with new and innovative initiatives in the field of services, research, and communication. The industrial fabric of Catania is essentially made of two integrated realities: the local small and medium companies and non-local small and medium companies. The implementation of new technologies benefited the economy, opening new spaces for new and competitive companies. Nonetheless, this was not enough for reviving the economy that is decaying. From the 80s, the economy of the city inexorably decline. This phenomenon was not evident until first half of 90s. At the beginning of the new millennium, the city benefited from new investments. The airport was expanded confirming the city as "door of Sicily". The economic decline has not stopped still and the

consequences are very evident: high unemployment rate, high tax of closing companies, low tax of newborn companies.

Catania lost its high dynamicity of the previous decades that was its well-known characteristic and proud of the citizens. Problems like corruption, waste of public money, bad public management and Mafia became steadily chronic at the expenses of the economic development. As a consequence, the industrial fabric is almost sclerotized, but a few realities tightly linked to the territory, but also open to international markets, manage to be competitive and make their firms lasting. Some of them are subject of this study.

2.1 THE THREE COMPANIES

2.1.1 Biriaco1895/NAVIMEC srl

Among three companies, Biriaco1895 srl is indeed the longest lasting with its almost 111 years of business. It has been the diamond point of Sicilian shipbuilding from its foundation until years 50s. During those years, the opening of shipbuilding basins in the cities of Palermo, Syracuse and Augusta made this industry declining in Catania. The family and the firm has always been indissolubly linked. Mr Antonello Biriaco, jesting, says <<*the firm is one of Biriaco family's sons*>>.

Today, the firm has changed name into NAVIMEC srl. Founded in 1895 by the three Biriaco brothers, it is at its fourth generation and is now owned and managed by two other Biriaco brothers Mr Antonello and Mr Nicola, descendants of one of the three founders. Today, the shipbuilding sector in Catania still bears the name of Biriaco.

2.1.2 Dacca spa

Dacca spa is the youngest of three companies, founded in 1971 as an srl by four sales representatives of plastic disposable dishes, cutlery and cups. After some years of experience, they decided to start their own business in the same sector exploiting the ability and knowledge gained and, especially, thanks to their foresight. These are the elements that drove to the creation of the company founded by two couples of brother, one from D'Agostino family and the other from Cosentino family. Dacca spa is still market leader in plastic disposable dishes, cutlery and cups in all south of Italy.

2.1.3 Dolfin spa

Everything starts thanks to a young Sicilian emigrate that returns to Giarre, a small town near Catania, from South America. His name was Santi Finocchiaro who challenged himself and decided to open a small corner shop where he made what he was best at: producing candies. This is how *Dolcerie Finocchiaro*, later called Dolfin, was born. The production was firstly made of imperfect and round candies, soon joined by comfits. Thanks to the success of this small business the corner shop turned into a candy and chocolate factory during 50s, while it reached its actual size and importance during 90s when Dolfin introduced its well-known icicle: *I Polaretti*.

3. LITTERATURE REVIEW

Scholars have investigated family firms in order to find a correlation between ownership structure and the different organizational variables like firm performance, financial value created during mergers and acquisitions, debt polices, risk polices and composition of the firm governance.

The literature regarding the impact of family ownership structure on firm performance, and about family firms in general, is divided in two opposite flows: the first supports the thesis that family ownership does not positively impact firm performances, the seconds supports the specular thesis.

The main argument of the second flow of scholars is the wealth appropriation by controlling owners. DeAngelo and DeAngelo (2000) reports that controlling owners transfer wealth from the company through related party transaction and through compensation too high to be realistic, impacting negatively minor shareholders because those funds could be invested in positive NPV projects. Based on one of the works of Fama and Jensen in 1985, they found that family owner of a public company could push for a dividend pay-out even though this operation is not optimal, damage the company and is carried on only for satisfying ownership's consumption needs. This, of course, arms minority shareholders.

Also, in their 2001 paper, Faccio and al. support this argument through evidences reported in their work. Moreover, they show how minority shareholders in European family-owned companies are less subject to wealth expropriation due to higher optimal dividend pay-out than Asian companies. Indebt dividend payout does not only damage minor shareholder, but could also demotivate employees. This would result in a decrease of the production and therefore of the firm profit.

Other scholars sustain that the poorer performance of family firms, compared to non-family firms, derives from the management composition. In fact, some seats of the board are occupied by family members who may not have the preparation and capabilities needed for covering that

place. In a study conducted by Gómez-Mejía et al. in 2001, they arrived to this conclusion. They found out that the impact of replacing a CEO is more positively effective when the replaced CEO is a family member. This because family ownership can place family members in the board at the expenses of more prepared and talented third people, and, paradoxically, also at the expenses of the firm performance (Schulze et al. 2001).

Moving from similar basis, in their 2006b academic paper, Villalonga and Amit found that there is value creation for the company when the founder is also CEO of the family firm. Conversely, once the founder-CEO has been replaced by heirs, value creation declines and so does the firm value. Furthermore, they found that "the classic owner-manager conflict in nonfamily firms is costlier than the conflict between family and nonfamily shareholders in founder-CEO firms" while "the conflict between family and nonfamily shareholders in descendant-CEO firms is more costly than the owner-manager conflict in nonfamily firms" (Villalonga and Amit 2006b).

Morck et al. (2000) embraced all these arguments and state that wealthy entrenched families do not focus on public shareholder value creation. Moreover, they argue that companies controlled by heirs grow slowly due to family issues like management entrenchment, reluctance in opening the firm capital, and very likely low investments in innovation.

On the other hand, scholars who support the second flow argue specular arguments. In fact, some researchers found that family firms are more efficient than non-family firms (McConnaughy, et al. 1998; McConnaughy et al. 2001). These researchers arrived to opposite conclusions than those of Villalonga and Amit (2006a). In fact, their researches included family firms where the founder or a family member served as CEO and found that when the founder is replaced by the heirs, firms were more efficient.

In their seminal work, Berle and Means (1932) "highlighted the agency problems that arise from the separation of ownership and control" (Edmans 2014) and the impact of the ownership structure on firm performance. When a firm's managers are distinct from its ultimate owners, they have inadequate incentives to maximize its value. Demsetz and Lehn (1985) as well as Anderson, Mansi and Reeb (2003) argue that capital concentration structure create efficiency because the blockholders (large shareholders) provide the alignment of manager interests and

ownership interests. Moreover, they also found that blockholders ameliorate investment and control decisions (Anderson et al. 2003). Therefore, under these hypotheses family firms tend to monitor the management closely; the principal-agent conflict is overcome if the founder or the heirs sit as CEO (Demsetz and Lehn 1985).

There is, in fact, a substantial difference between small and big shareholders (blockholders). The firsts are interested in maximizing their share value so that they can get an early capital gain despite of the firm survival. Conversely, the seconds, usually coinciding with family members, are more interested in the future and in the long-lasting of the firm, therefore they focus more on longer time horizon, thus on growth and innovation (Fama and Jensen 1985). This is especially true when there is a strong leadership figure inside of the firm.

Furthermore, Anderson et al. (2003) support the fact that family firms outperform non-family firms, stressing that family ownership has intrinsic characteristics like risk aversion, a steadier composition of the management during time due to the strong presence of the family, its reputation make the debt financing less costly and, consequently, increasing the firm value.

Thanks to their broad definition of what can be considered a family firm, Anderson and Reeb (2003) are the defendants of family ownership most cited by the scholars.

Similarly, due to the intrinsic characteristics of family ownership it has been shown that non-family firms focus more on short-run results in order to boost present returns. Conversely, family firm prefers giving up short run gains in order to boost their long-run performance. This means that they have longer time horizons and investment perspectives (Anderson and Reeb 2003; Stein 1989; Stein 1988).

James (1999) argues that typical family characteristics like stability, family ties, the willingness of building a lasting institution “are expected to be effective in lengthening the horizons of managers and in providing the incentives for family managers to make efficient investments” in the business. Therefore, this state of things limits the typical agency cost, while, positively impacting firm performance.

From the presented review, it is manifest how within family firm literature some scholars arrive to completely opposite results than others. One reason of this phenomenon is to be detected in the bias of the researches mentioned above. In fact, as an example, Gómez-Mejía et al. (2001) considered a sample of 276 public and non-public Spanish firms, Demsetz and Villalonga (2001) considered a sample of 223 public and non-public companies from the US economy, Morck et al. (2000) considered a sample of 246 public Canadian companies. Due to the different codes, mentality and practices that are tightly linked to the territories and countries considered in the researches, the findings could not always be generalized and compared. The lack of differentiation between public and non-public companies in the research samples results in biasing the outcome. A proof of this can be seen comparing two papers, not included in the literature review, from the same author: Gallo and Estapé (1992) and Gallo et al. (2004). Even though the difference was not significant, in the first paper, where the sample was mixed, the authors found that family firms outperform non-family firms. In the second paper, instead, where the majority of the sample was made of non-public firms, the authors found opposite results.

Consequently, it emerges as it is not possible to detect, black on white, how family ownership structure impact firm performance. The reasons have to be encountered at the root of the researches. In fact, they lay on the different definitions they give and use about what can be considered a family firm and which characteristics the ownership has to have in order to be classified as family ownership. Moreover, it has to be stressed out that the measures of performance used were not completely homogeneous.

Other scholars preferred dropping the bigger picture, focusing into more specific aspects of family ownership. This is the case of Caselli and Di Giuli (2010). They studied 708 Italian SMEs during a span time of 4 years: from 2002 to 2004; they looked for the impact of a non-family CFO on firm performance and, more broadly, the impact that a different combination of family and non-family CEO/CFO have on firm performance. They found that an outsider CFO positively impact firm performance. While, they stressed that the best combination for achieving higher performance is a family CEO and non-family CFO. Moreover, the paper "shows that, across generations, nonfamily CFO has always a positive effect on firm performance", taking in account that according to Barontini and Caprio (2005) and Schultze et

al. (2001) the descendent of the founder CEO has averagely less capabilities than his/her predecessor. Caselli and Di Giuli (2010) also found that an external CFO helps reducing the ineptitude of descendent CEOs, while the family is the main blockholders and holds the firm control of the management, this way granting low agency costs. They arrive at contrary results than those found by Gómez-Mejía et al. (2001) and Villalonga and Amit (2006b), keeping an intermediate position between the two flows.

As resulting from the review, the literature about family firms is not only divided into two flows, but also contradicting and pointing out in different directions, with some scholars arriving to opposite conclusions than others. This state of things probably depends on research biases, but also one the assumptions and definitions they move from. Nonetheless, it is widely demonstrated and confirmed that the ownership structure, familiar or non-familiar, does impact many and important aspects of the firm, like its corporate governance, decision making processes and governance (Shleifer and Vishny 1997).

It is therefore needed to report the main theory this thesis shares and to clearly define some concepts and definitions of basic importance for this research.

4. METHODOLOGY

4.1 PRINCIPAL AGENT THEORY

Thanks to the seminal work of Berle and Means (1932), it has been detected for the first time the distinction between ownership and control. The first in the hand of (small and numerous) shareholders and the second in the hand of (few) managers. From the conflict of interests that easily arises between these two class of actors derives the necessity for control. Thomsen (2008) correctly remarks as it would be more precise to call this phenomenon distinction between ownership and management. This conflict takes the name of *Principal - Agent Theory* and arises when the interests of owners and management are not aligned. In fact, due to the asymmetry information between the two actors, the agent/manager is encouraged to put in action opportunistic behaviors going against shareholder/principal's interest: profit maximization (Fama and Jensen 1983).

Corporate Governance literature discussed extensively about several solutions to this conflict, all mainly aimed to align management interests to shareholder ones. All these solutions are explicitly studied as solutions for big companies with spreading share ownership, while Italian family SMEs are very different companies. In fact, this neat distinction between ownership and management ceases to exists, leaving space to a more shaded situation, where the owner is also manager. As a result, on the one hand, owner-manager agency problem disappears since the two roles are condensed in the hands of the same people (Anderson et al. 2003; Demsetz and Lehn 1985). On the other hand, agency problems can be present if there are tensions between owners/managers family members as well as between them and non-family manager (Kudlats and McDowell 2015, Villalonga and Amit 2006b, Chua et al. 2003).

4.2 DEFINITIONS

4.2.1 Family firms

There is still not a unique and widely accepted definition of what a family firm is. Scholars have given a range of definitions with more or less flexible boundaries. The most used definition has been given by Anderson and Reeb (2003). Its fortune depends on its broadness, which is at the same time its main weakness. In fact, it does not set any minimum requirements regarding the number of voting shares owned by the family, the number of family members sitting in the board of directors or if one family member has to be CEO or chairman, for example. Nonetheless, this characteristic made it useful for other scholars researches, but often made the findings biased.

Anderson and Reeb (2003) define a family firm as "a firm where family members, founders or heirs, hold shares or occupy seats in the board of directors for various generations". Not all scholars share this definition, being too broad. In fact, they add more restrictions like the ones cited above. As reported by Villalonga and Amit (2006a), three pillars are the elements defining family firms. They are: ownership, control and management. Being that scholars combine the three elements in different ways, thus considering different restrictions to identifying their samples, they end up with results possibly pointing out contradicting results. Definitions of family firms can be found in Maury (2006), Villalonga and Amit (2006a), Barontini and Caprio (2005), McConaughy et al. (1987) among the others.

Large companies and SMEs cannot be defined as family firm according to a same definition. In fact, the characteristics of those macro-groups of firms are widely different. Large firms, especially if public, follow different economic and legal laws regarding ownership and control, for example. In order to be public, a firm must have a large percentage of its shares as floating ones. Therefore, usually, a family only needs small amount of voting shares, about 10%, this value can increase or decrease inversely proportional to the pulverisation of the ownership (Villalonga and Amit 2006a; Barontini and Caprio 2005), in order to have control on a company and its management (Maury 2006; King and Santor 2008). On the other hand, has already

shown, identifying a family firm among SMEs needs more requirements. This issue should not be surprising since it comes from the intrinsic characteristics of large firms and SMEs.

An interesting contribution to this topic come from Miller at al. (2007). They found out that there is a significant difference among what are considered family businesses. In fact, they distinguished between “lone founder” firm and “actual” family firm. In the first case, only one person/founder/principal owner operates and work in the company.\ In the second case, the family is the principal owner and its members occupy different positions in the board and management. Therefore, lone founder companies cannot be considered as a family business. Showing that these businesses outperform family firms, Miller et al. (2007) put once more the focus on the sensitivity of research findings on family firm definition and opened the trail for scholars to consider this discrepancy.

In summary, the literature offers plenty of family firms definitions, deriving from different combinations of the three pillars cited above (ownership, control and management) and also of size and type of firm; from the country or countries considered and their laws; from the method applied. From this state of things, it emerges how a convergence in defining family firms does not look achievable. Nonetheless, with the field growing older, scholars have newer and more updated definitions to fit in their research needs, therefore eliminating the necessity of making new ones every time.

In the light of this, this work will not provide another new definition of what can be considered a family firm. The aim of this work is not dealing with the issues of defining a family firm, but detecting the impact of family firm ownership on firm performance. Thus, the companies analysed in this thesis do not lie in the grey zone of family firms, they are all definitely family businesses. The selection of the firms analysed followed highly strict requirements in the mix of size, type, ownership, control and management. In fact, the companies that will be analysed have the following features: small or medium size firms (according to EU parameters) and “actual family firms” meaning no “lone founder” companies. They are also entirely owned and

controlled by one or two families[5]. Lastly, one family member serves as CEO/chairman and family members sit in the board of directors.

4.2.2 Firm performance and measures of performance

After having defined the strict requirements family firms analysed in this study must have, it is essential to identify the measures of performance that will be used.

Among the most used measures there are Tobin's q and ROE (return on equity) and ROA (return on assets) (Barontini and Caprio 2005, Anderson and Reeb 2003). Tobin's q ratio first appeared in 1968 article from Brainard and Tobin. It has as numerator the market value, while as denominator the replacement value, both of the same physical asset. It clearly represents the relation between financial market and good market.

Despite the original designation of this ratio, in financial literature Tobin's Q is calculated as the ratio between Equity plus Liabilities, both at market value and its total assets. In family firm studies, due to the difficulty in estimating the total asset, the sum of book value Equity and Liabilities is used as proxy (Maury 2006). Under this light, the ratio is a measure of market value. In family firm case, Tobin's Q value can be distorted by family reputation and tradition, for example. Nonetheless, other factors can impact this ratio too, like speculation.

