LUISS Guido Carli

LIBERA UNIVERSITÀ INTERNAZIONALE DEGLI STUDI SOCIALI

DEPARTMENT OF MANAGEMENT

PH.D IN MANAGEMENT – CYCLE XXVIII

BEHAVIOUR OF FIRMS: VIRTUES AND VICES

FROM CSR TO FINANCIAL STATEMENTS FRAUDS

PH.D. CANDIDATE

Mirella Ciaburri

PH.D. SUPERVISORS

Prof. Giovanni Fiori

Prof. Riccardo Tiscini

"Any data, tortured enough, will confess"

R. Coase

A mamma, papà e Maria Serena.

Ancora, di nuovo, sempre.

TABLE OF CONTENTS

Chapter 1

INTRODUCTION

Chapter 2

ARE FAMILY FIRMS AND NON FAMILY FIRMS DIFFERENT IN APPROACHING CSR? AN INTEGRATED FRAMEWORK ABOUT WHY AND HOW FAMILY FIRMS ENGAGE IN CSR.

Chapter 3
CSR REPORTING AND OWNERSHIP STRUCTURE: EVIDENCE FROM ITALIAN LISTED COMPANIES

Chapter 4
FINANCIAL STATEMENTS FRAUD: DOES THEIR INTENSITY HAVE A CONNECTION WITH EARNINGS MANAGEMENT?

Chapter 5
BUSINESS PLANNING IN BIOBANKING: HOW TO IMPLEMENT A TOOL FOR SUSTAINABILITY

CHAPTER 1

Introduction

In 1956 Gino Zappa, one of the most important world-renowned economics scholars, defined the firm as "an economic institution meant to last that, for the satisfaction of human needs, orders and places in continuous coordination the production or the procurement and consumption of wealth". This definition has been used in several economic contributions and nowadays it is still the most proper definition for the notion of firm. The central focus of the definition is posed on the satisfaction of human requirements, which makes needful the creation of firms able to fulfil the needs of people. Once again, as it happens for other social sciences, also in economics everything revolves around people. The attention to people, which appears to be central in the definition provided by Zappa (1956), is strictly connected to the famous *Stakeholders theory* developed by Freeman some years later (1984). According to the author, there are several groups and individuals, both inside and outside firms, affecting firm's behaviours and influencing organizational purposes. Each group has a stake in the firm (which explains the name "stake-holder") and each group is important for firm's survival. Firm's stakeholders include employees, customers, shareholders, stockholders, creditors, suppliers, public interest groups, governmental bodies. According to this theory the major objective of the firm is to balance their conflicting demands (Roberts, 1992). For this reason, each firm has a responsibility towards its stakeholders, which can be explained also using ethics.

The ethical connotation of each economic activity has distant roots in literature (Freeman, 1984), but it is especially in recent years, after the issuing of an increasing number of laws related to the protection of the environment and to the defense of workers' rights, that it is acquiring importance among management scholars. The notion of Corporate Social Responsibility (CSR), defined by the Commission of the European Communities in 2011 as "*the responsibility of enterprises for their impacts on society*", is becoming a strategic tool because both scholars and managers are realizing its potential value. Always according to the Commission, to fully meet their social responsibility, enterprises "*should have in place a process to integrate social, environmental, ethical human rights and consumer concerns into their business operations and core strategy in close collaboration with their stakeholders*".

However, even if the management literature is paying increased attention to the influence that a CSR's policy can have on several aspects of a firm's life like its financial performance (McWilliams and Siegel, 2000; McGuire, Sundgren and Schneeweis, 1988) and its relationship with

stakeholders (Carrol, 1991; Clarkson, 1995), same gaps are still existing, above all if we refer the analysis to a particular kind of firm like family firms.

Family firms represent the most ancient form of business organization (Miglietta, 2009) and empirical evidences show how still nowadays, both in emerging countries and in more developed ones, they significantly contribute to the general economic growth. Even though different definitions about the concept of family firm are present in literature, all the authors agree in affirming that a family business is a complex system of interactions between three fundamental elements: the family, the property and the management. Several elements distinguish a family controlled company from a firm with a dispersed ownership: first of all, the separation between ownership and control, present in each firm with a dispersed ownership and opposed to a situation where the ownership is concentrated into the hands of the controlling family (Fama and Jensen, 1983; James, 1999); the different target that they want to reach, that is the maximization of the economic wealth for shareholders typical of a non family firm, against the presence of also non-economic goals, like the possibility to pass on the business to the next generation, in family firms (Chrisman, Chua, Pearson, Barnett, 2010; Mustakallio, Autio, Zahra, 2002); the orientation toward a short time period for non family firms versus the long-time orientation of family firms (Le Breton Miller, Miller, 2006; Lumpkin, Brigham, 2011).

The first article of this work, which is analyzed in Chapter 2, focuses on the relationship between family firms and CSR and aims to infer that family firms, as compared to non family firms, have some differences regarding their CSR investments and can invest in social actions with a different objective function. As stated by Rivoli and Waddock (2011) *"if CSR activities are a profitable activity, then they are best described as "intelligent operation of the business" rather than as "responsible" behavior. If CSR activities are not profitable, then they cannot be undertaken voluntarily in a competitive market, and so must be imposed on all competitors using laws or regulations, in which case such activities are no longer CSR"*. This statement, coherent with previous contributions, can be referred, in a general way and with few exceptions, to companies that assume profit as the first target of their activities, and in that sense, Rivoli and Waddock's assumption seems not so different from the world famous quotation of Friedman (1962), related to the unique social responsibility of firms, that is profit maximization in the short run. At the same time, as said before, the literature on family firms generally documents that the financial performance is not the unique primary goal for a family business and that *"family firms often display a strong preference toward noneconomic outcomes"* (Zellweger and Nason, 2008).

Thus, the idea at the basis of the first paper is that family and non family firms have a different objective function approaching CSR activities, meaning with *"objective function"* the

reason at the basis of a CSR investment. On the one hand, non family firms undertake Corporate Social practices for a twofold reason: (a) because they implicitly assume that thanks to them it's possible to create – directly or indirectly - value for the company (intelligent operation of a business), or (b) because they are obliged to do so but, in this case, these actions cannot be considered CSR. On the other hand, family firms, giving their specific characteristics (Berrone et al. 2012, Tiscini and Raoli, 2013), may present different determinants of the undertaking process of CSR. Family firms, in other words, present unique perspectives of socially responsible behavior due to family involvement and ties to the community. For instance, a family owned company may be interested in investing in a CSR project that does not present an immediate return, but that may positively impact the firm's community or the relations with its employees.

In this sense, the paper develops an integrated framework to CSR decisions in family firms, distinguishing among (a) determinants, (b) dimensions and (c) motivations. These elements are linked to different aspects of the family socioemotional wealth theory (Gomez-Mejia, 2011), which shows how family owners tend to be guided by a very different set of motives in running their business and in approaching CSR decisions (Berrone et al., 2010). Starting from this consideration, the research proposes that family firms are particularly likely to engage in local CSR activities rather than non-local ones (focusing on the community) and their attention is focused on primary stakeholders (employees) rather than secondary stakeholders (Clarkson, 1995). At the same time, the attachment to the local community (and, hence, the investments in social actions related to the belonging community) is higher when the founder runs the business, while following generations have a weaker tie to the business and to the belonging community and are more inclined to open the business to new markets and, for this reason, to promote broad-based social actions (non-local).

The work contributes to both the extant CSR literature and family firms one, for several reasons. First, it argues that firms are not equal in their motives to approach CSR and family firms present peculiar features that heavily distinguish them from non family firms. Second, the paper proposes an integrated framework able to explain how and why family firms approach to CSR, suggesting that they tend to act differently from their non familiar counterparts. Given the role that family firms play within global economies and the increasing relevance of CSR investments, this first paper has significant practical implications for both family firms' managers and investors.

Continuing the analysis about CSR practices, the second paper analysed in Chapter 3 of this work has a more empirical approach. The paper wants to fill another gap in the literature about CSR, which refers to the relationship between CSR disclosure and firm's ownership structure. It is striking to note that very few previous studies have analysed how different kinds of ownership structure can affect the process of CSR disclosure (Secci, 2005; Frost and Seamer, 2004;

Campopiano and De Massis, 2015). More research and especially empirical analysis is still needed to understand this issue and for this reason the second paper of this work explores the question whether ownership structure influences firm's CSR communication about social principles and practices. In particular, three different ownership structures are considered: (i) family ownership, where the controlling shareholder is represented by the founding family or by the founder; (ii) State ownership, where the controlling shareholder is the State and (iii) dispersed ownership, where the ownership is split among a large number of unrelated individual investors. The differences among these three ownership structures are relevant and affect differently firm's CSR reporting process. With an empirical study, a content analysis on the CSR documents disclosed by 192 Italian listed firms in 2014 is firstly provided. Then, data are analysed using a logit regression model. The focus of the analysis is set in the Italian context, which seems to be a suitable background for the purpose of the paper because the presence of both family firms and State-owned firms is relevant (Corbetta and Montemerlo, 1999; Trento and Giacomelli, 2004; Secci, 2005; Caselli and Di Giuli, 2009; Campopiano and De Massis, 2015). The arguments of the paper are grounded on the *Agency Theory*, which offers several explanations for firms' differences based on their ownership structures. Final findings show that firms with concentrated ownership, both family and State-owned, disclose less CSR information related to the topics analysed when compared to firms with dispersed ownership. The paper contributes to the literature in several ways. First of all it contributes to the extant literature about CSR disclosure because it argues that firms are not equal in their approach to CSR, but that the contents of CSR disclosure change from firm to firm according to different ownership structures. Second, interesting results for the stream of literature studying family firms are presented, showing once again that all the particular features of this kind of firms influence their behaviour also in relation to the CSR disclosure process. Finally, the paper contributes to the less analysed stream of literature related to State-owned firms, that are very common in European countries where firms can be owned, to varying degrees, also by national governments.

After the examination of some CSR practices from theoretical and practical points of view, that can be considered as virtuous firm's behaviours, this work continues with the other side of the story: an empirical analysis of financial statements frauds provided in Chapter 4. Together with the CSR reports analysed in the second papers, firms disclose also another mandatory and more important report, their financial statements. As for the CSR reports, the main function fulfilled by financial statements is represented by all the economic, patrimonial and financial information disclosed. As stated in the *International Accounting Standard n.1 - Presentation of Financial Statements* (IAS 1), "The financial statements must "present fairly" the financial position, financial

performance and cash flows of an entity. Fair presentation requires the faithful representation of the effects of transactions, other events, and conditions in accordance with the definitions and recognition criteria for assets, liabilities, income and expenses". This assumption, that should lead managers in preparing financial statements, ensures external investors about the accuracy, correctness and truthfulness of all the information included in the financial statements. However, often this principle is not observed and managers may incur in some financial statements manipulations, like earnings management practices or, even, in financial statements frauds. Several reasons can be identified as motivations for financial statements manipulation, like debt covenants, bonus plans and income smoothing (Prencipe, Markarian, Rozza 2008). According to Kellog and Kellog (1991), the first two reasons for manipulation in financial statements are the possibility to encourage investors (both shareholders and creditors) and the possibility to increase stock's value for present shareholders.

Two different kind of financial statements manipulation can be identified: fraudulent accounting and earnings management. Fraudulent accounting is acted by a firm when it makes choices that violate GAAP. On the other side, with earnings management practices, managers do not act violating laws, because they use exactly that flexibility allowed by the regulation to manipulate the accruals or to deviate from normal operational practices, done to make some stakeholders believing in the results of the financial reporting (Roychowdhury, 2006).

Fraudulent accounting implies huge costs for firms, both financial and non financial (Kulikova and Satdarova, 2016). Financial costs can be identified in the loss of external investments and in the legal costs the firm has to sustain to repay its defrauded shareholders. Non financial costs refer to the drop of image and reputation and to the possible interruption of all the relations with external stakeholders. The financial statement fraud acted by Enron caused a loss in market capitalization of about $ 70 billion (Rezaee, 2005), while according to Cotton (2002), during the past several years investors sustained a cost for financial statements frauds higher than $ 500 billion.

Since these legal and reputational costs can be avoided using earnings management practices (Dechow, Sloan and Sweeney, 1996), the last paper of this work argues that firms involved in frauds have previously manipulated their financial statements through legal procedures, trying at first to show a better situation acting legally. Only when the earnings management practices are not enough to show a positive economic and financial situation, firms start to cheat on accounting numbers illegally. Thus, the baseline of this paper is the relation between the earnings management practices and the financial statement fraud. First, it aims to test if there is a connection between these two practices. Later, it introduces a new path of research, which investigates on the intensity

of the fraud. In other words, the paper tests if the existence of earnings management practices before the fraud occurrence affects the amount deceived with the fraud. The empirical analysis is conducted using a sample of 70 fraud and 70 no-fraud US firms and final results confirm the hypothesis that firms committing fraud of higher intensity have managed earnings in the two years before the fraud occurrence.

The relationship between frauds and earnings management can be seen as an interesting field of research not only because it helps to define an antecedent to fraudulent accounting, but also because fraud represents an event of huge interest for all the stakeholders of the firm, like auditors, regulators, employees, shareholders and creditors (Perols and Lougee, 2011). This paper contributes to the literature in several ways. Firstly, it contributes to the literature helping filling the existent gap about the relation between earnings management and financial statement frauds, a relation that received a little attention until today. Moreover, it introduces the study of the intensity of the fraud, not deeply investigated yet (Jones, Krishnan and Melendrez 2008). Then, practitioners could use the findings of this paper to implement tools and procedures through which they could reduce the fraud occurrence and/or their magnitude, reducing their impact on financial markets, keeping the trust of investors high.

After this introduction, the remaining of this work is organized as follow: in Chapter 2, the first theoretical paper about the different approach of family firms to Corporate Social Responsibility practices, as compared to their non familiar counterparts, is presented. Then, in Chapter 3, the second paper analyzing Corporate Social Responsibility disclosure in a sample of Italian firms in relation to their ownership structures is presented. The third paper, evaluating earnings management practices as antecedents to financial statements frauds, is presented in Chapter 4. Finally, this doctoral thesis concludes with an article about the economic sustainability of biobanks, which is presented in Chapter 5. For the first three years of my PhD program, I have benefited from a scholarship funded by Istituto Superiore di Sanità and during the second year, together with dott.ssa Mariarosaria Napolitano and dott.ssa Elena Bravo, we developed a paper which aims to be a guide for the implementation of business plans in biobanking and proposes models for the facilitation of their preparation, thus contributing to recognition of the importance of efficient management of resources of public health services. The paper has been published on "Biopreservation and Biobanking" in 2017. Even if the paper has any connection with the other three articles and with the main topics of my thesis, I included it in this final work in order to provide the results of my collaboration with the Istituto Superiore di Sanità.

An overview about the main information related to the papers (Journal submission, conference presentations, kind of data used, co-authors, kind of study) is presented in Table 1:

Table 1 – Thesis structure

Paper	Title	Research Question	Co-Authors	Type	Data	Conference/Paper
1	Are Family Firms and Non Family Firms different in approaching CSR? An integrated framework about WHY and HOW Family Firms engage in CSR.	*Do family family firms have a different objective function in approaching CSR as compared to non-family firms? Do family firms have more attention towards particular categories of stakeholders?*	Maria Federica Izzo Riccardo Tiscini	Conceptual	-	Paper presented at "11th workshop on family firm management research" EIASM in Lyon in 2015
2	CSR reporting and ownership structure: evidence from Italian listed companies	*Does CSR disclosure of Italian listed companies differ according to ownership structure?*	Maria Federica Izzo Marco Fasan	Empirical	Aida Database Hand collected data	Paper submitted to "Journal of Business Ethics"
3	Financial Statements Fraud: Does Their Intensity Have A Connection With Earnings Management?	*Earnings management can be considered as an antecedent to financial statements frauds?*	Barbara Sveva Magnanelli Elisa Raoli Riccardo Tiscini	Empirical	Osiris Database Fraudulent Financial reporting: 1998-2007 Database	Paper submitted to the Special Issue "New directions in earnings management and financial statement fraud research" of European Accounting Review
4	Business Planning in Biobanking: How to Implement a Tool for Sustainability	*Is it possible to use the business plan, which is an economic tool, to help the sustainability of biobanks?*	Mariarosaria Napolitano Elena Bravo	Conceptual	-	Paper published on "Biopreservation and Biobanking" in 2017

CHAPTER 2

Are Family Firms and Non Family Firms different in approaching CSR? An integrated framework about WHY and HOW Family Firms engage in CSR.

ABSTRACT

Extending the debate on Corporate Social Responsibility (CSR) and family firms we develop an integrated framework contending that in these firms CSR decisions are particularly driven by the attachment to the local community and the privileged relationship with employees. These elements are linked to different aspects of the family socioemotional wealth (Gomez-Mejia, 2007).

The proposed model suggests that, in CSR decisions, family firms take into account determinants and motivations that are partially different from the ones considered by their non familiar counterparts. In particular, family firms are heavily influenced by the tight connection to the belonging community and by the relationship with their employees.

At the same time, the attachment to the local community will be higher when the founder runs the business, while following generations will have a weaker tie to the community and will be more inclined to open the business to new markets and to promote global social actions.

Keywords: *Corporate Social Responsibility, Family firms, community, socioemotional wealth*

Introduction

Corporate Social Responsibility (CSR) has been explored from many points of view in the literature (Owen, 2008; Garriga and Melè, 2004; Gray, 2002) and its relations with performance (Margolis and Walsh, 2003), cost of debt (Dhaliwal et al., 2011; El Ghoul et al., 2011), intangibles (Fombrun, 2001, Jones et al., 2000; Schnietz and Epstein, 2005) and strategy (Husted and Allen, 2011; Siegel and Vitaliano, 2007) have been largely studied. The reasons for this increasing attention can be traced, on the one hand, to the pressure on firms' behavior arising from the social community and

environmental constraints (Davies, 2003; Freeman et al., 2001; Longsdon and Wood, 2002) and on the other hand, on the need to justify the large firms' investments, even in critical and crisis periods (Izzo, 2014). In this regard, knowledge gaps persist referring to the family firms approach to responsible initiatives. Family firms present unique perspectives of socially responsible behavior, as they recognize an indubitable priority to emotion-related actions and goals such as reputation, identity, image and environmental performance (Block, 2010; Deephouse and Jaskiewicz, 2013; Adams et al., 1996; Westhead et al., 2001; Botero, et al., 2013; Lee and Rogoff, 1996; Kepner, 1983; Westhead et al., 2001).

In this sense, the aim of this work is to clarify the concept of social responsibilities applied to a particular kind of companies, the family ones, extremely linked to the community and particularly influenced by governance issues (Litz and Stewart, 2000; Uhlaner et al., 2004). According to Aguilera *et al.* (2007) "an important new line of inquiry within this field is no longer whether CSR works but rather, what catalyzes organizations to engage in increasingly robust CSR initiatives and consequently impart social change". Thus, a good research opportunity exists to build up a model that clarify the existence of distinct conceptual motivations that lead family and non family firms to CSR investments and the corresponding dimensions and determinants.

According to our model, family firms can play a strategic role in creating social value, as they are more interested in it, independently from strictly economic reasons. They can be seen as preferential actors in creating shared value, defined by Porter and Kramer (2011), as "policies and operating practices that enhance the competitiveness of a company while simultaneously advancing the economic and social conditions in the communities in which it operates". The idea of Porter and Kramer is that the "traditional" trade-off between business and society no longer exists and that the new purpose of companies must be to create shared value and not just profit *per se*. In other words, the idea of the authors is that shared value is a new way to achieve economic success that can lead to "a bigger pie of revenue and profits," a redefinition of markets and resetting the boundaries of capitalism.

In a truly relevant contribution, Pietra Rivoli and Sandra Waddock (2011) acknowledge that: "If CSR activities are a profitable activity, then they are best

described as "intelligent operation of the business" rather than as "responsible" behavior. If CSR activities are not profitable, then they cannot be undertaken voluntarily in a competitive market and so must be imposed on all competitors using laws or regulations, in which case such activities are no longer CSR".

This affirmation can be referred, in a general way and with few exceptions, to companies that assume profit as the first target of their activities and in that sense, Rivoli and Waddock's assumption seems not so different from the world famous quotation of Friedman (1970) related to the unique social responsibility of firms.

At the same time, the literature on family firms generally documents that the financial performance is not the primary goal for a family business (Tagiuri and Davis, 1992; McGirven, 1989) and that "family firms often display a strong preference toward noneconomic outcomes" (Zellweger and Nason, 2008). In this way it's possible to shift the focus of business activity from just an economic value creation process, toward social value, the fundamental concept of sustainable finance.

Thus, our idea is that family and non family firms have a different objective function approaching CSR activities, meaning with "objective function" the reason at the basis of a CSR investment. On the one hand, non family firms undertake Corporate Social practices for two reasons: (a) because they implicitly assume that thanks to them it's possible to create – directly or indirectly - value for the company (intelligent operation of a business) or (b) because they are obliged to do so but, in this case, these actions could not be considered CSR. On the other hand, family firms, giving their specific features (Berrone et al. 2012, Tiscini and Raoli, 2013), may present different determinants of the undertaking process of CSR. Family firms, in other words, present unique perspectives of socially responsible behavior due to family involvement and ties to the community and employees. For instance, a family owned company may be interested in investing in a CSR project that does not present an immediate financial or economic return, but that may positively impact the firm's community or the relations with its employees.