It is straightforward to think that, for family intrinsic characteristics, family firms have average higher Tobin's q than non-family firms. Anderson and Reeb (2003) and King and Santor (2008) found that there is not a sensible difference in the Q ratio between these firms. It can be deduced, then, that positive characteristics of family firms are offset by negative aspects like management entrenchment. Among its other characteristics, scholars are interested in this ratio because this measure is forward looking. Unfortunately, due to the difficulties of estimating market values for private family SMEs, this thesis cannot use this measure of performance.

[5] A small exception has been made for Dolfin spa, which is family owned at 93%. The reason of the exception is explained in the next section.

Return on equity (ROE) is the ratio of net income and Equity expressed as a percentage. It shows how much one investor earn per unit of capital and, thus, how profitable are the investment projects undertaken. Due to the fact that ROE relates net income only to equity, it does not show how a firm uses its debt capital. Therefore, it is important to consider also the return on asset (ROA). It is the ratio of net income and total value of firm's assets. It shows how profitable are firm's investments per unit of assets. It is often calculated as earnings before interest, tax and amortization (EBITDA) on book value of total assets (BVTA).
Anderson and Reeb (2003) and Maury (2006) found that family firms' ROA is averagely higher outperforming non-family firms, in studies with a time lapse of more than 5 years. This finding seems supporting those authors sustaining that the focus of family firms is set on longer time horizons, so that family is a competitive advantage factor for the long run. Of course, other family factors help increasing family firms' ROA values.

Both ratios give information about firm's profitability and seldom differ from each other in family firms. This is due to the fact that these firms are risk adverse and do not finance their projects with much debt, preferring low leverages. Nonetheless, it is still useful to include both ratios in the study, because they clarify and give more information about firm performance.

Moreover, it is always useful also considering some accounting items and other ratio in order to have a better understanding of the impact of family ownership structure on firm performance and of the firm in general. Therefore, the return on invested capital (ROIC), the ratio of net income minus dividends on Equity plus Debt. It is a profitability ratio too, and measures the return that investments generate for those who supplied the capital: equity holders and debt holders. In this research, the following accounting items will be included: EBIT, EBITDA, revenue, profit and equity.

4.2.3 Ownership of the firm

Family firm field is challenging for scholars. These kinds of companies are, in fact, unique from ownership point of view. They do not share the same characteristics of other companies from Western economy. In these companies the family-owner is a single and unique thing, like two

faces of the same coin, there is not a further distinction among single-family member. It is the family as a single and collective entity that owns and manages the company as well as shaping the company governance (Chua et al. 1999). This is, in the head of the author, the essence of a family business.

As a consequence, family firms share a range of unique issues. A small representative sample of them is made by succession problems (passage from one generation to another in leading and managing the firm) (Chua et al. 2003), but also family issues in general that can be highly costly as reported by Villalonga and Amit (2006b). Conflicts within the firm can be fatal for its survival and lasting. As a proof of this, "over 70% of these businesses do not make it past the first generation and less than 5% make it to the fourth generation" (Kudlats and McDowell 2015).

4.2.4 Leadership

In the paper *What Leaders Really Do* (2001), John Kotter delineates the difference between leadership and managing. In fact, while management works for maintaining stability in the organization, leaders operate for changing it adapting and anticipating times. They are two faces of the same medal that only if working synergistically together can bring one firm to success. They are perfectly complementary.

Translating what stated above into family firm reality, it is widely accepted as family influence and control is very strong especially in SMEs. This control lays both in the leadership and management of the firm. As a result, there can be frictions between the two organizational subsets if the second is not aligned to the first one (Lansberg, 1983).

Leadership is not strongly present in all firms, but in family firms where strong leadership figures often guide the company. The role of the leadership is fundamental in one organization due to the fact that sets the mission of the business and its direction (Kotter 2001). The presence of a strong leadership and the presence of family members working in the firm make the firm

focusing on long run economic and financial objectives (Fama and Jensen 1985). This equilibrium creates the basis for a lasting institution concordantly with family objectives.

4.3 THE SURVEY AND QUALITATIVE DATA COLLECTION

This analysis is based on a survey proposed to three SMEs companies in the Province of Catania namely, Biriaco1895 srl/ NAVIMEC srl, Dacca spa and Dolfin spa. The data has been collected through a questionnaire of about 30 qualitative questions regarding the ownership composition, business name, board of directors and management composition, decision making process, CEO and CFO, leadership, professional figures hired by the company for specific needs, employees and relationship between employees and the family, industry, sector, business lines and products of the firm, generational passage, technology, 2008 crisis, financing and leverage and critical factors of success.

4.4 RESULTS

Overall, the answers of the survey depict an interesting situation. The three companies are economically vivacious and dynamic. The strong point common to all the three companies is turning weaknesses deriving especially from the territory into factors of success. The perfect example of this is offered by Dacca spa. This firm is located in a marginal territory, Sicily, which is the most southern part of Europe. This marginality has been turned into a great opportunity for growth and logistics due to the fact that disposable plastic dish, cutlery and cup market is concentrated in the south of Italy. In fact, it is easy to reach all southern Italian regions from the Sicilian east coast.

Another common characteristic is the high level of flexibility. None of the three companies is even close to the threshold of a large company. This condition is favourable because their administrative apparatus is fast and slim. Today economic, social and culture context is continuously changing due the rapid development and advancement of technology. There is a need for taking right decisions in shorter and shorter time laps. Consequently, having a fast and

efficient decision-making process became a fundamental key factor for companies of all size and industries.

The results will be grouped according to the list above and analysed per single firm as listed above, so to follow the same thread of the interviews.

4.4.1 Ownership composition

Biriaco1895 is still owned by Biriaco family today. The two Biriaco brothers, direct descendants of one of the three founders, Antonello and Nicola, own 50% of the stakes each, and manage and work inside the family firm.

The capital has never been opened to third parts during the 4 generations that have managed the company. Nonetheless, Biriaco brothers are not against opening the family capital if an important investment would be at the stake.

Dacca's quotes were equally divided among the four founders, during the foundation moment. Today, of the four founders only three of them are still working in the company and almost all the heirs are fully working inside the company too. The quote of the founder that left the company has been divided into three equal parts and each of his three heirs got one.

Also in this case, during 45 years of business, the ownership of the company has not been open to third parts and it is still steadily in the hands of the founding families. To the question asking if they were thinking of opening their capital to third parts in future, the answer has been a sound no, sustaining that this business is of the two founding families and opening the capital would translate in a loss of decisional freedom. Nonetheless, right after, she added that they might do so only if there would be a strategic and conspicuous investment at the stake.

Dolfin company went through three generations already, the fourth is actually working in, while the fifth will soon. The ownership is securely in Finocchiaro family's hands since its foundation. Four are the shareholders three Finocchiaro brothers: Mr. Santi with a package of 45% of

shares, Mr. Gaetano with 29% of shares and Mrs. Rosaria with the 19%. There is a 7% that is owned by Mr. Cosentino who is a figure very close to Finocchiaro family and this is the reason why the family decided to open a small part of its firm capital[6].

Nonetheless, in a century of activity, the firm capital has been open only once. Thus, Mr. Cosentino case is an exception, not a rule. In fact, the family does not want to open the capital further, not even in the case of important and strategic investments. This because they think that Dolfin spirit and success is bounded to Finocchiaro family and so it has to remain.

4.4.2 Business name

Biriaco family's firm, as stated above, was founded as snc and then becomes an srl. The first business name was very common during the years of the firm foundation until the 60s. Once the firm started growing and getting bigger, this legal organization was no more suitable. In fact, the great level of flexibility was in countertendency with the structure requirements of an affirming company working in all Italy and no more only on the east coast of Sicily. Moreover, this great level of flexibility came at the expensive of the family financial security. In fact, snc business name does not offer limited liability screen.

The choice of becoming an srl was dictated by two reasons. The first is the will of the family of keeping their decision and managing freedom at the maximum degree possible. In fact, the other option was becoming a spa. In that case, the firm would have way more legal obligations that slow down the company due to its size. Srl administrative organs are slimmer than spa ones. Moreover, here it is the second reason that is merely economic; an srl is costlier for the reason just mentioned. Just to make an example, in order to open an srl the minimum social capital is 10.000€, while for a spa the minimum social capital is 120.000€.

It is relevant to stress out the decision recently taken by the family to change the name of the firm from Biriaco1895 to NAVIMEC[7]. The explanation given from the CEO Antonello Biriaco

[6] This is the reason why even though the Family owns not the totality of the company shares, Dolfin spa is considered as if completely owned by the family.
[7] From this point the text will refer to this company with its current name: NAVIMEC srl.

was simple but interesting. In fact, he said that with the firm growing older it is time to distinguish neatly between the family and the company always keeping the ownership steadily in the hands of the family. This answer was not obvious and it was a sign of maturity from the family owner.

Dacca spa's business name history is dictated by its growth process. In fact, being founded by four men already into the business during the 70s, it opened already as an srl, minimum structure needed for a production company for operating in the territory. In a decade the firm grew fast and reached other southern regions' market. It is now that the family felt the need of changing the business name from srl to spa, in order to fit better the new needs of the company, but also aligning with the industry and competitor structure. Moreover, the revenues grew too so that the family felt the need of having a stronger and more established structure for decision making, managing and control.

Starting as a small corner shop, Dolcerie Finocchiaro starts as an snc. After some decades, thanks to an appreciable and rapid growth, expansion of the business, alternated with years of economic depression corresponding to the war years, Finocchiaro's business got a dimension that was not the one of a confectionery shop, but more of a small factory. Therefore, the family felt the need of adapting its firm business name to the new needs. In fact, the company changed name into Dol.Fin and, more important, changed business name from snc to srl. Almost four decades ago, when the business had already today's size and importance the firm changed again business name, from srl to spa in order to respond better to market and legal necessities.

4.4.3 Board of directors and management composition, decision-making process

NAVIMEC srl's board of directors is made by only 4 people, of whom three are family members, so it avoids issues deriving from the absence of one or more members. It lacks a proper management due to the small size of the firm. In fact, the board and management in this company correspond. This characteristic helps the firm decision making, and implementation of decisions, therefore reducing time and costs while increasing the efficiency.

The decision-making process is fast and sometimes informal in order to be rapid when needed. The decisions taken got then discussed, eventually adjusted, and then ratified during the board assembly. This flexibility is guaranteed by the strong presence of family members in the board and from the fact that they are proactive and in excellent relations.

The situation is completely different for Dacca spa. In fact, it does not have a board of directors because the families chose to have a unique administrator (it is a possibility given by the code). In this firm, decisions are taken directly from the single business units at a managerial level, following the guidelines of the unique administrator. Moreover, all units are strategically located in the same floor, so that information exchange is immediate. When there is necessity of a stronger and more structured coordination among the business units, the administrator summons an ad hoc meeting or assembly. Furthermore, the administrator has been charged with the due of summon a general assembly with fixed cadence. Its role is being the legal representative of the company and managing it.

Dolfin's board of directors is made of 5 people, of whom 4 are family members: three shareholders plus one of the heirs, Mr Monteleone. The external member, Mr Cosentino, is one shareholder too. As already stated above, Mr Cosentino can be considered as part of the family.

Also in this case the restricted number of elements in the boards helps the decision-making process making it faster and more flexible. Despite NAVIMEC srl, in Dolfin spa's board of directors, members do not prefer taking decisions informally due to the size of the firm being too risky acting so.

All firms have declared not have any relevant issue deriving from ownership-management conflict due to the pervasiveness of family members in all firm positions.

4.4.4 CEO and CFO

The three companies have each a different asset for its top management. NAVIMEC srl has a CEO that is a family member and coincides with its chairman too, while it does not have an explicit CFO figure. Dacca spa does not have a CEO and CFO figure. In fact, their duties are condensed in the hand of the unique administrator, which is a family member. In Dolfin spa,

both CEO and CFO figures are concentrated in the hands of its chairman, which is also a family member.

4.4.5 Leadership

In Dacca spa there is not a leadership figure that stands out. Conversely, in the other two companies, Dolfin spa and NAVIMEC srl, there is a strong leadership.

NAVIMEC srl leader is Mr Antonello Biriaco. His leadership is undiscussed and clearly stated in the company website. He is the figure who defined the mission and the objectives of the firm.

Dolfin spa leader is Mr Santi Finocchiaro. His leadership springs from his experience and years spent working inside of the company, thus his authority is well recognized by the management and by all employees in general.

There are some analogies to observe in these two cases. In fact, both leaders own a majority stake of shares in their companies. Moreover, it is interesting to stress out how the leadership status mirrors the familiar position. In fact, they are both the eldest members working inside the firm.

4.4.6 Professional figures hired by the company for specific needs

Biriaco family does not feel the need of hiring many specialists. The two most important specialist figures for them are engineering and financial ones. In fact, they need technicians for their specialized precision and naval mechanic sector, while they need financial specialist for evaluating and undertaking investments as well as finding and proposing the best financing options for the company and project characteristics. Financial services are usually obtained from third parts, financial service companies or banks. Sometimes, according to project needs, specialists are hired for a definite time.

Due to its dimension and structure, Dacca spa hires specialists in the field of engineering, finance and law so to internally deal with related issues. Interesting is that the most of them are family members. Moreover, the responsible of the financial unit affirmed that in special circumstances and for important investments extra specialists and consultants are hired.

Dolfin spa shares similar features with Dacca spa. In fact, it hires specialists in the engineering, financial and legal fields to internally deal with related issues. Also in this case, the most of the specialists hired are family members.

4.4.7 Employees and relationship between employees and the family

The relationship between families and employees is good and personal. All families consider their employees first as people and families that need a job for sustaining their selves and then as productive inputs. This attitude triggers a virtuous circle where employees are motived, committed and thus more productive.

As a result, the employment turnover rate is extremely low. In fact, many employees start working and retire in the same company. This characteristic has been clearly and proudly outlined by each firm. On the other hand, in none of the three company employees' descendants take their parents job. The explanation for this policy has been quite similar for all the three firms and can be resumed in two points. Firstly, every person must be free to choose what to do and become in its life. Thus, the family owners do not want parents to influence their children's decisions. Secondly, parents' skills are not automatically transmitted to their sons. Therefore, it can be risky for the firms hiring somebody on parental ties only.

A distinction now is needed. NAVIMEC srl is a shipbuilding company that operates in specialized precision and naval mechanics and maintenance, thus they rely on specialized labour. Therefore, employees' contractual power in this firm is, averagely, higher than those of Dacca spa and Dolfin spa that are factories.

4.4.8 Industry, sector, business lines and products of the firm

Biriaco family firm was created as a shipbuilding company and it operated only in this industry for many decades. Between 50s and 60s, shipbuilding industry starts declining in the city of Catania. The principle reason of this negative trend is the morphology of the territory, which is sandy with shallow waters. As a consequence, during these years, shipbuilding industry flourished in the near cities of Palermo and Syracuse. Thus, Biriaco family slowly moved on small shipbuilding orders[8] and maintenance in general. In addition, during the 80s, after having developed a consistent know-how and technological knowledge in precision and naval mechanics, the firm horizontally diversified entering into the market of shipbuilding and maintenance of ro-ro, cargo, oceanographic and cable-laying ships[9].

Moreover, more than a decade ago, the firm successfully tried a correlated diversification in Sicily, where it decided to face the challenges of the design, projection and realization of industrial systems.

In summary, NAVIMEC srl main businesses are, in this order, shipbuilding maintenance, design, projection and realization of industrial systems, small shipbuilding orders and specialised precision mechanics.

Conversely, Dacca spa has always produced disposable plates, cutlery and cups in plastic. They only diversified offering same products with different quality and for different life occasions: daily life, parties, Christmas, for example. They have never tried and they are not interested in diversify in different sectors, at least for the moment.

Dolfin spa mainly works with chocolate and sugar products. Moreover, the most of its products follow seasonality, even though there is a gamma of products that are available all year round. Seasonal products are divided into four lines: Christmas products, Easter products, summer products and all year products. Christmas and Easter products have many similarities and principally differ in the occasion of consumption and products shape. On the other hand,

[8] For small shipbuilding orders, it is meant the design, project and realization of parts of ships.
[9] The firm do not design, project and realize entire ships, but only parts of them with high technological content.

summer products are all cold and sweet products that mirror the "made in Sicily" of Dolfin including some of the most famous Sicilian summer products like *granite* and *sorbetti*. Summer products also include the most famous Dolfin product *I Polaretti*, that are exported worldwide (http://dolfin.it/it/dal-1914-ad-oggi). All year-round products are a mix of chocolate and candy products always available in stores.

Another, characteristic of Dolfin products is the wide variety of licences the firm has with many successful brands and most famous cartoons. Products are also divided into three other categories: Chocolate products, candies and cold products. The two categorizations are necessary in order to respond to two different needs. Firstly, the firm needs to know prediction about trends and demand of products from the market. Secondly, it needs to organise its logistics and production consequently.

4.4.9 Generational passage

The generational passage issue is well faced by all three companies. Biriaco family's firm has reached today its fourth generation working inside the company. According to Mr Biriaco the key of its success in approaching generational passage issue is "communication". In fact, he sustains that the lack of dialogue, of exchanging ideas is promotor of miss and non-understandings that ruin and erode the firm from inside.

Moreover, Mr Biriaco stressed out that is absolutely wrong to make the mistake of not taking into consideration the opinions of the youngest members of the family working in the company assuming that the experience of the eldest member is always right. In fact, this behaviour comports irredeemably to the dead of a firm, because it would lack a newer ideas and opinions that are vital for a business to keep the path with time and thus market needs.

Dacca spa is currently going through its second generation; soon it will have its third generation working in the firm. To the question "how do you face the generational passage issue" the answer was very straightforward: common sense. Problems are daily and always have to be faced with common sense, despite their relevance. In Dacca spa, the D'Agostino and Cosentino

family members try to team up and discuss productively, always trying to be purposive and positive, until they manage to find a solution accepted by the most of.

Finocchiaro's family firm has reached its fourth generation working inside the company. According to Mr Monteleone[10], the key for facing the generational passage issue successfully is "inclusion". In fact, making new generations part of the firm, including them, and seconding their inclinations is the key. Without these conditions, it is not feasible to make them feel free and able to exploit their capabilities. New generations must be free of choosing if joining or not the company and in which area they can best express their selves and therefore improving the company growth.

4.4.10 Technology

Technology heavily impacts all three companies in different ways. For NAVIMEC srl technology is a core part of its businesses. In fact, especially its precision and naval mechanics business lines are heavily based on it. As a natural consequence, the firm should invest conspicuous percentage of revenues in R&D yearly. Nevertheless, due to its size and the negative market situation the direct investments in R&D have been shrunk and directed to the core technological needs of the businesses that correspond to critical factors for the firm. Moreover, we also invest in growing and keeping our acquired know-how. On the other hand, NAVIMEC srl relies on third parts for non-core technological competences.

Producing commodity products, Dacca spa relies on technology in order to decrease its production costs, finding more efficient production processes or improving existing ones, finding new materials with inferior costs and or higher performance. These kinds of researches require specific laboratories and significant invested capitals. Therefore, the firm prefers to rely on third part for its R&D investments. In fact, it is member of a consortium of companies that extensively use plastic. This consortium, among the others, has the duty of making research.

[10] It has to be recalled that Mr Monteleone is a family member despite his surname.

For Dolfin spa technology is important for two aspects: production and data collection. In fact, it is fundamental in order to decrease production costs. Moreover, it is even more relevant for monitoring market and selling trends, this way the firm has the possibility to adjusting production outputs and consequently minimizing over production or stock breaks.

The firm strongly invests in R&D. regarding the production systems and processes, it has many partnerships and collaborations with universities and the *Consiglio Nazionale delle Ricerche*[11] (CNR) that is the Italian public organization for research promoting the innovation and competitiveness of the industrial national system.

On the other hand, regarding data collection and analysis, the firm relies on third part societies like Nielsen in order to obtain real time data from markets.

4.4.11 2008 crisis

All three firms concord in commenting the 2008 crisis. Antonello Biriaco's words well summarize the opinion of the three people interviewed "*everything, good and bad things, arrive later in Sicily than in the rest of Italy, bad things strike harder while good things lighter and so did the crisis*". In fact, the crisis did not knock to Sicily's doors before 2010 about and has been leaving the island during last two years. The crisis hit harder also due to the disinterest of institutions and their incapability of offering public support to the firms in the territory. The scars it has left are harsh and deep especially for PMIs. Nonetheless, the companies that successfully passed the crisis and feel stronger or have a better apperception of their economic and or financial stability.

It has to be stressed out that NAVIMEC srl suffered the most the crisis due to the industries it operates in.

[11] National Council for Researches.

4.4.12 Financing and leverage

All three companies are not public companies; therefore, they do not contract debt in the stock market. They have a pool of banks they contract loans from. NAVIMEC srl prefers having a privileged relation with one bank (house-bank), but it keeps relations with a pool of 2-3 other banks. Dacca spa, instead, prefers to exploit the advantages deriving from smaller loans contracted with a group of about 8-10 banks. This way avoiding consequently overexposure issues. On the other hand, Dolfin spa prefers relying on a small group of banks, no more than 4. The reason of this choice is the will of creating competition among banks in order to achieve lower cost of debt. Moreover, also the shareholders lend money to the firm. All the three companies declared of having leverage inferior to 30%.

4.4.13 Critical factors of success

NAVIMEC's factors of success are three. Firstly, its capability to adapt to times. In fact, thanks to this it managed to downsize and transform its shipbuilding business, move on a more technological and thus more profitable and suitable for its size, branch of shipbuilding and then further diversify into new business. Secondly, its leadership. In fact, Mr Antonello Biriaco deciding the firm mission orientate the firm directions and goals. Thirdly, its flexibility in decision taking processes. The size of the firm and the strong presence of the family inside of the firm allow a grade of flexibility that is hardly achievable under other conditions.

Dacca spa's factors of success are three too. The first one is its geographical position. In fact, the Italian market for disposable plastic dishes, cutlery and cups is located in the south of Italy. Therefore, the geographical marginality of Sicily turns out to be a strong point for logistics. Thanks to this Dacca became market leader in its sector. Its second success factor is distribution. In fact, Dacca spa owns a capillary distribution lines in all south of Italy. Such logistics structure is essential in order to win competitions since disposable objects are commodities. Its last key success factor is its subscription to a consortium participated by other companies that work extensively with plastic and its monomers. In fact, this subscription allows the firm to be always updated on new discovers and production methods regarding plastics, investing smaller amount of money and almost erasing the risk deriving from an inner R&D unit.

Dolfin spa's key factor of success is mainly one: technology. In fact, technology has a double aspect in this firm. It is important for production, but it is even more important for collecting, elaborating and analysing data in real time from the market. In fact, this allows the firms to follow market trends and adjust production schedules and quantities.

4.5 DISCUSSION

From qualitative analysis, it emerges a general positive picture for all firms. All firms are 100% owned by one or more families, with the negligible exception of Dolfin spa. The companies have naturally chosen the best legal organisation in order to pursuit their economic and financial objectives. They have also adapted it during time according to their characteristics, principally their size and markets. As a result, the conflict between family blockholders and minor shareholders does not exist.

All families/owners are heavily present inside the board of directors and inside the management of all firms. Concordantly to what Anderson et al. (2003) and Demsetz and Lehn (1985) sustains, and to what has been declared during the interviews no significant issues and costs arise from principal-agent conflicts. Three out of four members of the board of directors in NAVIMEC srl are familiars, it is recalled that Dacca spa does not have a board of directors; all Dolfin spa directors are family members, as Mr Cosentino can be considered a family member too. In the specific, despite their size Dacca spa and Dolfin spa employs many of their family-owners' members, leaving, in general, little space to third people. This can be a strong point for agency problems, but it could go at the expenses of the efficiency of the firm. In fact, third people bring new ideas and points of view to such environments (Schulze et al. 2001). On the other hand, NAVIMEC srl does not employ many members from the owner-family. An explanation to this fact is the importance of the technological know-how of the firm. In order to defend it, it is important to hire capable employees only, renouncing to employ uncappable or mediocre family members that very likely will find small place in the administrative offices only. This is corroborated by the fact that engineering and financial figures are the only non-family people hired in the firm.

All firms are guided by family members, as expected. All top management positions are concentrated in one person hands only in each firm and in two cases this person coincides with the leader of the firm, but for Dacca spa. This situation further supports the theories of Anderson et al. (2003) and Demsetz and Lehn (1985) regarding the absence of agency costs. Nonetheless, it is not clear why in Dacca spa the unique administrator is not also the leader of the firm. Possible explanations are the fact that this role could be covered by one family member for a small determined amount of time; the personal characteristics of the person covering this position are not compatible with the ones of a leader; there is more than one person with leadership skills trying to impose their leadership inside of the firm or for the same reason nobody wants to impose his/her leadership in order not to break the current equilibrium between the two families. No information regarding this point has been disclosed during the interview, therefore only conjectures can be proposed.

In the two firms with the presence of a leader, it is expected to have a remarked focus on medium and long run profitability goals considering the high impact of family members in the board of directors, management and, thereby, decision-taking process. This is in line with the main literature (Anderson and Reeb 2003; Stein 1988; Stein 1989; Fama and Jensen 1985). It is expected to find confirmation of what has been just stated by the quantitative analysis.

All three firms share the need of hiring specialists in the field of finance and engineering. It is evident as these two figures are vital for firm life and development. In fact, in the south of Italy debt is averagely more costly than in the rest of Italy due to the higher economic and financial uncertainty and risk (SVIMEZ 2016). Moreover, this need comes also from the size of the firm. An exception is NAVIMEC srl that working with orders, with high technological impact, does need financial experts and specialized engineers despite their small size. Furthermore, almost all these figures are not family members. This goes partially against what is stressed out by Schulze et al. (2001). Nonetheless, only quantitative data will show if this mix of family members taking decisions and managing the firm, and non-family member engineers and financial experts is successful. Conversely, Dolfin spa does hire financial specialists and engineers, but they are mostly family members, while Dacca spa only hire family member financial specialists and mainly family member engineers.

Regarding one of the main issues of family firms, the generational passage, the sample firms face it with great ability, according to their representatives. As a matter of fact, all of them have already passed the first generation and two of them are already at the fourth one. According to Kudlats and McDowell (2015) this means that Dacca spa and Dolfin spa are part of that 5% of firms that managed to break the barrier of the fourth generational passage. Dacca spa is in a limbo position. In order to check if non-first generations positively impacted firm performance, qualitative data must be analysed.

Technology has emerged as emerged as a pervasive and relevant factor for all firms, being tightly linked to the industries they operate in. This point is important. In fact, firms that highly depend on technology have to keep investing important percentages of their revenues in the R&D in order to boost future returns accordingly to James (1999) and Fama and Jensen (1985). Jointly with leadership, also R&D projects move one firm time horizon towards the medium/long run, as stressed out by Anderson and Reeb (2003), Stein (1989) and Stein (1988), depending on the intrinsic characteristic of research and development processes. Furthermore, this attention to technology demonstrates as some southern companies are working in order to fill the gap between south and north of Italy according to SVIMEZ (2016). 2008 crises slowed down this process, even though, it is especially to technology investments that the sample firms successfully survived to the crisis. Moreover, as stated by all interviewed people, bad public management contributed to amply 2008 crisis problems and their consequences.

It is interesting to notice as all firms declared a low level of leverage, all below 30%. This data looks not in line with expectations. Medium size companies like Dacca spa and Dolfin spa need important investments in order to maintain their economy in its technical meaning. Therefore, so small levels of leverage may depend on under-investment, excessive liquidity, that is a remote possibility, the risk-aversion typical of family firms and other characteristics as supported by Anderson et al. (2003) and James (1999). More concrete explanations will come from the quantitative analysis.

Critical factors of success for the sample firm mainly derives form the ability of their leaders. In fact, NAVIMEC srl most important factor of success is its adaptability to times and markets.

This is a characteristic that directly comes from leadership skills of its leader and capability of management that pursuit the company mission. This especially true for NAVIMEC srl, that explicitly states what has just been said in its website. As a normal consequence, the leadership itself is the other critical factor of success for the company. Lastly, its flexibility in decision taking processes that is essential for supporting the adaptability skills of the firm. Similar arguments hold for Dolfin spa too. In fact, the critical factor of success of this firm is technology, in the extensive meaning of the word. Technology depends of R&D investments. These investments are discretional and depend on board of directions and management decisions that influenced and driven by leader's directions for the firm mission.

A different case is Dacca spa. In fact, despite technology is one of its success factors, all R&D processes are externalized. This depends also on the fact that there is not a leadership figure inside of the firm. The most important critical factors for Dacca spa are its geographical peripheric position and its logistics. The first one is risky because it cannot be protected by the firm. The second one, instead, allows the firm to maintain a certain grade of protection towards competitors and or new entering firms.

5.6 QUANTITATIVE ANALYSIS

To objectively examine the impact of family ownership structure on firm performance a qualitative approach is certainly not enough. Therefore, it has been chosen to investigate some accounting and financial statement ratios, the influence of family ownership on them and try to draw conclusions based on the findings.

Thanks to a research permit, the data collection has been made manually at the Chamber of Commerce of Catania[12]. The author personally collected data from office terminals that have been then double checked by the Chamber before having the authorisation to be used in this work.

The span of time for the data collected was originally of 20 years, due to the fact that the Chamber of Commerce of Catania implemented a digital system for balance sheets collection

[12] The Chamber of Commerce did not allow for downloading the files related to each balance sheet.

from 1996 only. Having a permission for visioning and collecting data for years previous to 1996 was too time consuming and not so relevant for this work. Moreover, due to issues regarding the accounting items from year 1999 back, those years have been discarded. In fact, before 2000s Italian laws concerning financial statement and its reports were different than nowadays, not aligned with EU laws, and expressed in the old Italian currency: the Lira. This last issue could be overcome, nonetheless, the differences in aggregating and reporting the accounting items were unfeasible to fix.

Furthermore, other years of accounting items had to be rejected inasmuch inconsistent with the dataset being outliers. In the specific:

- For Biriaco/NAVIMEC S.r.l. years 2000 and 2015 have been rejected. Thus, its time horizon is made of 14 years from 2001 up to 2014;
- For Dacca S.p.A. years 2000, 2014 and 2015 have been rejected. Thus, its time horizon is made of 13 years from 2001 up to 2013;
- For Dolfin S.p.A. year 2015 have been also rejected. Thus, its time horizon is made of 15 years from 2000 up to 2014.

Once the data set was consolidated, it proceeded with the analytical calculations of the ratios. The ratios chosen for this analysis are aligned with the main purpose of the thesis and they can be found also in other relevant work regarding family firms, among the others: Caselli and Di Giuli (2010), Adams et al. (2009), Villalonga and Amit (2006), Galo, Tapies and Cappuyns (2004), Anderson and Reeb (2003). The ratios that were utilized in this analysis, reports a brief description of each and the formula used.

Return on Equity (ROE), that is the ratio of global profitability and shows how the shareholder capital is remunerated. It is used as a measure of performance and can be considered as a proxy of attention to short-term performance. The formula used is:

$$ROE = \frac{Profit}{Equity}$$

Return on Assets (ROA), which indicates the profitability of assets held by the firm. It is used as a measure of performance and can be considered as a proxy of attention to long-term performance. The formula used is:

$$ROA = \frac{Profit}{Total\ Assets}$$

Return on Investments (ROI) measures the return for each unit of currency of invested capital. It is the company return only linked to the core-business in relation to the entire invested capital: equity and debt. ROI is used as a measure of performance for invested capital and stress the attention of CFOs for this aspect. It is calculated as:

$$ROI = \frac{EBIT}{Total\ Assets}$$

Return on Invested Capital (ROIC) shows how efficient is a firm in investing its capital. It is used as a measure of performance in order to catch another aspect of firm profitability considering dividends too. It is calculated as:

$$ROIC = \frac{Profit - Dividends}{Total\ Assets}$$

Return on Sales (ROS) determines the profitability margin of earnings per unit of sale revenues. ROS is used as a measure of performance used especially to value efficiency in sales divisions. It is calculated as:

$$ROS = \frac{EBIT}{Sales\ Revenues}$$

Financial Leverage indicates the level of total liabilities in relation to the equity value. It is a financial indicator for measuring the indebtedness of a company and is calculated as:

$$\frac{Total\ assets}{Equity}$$

Impact of non-core Business measures the weight of non-core business activities on the firm profit. It predicts whether non-core business activities are relevant in determining firm profit and is calculated as:

$$\frac{Profit}{EBIT}$$

Capital Turn Over shows how effectively a firm uses its invested capital with the scope of creating revenues. This is an efficiency index and is calculated as:

$$\frac{Sales\ Revenus}{Total\ Assets}$$

Equity-to-Total Asset Ratio determines the percentage of firm assets values the shareholders would receive in the event a company would be liquidated. It represents an attitude to self-financing and is calculated as:

$$\frac{Equity}{Total\ Assets}$$

Equity-to-Debt Capital Ratio indicates the level of equity value in relation to the debt capital. If equal to 1 total asset are financed equally by equity and debt capital. It can be considered a proxy for substitution effect between equity and debt capital and is calculated as:

$$\frac{Equity}{Debt}$$

After, a brief analysis of the ratios has been made with the scope of giving a first picture of the performance and capital composition of each firm.