In this sense, we develop an integrated framework to CSR decisions in family firms, distinguishing among (a) determinants, (b) dimensions and (c) motivations. These elements are linked to different aspects of the family socioemotional wealth theory (Gomez-Mejia, 2011), which shows how family owners tend to be guided by a

very different set of motives in running their business and in approaching CSR decisions (Berrone et al., 2010). Starting from this consideration, our research proposes that family firms are particularly likely to engage in local CSR activities rather than non-local ones (focusing on the community) and their attention will be focused on primary stakeholders (employees) rather than secondary stakeholders (Clarkson, 1995). At the same time, the attachment to the local community (and, hence, the investments in social actions related to the belonging community) will be higher when the founder runs the business, while following generations will have a weaker tie to the business and to the belonging community and will be more inclined to open the business to new markets and, for this reason, to promote broad-based social actions (non-local).

Our work contributes to both the extant CSR literature and family firms one, for several reasons. First, we argue that firms are not equal in their motives to approach CSR and family firms present peculiar features that heavily distinguish them from non family firms. Second, we propose an integrated framework able to explain how and why family firms approach to CSR, suggesting that they tend to act differently from their non familiar counterparts. Given the role that family firms play within global economies and the increasing relevance of CSR investments, this work has significant practical implications for both family firms' managers and investors.

The remainder of the paper is structured as follows: after the introduction, the second section starts with the analysis of the reasons at the basis of firm's investments in CSR activities (why firms engage in CSR), with a particular focus on the differences between family and non family firms. Then, in the third section, we analyze the different features of family firms' CSR decisions (how they invest in CSR) and we introduce our integrated framework by developing specific propositions about the relationship between Family Firms' CSR practices with regard to the local community and to employees. A final section concludes the article and summarizes the main findings and their implications and limitations. It also provides some suggestions for further research.

Theory and propositions

Theoretical Background. Why do Firms Engage in CSR?

Researchers and practitioners have developed numerous approaches to defying and studying CSR as well as other strictly related topics, as Corporate Social Performance, Corporate Reputation, the impact of CSR on financial performance or its relationship with stakeholders (Baron, 2001; Wood, 2010; Preston and O'Bannon, 1997).

It is impossible to reach a unique definition of CSR for two different kind of reasons (Dahlsrud, 2008): first of all because it is a concept in continuous evolution and, then, because firm's attention versus stakeholders changes during time. However, two main points of contact can be identified among the different definitions provided in literature: (a) the attention toward stakeholders (identified and classified in a number of ways), considered as central figures and (b) the voluntary basis of the company activities (Perrini and Minoja, 2008).

In this work we adopt Bowen's (1953: 6) definition of CSR, which suggests that firms' decisions are not simply driven by profit maximization paradigm and they should voluntarily seek to "pursue those policies, to make those decisions, or to follow those lines of action which are desirable in terms of the objectives and values of our society".

The first purpose of this research is to clarify the determinants of companies' CSR engagement. Traditionally, there are two main ways in which organizations are motivated to engage in CSR: moral and profit/instrumental.

According to the first stream of literature, there is a moral foundation underpinning social actions (Rawls, 1971) and, because of that, firms "do good" because it is the right thing to do and not because they can benefit from it. Donaldson (1982) divides moral obligations into two classes: direct and indirect. Direct obligations are those that a firm has toward its stakeholders and are specified by law or corporate charter; indirect obligations are not specified by any kind of formal agreement, but are related to the possibility of "treating competitors fairly, avoiding destroying small communities and preventing injury to members of the general public". So, according to this vision, a corporation should fulfill all the indirect obligations in order to benefit its stakeholders, even if the firm is not forced by law (Determinant n.1: CSR as a moral foundation).

The second stream of literature suggests that acting in a socially responsible way is also a profitable thing to do. According to this vision, a link between the Corporate

Social Performance and the financial performance can be identified (Waddock and Graves, 1997) and, for this reason, corporations will invest in social actions in order to take an advantage from them. Several researches show how the market rewards the companies able to provide environment-friendly products (Carlson et al., 1993) or that simply take care of the environment lowering the pollution emissions (Zaman et al., 1996). According to others, social actions can be also considered a marketing tool or, better, a way that companies use to "increase their visibility and place them in a more favorable position in the eyes of society in general and […] to keep old customers and gain new ones" (Anderson, 1989). This way of considering CSR shows the deep link with Stakeholders Theory: socially responsible actions will be rewarded over years by the support from suppliers, employees and customers (Galaskiewicz, 1985).

Focusing on this second approach and according to the instrumental view (Clarkson 1995; Donaldson and Preston 1995; Freeman 1984) companies invest in CSR because it's a profitable activity, as they can extract an additional value from it. Implicit in this reasoning is the assumption that, at least hypothetically, a positive link between CSR and financial performance exists (Determinant n.2: CSR as a profitable thing to do).

There are however, more recent papers that highlight the existence of a third motivation for organizations to engage in CSR. Relational motives can drive the choices of an organization when it acts in order to ensure the well-being of any group or individual engaged in a relationship with the firm. Examples of relational motives are: the need for social legitimation, the achievement of a balance between stakeholders' interests (Aguilera and Jackson, 2003) and the will to develop stable relationship with key partners that will lead to a future safety net (Determinant n.3: CSR as a relational leverage).

Each of the motives just mentioned is grounded in a well-known theory.

Stewardship Theory (Donaldson and Davis, 1991; Davis et al., 1997) supports the reasons for the moral foundation of CSR, as it suggests that there is a moral imperative for managers to 'do the right thing', pushing companies to consider themselves part of something bigger.

The Shareholder Theory clearly supports the instrumental approach to CSR, as it focuses on shareholder interests, puts attention on short term and looks at profit as the ultimate and sole objective of the organization.

The relational motives of CSR can be observed by adopting the lens of the Stakeholder Theory (Donaldson and Preston, 1995; Freeman, 1984; Clarkson, 1995) that affirms that if a company wants to have success, it has to create value not only for its shareholders, but also for "any group or individual that may affect or be affected by the achievement of business objectives" (Freeman, 1984).

[INSERT TABLE 2.1 HERE]

The above arguments suggest that, assuming CSR as a profitable thing to do, three main motivations can push companies (or their managers) toward such investments: the possibility to obtain long-term (financial) results; the will of creating a good corporate reputation; the pursuing of personal interests related to the executive job market. These motivations can be categorized into two different dimensions: opportunistic behaviors and corporate benefits.

Considering together all the cited elements: determinants, motivations and dimensions of CSR choices, we propose a model of social responsibility decisions that can be presented by two axes (see Figure 2.1).

[INSERT FIGURE 2.1 HERE]

Instrumental versus moral vision of corporate social responsibility

The vertical axis represents the two extremes of the companies' perception of CSR. The negative side of the axis represents companies that decide to engage in CSR considering it as a moral foundation. According to this way of thinking CSR activities must be undertaken even if the related costs are higher than the related benefits: fulfilling social responsibilities has a value *per se*, independently from its economic impact on companies' performance. In this sense, the companies' motivation in

approaching CSR is the moral obligation that they perceive, operating as a social actor into the market.

The positive side of the vertical axis represents companies that perceive CSR as a profitable activity and engage in it as they value the long-term benefits of social actions as higher than the related costs.

... benefits of social commitment

The horizontal axis introduces two different approaches to CSR (opportunistic behavior and company benefits) analyzing the determinants of social responsible activities. The far left of the axis represents those companies that invest - and in some cases overinvest – in CSR activities as a result of an opportunistic behavior of their managers that want to be recognized by the market as socially responsible.

On the other hand, the far right of the axis represents companies that attend to meet society expectations (i.e. in terms of pollution reduction; environment protection; community development) as they are convinced that in this way they can create long-term value and leverage, in order to increase this value, on the intangible effects of good CSR and on corporate reputation.

Regardless the specific motivation that leads the company to invest, we are assuming that companies engage in CSR activities as they can create value. This value could be defined in a number of ways, but indubitably it could be measured through the benefits caused by these activities.

The literature surrounding social issues presents a number of potential benefits related to CSR investments distinguishing between internal and external ones. In particular, Orlitzky et al. (2003), classifying CSR as an organizational resource, define internal benefits as the effects related to the development of new competencies, resources and capabilities that are manifested in a firm's culture, technology, structure and human resources, while external benefits are focused on the creation and maintenance of firm reputation.

In this sense, CSR activities that create internal benefits are related to making operating processes more efficient, with a lower consumption/waste of resources (Menon et al., 1997, Thorpe and Prakash-Mani, 2003) and differentiation effect on the

company's product (Mc Williams and Siegel, 2001; Thompson and Thompson, 2006). A company can decide to label its products as responsible ones (i.e. organic food; hybrid cars) in order to charge a higher price premium that some classes of customers are willing to pay. At the same time, a new packaging strategy that reduces the utilization of materials could be interpreted both as a responsible activity and as a direct reduction of production costs.

Moreover, thanks to good relationship with employees (internal benefits) companies can leverage on good morale and improve their productivity rates (Greening and Turban, 2000; Branco and Rodrigues, 2006). A lot of authors underline that socially responsible companies can attract more skilled and motivated employees and present a better employees retention rate. These elements have an undeniable impact on the human and moral capital (Orlitzky et al., 2003; Godfrey 2005) that can increase the perceived value (tangible and intangible) of the entire company. From a financial point of view, companies can reduce both the risk profile and the costs of debt and increase their financial performance through a proper and appropriate CSR strategy.

The external benefits are mainly related to the favorable relationships that companies can develop and maintain thanks to CSR activities and that can act as a driving force in business success. Examples of these benefits are linked to the establishment of better relationship with customers - that became more loyal - and to the positive impact of CSR on risk. Some categories of costumers, i.e., prefer to buy products from companies recognized as "socially responsible" and private investors and pension funds are more willing to invest in shares of those companies as they are both less risky and credible on the market.

An overview of the literature about CSR benefits together with their categorization between internal and external benefits are presented in table 2.2. In the same table each benefit is analyzed in relation to the three determinants previously indicated as the main reasons that push companies to invest money in CSR activities: long-term returns, job market recognition and corporate reputation.

[INSERT TABLE 2.2 HERE]

Motivations of CSR engagement. Family Firms vs Non Family Firms

Family firms represent the most ancient form of business organization (Miglietta, 2009) and empirical evidences show how still nowadays, both in emerging countries and in developed ones, they significantly contribute to the general economic growth. Even though several definitions about the concept of family firm are present in literature, all the authors agree in affirming that a family business is a complex system of interactions between three fundamental elements: the family, the property and the management. In this paper we use the term Family firms for short to refer to firms that are fully owned by families or where a family represents the dominant shareholder.

Generally speaking, Family firms tend to differ from non family firms in terms of their backgrounds, ownership structure and time horizon. In particular, several elements distinguish a family controlled company from a firm with a dispersed ownership (for a complete review, see Gomez-Mejia et al., 2011). Gomez-Mejia et al. (2007), analyzing these differences, formulated a socioemotional wealth model that became a pillar in the most recent literature about family firms.

Among the others, the main differences between family and non family firms are the following: (a) the separation between ownership and control, present in firms with a dispersed ownership and absent when the ownership is concentrated into the hands of the controlling family; (b) the different target that they want to reach, that is the maximization of the economic wealth created for shareholders, typical target of a non family firm, versus the possibility to pass on the business to the following generation, in the case of a family firm and, finally, (c) the short-term orientation of non family firms versus the long-term orientation of family businesses.

Consequently, this assumption would lead us to suggest that family firms will engage in responsible activities in order to create and maintain value in the long-term. One of the reasons behind this assumption is that for a family firm one of the most important targets is represented by the possibility to pass on the business to the following generations (Ward, 2004), in order to keep the business in the family and the family in the business. As defined by Chua et al. (1999), a peculiar feature of family businesses is the intention to pass on the business to future generations, which is an aspiration that requires a long-term orientation. In order to do that, all the investment's projects, growth targets, strategic decisions and, particularly relevant here, CSR activities, will be taken in a trans-generational perspective (Miglietta, 2009).

Non family firms, instead, are less driven by long-run determinants in approaching CSR, as they are naturally affected by short-termism. The short run orientation is a typical feature of those firms where there is a strong separation between ownership and control. Fama and Jensen (1983) assert that in widely held corporations, where the ownership is divided among lots of little shareholders, managers running the business could act in their own interests, which are not the same interests of the owners. This because, while on the one hand owners are more interested on the long-run performance of the business, on the other hand managers tend to run the business focusing on the short-run performance targets.

In relation to the second CSR motivations as previously defined (corporate reputation), both family and non family firms appear particularly sensitive to this aspect as, nowadays, it represents a crucial key factor for companies' success.

Family firms can use social actions, particularly towards some categories of stakeholders, to increase their family reputation and visibility. The potential benefits of these activities could be even more effective if the name of the family is present both in the product sold and in the foundation, often created in order to support responsible projects (Schillaci *et al.*, 2013) (in the fashion industry, i.e., Fondazione Brunello Cucinelli is particularly active in promoting social and human values, aiming at creating good relationships among people and respect of diversity) or when the name of the firm's founder present in the foundation is implicitly and immediately associated with the name of the product (like in the case of the Bill and Melinda Gates foundation, active in medical research, fight against poverty and education). Moreover, as one of the most relevant topic in family business is the possibility to pass on the business to the following generation, Family firms will try to avoid any negative publicity (regarding, for examples, a labor strike or customer complaints about defective products) that could compromise their presence on the market (Post, 1993). On the point, Block (2010) affirms that "compared to other types of firm owners, family owners should therefore be more likely to care about their reputations for social responsibility in the community in which their firm is located and should have a higher degree of interest in avoiding being connected to CSR concerns by the general public".

The role of reputation in CSR engagement (Fombrun, 2001; Schnietz and Epstein, 2005) is well known also by non family firms that usually leverage on it, as it

acts as a reservoir of goodwill (Jones et al., 2000) or assurance for the firm and can be considered as a valuable, rare, non-substitutable and inimitable resource that can participate in the competitive advantage creation process (Russo and Fauts, 1997).

Non family firms are also pushed toward CSR by the personal interests of managers that may seek to over-invest in CSR for their private benefit to the extent that doing so improves their reputations as good global citizens (Barnea and Rubin, 2010). This conduct can decrease shareholder value as it implies a waste of resources and an increase in costs not justified by related benefits. Similarly, at what occurred in relation to the short term or long-term orientation, the separation between ownership and control – typical feature of non family firms – represents the major cause for this misconduct.

Thus, in family firms, where this separation is absent – as managers are often a control family member or strictly tied to the family –, typical determinants linked to the executive job market are less relevant (Prencipe et al., 2008) and definitively not impacted on CSR decisions.

The preceding discussion clearly suggests that CSR motivations can vary for family and non family firms, according to the motivations previously illustrated, as summarized in Figure 2.2.

[INSERT FIGURE 2.2 HERE]

As we have previously specified, we focus on the instrumental view of CSR (Clarkson 1995; Donaldson and Preston 1995; Freeman 1984), assuming that firms invest in CSR considering it as a profitable activity. For this reason, we consider only the upper part of figure 2.2, which is better detailed in figure 2.33, showing how CSR dimensions considered from an instrumental point of view can vary for family and non family firms.

[INSERT FIGURE 2.3 HERE]

How do Family Firms Engage in CSR?

As stated previously, family and non family firms differ with reference to their CSR approach in terms of determinants that push them toward such investments. In

other terms it's possible to notice that family and non family firms are driven by a differ "why" when they engage in CSR.

Likewise, we argue that CSR behavior of family and non family firms also differ in relation to "how" they are defined and undertaken from a strategically point of view (i.e. decision to invest on pollution reduction vs. support for employees' family education) and in relation to the value system of each kind of companies.

Companies have, usually, a limited budget available for social activities and thus the choice among the different CSR activities they can invest in is strongly influenced by firms' intrinsic features and by the higher or lower attention toward certain classes of stakeholders.

Family firms identify the importance of their relationships with the local community as a pivotal factor for their long-term success (Lorraine et al., 2004). This concept can be translated in practice through a number of actions: family firms usually prefer to maintain the production processes - or at least a big part of them - in the original places; they invest in renovation or restoring of public facilities (in 2010 Tod's donated to the community a new primary school in Casette d'Ete, the small village in which the founder established the company) or historical sites significant for the belonging community (in 2008 Brunello Cucinelli S.p.A. sponsored the restoring of the village of Solomeo, creating a theatre and common spaces for the community), contributing to the welfare of the local community.

This link between the family and the belonging community, then, represents a fundamental element in the value system of family firms. The above arguments suggest that family firms consider the local community as a privileged stakeholder. This lead to the following preposition:

Proposition 1a: Family firms are particularly likely to engage in social initiatives related to the belonging community.

When the control of a family firm passes from the founder to the heir (or from a generation to the following one) firm values can change with a potential deep impact on vision, strategies and operating choices.

Especially the first succession represents one of the most difficult challenges for a family firm, because the founder usually feels that the business is an extension of himself/herself (Levinson, 1971) and he/she is really averse to abandon the firm he has created. This attachment to the business becomes less strong in the following generations, leading in some cases to different investment's decisions in CSR. Moreover, the tie to the local community (and territory) is high for the founder that feels he/she owes community - that permitted his/her company to raise and grow - something. In other terms, this linkage depends on the opportunities that the founder has derived from the local community and that he wants to give back as a sort of "moral foundation".

This social/moral obligation becomes less intense when the heirs manage the company, as this sense of "giving in return" weakens.

Generally speaking, the trans generational succession can lead to an increase in the company dimension and the development of internalization processes. In some cases these tendencies can shift the attention of the entrepreneur from a local focus to a more global one. Example of this shift can be found in the relocation of production process, uproot of employees and higher attention to social problems that present a global impact (pollution reduction, human rights, non-indigenous people relations). A clear example of this change in family firm conduct with respect to its belonging community is represented by FCA Group, previously Fiat S.p.A., that has recently decided to heavily reduce the investments in Italy, relocating a big part of its production abroad (with a dramatic impact on employment rates for Italian workers and satellites activities) together with its headquarter.

Fiat S.p.A. was founded in 1899 by Giovanni Agnelli sr. Currently it is controlled by the fourth generation and it is run by an external manager.

In relations to the CSR dimensions previously introduced (CSR as profitable activity or moral foundation) and the evolution of family firms caused by trans generational succession, it's possible to outline a matrix that monitors the different life stages of a family firm, as presented in Figure 2.4. We distinguish between: stage 1, representing the foundation of the company; stage 2, denoting a first evolution of the company that is still attached to the local community (in relation both to this productive activity and CSR focus) but perceives the potential economic benefits of social actions;

stage 3, representing the last step of its transition, in which the differences between family and non family firms are substantially reduced and both perceive CSR as a profitable activity that has to be implemented with a global focus, even if the family firms keep on maintaining some ties to the original local community.

[INSERT FIGURE 2.4 HERE]

In the light of the above, the attachment to the local community (and, hence, the investments in social actions related to it) will be higher when the founder or his/her relatives (founder-related generations) run the business, while following generations (non founder-related generations) will have a weaker tie to the belonging community, feeling lower moral debts for the entrepreneurial opportunity and being more inclined to open the business to new markets and, for this reason, to promote broad-based social actions.

Formally stated:

Proposition 1b: Founder-related generations of family firms are more likely than non founder-related generations to engage in social initiatives related to the belonging community.

The stronger link between family firms and some particular kind of stakeholders has been stressed by several authors (Bingham, Gibb Dyer, Smith and Adams, 2011; Gnan and Montemerlo, 2002), in order to highlight how promoting actions that have a social return is an intrinsic feature of family controlled companies. According to this approach, employees represent a key stakeholder the family firms particularly cares about.

Using this relational approach toward stakeholders, family businesses will have a greater respect for employees, because they see them as partners more than simple counterparts in their transactions. In doing so, family firms stimulate and strength the employees' identification with the firm and foster the family's socioemotional wealth.

According to Gomez-Mejia et al. (2011: 664), in family firms rewarding tenure implies supporting employees for their loyalty to the firm and hence the family (Davis

and Harveston, 2001; Gersick et al., 1997). In 2012, after the successful listing on the Italian Stock Exchange of Brunello Cucinelli S.p.A., the family entrepreneur and founder Brunello Cucinelli decided to distribute a big part of the net profit of the year (5 million of Euro) to its 783 employees, that received for Christmas a bonus of 6.385 Euro each.

In addition to that, the time horizon of the relationship with the employees influences the family firms' activities. A family manager is generally stuck in the business and he/she wants to tie the employees to the business in the long time. On the opposite, an external and professional manager knows he/she will probably change job in future (as we discussed above in relation to CSR determinants and the role played by the executive job market) and his/her relationship with the employees will be focused primarily on short period productivity and results.

Thus,

Proposition 2*:* Family firms are particularly likely to engage in social initiatives related to their employees.

Conclusions and Implications

Family firms play a significant role in the global economy and over the last decades both academics and practitioners have largely studied this topic and its interrelations with the different aspects of firm activity, firm performance and firm communication processes.

Recently, this debate has been extended in order (a) to analyze the relationship between Corporate Social Responsibility or Corporate Social Performance (CSP) and family firms and (b) to examine the differences in social activities between family e non family firms.