The method chosen to analyse the impact of family ownership on firm performance is a standard multiple regression: an ANOVA (Analyses of Variance). The software used for the calculation of the regressions has been Microsoft Excel with the add-on xlSTAT. This add-on allows to implement more advanced calculations on Excel program and offers more functionality to Excel statistic functions. ANOVA regression is used in comparatives analysis, where the interest is about outcome variations. Being this model a linear approximation, subtracting or adding a constant or scalar does not influence the ANOVA significance. The same holds if a constant is multiplied by all observations in the sample. As a result, this model is not influenced by constant bias and scalar errors since its output is not dependent on them.

Assumption of the ANOVA for observational studies:

- It lacks the warrant of randomization because in our case we have an observational study. Therefore, it is important to set the confidence interval with subjectivity and thus cautiousness.
- Linearity between outcome and predictors
- Normality of residuals
- Homoscedasticity of the residuals
- Independence of the data (maximum independence possible, having checked for correlation)

Before applying the ANOVA multiple regression models, it has been checked for normality distribution of data through four tests namely, Shapiro-Wilk test, Anderson-Darling test, Lilliefors test and Jarque-Bera test.

The first test checks if the data are sampled from a normal distribution. The second is the most powerful test for checking the normality distribution of data. It specifically tests whether a normal distribution fits the data set. The third tests if the data is consistent with normal distribution. The last tests normality distribution of data comparing the skewness and kurtosis

of a normal with the ones of the data set. Data not bearing normality distributions have been discarded.

The correlation matrixes have been checked with the aim of detecting the presence of high linear relationship between the independent and dependent variables. This, in order to detect eventual biases deriving from a high correlation between the variables. The benchmark used has been ± 0.7.

After this check, the ANOVA has been run for each of the four dependent variables chosen are ROE, ROA, ROI and ROS. The ROIC ratio has been discarded from the analysis because none of the sample firms has ever distributed dividends.

Thereby, the following four regressions will be run once per each firm.

$$ROE = \alpha + \beta_1 * FL + \beta_2 * INCB + \beta_3 * CTO + \beta_4 * ETA + \beta_5 * EDC + \varepsilon_t$$
$$ROA = \alpha + \beta_1 * FL + \beta_2 * INCB + \beta_3 * CTO + \beta_4 * ETA + \beta_5 * EDC + \varepsilon_t$$
$$ROI = \alpha + \beta_1 * FL + \beta_2 * INCB + \beta_3 * CTO + \beta_4 * ETA + \beta_5 * EDC + \varepsilon_t$$
$$ROS = \alpha + \beta_1 * FL + \beta_2 * INCB + \beta_3 * CTO + \beta_4 * ETA + \beta_5 * EDC + \varepsilon_t$$

With FL denoting Financial Leverage, INCB denoting impact of non-core business, CTO standing for capital turn over, ETA standing for equity-to-total asset ratio and EDC denoting equity-to-debt capital ratio.

As first, it has been checked for the fit of the model by the examination of R2 and R2 adjusted. Generally speaking, the higher the R values the more the model fits the data. Unfortunately, this rule of thumb is not always valid. In a multiple regression, such as this case, it is more convenient to check for the adjusted R2 that takes into account the possibility that the addition of one more predictor to the model increases the R2 value not for actual significant effect, because adjusted R2 increases only when the addition of a new predictor actually increases the explanatory power of the model.

As second, a test has been implemented in order to check the presence of multicollinearity: the VIF test. VIF stands for V*ariance Inflation Factor* and expresses the level of multicollinearity

in the regression. VIF value stresses out how much of the variance of a coefficient is "inflated" due to multicollinearity between explanatory variables. The VIF function has a minimum of 1, but no upper bound. Scholars do not agree on a benchmark value for this factor. Nonetheless, a VIF value is usually considered acceptable when it does not pass the threshold of 2.5. Even though, it has to be stressed out that VIF values until 10 can be accepted to, bearing the fact that the results hold some, tolerable, multicollinearity problems. Its formula is

$$VIF = \frac{1}{1 - R^2}$$

where R2 correspond to the R2 of the single multiple regression. Also, as reported in Chennamaneni et al. (2008), VIF test shows how much multicollinearity inflates the beta coefficient variance.

In the case the VIF test assumes high values, the variable associated has to be excluded and the regression has to be run again in order to obtain consistent and meaningful outputs. This is especially true in this work, where the sample is small.

One clarification must be done. Even though, it is entrenched in the statistical jargon the use of the words "*explanatory level*" or "*explained*", it must be recall that those words implicitly call to mind a causality relation that does not actually exist.

After these "explanatory level" tests, the ANOVA output tables report an F-test with aim of checking for the model and a T-test with the aim of testing the regressor coefficients. In both case a standard 95% confidence level has been used. Nonetheless, results consistent with a 90% confidence level will be accepted too.

F-statistic is the ratio of the between group variance and the within group variance. This ratio of variances follows a Fisher distribution. In the case of a high F-statistic, the between group variance is higher than the within group variance, meaning that the differences between the groups are not likely due to chance.

Furthermore, other ANOVA regressions have been run adding some control variables. This has been done with the aim of detecting whether or not each of these variables impact on independent ones, as well as achieving higher explanatory power. In order to do so, all control variables have been expressed as dummy. These are leadership, number of employees used as proxy of the firm size and percentage of family members sitting in the Board of Directors

Therefore, the four regressions will now have the following formulas:

$$ROE = \alpha + \beta_1 FL + \beta_2 INCB + \beta_3 CTO + \beta_4 ETA + \beta_5 EDC + \beta_6 (L \times D_1) + \beta_6 L\,(1 - D_1) + \beta_7 (S \times D_2) + \beta_7 S(1 - D_2) + \beta_8 (FN \times D_{3)} + \beta_8 FN(1 \times D_3) + \varepsilon_t$$

$$ROA = \alpha + \beta_1 FL + \beta_2 INCB + \beta_3 CTO + \beta_4 ETA + \beta_5 EDC + \beta_6 (L \times D_1) + \beta_6 L\,(1 - D_1) + \beta_7 (S \times D_2) + \beta_7 S(1 - D_2) + \beta_8 (FN \times D_{3)} + \beta_8 FN(1 \times D_3) + \varepsilon_t$$

$$ROI = \alpha + \beta_1 FL + \beta_2 INCB + \beta_3 CTO + \beta_4 ETA + \beta_5 EDC + \beta_6 (L \times D_1) + \beta_6 L\,(1 - D_1) + \beta_7 (S \times D_2) + \beta_7 S(1 - D_2) + \beta_8 (FN \times D_{3)} + \beta_8 FN(1 \times D_3) + \varepsilon_t$$

$$ROS = \alpha + \beta_1 FL + \beta_2 INCB + \beta_3 CTO + \beta_4 ETA + \beta_5 EDC + \beta_6 (L \times D_1) + \beta_6 L\,(1 - D_1) + \beta_7 (S \times D_2) + \beta_7 S(1 - D_2) + \beta_8 (FN \times D_{3)} + \beta_8 FN(1 \times D_3) + \varepsilon_t$$

Where D_1, D_2 and D_3 are the values assumed by the dummy for Leadership, Size and Percentage of family members. The ANOVAs with dummy variables have been run with zero value intercept with the aim of fully register control variables impact on the y.

The Same tests that have been done for the first pool of ANOVAs are done also for this pool of ANOVAs.

5.7 RESULTS

Table 1 – Descriptive statistic NAVIMEC srl

	ROE	ROA	ROI	ROS	Financial Leverage	Impact of Non-Core Business	Capital Turn Over	Equity-to-Total Asset	Equity-to-Debt Capital
Obs	15	15	15	15	15	15	15	15	15
Mean	21.71%	5.91%	13.25%	15.64%	4.90	44%	0.85	22.67%	21.71%
Var	0.073	0.009	0.018	0.010	2.122	0.093	0.166	0.008	0.073
SD	0.270	0.094	0.133	0.101	1.457	0.304	0.408	0.090	0.270
Skewness	0.386	1.573	0.963	-0.578	-0.228	1.711	0.305	1.997	0.386
Kurtosis	-0.002	2.963	0.351	-0.343	-0.671	4.079	-1.174	5.193	-0.002

Financial Leverage ratio yields the highest variance. thus the highest volatility. On the other hand. ROA. ROI and ROS hold variance values close to zero. A mean of 4.903 for the Financial Leverage ratio tells that the firm is over-debt. All variables present different asymmetry levels that go from -0.578 to 1.997. Similarly. also kurtosis yields different values that go from -1.174 to 5.193. As a consequence. the expectation is that the sample does not follow a Gauss distribution. Nevertheless. normality tests have been run to have a statistic check.

Table 2 – Descriptive statistic Dacca spa

	ROE	ROA	ROI	ROS	Financial Leverage	Impact of Non-Core Business	Capital Turn Over	Equity-to-Total Asset	Equity-to-Debt Capital
Obs	13	13	13	13	13	13	13	13	13
Mean	-4.78%	0.06%	0.87%	0.84%	11.71	103.60%	0.81	12.65%	0.15
Var	0.073	0.001	0.001	0.002	58.563	0.995	0.017	0.005	0.009
SD	0.271	0.031	0.033	0.040	7.653	0.998	0.132	0.071	0.094
Skewness	0.665	2.382	1.671	1.415	0.949	0.602	1.375	0.015	0.112
Kurtosis	1.327	7.564	3.625	3.959	0.006	1.371	1.529	-1.876	-1.789

For Dacca spa. the highest variability is associated to Financial Leverage. The ROE holds negative mean showing that the firm averagely deplete value. The high level of the mean of the Impact of Non-Core Business supports that the profitability level is strongly influenced by the non-core operations. The other return ratios yield close to zero variance levels. A mean of 11.711 for the Financial Leverage ratio tells that the firm is extremely over-debt. Also in this

case. the skewness and kurtosis values predict non-normality distribution of the data. It clearly emerges a level of debt really high.

Table 3 – Descriptive statistic Dolfin spa

	ROE	ROA	ROI	ROS	Financial Leverage	Impact of Non-Core Business	Capital Turn Over	Equity-to-Total Asset	Equity-to-Debt Capital
Obs	15	15	15	15	15	15	15	15	15
Mean	3.61%	1.48%	1.70%	2.22%	2.26	183.77%	0.76	44.61%	0.81
Var	0.005	0.001	0.000	0.000	0.034	34.527	0.006	0.001	0.013
SD	0.069	0.028	0.013	0.016	0.185	5.876	0.079	0.036	0.116
Skewness	1.887	1.798	1.636	1.261	0.376	3.758	-0.359	-0.211	-0.081
Kurtosis	2.513	2.159	2.517	1.004	-1.253	14.320	-1.235	-1.386	-1.423

The Impact of Non-Core Business yields the highest variability in the sample. while ROE. ROA. ROI and ROS hold low variability. Similar results to the ones of Dacca spa hold for Dolfin spa about skewness and kurtosis. In fact. they highly different values predict absolute absence of normality. Moreover. this firm yields a high mean of 183.77% for the Impact of Non-Core Business ratio. showing that often non-core activities support profit levels. Equity to total asset.

The results of the normality tests report a bad fit between data sample distribution and normal distribution. The sample that fits more is the one of NAVIMEC srl. In fact. the only unacceptable distribution is the one of the ROA. Conversely. for Dacca spa and Dolfin spa the most of variables cannot be accepted as normal. but the Impact of Non-Core Business and the Capital Turn Over ratios for Dacca spa and the Financial Leverage ratio for Dolfin spa. The results are reported in the table below.

According to the results found in correlation matrixes. as expected. the four dependent variables have a strong positive correlation for all firm. considering 0.7 the minimum threshold for considering the rho value high. The correlation between Equity-to-Total Asset ratio and Equity-to-Debt Capital ratio is high. 0.985 and derives from the fact that the ratios are similarly constructed. In NAVIMEC srl. The correlation between ROA and the two ratios just mentioned. Dacca spa has correlation values in line with expectations. Thus. with high correlation values

between the dependent variables. Dolfin spa has a strong positive correlation between ROE-ROA and ROI-ROS. that is almost 1. Conversely. the other combinations of ratios have correlation lower than 0.27. Interesting the fact that the Impact of non-core business is highly correlated with ROE and ROA. These correlation clearly derives from the fact that non-core business operations highly influence the profit . The correlation of Financial leverage with Equity-to-Total Asset ratio and with Equity-to-Debt Capital ratio is always highly negative for all firms. Therefore. these two variables have been excluded from the independent variable group.

Table 4 – Correlations

NAVIMEC srl

	ROE	ROA	ROI	ROS	Financial Leverage	Impact of non-core business	Capital Turn Over	Equity-to-Total Asset Ratio	Equity-to-Debt Capital Ratio
ROE	1								
ROA	0.9099	1							
ROI	0.9288	0.9545	1						
ROS	0.7289	0.6749	0.7870	1					
Financial Leverage	-0.3735	-0.5715	-0.5369	-0.2539	1				
Impact of non-core business	-0.0496	0.0986	0.0158	-0.3596	-0.5811	1			
Capital Turn Over	0.5056	0.5929	0.5836	0.0034	-0.5946	0.5654	1		
Equity-to-Total Asset Ratio	0.4416	0.7265	0.6358	0.2896	-0.9179	0.5191	0.6441	1	
Equity-to-Debt Capital Ratio	0.4552	0.7607	0.6527	0.2983	-0.8394	0.4616	0.6361	0.9855	1

Dolfin spa

	ROE	ROA	ROI	ROS	Financial Leverage	Impact of non-core business	Capital Turn Over	Equity-to-Total Asset Ratio	Equity-to-Debt Capital Ratio
ROE	1								
ROA	0.9986	1							
ROI	0.2034	0.2409	1						
ROS	0.2282	0.2610	0.9870	1					
Financial Leverage	0.5876	0.5742	0.0325	0.1078	1				
Impact of Non-Core Business	0.7796	0.7751	-0.2307	-0.2312	0.4218	1			
Capital Turn Over	-0.2908	-0.2671	0.2884	0.1586	-0.4213	-0.3345	1		
Equity-to-Total Asset Ratio	-0.5695	-0.5579	-0.0516	-0.1254	-0.9981	-0.4100	0.4068	1	
Equity-to-Debt Capital Ratio	-0.5552	-0.5450	-0.0670	-0.1393	-0.9938	-0.3994	0.3923	0.9988	1

Dacca spa

	ROE	ROA	ROI	ROS	Financial Leverage	Impact of non-core business	Capital Turn Over	Equity-to-Total Asset Ratio	Equity-to-Debt Capital Ratio
ROE	1								
ROA	0.8719	1							
ROI	0.8923	0.9651	1						
ROS	0.8741	0.9756	0.9911	1					
Financial Leverage	-0.5393	-0.2368	-0.1620	-0.1560	1				
Impact of non-core business	-0.3100	-0.1808	-0.2781	-0.2665	0.0967	1			
Capital Turn Over	0.2034	0.2733	0.4327	0.4074	0.4590	-0.1823	1		
Equity-to-Total Asset Ratio	0.3730	0.1733	0.0683	0.0821	-0.9216	0.0536	-0.5250	1	
Equity-to-Debt Capital Ratio	0.3558	0.1632	0.0591	0.0754	-0.9059	0.0580	-0.5162	0.9989	1

Despite the fact that the most of data do not follow a normal distribution. they have been used for running regressions. This choice comes from the fact that this sample is not random. and

each observation is not random but a real-world observation. As a result, the only feasible option is to include all variables but the ones bearing too high correlation.

After having excluded the variables bearing high correlation levels. the VIF values of the regressions have acceptable levels. This shows that multicollinearity does not represent an important issue in beta values. The outputs of the ANOVA regressions are reported in tables below.