According to Bingham et al. (2011: 566) "whether family firms engage in more CSP activity than non family firms and the conditions under which family firms engage in socially responsible initiatives *vis-à-vis* certain stakeholders, however, remain fundamental questions for researchers interested in better understanding family firms". Past research on the topic, in fact, has highlighted contrasting and non-unanimous empirical results that have prompted calls for additional research aimed to "explore and

understand the conditions that would encourage family firms to support CSP initiatives" (Dyer and Whetten, 2006: 796).

In our opinion, formulating the debate in terms of "who invest and who don't invest"; "who invest more and who less" or "who get higher results from its investments" is misleading. Our theory posits a differential approach to CSR investments of family firms and non family firms and, consequently to the relationships between them and performance. Formulating CSR decisions, family firms primarily take into account the community and employees welfare, while non family firms present different decision drives linked to environment, global welfare, human rights and so on.

In this sense, family firms implement CSR actions that are driven by their value propositions (that are structurally different from the non family firms' ones) and that favor certain types of stakeholders. In particular, family firms' decisions are heavily influenced by the tight connection to the belonging community. Companies that are active in community involvement distinguish themselves from their competitors and can obtain many benefits, including loyal customers and productive employees. But the reasons that push family firms toward their community are different and nobler: in the majority of the cases the family members want to give the community, that permitted them to operate, something back. On the website of Honda this effort is clearly stated: the company intends "to be a company that society wants to exist. This is what drives us. One of the ways we express this is by giving back to the communities where we work and live. Through a broad range of community initiative, charitable giving, foundation grants and volunteerism, we seek to create value for society and bring joy to people's life".

Moreover, family firms recognize employees as privileged stakeholders and tend to stimulate and strengthen the employees' identification with the firm and foster the family's socioemotional wealth. In other terms, we argue, according to Bingham et al. (2011), that CSR policies (and consequently CSP) can be explained by the company's orientation toward certain types of stakeholders, in particular employees.

Given the role that family firms play within global economies and the increasing relevance of CSR investments, this work has significant practical implications for both family firms' managers and investors. In particular, our claim that the CSR approach of family firms depends on the underlying orientation (local or non-local) and on the type

of stakeholder chosen as privileged ones (employees or other) can help managers in properly defining the CSR strategy that can create more value for shareholders (on the strategic adoption of CSR, see Werther and Chandler 2010). At the same time, investors, increasingly interested in CSR activities (thanks to their effect on reputation, reduction on risk, legitimacy and so on) could use this framework in order to better evaluate their potential investment opportunities in family firms.

In this paper we addressed three main propositions that we consider relevant for a future development in academic research. Voluntarily, at this stage of analysis, we do not formulate and test hypothesis as our major intention is to highlight theoretical and empirical challenges that scholars need to take into account when addressing issues related to CSR practices in family firms. In other terms, our intention is to offer some possible directions for future work in this area. One key path to improving the flourishing debate on family firms and CSR, would be represented by testing aspects of the model proposed herein. An additional effort in measuring the effect of family firms' decisions about CSR initiatives could be highly recommended. Therefore, it could be useful to undertake quantitative studies to adding evidence that can better support and explain our results. On the point we recommend that future research adopt different measures of performance since family goals, as pointed out so often in this contribution, are frequently non financial in nature (Chrisman *et al.*, 2012; Zellweger *et al,* 2012). According to Guidice *et al.* (2013), "this approach will allow researchers to explore possible differences in goal emphasis between family and non family executives".

Another point that cannot be undervalued refers to a limit of this contribution that, at this stage of analysis, treats family firms as a homogenous group, not considering that elements as the level and extent of family's involvement, the dynamics between the family and the business system, together with size, capitalization or the history of the organization can heavily affect their behavior and their approach to CSR.

References

Adams, J. S., Taschian, A., & Shore, T. H. (1996). Ethics in Family and Non-Family Owned Firms: An Exploratory Study. Family Business Review, 9(2), 157-170.

Aguinis, H., & Glavas, A. (2012). What we know and don't know about corporate social responsibility a review and research agenda. Journal of Management, 38(4), 932-968.

Angel, J.J. and Rivoli, P. 1997. 'Does Ethical Investing Impose a Cost upon the Firm? A Theoretical Perspective', Journal of Investing 6(4), 57-64.

Aragón Amonarriz, C., & Iturrioz Landart, C. (2014). Responsible family ownership in small-and medium-sized family enterprises: an exploratory study. Business Ethics: A European Review.

Barnea, A. and Rubin, A. 2010. 'Corporate Social Responsibility as a Conflict Between Shareholders', Journal of Business Ethics, 97, 71–86.

Baron, D.P. 2001. 'Private politics, corporate social responsibility and integrated strategy'. Journal of Economics and Management Strategy, 10(1), 7-45

Bearle, A. and Means, G. 1932. 'The Modern Corporation and Private Property', Macmillan, New York.

Berrone, P., Cruz, C. and Gomez-Mejia, L.R. 2012. 'Socioemotional Wealth in Family Firms Theoretical Dimensions, Assessment Approaches and Agenda for Future Research'. Family Business Review.

Berrone, P., Cruz, C., Gomez-Mejia, L.R. and Larraza-Kintana M. 2010. 'Socioemotional Wealth and Corporate Responses to Institutional Pressures: Do Family-Controlled Firms Pollute Less?', Administrative Science Quarterly, 55, 82-113.

Bingham, J.B., W.Jr., Gibb Dyer, I., Smith and G.L. Adams 2011. 'A Stakeholder Identity Orientation Approach to Corporate Social Performance in Family Firms', Journal of Business Ethics, 99, 565-585.

Botero, I. C., Thomas, J., Graves, C. and Fediuk, T. A. 2013. 'Understanding multiple family firm identities: An exploration of the communicated identity in official websites'. Journal of Family Business Strategy, 4(1), 12–21.

Botosan, A.C. 1997. 'Disclosure level and the cost of equity capital', The Accounting Review; 72, 3.

Aguilera, R. V., Rupp, D. E., Williams, C. A., & Ganapathi, J. (2007). 'Putting the S back in corporate social responsibility: A multilevel theory of social change in organizations'. Academy of management review

Aguilera, R. V., & Jackson, G. (2003). 'The cross-national diversity of corporate governance: Dimensions and determinants'. Academy of management Review

Bowen, H.R. 1953. Social Responsibilities of the businessman (Harper Row, New York).

Branco, M.C. and Rodrigues, L.L. 2006. 'Corporate social responsibility and resource based perspectives', Journal of Business Ethics, vol. 69, pp. 111-132.

Campopiano, G., De Massis, A., & Chirico, F. (2014). Firm Philanthropy in Small- and Medium-Sized Family Firms The Effects of Family Involvement in Ownership and Management. Family Business Review, 27(3), 244-258.

Campopiano, G., De Massis, A., & Chirico, F. (2014). Firm philanthropy in small- and medium-sized family firms: The effects of family involvement in ownership and management. Family Business Review, 27(3), 244-258.

Carlson, L., Grove, S. and Kangun, N. 1993. 'A content analysis of environmental advertising claims: a matrix method approach'. Journal of Advertising, 22, 27-39

Carrol, A.B. 1991. 'The pyramid of corporate social responsibility: Toward the moral management of organizational stakeholders'. Business horizon, Vol 34

Carroll, A.B. 1979. 'A three-dimensional conceptual model of corporate social performance'. Academy of Management Review 4: 497-505

Cennamo, C., Berrone, P., Cruz, C., & Gomez-Mejia, L. R. (2012). Socioemotional wealth and proactive stakeholder engagement: Why family-controlled firms care more about their stakeholders. Entrepreneurship Theory and Practice, 36(6), 1153-1173.

Chrisman, J.J., Chua, J.H., Pearson, A.W. and Barnett, T. 2012. 'Family involvement, family influence and family-centered non-economic goals in small firms'. Entrepreneurship Theory and Practice, 36, 267-293

Clarkson, M. B. 1995. 'A stakeholders framework for analyzing and evaluating corporate social performance', Academy of Management Review 20.

Cruz, C., Larraza-Kintana, M., Garcés-Galdeano, L., & Berrone, P. (2014). Are family firms really more socially responsible? Entrepreneurship Theory and Practice, 38(6), 1295-1316.

Cruz, C., Larraza-Kintana, M., Garcés-Galdeano, L., & Berrone, P. (2014). Are family firms really more socially responsible? Entrepreneurship Theory and Practice, 38(6), 1295-1316.

Davis, J. H., Schoorman, F. D., & Donaldson, L. (1997). 'Toward a stewardship theory of management'. Academy of Management review

Davies, R. (2003). 'The Business Community: Social Responsibility and Corporate Values'; in John H. Dunning (ed.), MakingGlobalization Good: TheMoralChallenge ofGlobal Capitalism. Oxford: Oxford University Press.

Déniz, M. D. L. C. D., & Suárez, M. K. C. (2005). Corporate social responsibility and family business in Spain. Journal of Business Ethics, 56(1), 27-41.

Deephouse, D. L., & Jaskiewicz, P. (2013). Do family firms have better reputations than non-family firms? An integration of socioemotional wealth and social identity theories. Journal of Management Studies, 50(3), 337-360.

Dhaliwal, D.S., Zhen Li, O., Tsang, A. and Yang, Y.G. 2011. 'Voluntary Nonfinancial Disclosure and the Cost of Equity Capital: The Initiation of Corporate Social Responsibility Reporting', The Accounting Review, Vol. 86

Di Giulio, A., Migliavacca, P.O., Tencati, A. 2007. What relationship between Corporate Social Performance and the cost of capital?, Working Paper, Bocconi University.

Donaldson T. and Preston, L.E.. 1995. The Stakeholder Theory of the Corporations: Concepts, evidence and implications, Academy of Management Review, 20, 65-91

Donaldson, T. 1982. 'Corporations and morality'. Englewood Cliffs, NJ: Prentice-Hall

Donaldson, L., & Davis, J. H. (1991). 'Stewardship theory or agency theory: CEO governance and shareholder returns. Australian Journal of management'

Dyer, W.G. Jr. and Whetten, D.A. 2006. 'Family Firms and Social Responsibility: Preliminary Evidence from the S&P 500', Entrepreneurship: Theory and practice 28, 391-409

El Ghoul, S., Guedhami, O., Kwok, C.C.Y. and Mishra D.R. 2011. 'Does corporate social responsibility affect the cost of capital?', Journal of Banking and Finance, Vol. 35

Fama E.F., Jensen, M.C. 1983. 'Separation of ownership and control'. Journal of law and economics Post, 1993

Feliu, N., & Botero, I. C. (2015). Philanthropy in Family Enterprises A Review of Literature. Family Business Review, 29(1), 121-141

Fombrun, C.J. 2001. 'Corporate Reputations as Economic Assets, in The Blackwell Handbook of Strategic Management', Hitt, M.A., R.E. Freeman and J.S. Harrison (eds.), Blackwell Publishers Inc., Malden, MA., 289-312.

Freeman, R.E. 1984. 'Strategic management. A stakeholder approach'. Pitman/Ballinger, Harper Collins

Freeman, B., Pica, M. B., & Camponovo, C. N. (2000). 'A new approach to corporate responsibility: The voluntary principles on security and human rights'. Hastings Int'l & Comp. L. Rev

Friedman, M. 1970. 'The Social Responsibility of Business is to Increase its Profits'.

Galaskiewicz, J. 1985. 'From selfinterest to enlightened self-interest'. Orlando, FL: Academic Press

Garriga, E., Melè, D. 2004. 'Corporate social responsibility theories: Mapping the territory', Journal of Business Ethics, 53 (1/2), 51-71.

Gersick, K., Davis, J., Hampton, M. and Lansberg, I. 1997. Generation to generation: Life cycles of the family business. Boston: Harvard Business School Press.

Gnan, L. and Montemerlo, D. 2002. 'The multiple facets of family firms' social role: empirical evidence from Italian Smes'. Research Forum proceedings of the Family Business network 13th Annual ConferenceDavis & Harveston, 2001

Godfrey, P.C. 2005. The relationship between corporate philanthropy and shareholder wealth: A risk management perspective. Academy of Management Review, 30(4), 777–798.

Gomez-Mejia, L.R., Cruz, C., Berrone, P. and De Castro, J. 2011. 'The bind that ties: Socioemotional wealth preservation in family firms'. Academy of Management Annals, 5, 653-707.

Gomez-Mejia, L.R., Haynes, K., Nuñez-Nickel, M., Jacobson, K. J. L. and Moyano-Fuentes, J. 2007. 'Socioemotional wealth and business risks in family-controlled firms: Evidence from Spanish olive oil mills'. Administrative Science Quarterly, 52, 106-137.

Gray, R. H. 2002. 'The social accounting project and Accounting, Organizations and Society: Privileging engagement, imaginings, new accountings and pragmatism over critique', Accounting Organizations and Society, 27(7), 687–708.

Greening, D.W., Turban, D.D.A.U.o.M. 2000. Corporate social performance as a competitive advantage in attracting a quality workforce, Business and Society 39, no. 3, 254-280.

Griffin, J. and Mahon, J. 1997. The corporate social performance and corporate financial performance debate. Twenty-five years of incomparable research, Business and Society, 36(1), 5-31.

Guidice, R.M., Mero, N.P. and Greene, J.V. 2013. 'Perceptions of accountability in family business: Using accountability theory to understand differences between family and non family executives?, Journal of Family Business Strategy, 4, 233-244.

Husted, B.W., Allen, D.B. 2011. 'Corporate Social Strategy. Stakeholder Engagement and Competitive Advantage, Cambridge University Press.

Izzo, M.F. 2014. Bringing Theory to Practice: how to extract value from Corporate Social Responsibility, Journal of Global Responsibility, 5(1), 22-44.

Jones, H. J.; Jones, B.H. and Little, P. 2000. 'Reputation as Reservoir: Buffering Against Loss in Times of Economic Crisis', Corporate Reputation Review, 3 (1), 21-29.

Kellermanns, F. W., Eddleston, K. A., & Zellweger, T. M. (2012). Extending the socioemotional wealth perspective: A look at the dark side. Entrepreneurship Theory and Practice, 36(6), 1175-1182.

Kepner, E. 1983. 'The family and the firm: A coevolutionary perspective'. Organizational Dynamics, 12(1), 57–71.

Le Breton-Miller, I., & Miller, D. (2015). Family firms and practices of sustainability: A contingency view. Journal of Family Business Strategy.doi:10.1016/j.jfbs.2015.09.001

Lee, M. S. and Rogoff, E. G. 1996. 'Research note: Comparison of small businesses with family participation versus family businesses without family participation: An investigation of differences in goals, attitudes and family/business conflict'. Family Business Review, 9(4), 423–437.

Levinson, H. 1971. 'Conflicts that plague the family business'. Harvard Business Review, March/April, 71-80

Litz, R. A. and Stewart, A. C. 2000. 'Charity begins at home: Family firms and patterns of community involvement'. Nonprofit and Voluntary Sector Quarterly, 29(1), 131–148

Logsdon, J. M., & Wood, D. J. (2002). 'Business citizenship: From domestic to global level of analysis'. Business Ethics Quarterly

Lorraine, M.U., Van Goor-Balk, H.J.M., Masurel, E. 2004. 'Family business and corporate social responsibility in a sample of Dutch firms'. Journal of small Business and Enterprise Development

Margolis, J.D. and Walsh, J.P. 2003. Misery loves companies: Rethinking social initiatives by business. Administrative Science Quarterly, 48(2), 268–304.

Marques, P., Presas, P., & Simon, A. (2014). The heterogeneity of family firms in CSR engagement: The role of values. Family Business Review, 27(3), 206-227.

McGirven, C. 1989. 'The dynamics of management succession: a model of chief executive succession in the small family firm'. Family Business Review

McGuire, J.B., Sundgren, A., Schneeweis, T. 1988. 'Corporate Social Responsibility and Firm Financial Performance'. Academy of Management Journal.

McWilliams, A., Siegel, D. 2000. 'Corporate social responsibility and financial performance: correlation or misspecification?'. Strategic Management Journal, Vol 21

McWilliams, A., & Siegel, D. (2001). Corporate social responsibility: A theory of the firm perspective. Academy of Management Review, 26(1), 117-127.

Menon, A. and Menon, A. 1997. 'Environmental marketing strategy: the emergence of corporate environmentalism as marketing strategy', Journal of Marketing 61, 51-67.

Miglietta, N. 2009, 'Family Business', Cedam, Padua.

Miller, D., & Breton-Miller, L. (2014). Deconstructing socioemotional wealth. Entrepreneurship Theory and Practice, 38(4), 713-720.

Mitchell, R. K., Agle, B. R., Chrisman, J. J., & Spence, L. J. (2011). Toward a theory of stakeholder salience in family firms. Business Ethics Quarterly, 21(02), 235-255.

Neubaum, D. O., Dibrell, C., & Craig, J. B. (2012). Balancing natural environmental concerns of internal and external stakeholders in family and non-family businesses. Journal of Family Business Strategy, 3(1), 28-37.

Orlitzky, M., Schmidt, F. L. and Rynes, S.L. 2003. 'Corporate social and financial performance: A meta analysis', Organization Studies, 24, 403–441

Owen, D. 2008. 'Chronicles of wasted time? A personal reflection on the current state of and future prospects for, social and environmental accounting research', Accounting, Auditing & Accountability, 21(2), 240-267.

Pava, L. and Krausz, J. 1996. The association between corporate social responsibility and financial performance, Journal of Business Ethics, 15, 321-357

Perrini, F. and Minoja, M. 2008. 'Strategizing corporate social responsibility: evidence from an Italian medium-sized, family-owned company'. Business Ethics: A European review, Vol 17, n1

Porter M.E. and Kramer, M.R. 2011. 'The Big Idea: Creating Shared Value: How to reinvent capitalism – and unleash a wave of innovation and growth', Harvard Business Review, January –February, 62-77

Prencipe, A., Markarian, G. and Pozza, L. 2008. Earnings management in family firms. Evidence from R&D cost capitalization. Family Business Review, 21(1), 71-88.

Preston, L.E. and O'Bannon, D.P. 1997. 'The corporate social-financial performance relationship: atypology analysis'. Business & Society, 36:4, 419–429.

Rawls, J. 1971. 'A theory of justice'. Cambridge, MA: Harvard University Press

Rivoli, P., Waddock, S. 2011. 'First They Ignore You...': The Time Context Dynamic and Corporate Responsibility, California Management Review, Winter 2011, 53 (2) 87-104.

Russo, M.V. and Fauts, P.A. 1997. 'A resource based perspective on corporate environmental performance and profitability', Academy of Management Journal 40, 534-559

Schillaci, C.E., Romano, M., Nicotra M. 2013. 'Family business foundations: theoretical and empirical investigation', Journal of Innovation and Entrepreneurship

Schnietz, K. E., Epstein, M.J. 2005. 'Exploring the financial value of a reputation for corporate social responsibility during a crisis', Corporate Reputation Review, 7(4), 327–345

Sharma, P., & Sharma, S. (2011). Drivers of proactive environmental strategy in family firms. Business Ethics Quarterly, 21(2), 309-334.

Siegel, D.S., Vitaliano, D.F. 2007. 'An Empirical Analysis of the Strategic Use of Corporate Social Responsibility', Journal of Economics and Management Strategy, 116 (3), 773-792

Soloman, R. and Hansen, K. 1985, Its Good Business, Atheneum, New York

Tagiuri, R., Davis, J.A. 1992. 'On the goals of successful family companies'. Family Business review

Thompson, J.D. and Thompson, S. 2006. Pricing in a market without apparent horizontal differentiation: Evidence from web hosting services, Economics of Innovation and New Technology, 15(7): 649-663

Thorpe, J. and Prakash-Mani, K. 2003. Developing value: The business case for sustainability in emerging markets, Greener Management International, 44, 17–32

Tiscini, R. and Raoli, E. 2013. 'Stock option plan practices in family firms: The idiosyncratic private benefits approach'. Journal of Family Business Strategy. Vol 4

Uhlaner, L.M., Goor-Balk, H.J.M. and Masurel, E. 2004. 'Family business and corporate social responsibility in a sample of Dutch firms'. Journal of Small Business and Enterprise Development, 11(2), 186–194.

Ullmann, A. A. (1985). Data in search of a theory: A critical examination of the relationships among social performance, social disclosure, and economic performance of US firms. Academy of Management Review, 10(3), 540-557.

Vigeo. 2014. Green, Social and Ethical Retail Funds in Europe. Vigeo report (14th edition) http://www.vigeo.com/csr-rating-agency/en/3-4-nos-services

Waddock, S.A. and Graves, S.B. 1997. 'The corporate social performance-financial performance link'. Strategic Management Journal, 18, 303-39

Ward J.L. 2004. 'Perpetuating the family business'. Marietta, GA: Family Enterprise Publishers.

Werther, B.W. and Chandler, D. 2010. Strategic Social Responsibility: Stakeholders in a Global Environment. London: Sage

Westhead, P., Cowling, M. and Howorth, C. 2001. 'The development of family companies: Management and ownership imperatives'. Family Business Review, 14(4), 369–382.

Wiklund, J. (2006), Commentary: "Family Firms and Social Responsibility: Preliminary Evidence from the S&P 500". Entrepreneurship Theory and Practice, 30(6), 803-808.

Wood, D.J. 2010. 'Measuring corporate social performance: a review'. International Journal of Management Reviews, 12:1, 50–84.