Table 5 – NAVIMEC srl ANOVA regressions

	ROE	ROA	ROI	ROS
α	0.410	0.194	0.328**	0.495*
β_1	-0.064	-0.035**	-0.050**	-0.047**
β_2	-0.547*	-0.168**	-0.287*	-0.257**
β_3	0.429**	0.133**	0.206*	0.009
R^2	0.488	0.599	0.650	0.454
R^2 ADJ	0.335	0.479	0.545	0.290
VIF	1.953	2.494	2.85	1.83
Fisher	3.180	4.990	6.194	2.767
p-value	0.072	0.023	0.012	0.097

*β_1 is the value coefficient for the Financial Leverage ratio. β_2 is the value coefficient of the Impact of Non-Core Business ratio. β_3 is the value coefficient for the Capital Turn Over ratio. *.** indicates that the p-values are significant at 5% and 10% respectively.*

All regressions bear the same beta signs. showing a light negative impact of Financial Leverage changes. while it shows a strong negative impact of a change in the Impact of Non-Core Business ratio on dependent variables. This especially true for the ROE. The Capital Turn Over ratio positively impacts all ratios. A change in the value of this ratio affects heavier the ROE and lightly the other ones. Positive intercept values show the capability of the firm of creating profit.

The R^2 values show an acceptable explanatory level/power of the model. R^2 adjusted values are slightly smaller than R^2 ones showing that model is not inflated and it holds its explanatory capability. On the other hand. VIF values have all values below the threshold of 2.5 except for

ROI regression. Despite being below the threshold. VIF values show some correlation. but at a level that does not coefficient estimations.

Considering the p-values associated with the F-statistics reported in the ANOVA table and considering the significance level of 5%. only two regressions can be accepted: ROA and ROI ones. In fact. in those two cases the information given by independent variables is more explicative than the results that the dependent variable mean only would give.

Table 6 – Dacca spa ANOVA regressions

	ROE	ROA	ROI	ROS
α	-0.586	-0.067	-0.089	-0.102
β_1	-0.026**	-0.002	-0.002	-0.002
β_2	-0.038	-0.002	-0.004	-0.005
β_3	1.095**	0.112	0.152	0.172
R^2	0.566	0.244	0.367	0.329
R^2 ADJ	0.422	-0.009	0.156	0.105
VIF	2.304	1.323	1.580	1.490
Fisher	3.916	0.966	1.737	1.471
p-value	0.048	0.450	0.229	0.287

*β_1 is the value coefficient for the Financial Leverage ratio. β_2 is the value coefficient of the Impact of Non-Core Business ratio. β_3 is the value coefficient for the Capital Turn Over ratio. *.** indicates that the p-values are significant at 5% and 10% respectively.*

Also for Dacca spa. all regressions bear same beta signs. showing a very light negative impact of Financial Leverage and Impact of Non-Core Business changes. while it shows a positive correlation between Capital Turn Over ratio. This is especially true for the ROE. The Capital Turn Over ratio positively impacts all ratios. A change in the value of this ratio affects more the ROE and lightly the other ratios

The R^2 values are low for this set of regressions. The only acceptable value is the ROE R^2. They all drop in value when passing from R^2 to R^2 adjusted. the only exception is the ROE. In line with R values the only accepted regression is the ROE one. In fact. analysing the p-values and F-statics. only this regression lays inside of the confidence interval set. This result is in

countertendency with VIF values. In fact,. the highest VIF is associated to ROE regression. 2.304. that is a limit value.

Table 7 – Dolfin spa ANOVA regressions

	ROE	ROA	ROI	ROS
α	-0.314	-0.130	-0.064	-0.066
β_1	0.127	0.050	0.019	0.027
β_2	0.008	0.003	-0.001	-0.001
β_3	0.064*	0.034*	0.053	0.038
R^2	0.694	0.682	0.156	0.134
R^2 ADJ	0.610	0.596	-0.074	-0.103
VIF	3.268	3.145	1.185	1.155
Fisher	8.299	7.882	0.678	0.566
p-value	0.004	0.004	0.584	0.649

*β_1 is the value coefficient for the Financial Leverage ratio. β_2 is the value coefficient of the Impact of Non-Core Business ratio. β_3 is the value coefficient for the Capital Turn Over ratio. *.** indicates that the p-values are significant at 5% and 10% respectively.*

All Dolfin spa's beta values are positive. but those related to the Impact of Non-Core Business ratio in ROI and ROS regression. that assumes negligible negative values. All independent variables little affect the dependent ones

The R^2 values are acceptable for ROE and ROA regressions and little decrease when moving to the adjusted values. The opposite is true for the other regressions. Also in this case the VIF assumes high values for the regressions bearing good R levels and pass the threshold of 2.5. Therefore. there is still a multicollinearity problem that inflates somehow the coefficient. Nonetheless. the regressions are not rejected because they still hold some explanatory power. These two regressions are the ones that can be accepted with p-values of 0.004 each. The others are rejected.

Table 8 – NAVIMEC srl regressions with dummy variables

	ROE	ROA	ROI	ROS
α	0	0	0	0
β_1	0.00015	0.00006	0.00008	-0.000001
β_2	0.00013	0.00017	0.00015	-0.00029
β_3	0.24394*	0.09991*	0.13886*	0.00046
β_4	0.00985*	-0.02579*	0.01447*	0.15612*
β_5	-0.18276	-0.04524	-0.11303	-0.15593*
β_6	-0.01589	-0.03621	-0.0001	0.15591*
R^2	0.5206	0.4775	0.6362	0.7217
R^2 ADJ	0.4540	0.4049	0.5856	0.6830
VIF	2.0859	1.9139	2.7488	3.5932
Fisher	6.5165	5.4824	10.4913	15.5600
p-value	0.0001	0.00041	<0.0001	<0.0001

*β_1 is the value coefficient for the Financial Leverage ratio.β_2 is the value coefficient of the Impact of Non-Core Business ratio. β_3 is the value coefficient for the Capital Turn Over ratio. $\beta_4$is the value coefficient for the Leadership. β_5 is the value coefficient for the Size of the firm. β_6 is the value coefficient for the Percentage of family members in the board of directors. *.** indicates that the p-values are significant at 5% and 10% respectively.*

Adding the three control variables change the impact of the three quantitative variables. but the sign of the Capital Turn Over Ratio. The three control variables negatively impact the independent variables and when they bear a plus sign. the impact is light. but for the Percentage of family members in the board of directors for ROS regression. It is interesting the alternan of sign of Leadership in ROE and ROA regressions. In fact. ROE and ROA yield a correlation of almost 1. are both measure of performance and are similarly constructed. Therefore. this result was not expected.

R values. normal and adjusted. hold a good explanatory power of the model. On the other hand. VIF values are all acceptable. but taking into consideration that ROI and ROS regression hold some multicollinearity that slightly inflate the coefficient values. Comparing F-statistic and p-values. all regressions can be accepted.

Table 9 – Dacca spa regressions with dummy variables

	ROE	ROA	ROI	ROS
α	0	0	0	0
β_1	-0.29875*	-0.00036*	-0.00037*	-0.00121
β_2	0.0062	-0.00012	-0.00021	-0.00021
β_3	0.2382	0.00466*	0.00776	0.00931
β_4	1.26041	-0.00211	-0.00466	-0.00183
β_5	-0.79408*	-0.00018	0.00034	-0.00174
β_6	4.02507	0.00142*	0.00669	0.01702
R^2	0.9989	0.8855	0.8739	0.9813
R^2 ADJ	0.9988	0.8696	0.8564	0.9787
VIF	909.0909	8.7336	7.9302	53.4759
Fisher	5591.2793	46.4078	41.5930	315.2430
p-value	0	0	0	0

*β_1 is the value coefficient for the Financial Leverage ratio.β_2 is the value coefficient of the Impact of Non-Core Business ratio. β_3 is the value coefficient for the Capital Turn Over ratio. $\beta_4$is the value coefficient for the Leadership. β_5 is the value coefficient for the Size of the firm. β_6 is the value coefficient for the Percentage of family members in the board of directors. *.** indicates that the p-values are significant at 5% and 10% respectively.*

The control variables have not changed the sign of the impact of quantitative variables. except in ROE regression where the Impact-of-Non Core Business has a positive impact on ROE. There is no leadership in this firm. but betas associated to leadership yield no-zero values. This means that in Dacca spa the significance of irrelevant leadership affects the firm more than the relevance of the leadership. The size of the firm is negatively correlated with ROE and ROA. A possible reason for these signs van be an excessively high labour cost. In fact. having used as proxy of the size the number of employees. an increasing number of employees should correspond to a higher profit. The percentage of family members in the board positively impact all independent variables. This is especially true for ROE regression where the beta assumes a value of 4.03. showing particular attention of the families for today profit.

The regressions hold a good explanatory power as expressed by R^2 and R^2 adjusted values. F-statistic and p-values reported show that the regressions should be accepted with high confidentiality levels. Conversely. VIF values show too high multicollinearity levels. As a result. Dacca spa regressions must be all rejected.

Table 10 – Dolfin spa regression with dummies

	ROE	ROA	ROI	ROS
α	0	0	0	0
β_1	<0.0001	0.000001	0.000245	-0.00006
β_2	0.008608*	0.003433	0.004104	-0.001802
β_3	0.002824	0.00101*	0.390344*	-0.095023*
β_4	-0.006204*	-0.002375	-0.333347	0.081503**
β_5	0.014951*	0.006626	-0.052841	0.040392
β_6	-0.026169	-0.011005*	-0.269534*	0.038917*
R^2	0.8342	0.793	0.2201	0.3268
R^2 ADJ	0.8112	0.681	0.1112	0.2333
VIF	6.0314	4.8309	1.2822	1.4854
Fisher	30.1988	24.931	1.6939	2.912
p-value	<0.0001	<0.0001	0.1508	0.020

*β_1 is the value coefficient for the Financial Leverage ratio.β_2 is the value coefficient of the Impact of Non-Core Business ratio. β_3 is the value coefficient for the Capital Turn Over ratio. $\beta_4$is the value coefficient for the Leadership. β_5 is the value coefficient for the Size of the firm. β_6 is the value coefficient for the Percentage of family members in the board of directors. *.** indicates that the p-values are significant at 5% and 10% respectively.*

The impact of the three quantitative variables is almost unchanged with the addition of the control ones. The only exceptions are in the ROS regressions. where the Financial Leverage and Impact of Non-Core Business has a negative sign. Not relevant is the change of sign for the second variable in the ROI regression. Again. leadership negatively impact ROE. ROA and ROI. In fact. especially should be positively impacted by the leadership because it moves the economic focus towards the long-rung. The size of the firm positive impact ROE and ROA that in line with expectations. On the other hand. it is negative correlated to ROI and ROS. Possible explanations are a too high cost of labour in relation to its productivity or overpayment of family members. This second option is supported by the fact that the Percentage of family members in the board negatively affects all independent variables.

The four Dolfin spa regressions can be accepted. ROE and ROA regressions bear high R^2 and R^2 adjusted values. VIF values are over 2.5 thresholds but significantly lower than 10. F-statistic values and p-values make reject the null hypothesis. Similar considerations stand for ROS regression. that bears low R^2 values and VIF under the threshold of 2.5. ROI regression must be rejected because the null hypothesis is accepted.

4.8 DISCUSSION

The data set taken into account for this thesis result not to be normally distributed at the examination of skewness and kurtosis values as well according to normality tests results. The results of the two sets of ANOVAs present different results. The addition of the three variables have not much increased the explanatory power of the model expresses by R^2 values. NAVIMEC srl and Dolfin spa present high volatility in ROEs and Impact of Non-Core Business ratio levels. The reason of this variability derives from the high variability in both firm profits. In fact. despite having high revenues. final year profit is chronically low. especially compared to the revenue levels. The volatility linked to the second ratio. comes from the fact that in many years the companies had significant profits coming from other sources like liquidations of industrial properties.

Despite the results of normality tests. valuable reasons for implementing the model have been found. In fact. the data set taking into consideration in this academic paper is not random. but is made actual observations. Moreover. a deeper result has been conducted for finding a better fitting model. Nonetheless. no better model has been found among the ones manageable by the knowledge of the author. Therefore. all data have been included. single variable p-values have been reported in the tables but they have not been considered. Conversely whole regression p-values have been used for rejecting or accepting the results. Thereby. a suggestion for future research is trying to develop a statistical model that better fits the data. This is a common issue shared by many family firm researches.

In the first pool of ANOVAs. NAVIMEC srl shows a high negative impact of the financial leverage on profitability ratios due to the absence of a former CFO figure. The negative correlation between the financial leverage and capital turn over can derive from the absence of the CFO figure. In fact. where there is not a CFO. the management must occupy of the financial operations too. For this reason. the management will not arrive to optimize both financial and core-business operations and will end to privilege one or the other. from this characteristic comes the negative sign. as substitution effect.

Focusing on operational management has always a positive impact on profitability indexes. All these ratios are highly correlated. as expected. This relation is in line with the presence of a strong leadership. as declared by Mr Biriaco. which moves the economic focus of the firm on the long run and with the fact that the leader is the same CEO. This way. the leader can set the mission and how to achieve it. Therefore. the high percentage of family members in the board is essential for exploiting the advantages of this state of things. because familiars know well each other.

The intercept values tell that NAVIMEC srl manages to create profit being a mature firm. possibly because it manages to have low fix costs due to the small number of employees. ROE. ROA. ROI and ROS are positively impacted by the attention of the firm towards the efficiency in managing the core-business. The returns from the core-activities are then efficiently reinvested. Moreover. the firm looks over-debt due to the negative correlation between the financial leverage and the ratios. This is in contradiction with what has been state by Mr Biriaco during the interview. but it is evident observing the financial leverage mean of 4.9. For this reason. there is a relevant difference between ROE and ROA means. Furthermore. the firm results undercapitalized if comparing the leverage level with its capitalization. Thus. it is not clear how NAVIMEC srl manages to get credit from banks. Other factors must play an important role in the financing processes such as the name of the family and. very likely. collaterals. Furthermore. banks manage to collect more sensitive data that they use for evaluating the firm.

Dacca spa has high leverage. as it is explicated by the sign of the financial leverage beta. In fact. there is a negative correlation between debt and profitability ratios when the debt level is too high. This situation comes from the absence of an explicit CFO position. The size of the firm would require more focus on the financial unit. Thereby. it results that the unique administrating. having to cope with the operational and financial management. turns out to focus more on the core-business (substitution effect). This aspect finds confirmation on the positive correlation of the capital turn over on the profitability ratios. The eventual presence of a board of directors that support the unique administrator could be a solution for this problem.

Moreover. another possible cause of the bad financial performance can be the lack of non-family member employees.

The impact of non-core business crashes the profitability ratios. This result is obtained due to accounting decisions that aim to reduce economic results that reported in the balance sheet. A proof of what has just been stated is the difference between revenues and profits. In fact. it is possible that costs manage to erode. often completely. the returns especially in absence the relevant investments. Therefore. it is legit to think that is just an accounting ploy for paying less taxes. Another possible explanation of such leverage level. it is the appropriation of wealth by the families. In fact. despite the absence of dividend distributions. shareholders can find other way of moving economic resources up with the aim of satisfying their needs. All profitability ratios are strongly correlated with a plus sign. this is coherent with the fact that when a firm has a medium-big size it is more oriented towards planning of activities. even though Dacca spa lacks of financial planning.

Furthermore. a negative intercept for all regressions can be a sign of high structural costs that. in this case. can easily be linked to personnel. In fact. according to the survey the most of Dacca spa employees are family members. Such costs are too high. especially considering that the firm produces commodities and thus it should have a cost structure as light as possible. Also for Dacca spa it is assumed that the firm must use collaterals in order to grant loan repayments and exploit the name of the two families. This is contrary to what was stated by Dacca spa representative during the interview.

Dolfin spa holds a high leverage too. with a mean of 2.26. Nonetheless. this value still allows the firm to exploit all advantages of the tax shield. This is also a proof of a good financial control by the firm CFO. This is corroborated by the positive sign before the betas of each profitability ratio. The weight of the non-core business operations has an ambiguous impact on the ratios. This result it is likely due to accounting policies with the scope of minimizing taxes. This aim appears enough clearly comparing revenue values with profit values.

The profitability ratios are all positively correlated. as expected to be in a firm with organic planning. Nonetheless. a negative intercept can be sign of high structural costs. Also in this case. it is likely that these costs are principally linked to personnel for the same reason already mentioned for Dacca spa. Even though. Dolfin spa also employs external people. This policy allows the firm to exploit expert knowledge in the fields of finance as well as engineering as declared by Mr Monteleone.

Operational. financial and extraordinary management positively impact the ROE and ROA. especially the last two. This is in line with expectations. as they all positively affect the firm profit. On the other hand. operational and financial management positive impact on the ROI and ROS. This relation is also in line with normal firm management and are likely to be increased by a strong leadership and a focused CEO and CFO. In fact. while the leader moves the economic horizon towards the long run. it also dictates the company mission. The CEO focuses on how achieve the firm mission and to grant economic resources to the firm. He works together with the CFO in order to achieve the prefixed goals through the right investments. As a result. in Dolfin spa it can be said that condensing the three positions in one person has been optimal. The work of the leader. that is also the chairman. has been possible thanks to the technical support of the board of directs. made by family members. Moreover. it is possible to state that the better financial performance of the firm derives from employment of non-family members in financial unit.

5. CRITICISMS

This thesis has many peculiarities and originalities. Nonetheless. it has also some limits that can be easily transformed in future research questions.

First of all. the sample considered in this thesis is small in both directions: wideness and deepness. Even though this was an explicit and wanted decision. but also dictated by time constrains. This brings limits to the methods used and does not allow to generalize the results found. Therefore. it would be really interesting. in the future. to deepen this research using more observations per firm as well as widen the sample allowing making comparisons between and among firms from different industries and or regions or countries.

Some of the variables considered in the analysis have multicollinearity problems by construction. In fact. two of them. Equity-to-Total Asset Ratio and Equity-to-Debt Capital Ratio. had to be removed from regressions. Thanks to this. multicollinearity issues have been overcome. Nonetheless. further research questions could be identifying other accounting items and synthetic ratios that are particularly meaningful in family firms researches.

From accounting items and from the qualitative analysis. it emerged how information disclosed by the people interviewed are not always true or exact. For example. all three representatives declared a financial leverage for their firm lower than 0.3. while accounting items showed a very different situation. with values that are always higher than 2. Thereby. there is a high possibility that information disclosed is manipulated in order to give a positive image of the firm. This point finds evidence from the fact that only one of the three firms. Dolfin spa. handed the balance sheets asked during the interviews.

Moreover. during data collecting at the Chamber of Commerce of Catania. it has been noticed as some balance sheets of the sample firms were missing compulsory complementary documents like *Conti d'Ordine* and *Nota Integrativa*. This severe fact makes wondering about the operate of public organs that should check these legal papers and about the rigor of the firms in filling their balance sheets. Therefore. it is legit to question about the truthfulness and

accuracy of data reported. This is one reason why this thesis has not gone deeper into more specific ratios. assuming that aggregated items still hold a good grade of truthfulness.

Another limit of this research is the method used. In fact. the widely used and well-established ANOVA model offers does not offer good fit with the data due to their distribution and. being based on variances. does not allow to well exploit the explanatory power of the qualitative variables that have been collected for this research. This is due to the fact that the most of these variables are constant for each firm during the time horizon of the data. they cannot be meaningfully insert in the analysis. Therefore. it would be interesting for future researches trying to build a model that can fit better the data sample and can better account for qualitative control variables.

6. CONCLUSION

In this thesis. I have investigated the impact of family ownership structure on firm performance on three SMEs in the city and province of Catania. In order to investigate this relationship two groups of ANOVA regressions have been run. The results obtained from the analysis and interpretation of the outputs is the following ones.

A family CEO/CFO with the presence of a strong leadership positively impact firm performance. On the other hand,. in the absence of leadership. the CEO could deplete firm value. These relations are truer as more as the CEO and CFO have been chosen for being a family member and not for its skills.

Generally. it has been found that the solely leadership does positively impact firm performance. Moreover. there has been found evidence that the leadership calls for a good planning of operations. It has been found that the leadership positively impact firm performance when associated to a medium size company. The leadership keeps positively impacting the firm performance when the firm size is small. even though with a weaker impact. Conversely. only the size of the firm does not show any evidence of positive correlation with any profitability ratio.

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http://www.biriaco1895.com/azienda.htm
http://www.dacca.it/dacca.aspx?s=s
http://www.dolfin.it

9. APPENDIX

Appendix 1: Ratios

NAVIMEC srl

Year	ROA	ROI	ROS	Financial Leverage	Impact of non-core business	Capital Turn Over	Equity-to-Total Asset Ratio	Equity-to-Debt Capital Ratio
2001	19.74%	33.84%	29.22%	3.57	58.32%	1.16	28.00%	0.389
2002	0.28%	1.38%	1.67%	6.48	20.23%	0.83	15.44%	0.183
2003	30.52%	41.97%	26.01%	2.05	72.71%	1.61	48.74%	0.951
2004	-7.40%	-5.73%	-4.79%	3.82	129.07%	1.20	26.20%	0.355
2005	2.14%	4.27%	4.80%	3.54	50.08%	0.89	28.22%	0.393
2006	4.41%	14.61%	11.47%	6.03	30.18%	1.27	16.60%	0.199
2007	10.84%	20.77%	17.36%	5.22	52.19%	1.20	19.17%	0.237
2008	9.27%	27.71%	26.55%	4.10	33.47%	1.04	24.41%	0.323
2009	0.79%	9.64%	23.88%	4.42	8.25%	0.40	22.64%	0.293
2010	5.21%	9.89%	19.08%	4.14	52.68%	0.52	24.16%	0.319
2011	1.84%	6.95%	13.10%	5.76	26.45%	0.53	17.36%	0.210
2012	1.44%	5.34%	13.21%	7.15	26.99%	0.40	13.99%	0.163
2013	1.38%	9.46%	23.61%	6.56	14.63%	0.40	15.25%	0.180
2014	2.33%	5.35%	13.74%	5.82	43.46%	0.39	17.17%	0.207

Dacca spa

Year	ROE	ROA	ROI	ROS	Financial Leverage	Impact of non-core business	Capital Turn Over	Equity-to-Total Asset Ratio	Equity-to-Debt Capital Ratio
2001	25.16%	1.59%	5.07%	4.61%	15.80	31.42%	1.10	6.33%	0.068
2002	-27.65%	-1.42%	-0.87%	-0.83%	19.44	163.88%	1.05	5.14%	0.054
2003	-32.63%	-1.45%	-0.75%	-0.97%	22.57	192.77%	0.77	4.43%	0.046
2004	-48.91%	-1.72%	-1.12%	-1.36%	28.44	153.74%	0.82	3.52%	0.036
2005	8.65%	0.59%	1.56%	2.00%	14.60	37.99%	0.78	6.85%	0.074
2006	-5.88%	-0.45%	0.65%	0.81%	13.06	-68.91%	0.80	7.66%	0.083
2007	57.13%	9.44%	9.59%	11.31%	6.05	98.49%	0.85	16.53%	0.198
2008	-4.22%	-0.91%	-0.66%	-0.88%	4.61	138.07%	0.76	21.68%	0.277
2009	2.45%	0.55%	1.41%	1.82%	4.45	38.96%	0.78	22.50%	0.290
2010	-4.88%	-0.90%	-0.83%	-1.23%	5.40	108.38%	0.68	18.52%	0.227
2011	0.66%	0.12%	1.19%	1.56%	5.31	10.50%	0.76	18.83%	0.232
2012	-3.48%	-0.64%	-0.19%	-0.27%	5.47	331.55%	0.70	18.28%	0.224
2013	-28.51%	-4.05%	-3.68%	-5.66%	7.04	109.99%	0.65	14.21%	0.166

Dolfin spa

Year	ROE	ROA	ROI	ROS	Financial Leverage	Impact of non-core business	Capital Turn Over
2000	**17.71%**	**6.88%**	**2.26%**	**3.35%**	**2.57**	**303.93%**	**0.68**
2001	**20.89%**	**8.38%**	**0.37%**	**0.55%**	**2.49**	**2288.14%**	**0.67**
2002	**6.76%**	**2.92%**	**4.01%**	**5.22%**	**2.32**	**72.73%**	**0.77**
2003	**8.33%**	**3.80%**	**5.05%**	**5.83%**	**2.19**	**75.32%**	**0.87**
2004	**0.05%**	**0.02%**	**1.94%**	**2.50%**	**2.02**	**1.22%**	**0.77**
2005	**0.02%**	**0.01%**	**0.41%**	**0.61%**	**2.09**	**1.82%**	**0.67**
2006	**-0.16%**	**-0.06%**	**1.33%**	**2.17%**	**2.40**	**-4.87%**	**0.61**
2007	**0.01%**	**0.01%**	**1.96%**	**2.97%**	**2.33**	**0.30%**	**0.66**
2008	**0.02%**	**0.01%**	**2.00%**	**2.50%**	**2.14**	**0.44%**	**0.80**
2009	**0.05%**	**0.03%**	**0.95%**	**1.29%**	**2.03**	**2.65%**	**0.73**
2010	**0.11%**	**0.05%**	**1.23%**	**1.50%**	**2.10**	**4.44%**	**0.82**
2011	**0.03%**	**0.01%**	**1.03%**	**1.22%**	**2.10**	**1.29%**	**0.84**
2012	**0.20%**	**0.09%**	**0.72%**	**0.86%**	**2.17**	**12.78%**	**0.84**
2013	**-0.60%**	**-0.25%**	**0.97%**	**1.19%**	**2.37**	**-26.12%**	**0.82**
2014	**0.70%**	**0.28%**	**1.24%**	**1.58%**	**2.51**	**22.47%**	**0.78**

Appendix 2: Descriptive Statistics

NAVIMEC srl

	ROE	ROA	ROI	ROS	Financial Leverage	Impact of non-core business	Capital Turn Over	Equity-to-Total Asset Ratio	Equity-to-Debt Capital Ratio
Count	14	14	14	14	14	14	14	14	14
Minimum	-0.282	-0.074	-0.057	-0.048	2.052	0.082	0.390	0.140	0.163
Maximum	0.705	0.305	0.420	0.292	7.146	1.291	1.614	0.487	0.951
Median	0.121	0.022	0.095	0.156	4.817	0.385	0.859	0.209	0.265
Mean	0.217	0.059	0.132	0.156	4.903	0.442	0.846	0.227	0.314
Variance	0.073	0.009	0.018	0.01	2.122	0.093	0.166	0.008	0.073
SD	0.270	0.094	0.133	0.101	1.457	0.304	0.408	0.090	0.270
Skewness	0.386	1.573	0.963	-0.578	-0.228	1.711	0.305	1.997	2.770
Kurtosis	-0.002	2.963	0.351	-0.343	-0.671	4.079	-1.174	5.193	8.885

Dacca spa

	ROE	ROA	ROI	ROS	Financial Leverage	Impact of non-core business	Capital Turn Over	Equity-to-Total Asset Ratio	Equity-to-Debt Capital Ratio
Count	13	13	13	13	13	13	13	13	13
Minimum	-0.489	-0.041	-0.037	-0.057	4.445	-0.689	0.650	0.035	0.036
Maximum	0.571	0.094	0.096	0.113	28.443	3.315	1.099	0.225	0.290
Median	-0.042	-0.006	-0.002	-0.003	7.038	1.084	0.777	0.142	0.166
Mean	-0.048	0.001	0.009	0.008	11.711	1.036	0.808	0.127	0.152
Var	0.073	0.001	0.001	0.002	58.563	0.995	0.017	0.005	0.009
SD	0.271	0.031	0.033	0.040	7.653	0.998	0.132	0.071	0.094
Skewness	0.665	2.382	1.671	1.415	0.924	0.602	1.375	0.015	0.112
Kurtosis	1.327	7.564	3.625	3.959	-0.234	1.371	1.529	-1.876	-1.789

Dolfin spa

	ROE	ROA	ROI	ROS	Financial Leverage	Impact of non-core business	Capital Turn Over	Equity-to-Total Asset Ratio	Equity-to-Debt Capital Ratio
Count	15	15	15	15	15	15	15	15	15
Minimum	-0.006	-0.003	0.004	0.005	2.021	-0.261	0.615	0.389	0.635
Maximum	0.209	0.084	0.050	0.058	2.574	22.881	0.867	0.495	0.979
Median	0.001	0.000	0.012	0.016	2.190	0.027	0.775	0.457	0.841
Mean	0.036	0.015	0.017	0.022	2.255	1.838	0.755	0.446	0.812
Var	0.005	0.001	0.000	0.000	0.034	34.527	0.006	0.001	0.013
SD	0.069	0.028	0.013	0.016	0.185	5.876	0.079	0.036	0.116
Skewness	1.887	1.798	1.636	1.261	0.376	3.758	-0.359	-0.211	-0.081
Kurtosis	2.513	2.159	2.517	1.004	-1.253	14.320	-1.235	-1.386	-1.423

Appendix 3: Normality tests *NAVIMEC srl*

		ROE	ROA	ROI	ROS
Shafiro-Wilk	W	0.926	0.828	0.909	0.948
	p-value	0.271	0.011	0.150	0.530
	alfa	0.05	0.05	0.05	0.05
Anderson-Darling	A^2	0.564	1.100	0.631	0.295
	p-value	0.119	0.005	0.079	0.546
	alfa	0.05	0.05	0.05	0.05
Lilliefors	D	0.190	0.244	0.242	0.143
	D (norm)	0.712	0.913	0.907	0.533
	p-value	0.185	0.023	0.025	0.616
	alfa	0.05	0.05	0.05	0.05
Jarque-Bera	JB (obs)	0.369	6.075	1.728	0.851
	JB (critic)	5.991	5.991	5.991	5.991
	df	2	2	2	2
	p-value	0.832	0.048	0.421	0.654
	alfa	0.05	0.05	0.05	0.05

		Financial Leverage	Impact of non-Core Business	Capital Turn Over	Equity to Total asset	Equity to debt capital
Shafiro-Wilk	W	0.957	0.857	0.892	0.795	0.664
	p-value	0.678	0.028	0.086	0.004	0.000
	alfa	0.05	0.05	0.05	0.05	0.05
Anderson-Darling	A^2	0.305	0.643	0.610	0.892	1.576
	p-value	0.523	0.074	0.090	0.016	0.000
	alfa	0.05	0.05	0.05	0.05	0.05
Lilliefors	D	0.150	0.178	0.210	0.197	0.275
	D (norm)	0.562	0.668	0.784	0.736	1.030
	p-value	0.531	0.263	0.097	0.150	0.005
	alfa	0.05	0.05	0.05	0.05	0.05
Jarque-Bera	JB (obs)	0.522	8.657	1.005	13.025	32.552
	JB (critic)	5.991	5.991	5.991	5.991	5.991
	df	2	2	2	2	2
	p-value	0.770	0.013	0.605	0.001	< 0.0001
	alfa	0.05	0.05	0.05	0.05	0.05

Appendix 4: Normality tests Dacca spa

		ROE	ROA	ROI	ROS
Shafiro-Wilk	W	0.939	0.732	0.828	0.855
	p-value	0.446	0.001	0.015	0.033
	alfa	0.05	0.05	0.05	0.05
Anderson-Darling	A^2	0.428	1.355	0.978	0.831
	p-value	0.264	0.001	0.009	0.023
	alfa	0.05	0.05	0.05	0.05
Lilliefors	D	0.176	0.279	0.264	0.231
	D (norm)	0.635	1.004	0.951	0.833
	p-value	0.330	0.007	0.014	0.056
	alfa	0.05	0.05	0.05	0.05
Jarque-Bera	JB (obs)	0.848	20.616	6.745	5.902
	JB (critic)	5.991	5.991	5.991	5.991
	df	2	2	2	2
	p-value	0.655	< 0.0001	0.034	0.052
	alfa	0.05	0.05	0.05	0.05

		Financial Leverage	Impact of non-Core Business	Capital Turn Over	Equity to Total asset	Equity to debt capital
Shafiro-Wilk	W	0.847	0.959	0.838	0.875	0.878
	p-value	0.026	0.734	0.020	0.060	0.067
	alfa	0.05	0.05	0.05	0.05	0.05
Anderson-Darling	A^2	0.818	0.286	0.919	0.693	0.669
	p-value	0.025	0.565	0.013	0.053	0.062
	alfa	0.05	0.05	0.05	0.05	0.05
Lilliefors	D	0.260	0.126	0.228	0.220	0.230
	D (norm)	0.937	0.455	0.821	0.795	0.828
	p-value	0.017	0.828	0.064	0.084	0.059
	alfa	0.05	0.05	0.05	0.05	0.05
Jarque-Bera	JB (obs)	1.618	0.728	3.354	1.487	1.408
	JB (critic)	5.991	5.991	5.991	5.991	5.991
	df	2	2	2	2	2
	p-value	0.445	0.695	0.187	0.475	0.495
	alfa	0.05	0.05	0.05	0.05	0.05