Zaman, M., Yamin S., Wong, F. 1996. 'Environmental consumerism and buying preference for green products" In: Proc. of the Australian Marketing Educators' Conference. Theory and application. Volume II. C. Riquier and B. Sharp, eds. Marketing Science Centre, Univ. of South Australia, Adelaide, Australia pp. 613-626.

Zellweger, T.M. and Nason, R.S. 2008. 'A stakeholder perspective on family firm performance'. Family Business review, 21, 203-216.

Zellweger, T.M., Kellermanns, F.W., Chrisman, J.J. and Chua, J.H. 2012. 'Family control and family firm valuation by family CEOs: The importance of intentions for transgenerational control. Organizational Science, 23, 851-868.

Zellweger, T. M., Kellermanns, F. W., Eddleston, K. A., & Memili, E. (2012). Building a family firm image: How family firms capitalize on their family ties. Journal of Family Business Strategy, 3(4), 239-250.

Zientara, P. (2015) Socioemotional Wealth and Corporate Social Responsibility: A Critical Analysis. Journal of Business Ethics, 1-15

Figures and tables

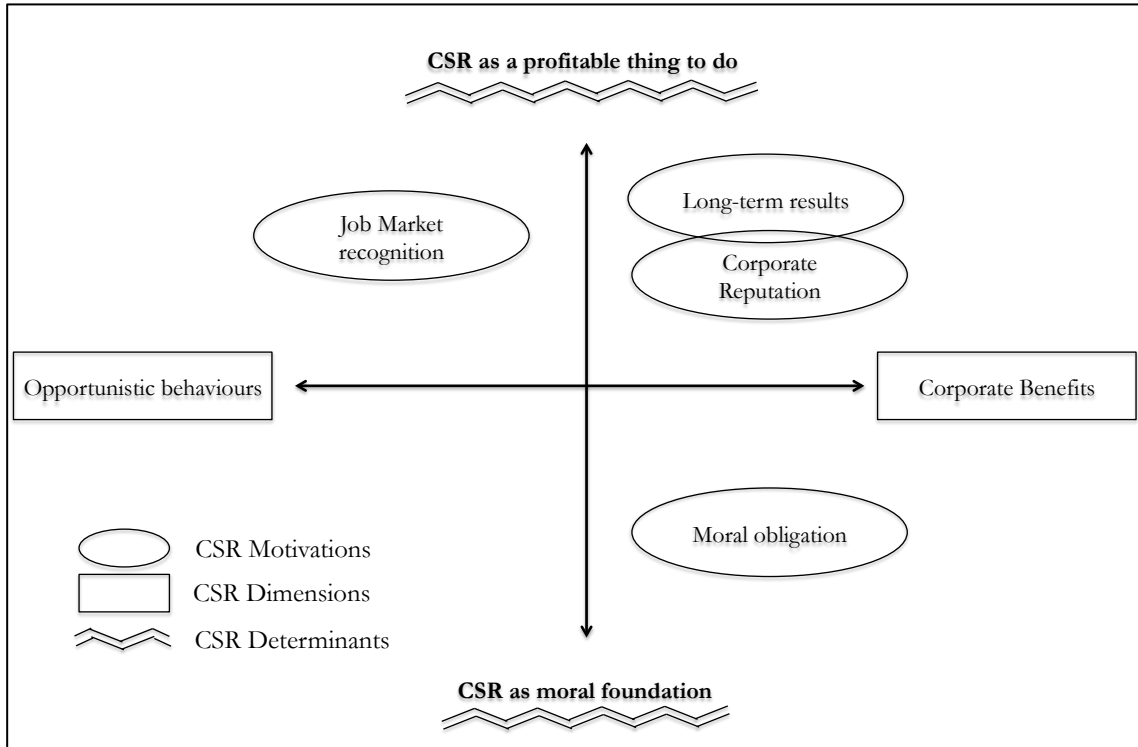**Figure 2.1. Determinants, motivations and dimensions of CSR**

CSR as a profitable thing to do

Long-term results

Job Market recognition

Corporate Reputation

Opportunistic behaviours

Corporate Benefits

Moral obligation

CSR Motivations

CSR Dimensions

CSR Determinants

CSR as moral foundation

Figure 2.2. Motivations of CSR for Family and non family firms

Long-term results

Job Market recognition

Corporate Reputation

Opportunistic behaviours

Corporate Benefits

Moral obligation
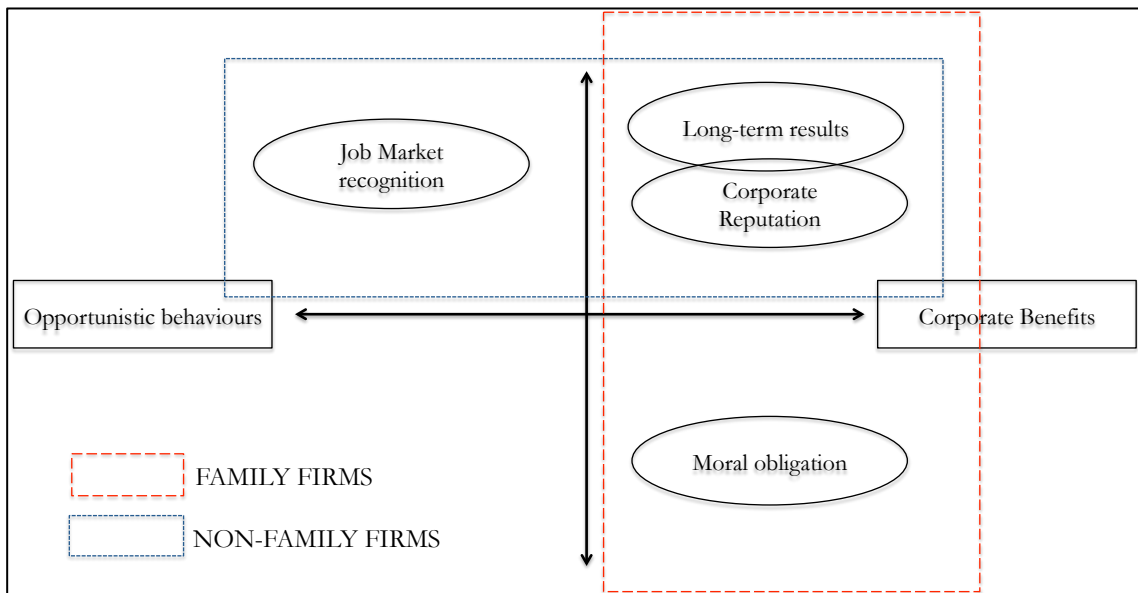
FAMILY FIRMS

NON-FAMILY FIRMS

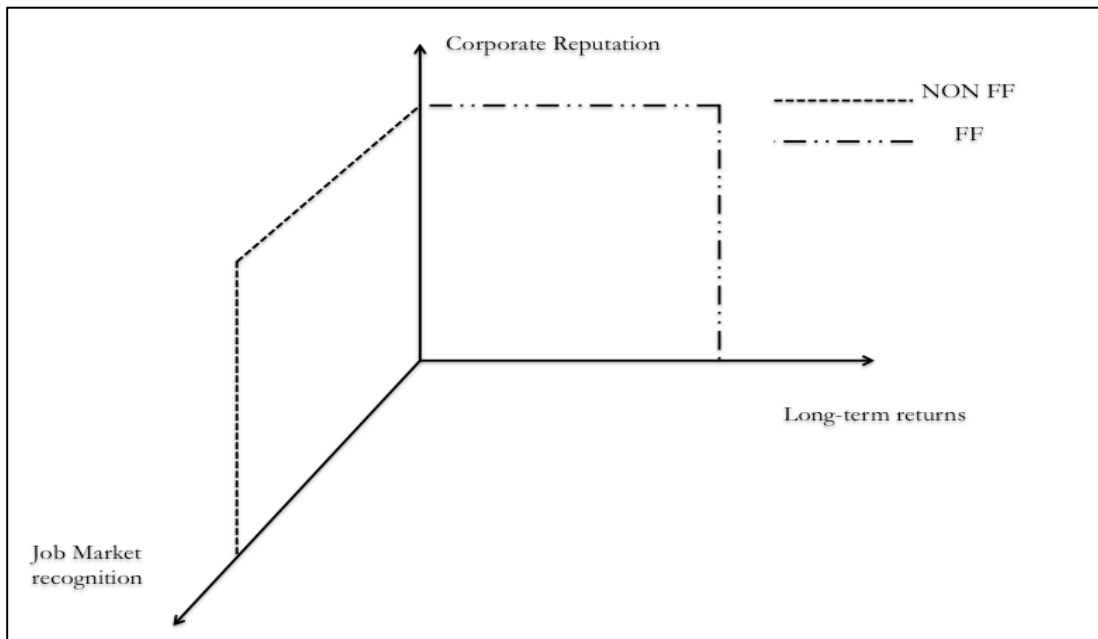**Figure 2.3. Motivations of CSR for Family and non family firms**

Figure 2.4. Evolution of family firms. CSR dimensions and CSR orientations
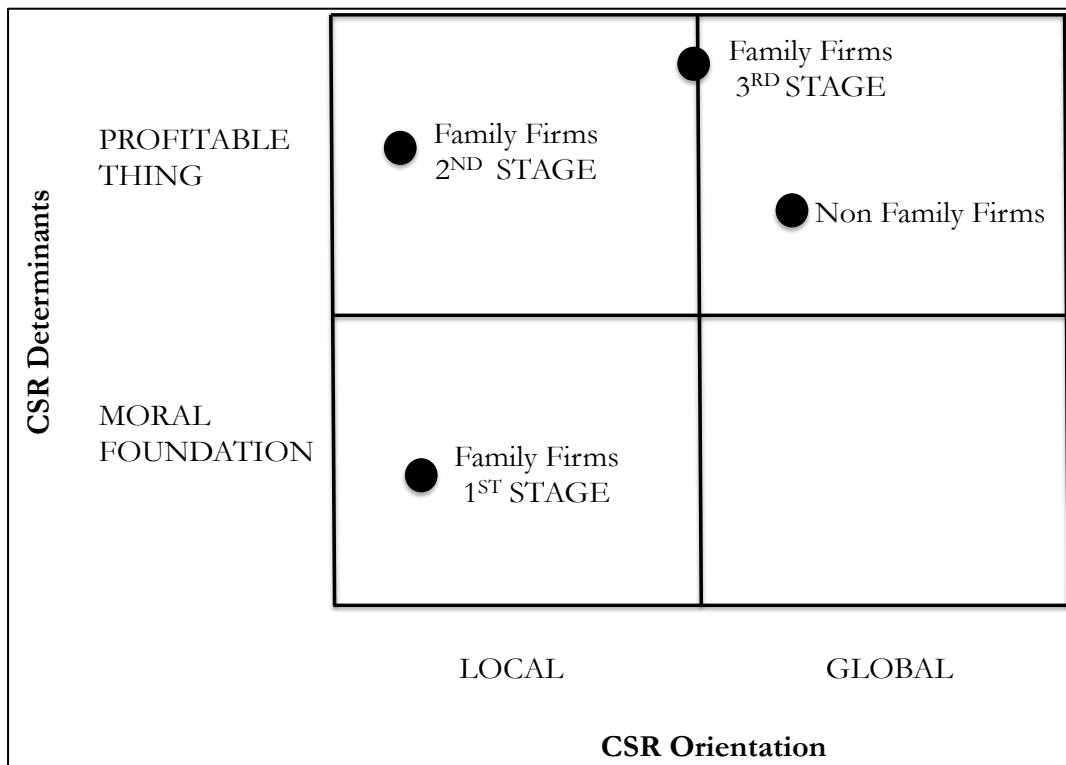
Table 2.1. Instrumental, Moral and Relational view of CSR

Motives	Drivers	Theory	Initiatives
Instrumental	Economic Opportunism	Stakeholder Theory	– Green marketing – Process intensification
Moral	Ethical Foundation	Stewardship Theory	– Unpublicized initiatives
Relational	Stakeholder Pressure	Shareholder Theory	– Networking with interest group – Impression management

Table 2.2. CSR motivations and benefits

POTENTIAL BENEFITS	AUTHORS	Type of benefits	CSR MOTIVATIONS		
			Long term returns	Job Market recognition	Corporate reputation
Reduction of risk	Sharfman and Fernando, 2008; Hoje and Haejung: 2012	INTERNAL	✓		
Reduction of waste of resources, in terms of water consumption, raw materials, packaging and distribution	Zalka et al., 1997, Menon et al., 1999, Thorpe and Prakash-Mani, 2003	INTERNAL	✓		✓
Improvement of relations with regulators and stakeholders in general	Jones, 1995; Barnett, 2007	EXTERNAL	✓	✓	✓
Stronger relationships with communities	Clarkson, 1995; Epstein and Roy, 2001	EXTERNAL	✓	✓	✓
Improvement of human relations and employee productivity, which yields improvements in recruitment, motivation, retention, learning and innovation, and productivity	Greening and Turban, 2000; Branco and Rodrigues, 2006	INTERNAL	✓	✓	✓
Improvement of internal resources and skills, with a global impact on the intangible assets of the firms	Austin et al., 2004	INTERNAL	✓		✓
Creation of positive 'moral capital'	Orlitzky et al, 2003; Godfrey 2005; Godfrey et al. 2009	INTERNAL	✓	✓	✓

Better access to capital and reduction of the cost of capital	Sharfman and Fernando, 2008, Cheng et al., 2011	EXTERNAL	✓		
Attainment of competitive advantage through more efficient processes, improvements in productivity, lower costs of compliance and new market opportunities	Russo and Fouts, 1997; Kanter, 1999	INTERNAL	✓		
Differentiation of products, which allows companies to charge price premiums	Reinhardt, 1999; Mc Williams and Siegel, 2001; Thompson and Thompson, 2006	INTERNAL	✓		
Development of customer loyalty	Porter and Kramer, 2011; Bhattacharya and Sen, 2004	EXTERNAL	✓		✓
Enhancement of perceived legitimacy in terms of improved credibility with the public, reduced litigation and reduced future liability for environmental damage	Fombrun, 1996; Mackey et al., 2007; Roberts and Dowling, 2002	EXTERNAL	✓	✓	✓
Stronger financial performance and social performance	Margolis and Walsh, 2001; Brammer and Millington, 2008; Hull and Rothenberg, 2008	INTERNAL	✓	✓	✓

CHAPTER 3

CSR reporting and ownership structure: evidence from Italian listed companies

ABSTRACT

This paper empirically explores how firms CSR reporting process varies according to their ownership structure. Three different kinds of ownership structure are considered: family firms, State-owned firms and firms with dispersed ownership. This study is the first to examine the relationship between CSR disclosure and ownership structure, including in the analysis family firms and State-owned firms. The analysis is provided with reference to Italy, which seems to be a suitable setting for the purpose of the study due to the considerable presence of both family firms and State-owned firms. For the empirical analysis a sample of 192 listed firms is used. Firstly a content analysis on the CSR documents disclosed by all the firms in the sample is provided and then data are analysed with a logit regression model. Results show that firms with a concentrated ownership, both family and Stet-owned, disclose less CSR information in reference to the topics derived from the content analysis. The findings confirm that firms with concentrated ownership have to face less Agency problems and for this reason disclose less CSR information.

Introduction

Corporate Social Responsibility (CSR) disclosure can be defined as the process by which firms disseminate information about their social, environmental, ethical and human activities that are not related to their financial performance (Gray et al., 2001; Campbell, 2006; Hackston and Milne, 1996; McMurtrie, 2005; Golob and Barlett, 2007). This kind of disclosure goes beyond the boundaries of accounting disclosure provided by financial statements and it is contained in several documents like Code of Ethics, Integrated Report, Environmental Report and Sustainability Report.

The request of CSR practices has increased over the last few years (Tagesson et al., 2009; Perrini, 2005) and literature indicates firms as answering this request because by showing their CSR practices to consumers they obtain positive financial results (Wigley, 2008; Galaskiewiicz, 1997). Previous literature shows that the extent and content of CSR disclosure change from firm to firm and for this reason the topic has been analyzed under different points of view: in relation to the performance of the firm (Cochran and Wood, 1984; Mc Guire et al., 1988; Belkaoui and Karpik, 1989; Aras et al., 2004; Ismail and Chandler, 2005) to its dimension (Stanwick and Stanwick, 2006;

Jenkins and Yakovleva, 2006; Hossain and Reaz, 2007) and to the kind of firms stakeholders (Roberts, 1992; Sweeney, 2008; Dawkins and Ngunjiri, 2008). Another important dimension that can affect the process of CSR disclosure is represented by the ownership structure (Secci, 2005; Tagesson et al., 2009; De Massis et al., 2012). However, it is striking to note that very few previous studies have analyzed how different kinds of ownership structure can affect the process of CSR disclosure (Secci, 2005; Frost and Seamer, 2004; Campopiano and De Massis, 2015). More research and especially empirical analysis is still needed to understand this issue and for this reason in our paper we explore the question whether ownership structure influences firm's CSR communication about social principles and practices. In particular, we consider three different ownership structures: family ownership, where the controlling shareholder is represented by the founding family or by the founder; State ownership, where the controlling shareholder is the State and dispersed ownership, where the ownership is split among a large number of unrelated individual investors. The differences among these three ownership structures are relevant and affect differently firm's CSR reporting process. With an empirical study, we firstly provide a content analysis on the CSR documents disclosed by 192 Italian listed firms in 2014. Then, data are analysed using a logit regression model. We focus our attention on the Italian context, which seems to be a suitable setting for our purpose because the presence of both family firms and State-owned firms is relevant (Corbetta and Montemerlo, 1999; Trento and Giacomelli, 2004; Secci, 2005; Caselli and Di Giuli, 2009; Campopiano and De Massis, 2015). The arguments of our paper are grounded on the Agency theory, which offers several explanations for firms' differences based on their ownership structure.

Our final findings show that firms with concentrated ownership, both family and State-owned, disclose less CSR information related to the topics analysed when compared to firms with dispersed ownership. Our work contributes to the literature in several ways. First of all it contributes to the extant literature about CSR disclosure because we argue that firms are not equal in their approach to CSR, but that the contents of CSR disclosure change from firm to firm according to different ownership structures. Second, we present interesting results for the stream of literature studying family firms, showing once again that all the particular features of this kind of firms influence their behavior also in relation to the CSR disclosure process. Finally, we contribute to the less analyzed stream of literature related to State-owned firms, that are very common in European countries where firms can be owned, to varying degrees, also by national governments.

The remainder of the paper is structured as follow: in the second section the literature on CSR disclosure in family firms, firms with dispersed ownership and State-owned firms is presented, together with the theoretical framework in order to finalize the hypotheses. In the third section we develop the research design, defining the sample selection procedure and the variables construction.

In section 4 we provide a model for testing the hypotheses. We present the results of our study in section 5, while the last section provides the discussion and the conclusions.

Background research & Hypotheses development

According to previous literature, several factors can have an influence on the extent and content of social disclosure practices. Elements like dimension, profitability and industry have been used to analyze corporate social reporting (Hossain and Reaz, 2007; Ljungdahl, 1999; Ismail and Chandler, 2005). According to Adams (2002) and Prado-Lorenzo et al. (2009), three categories of factors influencing quality and quantity of CSR reporting can be identified: corporate features, like size and industry; contextual factors, like country of origin and stakeholders pressure; internal factors, like ownership structure. Campopiano and De Massis (2012) find rather surprising that very few studies have analyzed the relationship between this last dimension and CSR reporting practices. Their analysis, which considers the ownership structure from a family and non family point of view, tries to shed light on this unexplored relationship. According to Secci (2005), a third kind of ownership structure can be included in the analysis, which refers to State-owned firms. This kind of firms is not very often considered in the research of CSR reporting because the analyses are usually conducted in Anglo-American context where State-owned firms are not commonly present.

For this reason, in our study we consider two different kinds of ownership structure: firms with a dispersed ownership and firms with a concentrated ownership, that we differentiate more in details between family firms and State-owned firms.

The literature that examines CSR disclosure from a family firm perspective has yielded contrasting evidences and results. Two main streams of research can be identified.