Appendix 5: Normality tests Dolfin spa

		ROE	ROA	ROI	ROS
Shafiro-Wilk	W	0.926	0.635	0.822	0.864
	p-value	0.271	< 0.0001	0.007	0.028
	alfa	0.05	0.05	0.05	0.05
Anderson-Darling	A^2	0.564	2.567	1.019	0.749
	p-value	0.119	< 0.0001	0.008	0.040
	alfa	0.05	0.05	0.05	0.05
Lilliefors	D	0.190	0.401	0.210	0.192
	D (norm)	0.712	1.551	0.814	0.742
	p-value	0.185	< 0.0001	0.074	0.145
	alfa	0.05	0.05	0.05	0.05
Jarque-Bera	JB (obs)	0.369	7.302	6.574	3.264
	JB (critic)	5.991	5.991	5.991	5.991
	df	2	2	2	2
	p-value	0.832	0.026	0.037	0.196
	alfa	0.05	0.05	0.05	0.05

		Financial Leverage	Impact of non-Core Business	Capital Turn Over	Equity to Total asset	Equity to debt capital
Shafiro-Wilk	W	0.921	0.366	0.927	0.928	0.931
	p-value	0.203	< 0.0001	0.245	0.257	0.284
	alfa	0.05	0.05	0.05	0.05	0.05
Anderson-Darling	A^2	0.450	4.249	0.482	0.407	0.387
	p-value	0.237	< 0.0001	0.196	0.305	0.344
	alfa	0.05	0.05	0.05	0.05	0.05
Lilliefors	D	0.172	0.440	0.175	0.150	0.144
	D (norm)	0.668	1.704	0.679	0.579	0.559
	p-value	0.269	< 0.0001	0.246	0.488	0.548
	alfa	0.05	0.05	0.05	0.05	0.05
Jarque-Bera	JB (obs)	1.257	85.987	1.213	1.213	1.180
	JB (critic)	5.991	5.991	5.991	5.991	5.991
	df	2	2	2	2	2
	p-value	0.533	< 0.0001	0.545	0.545	0.554
	alfa	0.05	0.05	0.05	0.05	0.05

Appendix 6: NAVIMEC srl ANOVAs

Variable	Count	Min	Max	Mean	SD
ROE	14	-0.282	0.705	0.217	0.270
ROA	14	-0.074	0.305	0.059	0.094
ROI	14	-0.057	0.420	0.132	0.133
ROS	14	-0.048	0.292	0.156	0.101
Financial Leverage	14	2.052	7.146	4.903	1.457
Impact of non-core business	14	0.082	1.291	0.442	0.304
Capital Turn Over	14	0.390	1.614	0.846	0.408

	Financial Leverage	Impact of non-core business	Capital Turn Over	ROE	ROA	ROI	ROS
Financial Leverage	**1**	-0.581	-0.595	-0.373	-0.572	-0.537	-0.254
Impact of non-core business	-0.581	**1**	0.565	-0.050	0.099	0.016	-0.360
Capital Turn Over	-0.595	0.565	**1**	0.506	0.593	0.584	0.003
ROE	-0.373	-0.050	0.506	**1**	0.910	0.929	0.729
ROA	-0.572	0.099	0.593	0.910	**1**	0.955	0.675
ROI	-0.537	0.016	0.584	0.929	0.955	**1**	0.787
ROS	-0.254	-0.360	0.003	0.729	0.675	0.787	**1**

	Financial Leverage	Impact of non-core business	Capital Turn Over
Tollerance	0.558	0.588	0.573
VIF	1.791	1.702	1.744

ROE

Regression statistics

Count	14.000
R^2	0.488
R^2 ADJ	0.335
VIF	1.953
MSE	0.048
RMEQ	0.220
MAPE	194.928
DW	2.054
Cp	4.000
AIC	-39.108
SBC	-36.552
PC	0.921

ROE = 0.410469595525127-6.41882841753544E-02*Financial Leverage-0.547299584646613*Impact of non-core business+0.429163760331714*Capital Turn Over

	df	SS	MS	F	Pr > F
Regression	3	0.462	0.154	3.180	0.072
Residual	10	0.484	0.048		
Total	13	0.946			

	df	SE	F	Pr > |t|
Intercept	0.410	0.409	1.004	0.339
Financial Leverage	-0.064	0.056	-1.145	0.279
Impact of non-core business	-0.547	0.261	-2.094	0.063
Capital Turn Over	0.429	0.198	2.172	0.055

ROA

Regression statistics

Count	14.000
R^2	0.599
R^2 ADJ	0.479
VIF	2.494
MSE	0.005
RMEQ	0.068
MAPE	280.483
DW	1.871
Cp	4.000
AIC	-71.985
SBC	-69.429
PC	0.721

ROA = 0.193564224508059-0.035241391848819*Financial Leverage-0.168304031869169*Impact of non-core business+0.133212594076163*Capital Turn Over

ANOVA

	Df	SS	MS	F	Pr > F
Regression	3	0.069	0.023	4.990	**0.023**
Residual	10	0.046	0.005		
Total	13	0.115			

	Coefficient	SE	F	Pr > |t|
Intercept	0.194	0.126	1.532	0.157
Financial Leverage	-0.035	0.017	-2.034	0.069
Impact of non-core business	-0.168	0.081	-2.083	0.064
Capital Turn Over	0.133	0.061	2.181	0.054

ROI

Regression statistics

Count	14.000
R^2	0.650
R^2 ADJ	0.545
VIF	2.85
MSE	0.008
RMEQ	0.090
MAPE	126.676
DW	1.886
Cp	4.000
AIC	-64.216
SBC	-61.659
PC	0.630

ROI = 0.327778074283701-4.95744010559494E-02*Financial Leverage-0.287174313847569*Impact of non-core business+0.206380157881937*Capital Turn Over

ANOVA

	Df	SS	MS	F	Pr > F
Regression	3	0.150	0.050	6.194	**0.012**
Residual	10	0.081	0.008		
Total	13	0.230			

	Coefficient	SE	F	Pr > |t|
Intercept	0.328	0.167	1.965	0.078
Financial Leverage	-0.050	0.023	-2.168	0.055
Impact of non-core business	-0.287	0.107	-2.693	**0.023**
Capital Turn Over	0.206	0.081	2.561	**0.028**

ROS

Regression statistics

Count	14.000
R^2	0.454
R^2 ADJ	0.290
VIF	1.83
MSE	0.007
RMEQ	0.085
MAPE	101.857
DW	1.990
Cp	4.000
AIC	-65.750
SBC	-63.193
PC	0.984

ROS = 0.494703510410333-4.73460867621282E-02*Financial Leverage-0.257451871945503*Impact of non-core business+8.9547143229969E-03*Capital Turn Over

ANOVA

	df	SS	MS	F	Pr > F
Regression	3	0.060	0.020	2.767	0.097
Residual	10	0.072	0.007		
Total	13	0.132			

	Coefficient	SE	F	Pr > |t|
Intercept	0.495	0.158	3.133	**0.011**
Financial Leverage	-0.047	0.022	-2.187	0.054
Impact of non-core business	-0.257	0.101	-2.550	**0.029**
Capital Turn Over	0.009	0.076	0.117	0.909

Appendix 7: Dacca spa ANOVAs

Variable	Count	Min	Max	Mean	SD
ROE	13	-0.489	0.571	-0.048	0.271
ROA	13	-0.041	0.094	0.001	0.031
ROI	13	-0.037	0.096	0.009	0.033
ROS	13	-0.057	0.113	0.008	0.040
Financial Leverage	13	4.445	28.443	11.711	7.965
Impact of non-core business	13	-0.689	3.315	1.036	0.998
Capital Turn Over	13	0.650	1.099	0.808	0.132

	Financial Leverage	Impact of non-core business	Capital Turn Over	ROE	ROA	ROI	ROS
Financial Leverage	**1**	0.097	0.459	-0.539	-0.237	-0.162	-0.156
Impact of non-core business	0.097	**1**	-0.182	-0.310	-0.181	-0.278	-0.267
Capital Turn Over	0.459	-0.182	**1**	0.203	0.273	0.433	0.407
ROE	-0.539	-0.310	0.203	**1**	0.872	0.892	0.874
ROA	-0.237	-0.181	0.273	0.872	**1**	0.965	0.976
ROI	-0.162	-0.278	0.433	0.892	0.965	**1**	0.991
ROS	-0.156	-0.267	0.407	0.874	0.976	0.991	**1**

	Financial Leverage	Impact of non-core business	Capital Turn Over
Tollerance	0.756	0.926	0.737
VIF	1.323	1.080	1.356

ROE

Regression Statistics

Count	13.000
R^2	0.566
R^2 ADJ	0.422
VIF	2.304
MSE	0.042
RMEQ	0.206
MAPE	227.894
DW	2.458
Cp	4.000
AIC	-37.859
SBC	-35.599
PC	0.819

ROE = -0.586116163341913-2.61782346077101E-02*Financial Leverage-3.76337648509706E-02*Impact of non-core business+1.09451493789905*Capital Turn Over

ANOVA

	df	SS	MS	F	Pr > F
Regression	3	0.498	0.166	3.916	**0.048**
Residual	9	0.382	0.042		
Total	12	0.880			

	Coefficient	SE	t	Pr > |t|
Intercept	-0.586	0.410	-1.430	0.186
Financial Leverage	-0.026	0.009	-3.048	**0.014**
Impact of non-core business	-0.038	0.062	-0.607	0.559
Capital Turn Over	1.095	0.526	2.079	0.067

ROA

Regression Statistics

Count	13.000
R^2	0.244
R^2 ADJ	-0.009
VIF	1.323
MSE	0.001
RMEQ	0.031
MAPE	138.097
DW	2.144
Cp	4.000
AIC	-86.682
SBC	-84.423
PC	1.429

ROA = -6.74375223499124E-02-1.76069493941176E-03*Financial Leverage-1.63643592050249E-03*Impact of non-core business+0.111862068832457*Capital Turn Over

ANOVA

	df	SS	MS	F	Pr > F
Regression	3	0.003	0.001	0.966	0.450
Residual	9	0.009	0.001		
Total	12	0.012			

	Coefficient	SE	t	Pr > |t|
Intercept	-0.067	0.063	-1.076	0.310
Financial Leverage	-0.002	0.001	-1.341	0.213
Impact of non-core business	-0.002	0.009	-0.173	0.867
Capital Turn Over	0.112	0.081	1.389	0.198

ROI

Regression Statistics

Count	13.000
R^2	0.367
R^2 ADJ	0.156
VIF	1.580
MSE	0.001
RMEQ	0.030
MAPE	133.401
DW	2.402
Cp	4.000
AIC	-87.616
SBC	-85.356
PC	1.196

ROI = -8.91916382396661E-02-1.77694396582249E-03*Financial Leverage-4.18277290391639E-03*Impact of non-core business+0.152400482828749*Capital Turn Over

ANOVA

	df	SS	MS	F	Pr > F
Regression	3	0.005	0.002	1.737	0.229
Residual	9	0.008	0.001		
Total	12	0.013			

	Coefficient	SE	t	Pr > |t|
Intercept	-0.089	0.060	-1.475	0.174
Financial Leverage	-0.002	0.001	-1.402	0.194
Impact of non-core business	-0.004	0.009	-0.458	0.658
Capital Turn Over	0.152	0.078	1.962	0.081

ROS

Regression Statistics

Count	13.000
R^2	0.329
R^2 ADJ	0.105
VIF	1.490
MSE	0.001
RMEQ	0.037
MAPE	126.341
DW	2.205
Cp	4.000
AIC	-82.170
SBC	-79.911
PC	1.267

ROS = -0.101888228151223-2.02121239181579E-03*Financial Leverage-4.8845584609934E-03*Impact of non-core business+0.172139248857066*Capital Turn Over

ANOVA

	df	SS	MS	F	Pr > F
Regression	3	0.006	0.002	1.471	0.287
Residual	9	0.013	0.001		
Total	12	0.019			

	Coefficient	SE	t	Pr > |t|
Intercept	-0.102	0.075	-1.367	0.205
Financial Leverage	-0.002	0.002	-1.294	0.228
Impact of non-core business	-0.005	0.011	-0.433	0.675
Capital Turn Over	0.172	0.096	1.797	0.106

Appendix 8: Dolfin spa ANOVAs

Variable	Count	Max	Min	Mean	SD
ROE	15	-0.006	0.209	0.036	0.069
ROA	15	-0.003	0.084	0.015	0.028
ROI	15	0.004	0.050	0.017	0.013
ROS	15	0.005	0.058	0.022	0.016
Financial Leverage	15	2.021	2.574	2.255	0.185
Impact of non-core business	15	-0.261	22.881	1.838	5.876
Capital Turn Over	15	0.615	0.867	0.755	0.079

	Financial Leverage	Impact of non-core business	Capital Turn Over	ROE	ROA	ROI	ROS
Financial Leverage	**1**	0.422	-0.421	0.588	0.574	0.033	0.108
Impact of non-core business	0.422	**1**	-0.334	0.780	0.775	-0.231	-0.231
Capital Turn Over	-0.421	-0.334	**1**	-0.291	-0.267	0.288	0.159
ROE	0.588	0.780	-0.291	**1**	0.999	0.203	0.228
ROA	0.574	0.775	-0.267	0.999	**1**	0.241	0.261
ROI	0.033	-0.231	0.288	0.203	0.241	**1**	0.987
ROS	0.108	-0.231	0.159	0.228	0.261	0.987	**1**

	Financial Leverage	Impact of non-core business	Capital Turn Over
Tollerance	0.734	0.792	0.793
VIF	1.363	1.262	1.262

ROE

Regression Statistics

Count	15.000
R^2	0.694
R^2 ADJ	0.610
VIF	3.268
MSE	0.002
RMEQ	0.043
MAPE	2491.037
DW	1.023
Cp	4.000
AIC	-90.890
SBC	-88.057
PC	0.529

ROE = -0.314070558742824+0.127401739079727*Financial Leverage+7.78576118712832E-03*Impact of non-core business+6.42210437729985E-02*Capital Turn Over

ANOVA

	df	SS	MS	F	Pr > F
Regression	3	0.047	0.016	8.299	**0.004**
Residual	11	0.021	0.002		
Total	14	0.067			

	Coefficient	SE	t	Pr > |t|
Intercept	-0.314	0.236	-1.330	0.210
Financial Leverage	0.127	0.073	1.744	0.109
Impact of non-core business	0.008	0.002	3.524	**0.005**
Capital Turn Over	0.064	0.164	0.392	0.703

ROA

Regression Statistics

Count	15.000
R^2	0.682
R^2 ADJ	0.596
VIF	3.145
MSE	0.000
RMEQ	0.018
MAPE	2292.135
DW	1.017
Cp	4.000
AIC	-117.765
SBC	-114.933
PC	0.548

ROA = -0.129740167724942+5.01834459567808E-02*Financial Leverage+3.14948532546722E-03*Impact of non-core business+0.033826469357319*Capital Turn Over

ANOVA

	df	SS	MS	F	Pr > F
Regression	3	0.007	0.002	7.882	**0.004**
Residual	11	0.003	0.000		
Total	14	0.011			

	Coefficient	SE	t	Pr > |t|
Intercept	-0.130	0.096	-1.346	0.205
Financial Leverage	0.050	0.030	1.683	0.121
Impact of non-core business	0.003	0.001	3.492	**0.005**
Capital Turn Over	0.034	0.067	0.506	0.623

ROI

Regression Statistics

Count	15.000
R^2	0.156
R^2 ADJ	-0.074
VIF	1.185
MSE	0.000
RMEQ	0.013
MAPE	66.366
DW	0.725
Cp	4.000
AIC	-125.902
SBC	-123.070
PC	1.458

ROI = -6.44474251139017E-02+0.01882861387637*Financial Leverage-5.21047501967085E-04*Impact of non-core business+5.28434267948041E-02*Capital Turn Over

ANOVA

	df	SS	MS	F	Pr > F
Regression	3	0.000	0.000	0.678	0.584
Residual	11	0.002	0.000		
Total	14	0.002			

	Coefficient	SE	t	Pr > |t|
Intercept	-0.064	0.073	-0.877	0.399
Financial Leverage	0.019	0.023	0.828	0.425
Impact of non-core business	-0.001	0.001	-0.758	0.465
Capital Turn Over	0.053	0.051	1.036	0.322