According to the first line of research family firms tend to invest more in social actions than their non-familiar counterparts for several reasons, all linked with the own nature of a family controlled company, like employees protection, family capital involvement in the business, long-term orientation and local community entrenchment (Miller and Le Breton-Miller, 2003; Neubauer and Lank, 1998; Chrisman et al., 2010; Kotlar and De Massis, 2013). This happens because, as stated by Tagiuri and Davis in their famous paper of 1992, family firm's goals can be different from those of a company with a dispersed ownership: with an empiric analysis, the two authors identify the six principal targets for a family firm like, for example, the willingness to be a sort of growth vehicle for the belonging community and the particular attention versus firm's employees. Moreover, the literature emphasizes the long-term orientation of family firms as one of the most peculiar feature of this kind of firms as opposed to their non-familiar counterparts (Dyer, 2003; Zellweger, 2007), which results in more ethical behaviors (Long and Mathews, 2011). Therefore, according to this first stream of research, family firms are more active in their investments in social

actions and in their disclosure practices. For example, family controlled companies are used to create foundations and charitable organizations (Danco and Ward, 1990) with philanthropic and social goals. According to Beutler et al. (1989), the family represents an institution with a more holistic orientation toward the person. For this reason, family firms, as compared to firms with a dispersed ownership, invest more in philanthropic projects that are usually publicized using their corporate documents. They also invest in social actions in order to maintain a good relationship with their stakeholders and create a sort of bridge with them in function of their long-term orientation (Sirmon and Hitt, 2003; Zellweger et al., 2012). Strictly connected to the possibility of obtaining benefits from the creation of relationships with stakeholders is the notion of *social capital*. The first definition of social capital was given by Bordieu in 1980. According to the author, social capital can be considered as "*the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition*". These relationships are stronger and well established in a family firm where factors like stability, interdependence, interaction and closure are present (Arregle et al., 2007). In this case, CSR disclosure is seen in a more instrumental way (Siegel, 2009): family firms can use social actions to increase their family reputation and visibility, especially when the name of the family is present both in the product sold and, for example, in the foundation created (Dunn, 1996; Godfrey, 2005). Moreover, as because one of the most important targets for a family firm is the possibility to pass the business to the next generation, it avoids all the negative publicity (regarding, for examples, a labor strike or customer complaints about defective products) that could compromise its presence on the market (Post, 1993). On the other side, all the actions that guarantee loyalty to customers, employees and other stakeholders are promoted and publicized by the family firm using CSR disclosure (Uzzi, 1996). The strong link between family firms and some particular kind of stakeholders like employees, consumers and local community has been stressed by several authors (Bingham, Gibb Dyer, Smith and Adams, 2011; Gnan and Montemerlo, 2002), in order to highlight how promoting actions that have a social return is an intrinsic feature of family controlled firms. Using this relational approach toward stakeholders, family firms show their greater respect for employees, a bigger involvement in the local community and a higher attention for the features of the products they provide to clients, because they consider stakeholders as partners more than simple counterparts in their transactions. This happens moreover because family firm's targets differ from the merely profit maximization and this view allows it to establish and maintain relationships also for non-financial reasons.

On the other side, the second line of research affirms that family firms tend to disclose less information about their social practices if compared to firms with a dispersed ownership.

Information related to family culture, for example, is shared informally and within the firm, in order to protect the value system of the family (Dunn, 1996; Miller et al., 2008) and the values that guide managers' behaviour are generally not publicized outside the firm, because considered part of the family legacy (Le Breton Miller and Miller, 2006; Campopiano and De Massis, 2015). Moreover, it has to be considered that the disclosure of social information is the most used way for firms to appear to be socially responsible to shareholders (Archel, 2003). This is particularly true for firms with a dispersed ownership, aiming at profits maximization for the benefit of their shareholders. On the other side, as we have mentioned before, family firms pursue also a non-economic goal, which is more "parochial" and related to the controlling family's protection (Chrisman et al., 2012; Berrone et al., 2012, Margolis and Walsh, 2003; Mork and Yeung, 2004). This view associates family firms with several negative behaviors like favoritism versus familiar members, difficulties in planning succession, past generation's unwillingness in passing the baton, a preference for the good of the family over that of the business (Gallo and Melè, 1998; Carney, 2005). Also the relationship with non-familiar employees can be affected by nepotism in preferring familiar members to them (Poza, Alfred and Maheshwari, 1997) and unfair hiring strategies are considered a typical feature of family firms by several authors (Donckels and Frohlich, 1991; Reid and Adams, 2001). In this regard, family firms are acknowledged to be considered less progressive in terms of human resource involvement or staffing (Aldrich and Langton, 1998; de Kok et al., 2006; Colombo et al., 2014). All these elements show that, in contrast to what happens in firms with dispersed ownership where the role of shareholders is central, in family firms non-economic goals, related to the control family's protection, are preferred. For this reason, also the level of CSR disclosure, which is a kind of information directed to external shareholders, is lower in family firms where the role of external shareholders is not as important as it is in firms with dispersed ownership. A further argument in support of this thesis is related to the relationship with customers, another stakeholders' category recipient of CSR information disclosed by firms. According to several authors (Gomez-Mejia et al., 2001; Uhlaner et al., 2004), family firms disclose less information about their CSR practices because they prefer to establish personal and more direct relationships with their clients, without using formal reports.

Finally, the literature shows some differences in CSR practices between privately owned firms (both family firms and non family firms, that we have previously analyzed) and State-owned firms. State-owned firms have to deal with the presence of a high percentage of State ownership and, for this reason, they modify the way the firms are managed and the kind of other stakeholders' commitment (Zadek et al., 1997; Pucci and Vergani, 2002; Viviani, 1999; Hinna, 2002). According to Secci (2005), State-owned communications are addressed to the whole community, while private

firms communications are addressed to more focused stakeholders groups. Moreover, in his analysis about CSR disclosure, the author finds that Italian State-owned firms disclose less information than other corporations. Bolivar et al. (2012) examine the role of State-owned firms managers in perceiving CSR and find that although they are aware of the importance of CSR principles, there is still an evident need to increase the application of CSR policies among the strategies of these firms. Also Roper and Schoenberger-Orgad (2011) analysing a case study from New Zealand, find that State-owned firms are less likely to achieve high CSR standards than free market companies. Several studies analyze CSR practices in State-owned firms in China, where such a kind of organizations is very common. Tang and Li (2009) show that state-owned Chinese firms make inadequate contribution to different social causes and implement questionable environmental practices as compared to non state-owned firms. On the other side, according to Zhao and Roper (2011), State-owned Chinese firms have a particular attention toward their employees, being this one of the core principles of Confucianism.

The previous analysis of the literature about CSR disclosure shows that it is still relatively unclear how the ownership structure of a firm influences the contents of CSR reports. On the other side, the literature agrees on the main reason driving a firm to disclose data about its CSR initiatives, which is an informative reason. In firms with a dispersed ownership, the separation between ownership and control leads to Agency problems of Type I, that can result in asymmetry information costs. Agency theory affirms that when there is separation between ownership and control, the potential conflict of interest between principal and agents, due to information asymmetry, can lead to opportunistic managers' behaviours (Fama and Jensen, 1983). According to Jensen and Meckling (1976) one of the mechanisms that managers have to reduce Agency costs is providing voluntary information, such as CSR reports. In firms with dispersed ownership, where owners are not involved in the business management, any kind of voluntary disclosure represents a monitoring tool able to reduce Agency conflicts between managers and shareholders (Prencipe, 2004; Brammer and Pavelin 2006). In this kind of firms, where the shares are held by the public at large, the transparency of accounting information disclosed becomes crucial, together with the disclosure of all other activities in which the firms is involved (i.e. social, environmental, philanthropic) (Gazhali, 2007). The above arguments thus imply that firms with dispersed ownership present high levels of CSR disclosure.

On the other side, firms with concentrated ownership have less information asymmetry problems to face (Chau and Gray, 2002; Christman, 2004; Hu et al., 2009 and Young et al., 2008) because of the active involvement of the main shareholder in the business, which results in a better monitoring of management and to less opportunistic managers behaviours (Bushman et al., 2004).

For this reason, control systems like voluntary disclosure (i.e. CSR disclosure) are not necessary (Ho & Wong, 2001; Hossain et al., 1994). In summary, compared to firms with dispersed ownership, firms with concentrated ownership face less severe asymmetry information problem due to the separation of ownership and management, because of their ability to directly monitor the managers (Demsetz and Lehn, 1985). Thus it may be expected that ownership concentration is negatively associated with the extent of CSR disclosure.

Hence, the discussion above, leads us to formulate the following hypotheses:

Hypothesis 1. *Family firms disclose less CSR information than firms with dispersed ownership*

Hypothesis 2. *State-owned firms disclose less CSR information than firms with dispersed ownership*

Research Design

Sample selection

In order to test our hypotheses, we focus on medium and large firms, including in our starting sample all the 267 listed firms on the Italian stock exchange in 2014 (no banks, insurance companies and financial institutions). We choose Italian setting due to the strong presence of both family firms and State-owned firms (Ward and Lief, 2005; Perrini et al., 2007; Verganti, 2009; Secci, 2005). We do not consider small not listed firms because previous literature has revealed how large companies have a greater number of stakeholders demanding information about CSR policies and also a bigger influence on society (Steiner, 1972; Davis, 1973; Owen, 2007). From the beginning sample of 267 listed firms we exclude those firms not reporting any CSR document (75 firms). Thus, 192 listed firms compose the final sample.

In order to classify a firm as a family firm, a State-owned firm or a firm with dispersed ownership, we refer to AIDA, the Italian branch of Bureau van Dijk European database, which contains financial, commercial and operating information about Italian firms. This database allows the categorization of firms on the basis of their ownership structure. In particular it permits the identification of companies owned by "states, governmental agencies, governmental departments, or local authorities" (ultimate owner owning at least the 25% of the capital), that we have considered as State-owned firms in our analysis. The database is also useful in evaluating the familiness of a firm on the basis of its "ultimate owner". We classify a firm as a family firm if the ultimate owner is

represented by a family owning at least the 25% of the capital. Finally, we consider firms with dispersed ownership all those firms included in our sample that are neither family firms nor State-owned firms. The final sample is composed by 131 family firms, 42 firms with dispersed ownership and 19 State-owned firms.

Data

CSR reporting can be analysed considering several documents. In defining a document as a CSR report we follow the definition provided by the Global Reporting Initiative guidelines. According to these guidelines, a CSR report is a document providing information about the social, economic, environmental and governance actions of the firm. Following this definition, we include in our analysis four kinds of reports: (i) Social or Sustainability Report, which is a report containing economic, social and environmental information (Campopiano and De Massis, 2014); (ii) Environmental Report, defined as a tool to increase organizational transparency with regard to environmental impact (Buhr, 2002); Integrated Report, which explains firm's financial and non financial performance in a single document (Eccles and Saltzman, 2011) and (iv) Code of Ethics, considered as a formal document consisting of moral standards used to guide corporate behaviour (Schwartz, 2004). We consider 210 CSR in our study, all collected from the Internet websites of the firms included in our selected sample. Detailed information on the distribution of CSR documents is reported in Table 3.1.

[INSERT TABLE 3.1 HERE]

Variables Construction

To verify our hypotheses, a measure for the disclosure of CSR information, the independent variable, has to be adopted. For this reason, we employ a content analysis, which is a common method used to identify CSR information inside written texts (Gao, 2011; Krippendorff, 2004). More precisely, we use the previous work of Campopiano and De Massis (2015) in defining the coding scheme. The two authors identify nine CSR topics that we use as independent variables. We firstly replicate the content analysis of Campopiano and De Massis (2015) and then we verify the presence of each topic in the CSR documents previously described, using a dichotomous variable, equal to 1 if at least one of the company's CSR documents provides information on the considered topic and 0 otherwise. A detailed description of the coding scheme, which consists of 9 topics, is offered in Table 3.2.

[INSERT TABLE 3.2 HERE]

Our independent variable, which is represented by the ownership structure in both the hypotheses, can be classified into three different categories: family, dispersed and State-owned.

We also control for size and performance in order to verify whether these variables affect our findings. Descriptive statistics of our variables are detailed in Table 3.3.

[INSERT TABLE 3.3 HERE]

Methods

In our two hypotheses we want to test the relation between firms ownership and their extent of CSR disclosure. In order to properly investigate this relation we employ the following logistic model:

$$CSR\ TOPIC = \beta_0 + \beta_1 OWNERSHIP + \beta_2 TOTALASSETS + \beta_3 ROA + \varepsilon$$

(1)

where the dependent variable CSR TOPIC represents the nine topics from the coding scheme, considered as dichotomous variables equal to 1 if the topic is mentioned in one of the CSR documents of the firm and 0 otherwise. OWNERSHIP is the independent variable that can assume three categories: family, State-owned and dispersed. The application of the model leads to nine different logistic regressions, summarized and discussed in a single table in the following section.

We also include in the model two control variables related to the dimension (TOTALASSETS) and to the performance (ROA) of the firm. We obtain qualitatively similar results when using other measures for size, like natural logarithm of the firm's market capitalization or natural logarithm of firm's assets.

Results

To test our two hypotheses we estimate several logistic regressions from Model 1. Table 3.4 presents the results from estimating Model 1 with a total of 192 observations. The model, as a whole, is statistically significant (p-value for the chi-square equals to 0.0000).

[INSERT TABLE 3.4 HERE]

We obtain negative and significant results for seven over nine CSR topics, confirming that, as compared to firms with dispersed ownership, family firms and State-owned firms disclose less information related to the nine CSR topics analysed. In particular, considering the first topic VALUE AND GENERAL INTEREST, Table 3.4 shows negative and significant results for family firms (p=-0,000) and State-owned firms (p=-0.000). For this first topic HP1 and HP2 are verified. We also have negative and significant results for the second topic SHAREHOLDERS in relation to State-owned firms (p=-0.02), which verifies HP2. The third topic relates to EMPLOYEES and also in this case only the second hypothesis is verified (p=-0.002). The topic CUSTOMERS presents negative and significant results for State-owned firms (p=-0.021). Same negative and significant results are obtained in relation to the fifth topic ENVIRONMENTAL AND GREEN ISSUE in relation to both family firms (p=-0.000) and State-owned firms (p=-0.000). Only the second hypothesis is verified in the case of the topic related to PROCESS AND PRODUC SERVICE (p=-0.022), while for the topic GENERAL STAKEHOLDERS MANAGEMENT we have negative and significant results for both family firms (p=-0.000) and State-owned firms (p=-0.000). Lastly, Table 3.4 shows non-significant results for the two remaining variables: PHILANTHROPY and SUPPLIERS.

To summarize, consistent with the prediction of our first hypothesis, for three out of nine CSR topics family firms disclose less information than firms with dispersed ownership. Furthermore, in relation to our second hypothesis, we find that for seven out of nine of the CSR topics considered in our model, State-owned firms disclose less CSR information than firms with dispersed ownership.

Discussion and Conclusions

This study attempts to explain how ownership structure influences firms CSR disclosure. We consider three kinds of ownership structures: family owned firms, State-owned firms and firms with dispersed ownership. We provide our empirical analysis on a sample of 192 firms in the Italian setting, where the presence of both family firms and State-owned firms is relevant. We firstly provide a content analysis on the CSR documents disclosed by the firms in our sample, using the nine topics considered in the paper of Campopiano and De Massis (2015). Then, we analyse the data empirically. Drawing on the Agency Theory, our study evinces several differences between firms with concentrated ownership (both family and State-owned) and firms with dispersed ownership in relation to their CSR disclosure. In particular, we find that in relation to all the nine topics considered

in our analysis, firms with concentrated ownership disclose less CSR information than firms with dispersed ownership. This is a rather surprising result, as prior content analysis provided by Campopiano and De Massis (2015), which represents the basis for our empirical test, shows that for some topics family firms disclose more CSR information if compared to their non-familiar counterparts and for some others less. The differences with the results obtained in the previous analysis are explained by the inclusion of a third kind of ownership structure (State-owned firms) and by a sample of bigger dimension.

For family firms, as compared to firms with dispersed ownership, we find significant results for three topics out of nine. If we consider CSR information related to the topics of VALUE AND GENERAL INTERESTS, ENVIRONMENTAL AND GREEN ISSUES and GENERAL STAKEHOLDERS MANAGEMENT, family firms appear to disclose less information than firms with dispersed ownership. These results are explained by considering that family firms are driven by both economic and non-economic goals in disclosing their information (Chrisman et al., 2012) and for this reason they tend to use less formal communication flows, preferring more informal communication systems. Moreover, all the above mentioned topics relate to the relationship of family firms with external stakeholders. We can use the Agency Theory to explain this result. Agency Theory suggests that in firms where there is not separation between ownership and management (like family firms), managers' opportunistic behaviours are reduced and control systems like voluntary disclosure are unnecessary. For this reason, CSR disclosure has a lower level in family firms as compared to firms with dispersed ownership, where information asymmetry problems require a higher level of control mechanisms, included CSR disclosure.

For State-owned firms as compared to firms with dispersed ownership, we find significant results for seven topics out of nine. If we consider CSR information related to the topics of VALUE AND GENERAL INTERESTS, SHAREHOLDERS, EMPLOYEES, CUSTOMERS, ENVIRONMENTAL AND GREEN ISSUES, PROCESS AND PRODUCT SERVICE and GENERAL STAKEHOLDERS MANAGEMENT, State-owned firms appear to disclose less information than firms with dispersed ownership. These results are in line with prior researches (Tang and Li, 2009; Roper and Schoenberger-Orgad, 2011; Bolivar et al., 2012), considering a lower level of CSR disclosure in State-owned firms as compared to firms with dispersed ownership. Also in this case we use Agency Theory to explain these differences. In State-owned firms the controlling shareholder is represented by the State itself or by governmental agencies, governmental departments, or local authorities. For this reason, the level of controlling mechanism is lowered because the controlling shareholder represents a control warranty itself.

This paper has both theoretical and practical implications. First, our findings are useful for

CSR scholars that only in last years have started to investigate CSR disclosure in relation to firms' ownership structures. Our study provides empirical evidence that ownership structure has a strong influence on CSR reporting, including in the analysis the category of State-owned firms that is often overlooked. Moreover, also family firms literature can benefit from the findings of our study, because it confirms that the familiness is a variable influencing several aspect of family firm's life, including CSR processes. Second, we provide also theoretical insights useful for practitioners, like managers, consultants and accountants of firms with concentrated ownership who have to adequate the level of voluntary disclosure to that of firms with dispersed ownership in order to face the high public demand for this kind of reports.

In closing, we are conscious about the limitations of our paper, which open to future studies. First, further research could replicate our analysis in other countries in order to verify if same results can be obtained in other geographic settings. It can be expected that the role of CSR disclosure is different for firms with different corporate governance systems. Then, other control variables could be included in the analysis, in order to verify if other external or internal elements (like firm age or industry) have an influence on CSR disclosure. Finally, we provide results based on only one year of analysis (2014), while longitudinal analysis could be useful to evaluate the phenomenon.

References

Adams, C. (2002).'Internal organisational factors influencing corporate social and ethical reporting: beyond current theorising'. Accounting, Auditing & Accountability Journal, Vol. 15 No. 2

Anderson R.C., Reeb D.M. (2003). 'Founding-family ownership and firm performance: evidence from the S&P 500'. Journal of Finance

Aras, G., Aybars, A., Kutlu, O. (2010). 'Managing corporate performance: Investigating the relationship between corporate social responsibility and financial performance in emerging markets'. International Journal of productivity and Performance management

Archer, M. S. (2003). Structure, agency and the internal conversation. Cambridge University Press.

Arregle J., Hitt M.A., Sirmon D.G., Very P., (2007). 'The Development of Organizational Social Capital: Attributes of Family Firms'. Journal of Management Studies, Vol 44

Banfield, E.C. (1958). 'The moral basis of a backward society'. Glencoe, IL: Free Press

Barth E., Gulbrandsen T., Schone P. (2005). 'Family ownership and productivity: the role of owner-management' Journal of Corporate Finance

Belkaoui A., Karpik P.G., (1989). 'Determinants of the Corporate Decision to Disclose Social Information'. Accounting, Auditing & Accountability Journal, Vol. 2 Iss 1

Berrone, P., Cruz, C., Gomez-Mejia, L. R. (2012). 'Socioemotional wealth in family firms: Theoretical dimensions, assessment approaches, and agenda for future research'. Family Business Review

Beutler, I. F., Burr, W. R., Bahr, K. S., & Herrin, D. A. (1989). 'The family realm: Theoretical contributions for understanding its uniqueness'. Journal of Marriage and the Family

Bingham J.B., Gibb Dyer W., Smith I., Adams J.L (2011). 'A Stakeholder Identity Orientation Approach to Corporate Social Performance in Family Firms'. Journal of business ethics, vol. 99 issue 4

Bolivar, M. P. R., Sanchez, R.G. and Hernandez A.M.L. (2014). 'Managers as drivers of CSR in state-owned enterprises'. Journal of environmental planning and management, vol. 58 issue 5

Bourdieu, P. (1980). 'Le capital social: notes provisoires.' Actes de le recherche scientifique et sociale

Brammer, S. J., Pavelin, S. (2006). 'Corporate reputation and social performance: The importance of fit.' Journal of Management Studies,

Buhr N. (2002). 'A Structuration View On The Initiation Of Environmental Reports'. Critical Perspectives on Accounting

Bushman, R., Chen, Q., Engel, E., Smith, A. (2004). 'Financial accounting information, organizational complexity and corporate governance systems'. Journal of Accounting and Economics

Campbell J.L (2006). 'Institutional Analysis and the Paradox of Corporate Social Responsibility'. American behaviourla scientist

Campopiano G., De Massis A., Cassia L. (2012). 'The Relationship Between Motivations And Actions In Corporate Social Responsibility: An Exploratory Study'. International Journal of Business and Society, vol. 13

Carney M. (2005). 'Corporate Governance and Competitive Advantage in Family-Controlled Firms'. Entrepreneurship theory and practice

Caselli, S., Di Giuli, A. (2010). 'Does the CFO matter in family firms? Evidence from Italy.' The European Journal of Finance

Chau, G. K., Gray, S. J. (2002). 'Ownership structure and corporate voluntary disclosure in Hong Kong and Singapore'. The International journal of accounting

Chrisman J.J., Chua J.H, Pearson A.W., Barnett T. (2010). 'Family Involvement, Family Influence, and Family-Centered Non-Economic Goals in Small Firms'. Entrepreneurship theory and practice, vol.36 issue 2

Cochran, P. L., Wood, R. A. (1984). 'Corporate social responsibility and financial performance'. Academy of management Journal

Corbetta, G., & Montemerlo, D. (1999). 'Ownership, Governance, and Management Issues in Small and Medium-Size Family Businesses: A Comparison of Italy and the United States'. Family Business Review

Davis K. (1973). 'The Case For and Against Business Assumptions of Social Responsibilities'. Academy of Management Journal.

Danco, L. and Ward, J.L., (1990). 'Beyond success: the continuing contribution of the family foundation'. Family Business review, 3, 347-355

Dawkins, C., Ngunjiri, F. W. (2008). 'Corporate social responsibility reporting in South Africa: A descriptive and comparative analysis.' The Journal of Business Communication

Demsetz, H., Lehn, K. (1985). 'The structure of corporate ownership: Causes and consequences'. Journal of political economy

Dunn, B. (1996). 'Family enterprises in the UK: a special sector?.' Family Business Review

Dyer W.G. (2003). 'The Family: The Missing Variable in Organizational Research'. Entrepreneurship thepry and practice, vol. 27 issue 4

Fama E.F., Jensen M.C. (1983). 'Separation of ownership and control'. Journal of law and economics, vol. 26

Frost G, Seamer M. (2004). 'Adoption of environmental reporting and management practices: An analysis of the south Wales public sector entities.' Financial Accountability & Management

Galaskiewicz J. (1997). 'An Urban Grants Economy Revisited: Corporate Charitable Contributions in the Twin Cities, 1979-81, 1987-89'. Administrative Science Quarterly

Gallo, M. A., Melé, D. (1998) Ética en la Empresa FamiliarEditorial PraxisBarcelona

Eccles B.G., Saltzman D. (2011). 'Achieving Sustainability Through Integrated Reporting'. Stanford social innovation review

Gao Y. (2011). 'CSR in an emerging country: a content analysis of CSR reports of listed companies'. Baltic Journal of management

Gnan, L. and Montemerlo, D., (2002). 'The multiple facets of family firms' social role: empirical evidence from Italian Smes'. Research Forum proceedings of the Family Business network 13th Annual Conference

Godfrey, P.C. (2005). 'The relationship between corporate philanthropy and shareholder wealth: A risk management perspective'. Academy of Management Review

Golob U., Bartlett J.L. (2007). 'Communicating about corporate social responsibility: A comparative study of CSR reporting in Australia and Slovenia'. Public Relations Review

Gomez-Mejia, L. R., Nunez-Nickel, M., Gutierrez, I. (2001). 'The role of family ties in agency contracts'. Academy of management Journal

Gray, R., Javad, M., Power, D. M., Sinclair, C. D. (2001). 'Social and environmental disclosure and corporate characteristics: A research note and extension'. Journal of business finance & accounting

Hackston D., Markus J. M., (1996). 'Some determinants of social and environmental disclosures in New Zealand companies'. Accounting, Auditing & Accountability Journal, Vol. 9 Iss: 1

Ho, S.M. and Wong, K.S. (2001). A study of the relationship between corporate governance structures and the extent of voluntary disclosure'. Journal of International Accounting, Auditing and Taxation

Hossain, M., Perera, M. H. B., Rahman, A. R. (1995). 'Voluntary disclosure in the annual reports of New Zealand companies'. Journal of International Financial Management & Accounting

Hossain M., Reaz M. (2007). 'The determinants and characteristics of voluntary disclosure by Indian banking companies'. Corporate Social Responsibility and Environmental Management, vol 14 issue 5

Hu, Y. C., Fatima Wang, C. C. (2009). 'Collectivism, corporate social responsibility, and resource advantages in retailing'. Journal of Business Ethics

Husted, B. W., Allen, D. B. (2006). 'Corporate social responsibility in the multinational enterprise: Strategic and institutional approaches'. Journal of international business studies

Ismail K.N.I.K, Chandler R. (2005). 'Disclosure In The Quarterly Reports Of Malaysian Companies'. Financial Reporting, Regulation & Governance

Jenkins H., Yakovleva N. (2006). 'Corporate social responsibility in the mining industry: Exploring trends in social and environmental disclosure.' Journal of cleaner production

Jensen, M. C., Meckling, W. H. (1976). 'Theory of the firm: Managerial behavior, agency costs and ownership structure'. Journal of financial economics

Kotlar J., De Massis A. (2013). 'Goal Setting in Family Firms: Goal Diversity, Social Interactions, and Collective Commitment to Family-Centered Goals'. Entrepreneurship theory and practice, vol 37

Krippendorff K. (2004). 'Content analysis. An introduction to its methodology. Sage publication

La Porta R., Lopez-de-Silanes F., Shleifer A. (1999). 'Corporate ownership around the world' Journal of Finance

Levinson, H. (1983). 'Consulting with the Family Business: What to Look For, What to Look Out For.' Organizational Dynamics

Ljungdahl F., (1999). 'Utveckling av miljöredovisning I svenska börsbolag – praxis, begrepp, orsaker'. Lund University Press

Long R.G., Mathews K.M. (2011). 'Ethics in the Family Firm: Cohesion through Reciprocity and Exchange'. Business ethics quarterly, vol 21 issue 2

Margolis J.D., Walsh J.P. (2003). 'Misery Loves Companies: Rethinking Social Initiatives by Business'. Administrative science quarterly

McGuire, J. B., Sundgren, A., Schneeweis, T. (1988). 'Corporate social responsibility and firm financial performance'. Academy of management Journa

McGirven, C., (1989). 'The dynamics of management succession: a model of chief executive succession in the small family firm'. Family Business Review

McMurtrie T. (2005). 'Factors influencing the publication of social performance information: an Australian case study'. Corporate Social Responsibility and Environmental Management

Miller, D., Breton-Miller, L., Scholnick, B. (2008). 'Stewardship vs. stagnation: An empirical comparison of small family and non family businesses'. Journal of Management Studies

Miller, D., Breton Miller, L. (2006). 'Family governance and firm performance: Agency, stewardship, and capabilities'. Family business review

Miller, D., and Le Breton-Miller, I., (2003). 'Challenges versus advantage in family business'. Strategic Organization, 1, 127-134

Morck, R., and Yeung, B. (2004). 'Family control and the rent-seeking society. Entrepreneurial Theory and Practice, 28(4), 391-409

Nazli A., Mohd Ghazali, (2007). 'Ownership structure and corporate social responsibility disclosure: some Malaysian evidence'. Corporate Governance: The international journal of business in society, Vol. 7 Iss 3

Neubauer, F., and Lank, A.G., (1998). 'The family business: its governance for sustainability'. McMillan Press LTD

Owen D. (2007). ' Chronicles of wasted time? A èersonal replection on the current state of, and future prospects for, social and environmental accounting research.' Accounting, Auditing and Accountability Journal

Perrini, F. J (2005). 'SMEs and CSR Theory: Evidence and Implications from an Italian Perspective'. Journal of business ethics

Post, J.E. (1993). 'The greening of the Park Plaza Hotel'. Family Business review, 6(2), 131-148

Poza, E., Alfred, T. and Maheshwari, A., (1997). 'Stakeholder perceprions of culture and management practices in family and family firms – A preliminary report'. Family Business review, 10, 135-155

Prado-Lorenzo J.M., Alvarez I.G., Garcia-Sanchez I.M., (2009). 'Stakeholder engagement and corporate social responsibility reporting: the ownership structure effect'. Corporate social responsibility and environmental management, vol 16 issue 2

Perrini F., Russo A., Tencati A. (2007). 'CSR Strategies of SMEs and Large Firms. Evidence from Italy'. Journal of business ethics

Prencipe A. (2004). 'Proprietary costs and determinants of voluntary segment disclosure: evidence from Italian listed companies'. Family business review, vol. 13 issue 2

Roberts, R. W. (1992). 'Determinants of corporate social responsibility disclosure: An application of stakeholder theory'. Accounting, organizations and society

Roper J., Schoenberger-Orgad M. (2011). 'State-Owned Enterprises Issues of Accountability and Legitimacy'. Management community quarterly

Schulze, W.G., Lubatkin, M.H., Dino, R.N. and Buchholtz, A.K. (2001). 'Agency relationship in family firms: theory and evidence'. Organization science, 12(2), 99-116

Schwartz M.S. (2004). 'Effective Corporate Codes of Ethics: Perceptions of Code Users'. Journal of business ethics, vol 55 issue 4

Secci D. (2005). 'The Italian experience in social reporting: An empirical analysis'. Corporate Social Responsibility and Environmental Management

Siegel, D.S., (2009). 'Green management matters only if it yelds more greeg: an economic/strategic

perspective'. Academy of Management Perspectives, 23(3):5-16

Sirmon, D.G., and Hitt, M.A. (2003). ' Managing resources: linking unique resources, management, and wealth creation in family firms'. Entrepreneurship Theory and Practice, 27(4): 339

Stanwick P. Stanwick S. (2006) 'Corporate environmental disclosures: A longitudinal study of Japanese firms'. Ournal of American Academy of Business

Sterner, G.(1972). 'Social Policies for Business'. Califorma Management Review

Sweeney, L., Coughlan, J. (2008). 'Do different industries report corporate social responsibility differently? An investigation through the lens of stakeholder theory'. Journal of Marketing Communications

Tagesson T., Blank V., Broberg P., Collin S.O. (2009). 'What explains the extent and content of social and environmental disclosures on corporate websites: a study of social and environmental reporting in Swedish listed corporations'. Corporate Social Responsibility and Environmental Management

Tagiuri, R., Davis, J.A., (1992). 'On the goals of successful family companies'. Family Business review

Tang L., Li H. (2009). 'Corporate social responsibility communication of Chinese and global corporations in China'. Public relations review

Uhlaner, L. M., van Goor-Balk, H. J. M., Masurel, E. (2004). 'Family business and corporate social responsibility in a sample of Dutch firms'. Journal of Small Business and Enterprise Development

Uzzi, B., (1996). 'The sources and consequences of embeddedness for the economic performance of organizations: the network effect'. American Sociological Review, 61(4), 674-698

Wigley S. (2008). 'Gauging consumers' responses to CSR activities: Does increased awareness make cents?'. Public Relations Review

Young, W., Hwang, K., McDonald, S., Oates, C. J. (2010). 'Sustainable consumption: green consumer behaviour when purchasing products'. Sustainable development,

Zadek S, Pruzan P, Evans R. (1997). 'Building Corporate AccountAbility—Emerging Practices in Social and Ethical Accounting'. Auditing and Reporting

Zellweger T. (2007). 'Time Horizon, Costs of Equity Capital, and Generic Investment Strategies of Firms'. Family business review, vol. 20 issue 1

Zellweger, T. M., Kellermanns, F. W., Chrisman, J. J., Chua, J. H. (2012). 'Family control and family firm valuation by family CEOs: The importance of intentions for transgenerational control'. Organization Science

Zellweger, T.M., and Nason, R.S. (2008). 'A stakeholder perspective on family firm performance'. Family Business review, 21, 203-216

Zhao L., Roper J. (2011). 'A Confucian approach to well-being and social capital development'. Journal for Management Development.

Tables

Table 3.1 – Distribution of CSR documents

FIRM OWNERSHIP	CSR DOCUMENTS			
	Social or Sustainability Report	Environmental report	Integrated report	Code of Ethics
Family firms	11	1	7	120
State-owned firms	10	0	8	9
Dispersed ownership firms	4	0	3	37
TOT	25	1	18	166

Table 3.2 – Topics identified by Campopiano and De Massis

TOPICS	DESCRIPTION	EXAMPLE PHRASES
Values and General Interests	*"This topic refers to what is considered good, important, useful and desirable"*	Honesty, fairness, integrity, respect, values, rules, responsibility
Shareholders	*"This topic refers to the creation of value for shareholders, to the attention of their interests and to the honesty in communication"*	Interaction with shareholders, shareholders/owners, value creation, investors
Employees	*"This topic refers to good working conditions, to the involvment of employees in business strategies, to safe and non discriminating working conditions"*	Professional growth, leisure time, personal skills, career development, development programs, maternity, illness, equal opportunity, diversity
Customers	*"This topic includes aspects such as satisfying customer expectations, customer loyalty and involvment, fair prices"*	Communication, customer loyalty, perceived quality, customer satisfaction surveys, consumer associations
Environmental and Green Issues	*"This topic relates to concerns for environmental conservation and includes issues such as responsible use of energy and material resources, reduction of pollution emissions, green research and innovation"*	Environmental respect, emission reduction, pollution, climate change
Philanthropy	*"This topic refers to the respect for local community, engaging in projects for the quality of local community life and development"*	Local community, job creation, involving associations
Process and Product/Services	*"This topic is related to production efficiency, quality guarantees and improvements, waste reduction, recycling materials, product safety"*	Recoverable materials, sustainable packaging, recycling, internal audit
General Stakeholder Management Issues	*"This topic includes all issues related to satisfying stakeholder claims, stakeholder dialogue, stakeholder involvement in decision making process"*	Value creation for stakeholders, dialogue, engagement
Suppliers	*"This topic deals with the assessment of supplier engagement in CSR, Whether suppliers reduce waste in provisions, open communications, loyalty, fair contracts"*	Supplier training, supplier monitoring and evaluation

Table 3.3 – Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
pages	210	35.23789	44.35522	4	262
totalassets	192	8833679	2.83E+07	1467	1.60E+08
roa	192	1.84127	8.436365	-74.78	29.23
Value and general interest	192	0.9763033	0.1524642	0	1
Shareholders	192	0.9505495	0.2174049	0	1
Emplyees	192	0.9374822	0.1987643	0	1
Customers	192	0.9747475	0.1572889	0	1
Environmental and green issues	192	0.9367816	0.2440577	0	1
Philanthropy	192	0.9226191	0.4376998	0	1
Process and product service	192	1.0505052	2.3037141	0	1
General stakeholders management	192	0.8372093	0.6096964	0	1
suppliers	192	0.9899497	0.0999975	0	1

Table 3.4 – Logistic regression results

	Coef.	Robust Std. Err.	z	P>|z|		[95% Conf. Interval]	
VALUE AND GENERAL INTEREST							
Family ownership	-14.7774	0.5898081	-25.05	0	**	-15.9334	-13.62139
State ownership	-15.48262	1.1082	-13.97	0	**	-17.65465	-13.31059
Total assets	1.04E-08	4.49E-09	2.31	0.021		1.56E-09	1.92E-08
Roa	0.0194965	0.0199569	0.98	0.329		-0.0196183	0.0586113
SHAREHOLDERS							
Family ownership	-0.689994	0.6651284	-1.04	0.3		-1.993622	0.6136337
State ownership	-1.961425	0.8438614	-2.32	0.02	**	-3.615363	-0.3074871
Total assets	2.70E-08	2.26E-08	1.19	0.233		-1.74E-08	7.13E-08
Roa	-0.0066128	0.0182104	-0.36	0.717		-0.0423046	0.0290789
EMPLOYEES							
Family ownership	-0.7093174	0.6639627	-1.07	0.285		-2.01066	0.5920257
State ownership	-1.897707	0.8166235	-2.32	0.02	**	-3.49826	-0.2971545
Total assets	3.78E-09	8.36E-09	0.45	0.652		-1.26E-08	2.02E-08
Roa	-0.0051975	0.0180895	-0.29	0.774		-0.0406522	0.0302572
CUSTOMERS							
Family ownership	-0.8213277	0.6593544	-1.25	0.213		-2.113639	0.4709831
State ownership	-1.889709	0.8162056	-2.32	0.021	**	-3.489443	-0.2899758
Total assets	3.49E-09	8.14E-09	0.43	0.668		-1.25E-08	1.94E-08
Roa	-0.0058987	0.0174389	-0.34	0.735		-0.0400783	0.0282808
ENVIRONMENTAL AND GREEN ISSUES							
Family ownership	-16.23972	0.9165427	-17.72	0.000	***	-18.03611	-14.44333
State ownership	-15.32495	1.415419	-10.83	0.000	***	-18.09912	-12.55078
Total assets	-1.51E-08	1.13E-08	-1.34	0.181		-3.73E-08	7.02E-09
Roa	-0.0010192	0.0194415	-0.05	0.958		-0.0391238	0.0370853
PHILANTHROPY							
Family ownership	-1.335167	1.100546	-1.21	0.225		-3.492197	0.8218633
State ownership	-0.4348906	1.63106	-0.27	0.790		-3.63171	2.761928
Total assets	-1.27E-08	1.01E-08	-1.26	0.207		-3.25E-08	7.04E-09
Roa	0.0048511	0.0149989	0.32	0.746		-0.0245462	0.0342484
PROCESS AND PRODUCT SERVICE							
Family ownership	-1.380751	1.074156	-1.29	0.199		-3.486059	0.7245566
State ownership	-2.926789	1.279057	-2.29	0.022	**	-5.433694	-0.4198829
Total assets	1.55E-07	1.20E-07	1.29	0.198		-8.11E-08	3.91E-07
Roa	-0.010859	0.0262211	-0.41	0.679		-0.0622514	0.0405334
GENERAL STAKEHOLDERS MANAGEMENT							
Family ownership	-16.58866	0.2962853	-55.99	0.000	***	-17.16937	-16.00796
State ownership	-15.30087	1.105758	-13.84	0.000	***	-17.46811	-13.13362
Total assets	1.53E-08	1.96E-08	0.78	0.435		-2.31E-08	5.38E-08
Roa	-0.0113468	0.0422114	-0.27	0.788		-0.0940796	0.0713861
SUPPLIERS							
Family ownership	-0.0225641	0.0604452	-0.37	0.709		-0.1420458	0.0969175
State ownership	0.1298933	0.1201172	1.08	0.281		-0.1075414	0.3673281
Total assets	-1.47E-09	1.31E-09	-1.13	0.262		-4.05E-09	1.11E-09
Roa	-0.0028032	0.0024176	-1.16	0.248		-0.0075822	0.0019757

Statistically significance

*		low	0.1		0,05<x<=0.1
**		medium	0.05		0.001<x<=0.05
***		high	0.001		x<=0.001

CHAPTER 4

Financial Statements Fraud: Does Their Intensity Have A Connection With Earnings Management?

ABSTRACT

This study investigates the relationship between earnings management and financial statements frauds. We examine how earnings management practices done in the two years before the fraud emersion impact the likelihood of fraud occurrence. Moreover, we introduce a new measure for the fraud intensity. Using a sample of 70 fraud and 70 no-fraud firms we find that firms committing fraud of higher intensity have managed earnings in the two years before the fraud occurrence. This paper contributes to the literature about fraud antecedents being this the first study measuring the relationship between earnings management and the intensity of the fraud, and can be useful for practitioners, because using the analysis of earnings management practices, analysts can foresee and prevent financial statements frauds.

Introduction

After the recent economic scandals that have interested the world economy, increasing attention has been given to the truthfulness of the information provided by managers to stakeholders. In particular, several studies in literature focused on the phenomenon of financial statements manipulation that, according to Perols and Lougee (2011) occurs when managers manipulate financial statements using accounting practices that are within GAAP or outside GAAP.

Several reasons can be identified as motivations for financial statements manipulation, like debt covenants, bonus plan and income smoothing (Prencipe, Markarian, Rozza 2008). According to Kellog and Kellog (1991), the first two reasons for manipulation in financial statements are the possibility to encourage investors (both shareholders and creditors) and the possibility to increase stock's value for present shareholders.

Two different kind of financial statements manipulation can be identified: fraudulent accounting and earnings management. Fraudulent accounting is acted by a firm when it makes choices that violate GAAP. On the other side, with earnings management practices, managers do not act violating laws, because they use exactly that flexibility allowed by the regulation to manipulate the accruals or to deviate from normal operational practices, done to make some stakeholders believing in the results of the financial reporting (Roychowdhury, 2006).

Fraudulent accounting implies huge costs for firms, both financial and non financial (Kulikova and Satdarova, 2016). Financial costs can be identified in the loss of external investments and in the legal costs the firm has to sustain to repay its defrauded shareholders. Non financial costs refer to the drop of image and reputation and to the possible interruption of all the relations with external stakeholders. The financial statement fraud acted by Enron caused a loss in market capitalization of about $ 70 billion (Rezaee, 2005), while according to Cotton (2002), during the past several years investors sustained a cost for financial statements frauds higher than $ 500 billion.

Since these legal and reputational costs can be avoided using earnings management practices (Dechow, Sloan and Sweeney, 1996), we argue that firms involved in frauds have previously manipulated their financial statements through legal procedures, trying at first to show a better situation acting legally. Only when the earnings management practices are not enough to show a positive economic and financial situation, firms start to cheat on accounting numbers illegally. Thus, the baseline of this work is the relation between the earnings management practices and the financial statement fraud. First, we aim to test if there is a connection between these two practices. Later, we introduce a new path of research, which investigates on the intensity of the fraud. In other words, we test if the existence of earnings management practices before the fraud occurrence affects the amount deceived with the fraud.

The relationship between frauds and earnings management can be seen as an interesting field of research not only because it helps to define an antecedent to fraudulent accounting, but also because fraud represents an event of huge interest for all the stakeholders of the firm, like auditors, regulators, employees, shareholders and creditors (Perols and Lougee, 2011).

This paper contributes to the literature in several ways. Firstly, it contributes to the literature helping filling the existent gap about the relation between earnings management and financial statement frauds, a relation that received a little attention until today. Moreover, it introduces the study of the intensity of the fraud, not deeply investigated yet (Jones, Krishnan and Melendrez 2008). Then, practitioners could use the findings of this paper to implement tools and procedures through which they could reduce the fraud occurrence and/or their magnitude, reducing their impact on financial markets, keeping the trust of investors high.