ROS

Regression Statistics

Count	15.000
R^2	0.134
R^2 ADJ	-0.103
VIF	1.155
MSE	0.000
RMEQ	0.017
MAPE	66.630
DW	0.733
Cp	4.000
AIC	-119.558
SBC	-116.726
PC	1.496

ROS = -6.60052295244293E-02+0.026999374670203*Financial Leverage-8.08789861068225E-04*Impact of non-core business+3.81635865767418E-02*Capital Turn Over

ANOVA

	df	SS	MS	F	Pr > F
Regression	3	0.000	0.000	0.566	0.649
Residual	11	0.003	0.000		
Total	14	0.004			

	Coefficient	SE	t	Pr > |t|
Intercept	-0.066	0.091	-0.727	0.482
Financial Leverage	0.027	0.028	0.961	0.357
Impact of non-core business	-0.001	0.001	-0.952	0.362
Capital Turn Over	0.038	0.063	0.606	0.557

Appendix 9: Qualitative variables

	BIRIACO	DACCA	DOLFIN
SIZE (AS EMPLOYEE N)	30	75*	115*
% FAMILY MEMBERS	0.75	0	0.8
LEADERSHIP	YES	NO	YES
FAMILY CEO	YES	YES	YES
GENERATIONS	4	2	4
STRUCTURE	FLAT	VERTICAL	VERTICAL

- (73 * 8.5 + 81 * 1.5 + 77 * 2) / 12 = 74.6 ≈ 75
- (100 * 8.5 + 150 * 3.5) / 12 = 114.583 ≈ 115

Appendix 10: NAVIMEC srl ANOVAS with dummy variables

Regression Statistics for ROE

R	0.72155
R-square	0.52063
Adj	0.45405
VIF	2.0859
S	0.1462
N	42

ROE_B = 0.00015 * Financial Leverage + 0.00013 * Impact of core business + 0.24394 * Capital Turn Over - 0.18276 * Company Size - 0.01589 * Family Members % + 0.00985 * Leadership

ANOVA

	d.f.	*SS*	*MS*	*F*	*p-level*
Regression	6.	0.83575	0.13929	6.51647	0.0001
Residual	36.	0.76951	0.02138		
Total	42.	1.60525			

	Coefficient	*Standard Error*	*LCL*	*UCL*	*t Stat*	*p-level*
Intercept	0					
Financial Leverage	0.00015	0.00019	-0.00025	0.00054	0.76565	0.44887
Impact of core business	0.00013	0.00658	-0.01321	0.01347	0.01941	0.98462
Capital Turn Over	0.24394	0.08501	0.07154	0.41634	2.86973	0.00684
Leadership	0.00985	0.08218	-0.15682	0.17652	0.11984	0.90527
Company Size	-0.18276	0.0572	-0.29878	-0.06675	-3.19495	0.00291
% Family Members	-0.01589	0.10662	-0.23213	0.20035	-0.149	0.88238

Regression Statistics for ROA

R	0.8069
R-square	0.65108
Adj	0.60262
VIF	1.9139
S	0.04885
N	42

ROA = - 0.0003 * Financial Leverage + 0.00348 * Impact of core business + 0.10558 * Capital Turn Over - 0.03879 * Company Size - 0.03027 * Leadership - 0.0458 * % family members

ANOVA

	d.f.	*SS*	*MS*	*F*	*p-level*
Regression	6.	0.07849	0.01308	5.48237	0.00041
Residual	36.	0.0859	0.00239		
Total	42.	0.16438			

	Coefficient	*Standard Error*	*LCL*	*UCL*	*t Stat*	*p-level*
Intercept	0					
Financial Leverage	0.00006	0.00007	-0.00007	0.00019	0.93256	0.35726
Impact of core business	0.00017	0.0022	-0.00429	0.00463	0.07763	0.93855
Capital Turn Over	0.09991	0.0284	0.04231	0.15751	3.51776	0.0012
Leadership	-0.04524	0.01911	-0.084	-0.00648	-2.3671	0.02342
Company Size	-0.03621	0.03562	-0.10846	0.03603	-1.01654	0.31616
% family members	-0.02579	0.02746	-0.08147	0.0299	-0.93914	0.35392

Regression Statistics for ROI

R	0.7976
R-square	0.63617
Adj	0.58564
VIF	2.7488
S	0.06934
N	42

ROI_B = 0.00008 * Financial Leverage + 0.00015 * Impact of core business + 0.13886 * Capital Turn Over - 0.11303 * Company Size - 0.0001 * Family Members % + 0.01447 * Leadership

ANOVA

	d.f.	*SS*	*MS*	*F*	*p-level*
Regression	6.	0.30269	0.05045	10.4913	1.01889E-6
Residual	36.	0.17311	0.00481		
Total	42.	0.47579			

	Coefficient	*Standard Error*	*LCL*	*UCL*	*t Stat*	*p-level*
Intercept	0					
Financial Leverage	0.00008	0.00009	-0.000103	0.00027	0.91419	0.3667
Impact of core business	0.00015	0.00312	-0.006176	0.00648	0.04823	0.9618
Capital Turn Over	0.13886	0.04032	0.057095	0.22063	3.44421	0.00147
Leadership	0.01447	0.03898	-0.064586	0.09352	0.37112	0.71272
Company Size	-0.11303	0.02713	-0.168059	-0.05801	-4.16611	0.00019
% Family Members	-0.0001	0.05057	-0.10266	0.10247	-0.00193	0.99847

Regression Statistics for ROS

R	0.84953
R-square	0.72171
Adj	0.68305
VIF	3.5932
S	0.06056
N	42

ROS_B = - 5.14707E-7 * Financial Leverage - 0.00029 * Impact of core business + 0.00046 * Capital Turn Over - 0.15593 * Company Size + 0.15591 * Family Members % + 0.15612 * Leadership

ANOVA

	d.f.	*SS*	*MS*	*F*	*p-level*
Regression	6.	0.34238	0.05706	15.55992	1.03313E-8
Residual	36.	0.13202	0.00367		
Total	42.	0.47441			

	Coefficient	*Standard Error*	*LCL*	*UCL*	*t Stat*	*p-level*
Intercept	0					
Financial Leverage	-0.000001	0.00008	-0.00016	0.00016	-0.00639	0.99494
Impact of core business	-0.00029	0.00272	-0.00582	0.00524	-0.10642	0.91584
Capital Turn Over	0.00046	0.03521	-0.07095	0.07187	0.01298	0.98971
Leadership	0.15612	0.03404	0.08708	0.22515	4.58628	0.00005
Company Size	-0.15593	0.02369	-0.20398	-0.10787	-6.58068	-0.0000001
% Family Members	0.15591	0.04416	0.06634	0.24548	3.53019	0.00116

Appendix 11: Dacca spa ANOVAS with dummy variables

Regression Statistics for ROE

R	0.99946
R-square	0.99893
Adj	0.99878
VIF	909.0909
S	1.32265
N	42

ROE_Da = - 0.29875 * Financial Leverage + 0.0062 * Impact of core business + 0.2382 * Capital Turn Over - 0.79408 * Company Size + 4.02507 * Family Members % + 1.26041 * Leadership

ANOVA

	d.f.	*SS*	*MS*	*F*	*p-level*
Regression	6.	58.688.38425	9.781.39738	5.591.27933	0.
Residual	36.	62.97849	1.7494		
Total	42.	58.751.36274			

	Coefficient	*Standard Error*	*LCL*	*UCL*	*t Stat*	*p-level*
Intercept	0					
Financial Leverage	-0.29875	0.00176	-0.30232	-0.29518	-169.6976	0.
Impact of core business	0.0062	0.0595	-0.11448	0.12688	0.10424	0.91756
Capital Turn Over	0.2382	0.76902	-1.32145	1.79785	0.30974	0.75854
Leadership	1.26041	0.74346	-0.2474	2.76823	1.69532	0.09865
Company Size	-0.79408	0.51751	-1.84363	0.25547	-1.53444	0.13366
% Family Members	4.02507	0.96459	2.0688	5.98134	4.17285	0.00018

Regression Statistics for ROA

R	0.99946
R-square	0.99893
Adj	0.99878
VIF	8.7336
S	1.32265
N	42

ROA_Da = - 0.00036 * Financial Leverage - 0.00012 * Impact of core business + 0.00466 * Capital Turn Over - 0.00018 * Company Size + 0.00142 * Family Members % - 0.00211 * Leadership

ANOVA

	d.f.	*SS*	*MS*	*F*	*p-level*
Regression	6.	0.08755	0.01459	46.40769	0.
Residual	36.	0.01132	0.00031		
Total	42.	0.09887			

	Coefficient	*Standard Error*	*LCL*	*UCL*	*t Stat*	*p-level*
Intercept	0					
Financial Leverage	-0.00036	0.00002	-0.00041	-0.00032	-15.37508	0.
Impact of core business	-0.00012	0.0008	-0.00174	0.00149	-0.15441	0.87815
Capital Turn Over	0.00466	0.01031	-0.01625	0.02557	0.4521	0.65391
Leadership	-0.00211	0.00997	-0.02233	0.0181	-0.21178	0.83347
Company Size	-0.00018	0.00694	-0.01425	0.01389	-0.02594	0.97945
% Family Members	0.00142	0.01293	-0.02481	0.02765	0.10972	0.91324

Regression Statistics for ROI

R	0.93484
R-square	0.87393
Adj	0.85642
VIF	7.9302
S	0.01875
N	42

ROI_Da = - 0.00037 * Financial Leverage - 0.00021 * Impact of core business + 0.00776 * Capital Turn Over + 0.00034 * Company Size + 0.00669 * Family Members % - 0.00466 * Leadership

ANOVA

	d.f.	*SS*	*MS*	*F*	*p-level*
Regression	6.	0.0877	0.01462	41.59303	0.
Residual	36.	0.01265	0.00035		
Total	42.	0.10035			

	Coefficient	*Standard Error*	*LCL*	*UCL*	*t Stat*	*p-level*
Intercept	0					
Financial Leverage	-0.00037	0.00002	-0.00042	-0.00032	-14.78673	0.
Impact of core business	-0.00021	0.00084	-0.00192	0.0015	-0.24353	0.80898
Capital Turn Over	0.00776	0.0109	-0.01435	0.02986	0.71153	0.48134
Leadership	-0.00466	0.01054	-0.02603	0.01671	-0.44255	0.66074
Company Size	0.00034	0.00733	-0.01453	0.01522	0.04703	0.96275
% Family Members	0.00669	0.01367	-0.02104	0.03441	0.48919	0.62767

Regression Statistics for ROS

R	0.99062
R-square	0.98132
Adj	0.97873
VIF	53.4759
S	0.02254
N	42

ROS_Da = - 0.00121 * Financial Leverage - 0.00021 * Impact of core business + 0.00931 * Capital Turn Over - 0.00174 * Company Size + 0.01702 * Family Members % - 0.00183 * Leadership

ANOVA

	d.f.	*SS*	*MS*	*F*	*p-level*
Regression	6.	0.96068	0.16011	315.24304	0.
Residual	36.	0.01828	0.00051		
Total	42.	0.97897			

	Coefficient	*Standard Error*	*LCL*	*UCL*	*t Stat*	*p-level*
Intercept	0					
Financial Leverage	-0.00121	0.00003	-0.00127	-0.00115	-40.45121	0.
Impact of core business	-0.00021	0.00101	-0.00227	0.00184	-0.21129	0.83385
Capital Turn Over	0.00931	0.0131	-0.01727	0.03589	0.7105	0.48197
Leadership	-0.00183	0.01267	-0.02753	0.02386	-0.14483	0.88565
Company Size	-0.00174	0.00882	-0.01962	0.01614	-0.19749	0.84455
% Family Members	0.01702	0.01644	-0.01632	0.05035	1.03542	0.30738

Appendix 12: Dolfin spa ANOVAs with dummy variables

Regression Statistics for ROE

R	0.91337
R-square	0.83425
Adj	0.81123
VIF	30.1988
S	0.01595
N	42

ROE_Do = 2.03048E-6 * Financial Leverage + 0.00861 * Impact of core business + 0.00282 * Capital Turn Over + 0.01495 * Company Size - 0.02617 * Family Members % - 0.0062 * Leadership

	Coefficient	*Standard Error*	*LCL*	*UCL*	*t Stat*	*p-level*
Intercept	0					
Financial Leverage	2.03048E-6	0.00002	-0.00004	0.00005	0.09565	0.92433
Impact of core business	0.00861	0.00072	0.00715	0.01006	11.99772	0.
Capital Turn Over	0.00282	0.00927	-0.01598	0.02163	0.30449	0.76251
Leadership	-0.0062	0.00896	-0.02438	0.01198	-0.69201	0.49337
Company Size	0.01495	0.00624	0.0023	0.02761	2.39589	0.0219
% Family Members	-0.02617	0.01163	-0.04976	-0.00258	-2.24991	0.03066

Regression Statistics for ROA

R	0.79315
R-square	0.68107
Adj	0.11185
VIF	24.931
S	0.24396
N	42

ROA_Do = 0.00025 * Financial Leverage + 0.0041 * Impact of core business + 0.39034 * Capital Turn Over - 0.05284 * Company Size - 0.26953 * Family Members % - 0.33335 * Leadership

ANOVA

	d.f.	*SS*	*MS*	*F*	*p-level*
Regression	6.	0.008	0.001	24.931	< 0.0001
Residual	36.	0.002	0.000		
Total	42.	0.009			

	Coefficient	*Standard Error*	*LCL*	*UCL*	*t Stat*	*p-level*
Intercept	0					
Financial Leverage	0.000001	0.000009	-0.00002	0.00002	0.07794	0.93831
Impact of core business	0.003433	0.000319	0.00279	0.00408	10.75273	< 0.0001
Capital Turn Over	0.001010	0.004126	-0.00736	0.00938	0.24469	0.80808
Leadership	-0.002375	0.003989	-0.01046	0.00571	-0.59543	0.55528
Company Size	0.006626	0.002777	0.00099	0.01226	2.38631	0.02240
% Family Members	-0.011005	0.005175	-0.02150	-0.00051	-2.12636	0.04040

Regression Statistics for ROI

R	0.46922
R-square	0.22016
Adj	0.11185
VIF	1.6939
S	0.24396
N	42

ROI_Do = 0.00025 * Financial Leverage + 0.0041 * Impact of core business + 0.39034 * Capital Turn Over - 0.05284 * Company Size - 0.26953 * Family Members % - 0.33335 * Leadership

ANOVA

	d.f.	*SS*	*MS*	*F*	*p-level*
Regression	6.	0.60489	0.10081	1.69391	0.15078
Residual	36.	2.14258	0.05952		
Total	42.	2.74746			

	Coefficient	*Standard Error*	*LCL*	*UCL*	*t Stat*	*p-level*
Intercept	0					
Financial Leverage	0.000245	0.00032	-0.00041	0.0009	0.75531	0.45498
Impact of core business	0.004104	0.01098	-0.01816	0.02636	0.37389	0.71068
Capital Turn Over	0.390344	0.14184	0.10267	0.67802	2.75192	0.00922
Leadership	-0.333347	0.13713	-0.61146	-0.05523	-2.43089	0.02017
Company Size	-0.052841	0.09545	-0.24643	0.14075	-0.55359	0.58328
% Family Members	-0.269534	0.17792	-0.63036	0.09129	-1.51496	0.13851

Regression Statistics for ROS

R	0.57163
R-square	0.32676
Adj	0.23326
VIF	2.912
S	0.06108
N	42

ROS_Do = - 0.00006 * Financial Leverage - 0.0018 * Impact of core business - 0.09502 * Capital Turn Over + 0.04039 * Company Size + 0.03892 * Family Members % + 0.0815 * Leadership

ANOVA

	d.f.	*SS*	*MS*	*F*	*p-level*
Regression	6	0.06519	0.01086	2.91217	0.0203
Residual	36	0.1343	0.00373		
Total	42	0.19949			

	Coefficient	*Standard Error*	*LCL*	*UCL*	*t Stat*	*p-level*
Intercept	0					
Financial Leverage	-0.00006	0.00008	-0.00022	0.00011	-0.7346	0.46734
Impact of core business	-0.0018	0.00275	-0.00737	0.00377	-0.65583	0.51611
Capital Turn Over	-0.09502	0.03551	-0.16705	-0.023	-2.67571	0.01115
Leadership	0.0815	0.03433	0.01187	0.15113	2.37391	0.02306
Company Size	0.04039	0.0239	-0.00808	0.08886	1.69016	0.09964
% Family Members	0.03892	0.04454	-0.05142	0.12926	0.87367	0.38809