The remainder of the paper is organized as follow: in the second section the literature on frauds and earnings management is presented together with the theoretical framework in order to finalize the hypotheses. In the third section we develop the research design, defining the sample selection procedure and the variables construction. In this section we also provide a model for testing the hypotheses. We present the results of our study in section 4, while the last section provides the discussion and the conclusions.

Background Research And Hypothesis Development

After several accounting scandals (e.g. Enron, WorldCom, Xerox, Parmalat, Adelphia and Tyco) that characterized the world's economy of the last twenty years, a great attention has been paid to the quality of firms' financial reported information, in order to provide a better investors' protection. Financial statement represents the primary source of information for external investors and, according to International Accounting Standards, it must reflect in a truly way the economic and financial situation of the firm. According to IAS 1 - Presentation of Financial Statement - "*Financial statements shall present fairly the financial position, financial performance and cash flows of an entity. Fair presentation requires the faithful representation of the effects of transactions, other events and conditions in accordance with the definitions and recognition criteria for assets, liabilities, income and expenses*".

Despite the very clear precept stated in the IAS 1, often managers modify financial statements' numbers, in order to provide to external investors a better

overview of the company they run, which, in turn, does not square with the real financial situation.

Managers can manipulate financial statements in two different ways: fraudulent accounting and earnings management.

International literature and authoritative bodies provide several definitions of financial statement fraud. We follow the definition provided by Rezaee (2002) who describes a financial statement fraud as a deliberate attempt by corporations to deceive or mislead users of published financial statements, especially investors and creditors, by preparing and disseminating materially misstated financial statements. Following this definition, most of the time, financial frauds are acted falsifying or distorting financial records, misrepresenting accounting information and data, with voluntary misapplication of the accounting standards and principles or manipulating accounting practices.

The negative impact of a financial statement fraud does not involve only financial markets, but it will generate negative consequences for all the different stakeholders linked to the firm (Zahra, Priem and Rasheed, 2005) in terms of costs sustained. Thus, the problem of frauds has to be faced from a broader perspective.

According to Glass Lewis (2005), from 1997 to 2004 the world economy experienced a loss of more than $900 billion in market capitalization due to financial scandals. Moreover, the legislative measures adopted, like the Sarbanes-Oxley Act of 2002 in the U.S., seem to be ineffective as the wave of discovered financial statement frauds increased after its emanation. This increase can be due to a higher number of financial fraud committed, but also to a more efficient system of controls (Hogan, Rezaee, Rilet and Velury, 2008). For this reason, fraud investigation has become a very interesting field of research not only for researchers but also for practitioners, reason why organizations like Association of Certified Fraud Examiners (ACFE) were created to train professionals to prevent frauds (Albrecht, Holland, and Malagueno, 2015).

Previous literature on fraud identifies three factors that can make a single individual involved in a financial statement fraud (Cressey, 1953): incentive or pressure, opportunity, and attitude or rationalization. These three elements form the so-called "fraud triangle". The first element of the fraud triangle refers to all the internal or external motivations that can force an individual to manipulate financial statement data

in order to avoid possible negative consequences due to the publication of the real data (Albrecht, Holland, Malagueno, Dolan and Tzafrir, 2015). Important motivations in committing frauds can be due to the pressure to meet or beat analysts' forecast (Wilks and Zimbelman, 2004), to the desire to attract external financing at a lower cost (Hogan, Razaee, Riley, and Velury, 2008) or to the amount of stock options held by managers (Efendi, Srivastava, and Swanson, 2007).

The second element of the fraud triangle is the possibility of seizing an opportunity. This opportunity is related to the risk factors that make less likely the discovery of the fraud. Academic literature reports that frauds are more likely to occur in firms with a weak corporate governance structure (Magnanelli, 2012), like fewer independent directors (Farber, 2005), lower level of financial expertise for the members of the audit committee (Abbot, Parker and Peters, 2004), weak internal controls (Loebbecke, Eining, and Willingham, 1989).

Finally, the third element of the fraud triangle refers to the ethical values of the individual committing the fraud. Most people are honest and for this reason they try to find excuses able to justify their fraudulent actions in order to convince themselves they are not acting in breach of their moral values (Tsang, 2002).

According to academic literature, frauds are more likely to occur when all the three elements are perceived by the individual committing the fraud.

A firm realizes fraudulent accounting operations when it makes choices that violate GAAP. Due to the huge costs resulting from the fraud, it is reasonable to think that, before committing a fraud, managers implement accounting manipulations allowed by GAAP, like earnings management practices.

According to Healy and Whalen (1999), earnings management occurs when "*managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting practices*".

Several reasons force managers to manipulate earnings results (Prencipe, Markarian and Rozza, 2008), first and foremost the opportunity to show firm's results in the best light, increasing the attractiveness of the business for external stakeholders (Kulikova and Satdarova, 2016). Other relevant reason is related to debt covenants

(Jaggi & Lee, 2002; Sweeney, 1994): managers can manipulate earnings value in order to avoid the risks related to the possibility of debt cancellation or renegotiation to worse conditions. A motivation strictly linked to the previous reason relies on the desire to attract external financing at low costs (Dechow, Sloan and Sweeney, 1996). Considering that financial statements are the first and the only source of information for external investor to understand the internal situation of the company, managers manipulate financial results to make the company more attractive for present and future investors.

The second explanation is linked to managers' compensation (Gaver, Gaver and Austin, 1995; Guidry, Leone and Rock, 1999; Healy, 1985): when managers' compensation is linked to firm performance, managers tend to manipulate financial results in their favor, showing the achievement of expected short-term performance targets.

Another reason deals with the income-smoothing phenomenon (Buckmaster, 2001; Trueman & Titman, 1988): managers manipulate earnings in order to avoid significantly variations in their reported results among years and present a stable trend to the markets.

Finally, the last explanation deals with a weak governance structure that can influence management's independence. The governance literature emphasizes the role of the Board of Directors' composition, with a particular focus on the presence of outside directors. For example, Peasnell, Pope and Young (2005) examine whether there is a link between earnings management and the composition of the Board of Directors, focusing on two dimensions of Board monitoring: the proportion of outside directors and the presence of an audit committee. Also Dechow, Sloan and Sweeney (1996) identified governance structure as one important determinant of earnings manipulation.

Moreover, according to several studies, earnings management becomes more likely to be acted by managers when earnings fall below certain thresholds such as: avoiding reporting a loss, reporting a growth in profits and meeting the analysts' consensus forecast (Peasnell, Pope and Young, 2005). Degeorge, Patel and Zeckhauser (1999) report that there is a sort of hierarchy among these thresholds, where the most important is considered to be the growth in profits; a lower consideration is given to the

growth in earnings and, only at the end, we can find the necessity to meet analysts'
forecast.

As we can notice, literature identifies the same causes listed by the fraud triangle
for the earnings management practices. Because of this reason, we want to investigate
the link between earnings management and fraud, considering the former as an
antecedent to the latter. Thus, first, we analyze how earnings management practices
done in the two years before fraud occurrence impact on the likelihood that a firm will
commit a financial statement fraud.

Previous literature about the relation between earnings management and fraud has
yielded inconclusive results. The best measure of earnings management is represented
by discretionary accruals (Jones, Krishnan and Melendrez, 2008), while prior studies
focus on the level of total accruals. According to Lee, Ingram and Howard (1999), there
is a positive relation between the fraud and the sum of total accruals over the three years
before. Also Beneish (1999) finds a positive relation between the fraud and total
accruals in the year before the fraud occurrence. Dechow, Sloan and Sweeney (1996)
report a positive relation between the level of earnings management and the likelihood
of fraud in the same year.

Other studies consider discretionary accruals as a measure of earnings
management (Jones, Krishnan and Melendrez 2008), but focus their attention only on
the year before the fraud occurrence.

Financial statement frauds often start with small manipulations of financial
reports that later can result in misleading financial statements (Kulikova and Satdarova,
2016; Razaee, 2005). Thus, we think that due to the high costs related to the fraud,
managers can initially try to manage the financial statement using techniques allowed
by the legislation and only if their manipulations are not effective enough in achieving
their aims this manipulation process will lead to a financial statement fraud.

These considerations lead us to formulate our first hypothesis:

Hypothesis 1. *Firms for which the fraud emerges in year t_0 have managed earnings in the two years before the fraud occurrence.*

For better testing the relation between earnings management and financial statement fraud we consider the level of earnings management in the two years before the fraud occurrence, using discretionary accruals as a measure of earnings management.

Furthermore, to deeply clarify the relation between fraud and earnings management practices, we introduce a measure of fraud intensity able to capture the magnitude of the fraud. On our opinion, different magnitudes of frauds have to be analyzed considering that larger frauds have greater negative impacts in terms of damages for stakeholders, while smaller frauds result in lower amounts deceived and lower damages. We believe that higher frauds need more time to be realized and that, for this kind of frauds, the process of financial statement manipulation tend to be gradual and to start at least two years before the fraud occurrence, with the implementation of earnings management practices. On the other side, for frauds of lower intensity, it is reasonable to believe that the process of earnings management is avoided and managers directly implement the fraud. For this reason, we believe that the relation we test in the first hypothesis can be deepened in relation to frauds of high intensity.

All these considerations lead us to formulate our second hypothesis:

Hypothesis 2. *Firms for which the fraud of high intensity emerges in year t_0 have managed earnings in the two years before the fraud occurrence.*

Research Design

Sample Selection

In order to test the hypotheses previously described, we conduct a longitudinal analysis, covering a 18 years period (from 1990 to 2007), on a sample of 140 firms. Out of these, 70 represent the firms included in the "fraud sample" because each of them experienced a financial statement fraud during the considered period. We match each firm of the "fraud sample" with a comparable firm that did not experience any fraud, creating a "no-fraud sample". The final total sample is obtained joining the two samples, each composed by 70 firms.

Fraud Sample

Fraud sample is composed by listed firms that experienced a financial statement fraud in US or Europe, during the period of investigation.

For US firms, we refer to the database of fraud firms provided by the Authors of the "Fraudulent Financial reporting: 1998-2007 – an analysis of US Public Companies"[1].

For European firms, there is not an official database including financial fraud cases. Thus, we hand-collected information to create the database, starting from the "Loss and Litigation Report", published by GenRe in 2005. We also refer to some National Authorities in charge of the detection and the sanction of frauds (such as CONSOB for Italy, Autorité des Marchés Financiers (AMF) for France and BaFin for Germany).

For both US and European firms, financial data are taken from DATASTREAM database, or hand-collected from each specific National Authority for the Stock Exchange Market.

The starting fraud sample is composed by 347 US firms involved in alleged financial statements frauds, as reported in 1,335 AAERs and 43 European firms. As shown in Table 4.1, we exclude from the starting fraud sample those firms for which the amount of the fraud was not specified (169 firms), financial institutions, banks and insurance firms (27), firms with missing data related to earnings management in the two years before the fraud (124). Thus, the final fraud sample is composed by 70 firms belonging to nine different countries (US, Ireland, Germany, Sweden, Belgium, Russia, Switzerland, UK and Italy), accused of financial statement fraud between 1990 and 2007. This procedure of sample streamlining is similar to those applied in prior fraud

---

[1] The "Fraudulent Financial reporting: 1998-2007 – an analysis of US Public Companies" is a research commissioned by the Committee of Sponsoring Organizations of the Treadway Commission (COSO), which analyzes all the Accounting and Auditing Enforcement Releases (AAERs) issued by the Security and Exchange Commission (SEC) between January 1998 and December 2007. In the US context, AAERs represent the primary source of alleged cases of financial statement fraud (Grove and Basilico, 2008; Beneish, 1999; Grove and Cook, 2004; Beasley, Carello, and Hermanson, 1999), considering all the discovered violations of the Rule 10(b) of the 1934 Securities exchange Act.

researches (Beneish, 1997; Feroz, Taek, Pastena and Park, 2000; Perols and Lougee, 2011).

We consider the period between 1990 and 2007 in order to exclude from the analysis the crisis period, begun in 2008, avoiding the effects of the crisis that interested world's economy, which could create distortion in the financial statement fraud analysis.

[INSERT TABLE 4.1 HERE]

No-Fraud Sample

To create the no-fraud sample, we follow previous studies (Beasley, 1996; Agraval and Chada, 2005; Perols and Lougee, 2011), using a matched sample design. We adopt criteria of similarity with the fraud firms based on four elements: industry, size, time period and stock exchange.

Each matched firm is selected within the same four-digit SIC code as the fraud firm, which defines the industry. If no four-digit SIC code is available, we refer to the three-digit SIC code. If no three-digit SIC code is identified, we then use the same procedure with a two-digit SIC code.

Each firm of the no-fraud sample has a similar size to the related firm in the fraud sample. We measure the size using three different indicators: Total assets, Sales and Market Capitalization. A firm is included in the no-fraud sample as a matched firm if at least two of the three parameters are within +/- 30% of the values of the same parameters of the fraud related firm in the year preceding the year of the financial statement fraud.

To be included in the no-fraud sample, each firm has to present available data useful for the calculation of Earnings Management measure in the two years before the fraud occurrence. The no-fraud sample contains all firms listed on the same markets of the related firms in the fraud sample (US and Europe).

For both US and European firms, financial data are taken from DATASTREAM database, or hand collected from each specific National Authority for the Stock Exchange Market.

Variable Construction

To verify our hypotheses, a measure for earnings management, the independent variable, has to be adopted. Literature about financial statements manipulation identifies several proxies for earnings management. Several scholars use discretionary accruals as a measure of earnings management (Ronen and Sadan, 1981; Healy, 1985; Dechow and Sloan, 1991; De Angelo, 1996), but the most used model in literature is the Jones model (1991), which exhibits the most power in detecting earnings management using discretionary accruals.

Discretionary accruals (abnormal accruals) is calculated as the difference between total accruals and non-discretionary accruals, as shown in the formula below:

$$\frac{DA_{it}}{Assets_{it-1}} = \frac{TA_{it}}{Assets_{it-1}} - \frac{NDA_{it}}{Assets_{it-1}}$$

where:

DA_{it} represents Discretionary Accruals for firm i at year t;

$Assets_{it-1}$ represents total assets for firm i at year t-1;

TA_{it} represents Total Accruals for firm i at year t.
  They are defined as income before extraordinary items minus cash flow from operations;

NDA_{it} represents Non-Discretionary Accruals for firm i at year t.

Following Jones (1991), we calculate discretionary accruals component using the residual estimation of the error term of the following regression:

$$\frac{CA_{it}}{Assets_{it-1}} = \beta_{1t}\left(\frac{1}{Assets_{it-1}}\right) + \beta_{2jt}\left(\frac{\Delta Sales_{it}}{Assets_{it-1}}\right) + \epsilon_{it}$$

where:

CA_{it} represents Current Accruals.
  They are equal to $NI_{it} + DEP_{it} - (CFO_{it})$; where NI_{it} is the Net Income for firm i at year t and represents income before extraordinary items; DEP_{it} is

the Depreciation and amortization for firm i at year t and CFO_{ij} is the Cash Flow from Operating activities for firm i at year t;

$Assets_{it}$ represents total assets for firm i at year t;

$\Delta Sales_{it}$ represents the change in sales for firm i from year t-1 to year t. Sales are computed considering gross sales and other operating revenues less discounts, returns and allowances.

The residual estimation from the previous equation is used as a proxy for discretionary accruals.

We define earnings management as the absolute value of discretionary accruals (Klein, 2002; Cohen, Dey and Lys, 2008; Hazarika, Karpoff and Nahata, 2012). Managers can manipulate earnings up to increase their bonuses and stock compensation (Efendi, Srivastava and Swanson, 2007) or they can manipulate earnings down before the reissue of stock options (Teoh, Welch and Wong 1998) or before share repurchases (Gong, Louis and Sun 1998). Using the absolute value of discretionary accruals we are considering managers' capability to either increase or decrease reported earnings.

Following Perols and Lougee (2011), we use a measure of aggregate absolute value of prior discretionary accruals as a measure of earnings management (TAVDA: Total Absolute Value of Discretionary Accruals). In particular, we consider the sum of the absolute values of discretionary accruals in the two years before the occurrence of the fraud deflated by assets at the beginning of each year, as shown in the formula below:

$$Total\ Absolute\ Value\ Discretionary\ Accruals_{it} = \sum_{t-2}^{t-1} \frac{DA_{it}}{Assets_{it-1}}$$

To verify the occurrence and the intensity of the fraud, which represents our dependent variable, we use two different measures.

When we test our first hypothesis, we consider the dependent variable DUMMYFRAUD as a dichotomous variable, equal to 1 if the firm experienced a financial statement fraud and 0 otherwise.

For testing the second hypothesis, we construct the variable FRAUD able to measure the intensity of the fraud. In order to do that, we firstly create the variable

LEVEL, determined as the ratio between the amount deceived through the fraud and the level of total assets of the firm. This process enables us to standardize the values of the frauds making them statistically significant and comparable. After this standardization process, we divide the values included in the variable LEVEL into four ranges (No, Low, Medium and High), representing four levels of fraud occurrence. Following previous studies (Magnanelli, 2012), we then create the variable FRAUD with four quantitative ordinal levels (0, 1, 2, 3) including firms in the four ranges according to the following criteria:

- FRAUD level equal to 0: we include all the firms of the No fraud sample (No Fraud);
- FRAUD level equal to 1: we include all the firms with a LEVEL between 0 (non included) and 5% included (Low Fraud);
- FRAUD level equal to 2: we include all the firms with a LEVEL between 5% (non included) and 30% included (Medium Fraud);
- FRAUD level equal to 3: we include all the firms with a LEVEL higher than 30% (High Fraud).

Control Variables

Following previous literature (Summers and Sweeney, 1998; Beneish, 1999) we include some control variables in our model. We consider three different categories of control variables: corporate governance measures, financial measures and dimensional measures.

Corporate Governance Measures

We included the most relevant corporate governance measures according the related literature (Beasley, 1996; Jensen and Meckling, 1976; Uzun, Szewczyk and Varma 2004).

Starting from the ownership structure, the first control variable that we consider in our model is BLOCK, a dummy variable equal to 1 if a blockholder exists and 0 otherwise. Aligned with previous literature (Larcker, Richardson and Tuna, 2007; Ali,

Chen and Radhakrishnan, 2007), we define a blockholder as a single shareholder, or a group of shareholders, who owns a percentage of outstanding shares higher than 5%. We expect a positive relation between the presence of a blockholder and fraud occurrence.

We include two control variables related to the Board of Directors (BoD): BODSIZE and BODIND. The first variable is a measure of the BoD dimension because it indicates how many members are present in the Board. We expect a positive relation between BoD dimension and fraud, because the largest part of the literature confirms that smaller BoD are more efficient in controlling management's work (Jensen, 1993; Lipton and Lorsch, 1992). The second variable is a dummy variable measuring the independence of the BoD, equal to 1 if the majority of BoD members are outside directors, 0 otherwise. Based on previous literature (Beasley, 1996; Uzun, Szewczyk and Varma 2004; Larcker, Richardson and Tuna, 2007, Marra, Mazzola and Prencipe, 2011), who sustain that the higher the percentage of outside directors, the higher the effectiveness of the Board's monitoring functions, we expect a negative relation between the number of independent directors and fraud.

We create two variables concerning the CEO figure: CEOTENURE and CEOSO. The first variable (CEOTENURE) considers CEO seniority and is measured as the total number of years that the CEO covered his/her role. This variable considers the capability of an established CEO to have more power in influencing the Board than a new CEO (Beasley, 1996; Hermalin and Weisbach, 1998). For this reason, we expect a positive relationship between this variable and fraud occurrence. We include in our model also CEO compensation, considering the ratio between the value of the stock option granted to CEO and his/her total annual compensation (CEOSO). According to the literature, CEOs are more likely to manage financial statements if their compensation depends on financial results (Baker, Collins and Reitenga, 2003; Bergstresser and Philippon, 2006; McAnally, Srivastava and Weaver, 2008). Based on this consideration, we expect a positive relation between this variable and fraud occurrence.

Regarding the Audit Committee, we include the control variable AUDFINEXP in our model. This variable is built considering the presence or not of a financial expert among the Board members. According to Agrawal and Chada (2005), members with

accounting or financial expertise are more likely to recognize falsifications in financial statements. We expect a negative relation between this variable and fraud occurrence.

In relation with external auditors, we consider two control variables: BIG5 and NONAUDITFEES. For the first variable, following Agrawal and Chada (2005), we create a dummy variable equal to 1 if the auditor of the firm belongs to the group of the so-called "Big 5" (PriceWaterHouseCoopers, KPMG, Ernst&Young, Deloitte&Touche and Artur Andersen[2]), 0 otherwise. These five audit companies represent the biggest and most reliable companies in the audit industry (Dechow, Sloan and Sweeney, 1996). For this reason, we expect a negative relation between this variable and fraud occurrence. We construct the second variable considering the fees paid to the auditors by the firms included in our sample, taking into account the percentage of the non-audit fees on total fees paid to the auditors. We include this variable in our model because several recent legislations restricted the kind of non-audit services that auditors can offer to their clients, in order to strengthen the independence of the auditors. We expect a positive relation between this variable and fraud occurrence.

The last corporate governance control variable included in our sample is TIME. After the wave of financial statement scandals, many countries adopted corporate governance reforms (the Sarbanes-Oxley act of 2002 in US; the Combine Code of 2003 in UK; the Preda report of 2002 in Italy; the 2nd Vienot Report of 1999 in France; Swiss Code of Best Practice of 2002; Sweden Code of Best Practice of 2002; Dutch Corporate Governance Code of 2003; the Code of Corporate Governance of 2004 in Belgium and the Baums Report of 2001 in Germany). We construct a variable equal to 1 if the firm committed the fraud after the adoption of the reform in the belonging country, 0 otherwise. For this reason we expect a negative relation between this variable and fraud occurrence.

Financial Measures

We include in our model the most relevant financial indicators which could have a role in the relationship between frauds and earning management.

---

[2] In 2002, the firm voluntarily surrendered its licenses to practice as Certified Public Accountants after the Enron scandal

Return on Equity (ROE) and Return on Investments (ROI) are financial ratios able to measure the profitability for shareholders and for stakeholders. According to Ravisankar, Ravi, Rao and Bose (2011), firms are more likely to make fraudulent use of financial statements in presence of poor performance ratios. For this reason, we expect a negative relation between these variables and fraud occurrence.

Financial leverage (FINLEV) represents a measure of the level of indebtedness of the firm, which is positively correlated with the fraud occurrence because financially distressed firms can be more tempted to commit frauds. (Persons, 1995; Erickson, Hanlon and Maidev, 2006). Thus, we expect a positive relation between this variable and the fraud occurrence.

The last financial control variable we included in our model is RESTAT. This is a dummy variable, equal to 1 if the firm restated its financial statement in the year before the fraud occurrence and 0 otherwise. Restatement can be considered as a signal of the likelihood of fraud occurrence in the following years and for this reason we expect a positive relation between this variable and fraud occurrence.

Dimensional Measures

We use the level of sales (SALES) to control for the dimension of the firms included in our sample, following previous studies (Larcker, Richardson and Tuna, 2007). We obtain qualitatively similar results when using other measures for size, like natural logarithm of the firm's market capitalization or natural logarithm of firm's assets. We expect positive relation between this variable and fraud occurrence.

We present here a table that summarizes all the variables described above:

[INSERT TABLE 4.2 HERE]

Descriptive Statistics

Table 4.3 presents the differences between fraud firms and no-fraud firms, using the descriptive statistics analyzed before.

[INSERT TABLE 4.3 HERE]

Table 4.3 shows that the fraud and no-fraud firms do not differ significantly based on the dimensional variable SALES, suggesting that the matching procedure is successful. They are also quite similar considering the dimension of the Board (BODSIZE), the number of years the CEO covered his/her role (CEOTENURE), and the value of the stock options granted to the CEO (CEOSO). Moving to the financial measure ROE, it appears interesting that the average value is lower in the fraud sample, which can be considered a reason to manipulate financial numbers.

Model For Testing The Hypotheses

In HP1 we hypothesize that there is a positive relation between financial statement frauds and earnings management practices done by firms in the two years before the fraud occurrence.

To test HP1 we use the following probit cross-sectional model:

$$DUMMYFRAUD = \ \beta_0 + \beta_1 TAVDA + \beta_2 BLOCK + \beta_3 BODIND + \beta_4 BODSIZE +$$
$$\beta_5 CEOTENUTE + \ \beta_6 CEOSO + \ \beta_7 AUDFINEXP + \ \beta_8 AUDIND + \beta_9 BIG5 +$$
$$\beta_{10} NONAUDITFEES + \beta_{11} TIME + \beta_{12}\ ROE + \beta_{13} ROI + \beta_{14} FINLEV \ +$$
$$\beta_{15} RESTAT + \beta_{16} SALES + \varepsilon$$

(1)

where, DUMMYFRAUD is the dependent dummy variable equal to 1 when the firm is alleged to have experienced a financial statement fraud and 0 otherwise and TAVDA is the sum of the absolute values of discretionary accruals in the two years before the occurrence of the fraud deflated by assets at the beginning of each year. We also include in the model fifteen control variables previously described.

In the second hypothesis we deepen the relation between financial statement frauds and earnings management practices done in the two previous years before the fraud occurrence measuring for the intensity of the fraud.

To test HP2 we use the following multinomial logistic regression model:

$$FRAUD =$$

$$\beta_0 + \beta_1 TAVDA + \beta_2 BLOCK + \beta_3 BODIND + \beta_4 BODSIZE + \beta_5 CEOTENUTE +$$

$$\beta_6 CEOSO + \beta_7 AUDFINEXP + \beta_8 AUDIND + \beta_9 BIG5 + \beta_{10} NONAUDITFEES +$$

$$\beta_{11} TIME + \beta_{12} ROE + \beta_{13} ROI + \beta_{14} FINLEV + \beta_{15} RESTAT + \beta_{16} SALES + \varepsilon$$

$$(2)$$

where, the dependent variable FRAUD assumes four quantitative ordinal levels as previously described in section 3.2 and TAVDA is the sum of the absolute values of discretionary accruals in the two years before the occurrence of the fraud deflated by assets at the beginning of each year. We also include the same control variables that we used for HP1.

For both our models, all the independent variables are measured in the year before the one of the fraud occurrence in order to avoid possible misleading data.

Results

To test our first hypothesis we estimate Model 1 with logistic regression, where the dependent variable is equal to 1 when the firm is alleged to have experienced a financial statement fraud and 0 otherwise. Table 4.4 presents the results from estimating Model 1 with a total of 140 observations. The model, as a whole, is statistically significant (p-value for the chi-square equals to 0.0000).

We obtain positive and significant results for the interaction between our measure of earnings management (TAVDA) and fraud occurrence (p=0.02). This result confirms that firms committing a fraud have managed earnings in the two years before the fraud occurrence (HP 1).

We also find interesting results for many control variables. Table 5 reveals positive and significant coefficient for the control variable BLOCK (p=0.006), confirming that the presence of a blockholder inside the firm can increase the likelihood of fraud occurrence. We find positive and significant results for the variable BODSIZE (p=0.007), confirming that frauds are positively correlated with larger boards. The coefficient related to the presence of an audit expert in the Audit Committee is negative and significant (p=-0.000). This result confirms that members with financial expertise are more likely to recognize financial statements manipulations. Also the variable

RESTAT is positive and marginally significant (p=0.056), confirming that restatement is a signal of the likelihood of fraud occurrence in the following years.

[INSERT TABLE 4.4 HERE]

To test our second hypothesis we estimate Model 2 with a multinomial logistic regression, where the dependent variable FRAUD assumes four quantitative ordinal levels (0=No Fraud; 1=Low Fraud; 2=Medium Fraud; 3=High Fraud). Table 6 presents the results from estimating Model 2 with a total of 140 observations. The model, as a whole, is statistically significant (p-value for the chi-square equals to 0.0000).

Table 4.5 presents the results for the three levels of fraud intensity (low, medium and high) in relation with the base outcome of the model (FRAUD=0). In order to test our second hypothesis we are interested only in high level fraud, reason why we focus on the results for the fraud level equal to 3.

[INSERT TABLE 4.5 HERE]

We find that, consistent with the predictions related to our second hypothesis, the measure of earnings management shows a significant and positive relation with fraud of high intensity (p=0.028), meaning that firms committing frauds of higher intensity have managed earnings in the two years before the fraud occurrence.

Interesting results are found also for control variables. As for Hp1, also in this case Table 6 reveals a positive and significant coefficient for the control variable BLOCK (p=0.015), meaning that when there is a blockholder inside the firm the likelihood of a high intensity fraud is increased. We find a similar result also for level of fraud equal to 2 (p=0.022), meaning that the presence of a blockholder has impact on the likelihood of frauds of medium intensity. The coefficient related to the variable BODSIZE (p= 0.015) is positive and significant, confirming that larger boards increase the likelihood of high intensity frauds. We find similar results also for level of fraud equal to 1 (p=0.012) and for level of fraud equal to 2 (p=0.015), which means that larger boards have impact on the likelihood of lower intensity frauds. The coefficient of the variable related to the presence of an audit expert in the Audit Committee is

negative and significant (p=-0.000). This result confirms that members with financial expertise are more likely to recognize financial statements manipulations. Similar results can be found also for level of fraud equal to 2 (p=-0.000). The variable RESTAT has a positive and marginally significant coefficient (p=0.052), confirming that restatement is a signal of the likelihood of high intensity fraud occurrence in the following years. We find positive and significant results also for the variable CEOSO (p= 0.008), meaning that the payment method of stock options is a factor positively correlated with high intensity frauds. Finally, the variable FINLEV has a positive and significant coefficient (p=0.006), confirming that firms with a high level of indebtedness are positively correlated with high intensity fraud occurrence.

Discussion and Conclusions

The results obtained from this empirical study show a correlation between fraud and earnings management, both in absolute and in relative terms.

This study, confirming our first hypothesis, shows that firms for which the financial statement fraud emerges in a point in time experience earnings management practices of higher intensity in the two years before the fraud occurrence. This result confirms that earnings management practices are used to adjust financial results gradually, initially with manipulations not openly violating the accounting standards, that finally result in a manifest financial statement fraud. This hypothesis is also confirmed by the positive correlation between a financial statement fraud and previous restatements: while using discretionary accruals as a measure of earnings management involves a certain amount of discretion in the estimation process of the phenomenon, the presence of a "restatement", which is, by definition, the management admission of accounting mistakes or earnings manipulations, gives robustness to the studied relationship.

However, the most innovative contribution of the study refers to the link between the intensity of the fraud and the earnings management phenomenon. We introduce a completely new measure of fraud intensity, able to capture the magnitude of the damages caused by the fraud. Confirming what we express in the hypotheses development process, the results show a positive and significant relation between

earnings management and high intensity frauds, which is not confirmed for lower intensity frauds. Also in this case the significant correlation between restatements and high intensity frauds, which represents the more direct observable measure of financial statement manipulation, makes our results more robust.

In conclusion, our results show that using earnings management practices, that are allowed by regulation, and committing financial statements frauds are not different and independent behaviors. At the opposite, earnings management practices, if extended over years, can result in financial statements frauds of high intensity. This confirms the argument that financial statements frauds generally starts with lower intensity earnings manipulations by managers that are not fully beware of the fraudulent result of their behaviors and only gradually become big, emerging when the manipulation is out of control and cannot be hidden anymore.

Our findings are relevant not only for the contribution to accounting literature, being this the first study measuring the relationship between earnings management and the intensity of the fraud, but also for practitioners, because the analysis of earnings management practices allows a more effective prediction and prevention of financial statements frauds, together with a more precise addressing and enforcement of the sanctions against them.

Our study emphasizes the relation between the magnitude of a financial statements fraud and previous earnings management behaviors, but does not investigate specific determinant of the fraud occurrence. Under this perspective, the study opens to further research directions on the relations between the single characteristics of a fraud and its earnings management antecedents, which are particularly useful for early detection and prevention of accounting frauds.

References

Agraval, A. & Chadha, S. (2005). Corporate Governance and Accounting Scandals. *The Journal of Law & Economics*, 48, 371-406.

Albrecht, C., Holland, D., Malagueno, R., Dolan S. & Tzafrir S. (2015). The role of power in financial statement fraud schemes. *Journal of Businee Ethics*, 131, 803-813.

Ali, A., Chen, T.Y. & Radhakrishnan S. (2007). Corporate disclosures by family firms. *Journal of Accounting and Economics,* 44, 238-286.

Baker, T., Collins, D. & Reitenga A. (2003). Stock Option Compensation and Earnings Management Incentives. *Journal of Accounting, Auditing and Finance.*

Beasley, M.S. (1996). An Empirical Analysis of the Relation between the Board of Director Composition and Financial Statement Fraud. *The Accounting Review*, 71, 443-465.

Beasley, S., Carcello, J. & Hermanson D. (1999). Fraudulent Financial Reporting: 1987–1997: An Analysis of U.S. Public Companies. *Committee of Sponsoring Organizations of the Treadway Commission*

Beneish, M.D. (1997). Detecting GAAP violation: implications for assessing earnings management among firms with extreme financial performance. *Journal of Accounting and Public Policy*, 16, 271-309.

Beneish, M. (1999). Incentives and penalities related to earnings overstatements that violate GAAP. *The Accounting review,* 74, 425-457.

Bergstresser, D. & Philippon, T. (2006). CEO incentives and earnings management. *Journal of Financial Economics*, 80, 511-529.

Buckmaster, D. (2001). Development of the income smoothing literature 1893-1998: A focus on the United States. Previts, G., Bricker, R.J. (Eds.), Studies in the Development of Accounting Thought.

Cohen, D. A., Dey, A. & Lys T.Z., (2008). Real and Accrual-Based Earnings Management in the Pre-and-Post-Serbanes-Oxley-Periods. *The Accounting review*, 83, 757-787.

Cressey, D.R. (1953). *Other People's Money: A Study in the Social Psychology of Embezzlement*. New York: Free Press

Dechow, P.M., Sloan, R.G. (1991). Executive incentives and the horizon problem: an empirical investigation. *Journal of Accounting and Economics*, 14, 51-89.

Dechow, P.M., Sloan, R.G. and Sweeney, A.P., (1996). Causes and Consequences of Earnings Manipulation: An Analysis of Firms Subject to Enforcement Actions by the SEC. *Contemporary Accounting Research*, 13, 1-36.

Degeorge, F., Patel J. And Zeckhauser R. (1999). Earnings Management to Exceed Thresholds. *The journal of business,* 72, 1-33.

Efendi, J., Srivastava, A. and Swanson, E.P. (2007). Why do corporate managers misstate financial statements? The role of option compensation and other factors. *Journal of Financial Economics*, 85, 667-708.

Erickson, M., Hanlon, M. & Maidev, E., (2006). Is There a Link between Executive Equity Incentives and Accounting Fraud?. *Journal of Accounting Research*, 44, 113-143.

Farber, D.B., (2005). Restoring Trust after Fraud: Does Corporate Governance Matter?. *The Accounting Review*, 80, 539-561.

Feroz, E.H., Taek ,M.K., Pastena, V.S. & Park, K. (2000). The Efficacy of Red Flags in Predicting the SEC's Targets: An Artificial Neural Networks Approach. *International Journal of Intelligent Systems in Accounting, Finance, and Management*, 9, 145-157.

Gaver, J., Gaver, K. & Austin, J. (1995). Additional evidence on bonus plans and income management. *Journal of Accounting and Economics*, 19, 3-28.

Glass Lewis (2004). *Running Out of Time: Compliance Deadline for Reporting on Internal Financial Reporting and Disclosure Controls Nears (September 23).* Yellow Card Trend Alert.

Gong, G., Louis, H. & Sun, A.X. (2008). Earnings Management and Firm Performance Following Open-Market Repurchases. *The Journal of Finance*, 63, 947-986.

Grove, H. & Cook, T. (2004). Lessons for auditors: quantitative and qualitative red flags. *Journal of Forensing Accounting*, 5, 131-146.

Grove, H. & Basilico, E. (2008). Fraudulent Financial Reporting Detection: Key Ratios Plus Corporate Governance Factors. *International studies of management and organization*, 38, 10-42

Guidry, F., Leone, A. & Rock, S. (1999). Earnings-based bonus plans and earnings management by business unit managers. *Journal of Accounting Economics*, 26, 113-142.

Hazarika, S., Karpoff, J. M. & Nahata, R., (2012). Internal corporate governance, CEO

turnover, and earnings management. *Journal of Financial Economics*,. 104, 44-69.

Healy, P. (1985). The effect of bonus schemes on accounting decisions. *Journal of Accounting and Economics*, 7, 85-107.

Healy, P.M. & Whalen, J.M. (1999). A review of the earnings management literature and its implications for standard setting. *Accounting Horizons*, 13, 365-383.

Hermalin, B.E. & Weisbach M.S. (1998). Endogenously Chosen Boards of Directors and Their Monitoring of the CEO. *The American Economic Review*, 88, 96-118. Retrieved from: http://www.jstor.org/stable/116820

Hogan, C.E., Razaee, Z., Riley, R.A. & Velury, U.K. (2008). Financial Statement Fraud: Insights from the Academic Literature. *Auditing: A Journal of Practice & Theory*, 27, 231-252

Jaggi, B. & Lee, P. (2002). Earnings management response to debt covenant violations and debt restructuring. *Journal of Accounting, Auditing and Finance*, 295-324.

Jensen, M.C. & Meckling, W.H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3, 305-360.

Jensen, M.C. (1993). The Modern Industrial Revolution,Exit, and the Failure of Internal Control Systems. *The Journal of Finance*, 48, 831-880.

Jones, K.L. (1991). Earnings Management During Import Relief Investigations. *Journal of Accounting Research*, 29, 193-228.

Jones, K.L., Krishnan, G.V. & Melendrez, K.D. (2008). Do models of discretionary accruals detect actual cases of fraudulent and restated earnings? An emipirical analysis. *Contemporary Accounting research*, 25, 499-531.

Kellog, I. and Kellog, L.B. (1991). *Fraud, Window Dressing, and Negligence in Financial Statements*. Commercial Law Series, McGraw-Hill

Klein A. (2002). Audit committee, board of director characteristics, and earnings management. *Journal of Accounting and Economics*, 33, 375-400.

Kulikova, L.I. & Satdarova, D.R. (2016). Internal Control and Compliance-Control as Effective Methods of Management, Detection and Prevention of Financial Statement Fraud. *Academy of Strategic Management Journal,* 1, 92-103.

Larcker, D.F., Richardson, S.A. & Tuna, I. (2007). Corporate Governance, Accounting Outcomes, and Organizational Performance. *The Accounting Review*, 82, 963-1008.

Lee, T.A., Ingram, R.W. & Howard, T.P., (1999). The difference between earnings and

operating cash flow as an indicator of financial reporting fraud. *Contemporary Accounting Research*, 16, 749-786.

Lipton, M. & Lorsch, J.W. (1992). A Modest Proposal for Improved Corporate Governance. *The Business Lawyer*, 48, 59-77.

Loebbecke, J.K., Eining, M.M. & Willingham, J.J., (1989). Auditors' Experience with Material Irregularities: Frequency, Nature, and Detectability. *Auditing: a Journal of Theory and Practice*, 9, 1-28.

Magnanelli, B.S. (2012). *The Role of Corporate Governance in Financial Statement Frauds - An empirical analysis on the governance models, the governance as a whole, and the governance mechanisms.* Lambert Academic Publishing

Marra, A., Mazzola, P. & Prencipe, A. (2011). Board Monitoring and Earnings Management Pre- and Post-IFRS. *The International Journal of Accounting*, 46, 205-230.

McAnally, M.L., Srivastava, A. & Weaver, C.D. (2008). Executive Stock Options, Missed Earnings Targets, and Earnings Management. *The Accounting review*, 83, 185-216.

Peasnell, K.V., Pope, P.F. & Young, S., (2005). Board Monitoring and earnings Management: Do Outside Directors Influence Abnormal Accruals?. *Journal of Business Finance & Accounting*, 32, 1311-1346.

Perols, J.L. & Lougee, B.A. (2011). The relation between earnings management and financial statement fraud. *Advances in Accounting*, 27, 39-53.

Prencipe, A., Markarian, G. & Rozza L. (2008). Earnings Management in Family Firms: Evidence From R&D Cost Capitalization in Italy. *Family Business Review*, 21, 71-88.

Ravisankar, P., Ravi, V., Rao, G.R. & Bose, I. (2011). Detection of financial statement fraud and feature selection using data mining techniques. *Decision Support System*, 50, 491-500.

Razaee, Z. (2005). Causes, consequences, and deterence of financial statement fraud. *Critical perspectives on accounting*, 16, 277-298.

Ronen, J. & Sadan, S. (1981). *Smoothing income numbers: Objectives, means and implications*. Reading, MA: Addison-Wesley

Roychowdhury, S. (2006). Earnings management through real activities manipulation.

Journal of Accounting and economics, 42, 335-370.

Summers, S.L. & Sweeney, J.T. (1998). Fraudulently Misstated Financial Statements and Insider Trading: An Empirical Analysis, *Accounting Review*, 73, 131-146.

Sweeney, A.P. (1994). Debt-covenant violations and managers' accounting responses. *Journal of Accounting and Economics,* 17, 281-308.

Teoh, S.H., Welch, I. & Wong, T.J. (1998). Earnings Management and the Long-Run Market Performance of Initial Public Offerings. *The Journal of Finance*, 53, 1935-1974.

Trueman, B. & Titman, S. (1988). An explanation for accounting income smoothing. *Journal of Accounting Research*, 26, 127-139.

Tsang, J. (2002). Moral Rationalization and the Integration of Situational Factors and Psychological Processes in Immoral Behavior. *Review of General Psychology*, 6, 25-50.

Uzun, H., Szewczyk, S.H. & Varma, R. (2004). Board Composition and Corporate Fraud. *Financial Analysts Journal*, 60, 33-43.

Wilks, T.J. & Zimbelman, M.F. (2004). Decomposition of Fraud-Risk Assessments and Auditors' Sensitivity to Fraud Cues. *Contemporary Accounting Research*, 21, 719-745.

Zahra, S.A., Priem, R.L. & Rasheed, A.A. (2005). The antecedents and consequences of top management fraud. *Journal of management*, 31, 803-828.

Tables

Table 4.1 – Fraud sample composition

Selection criteria	Number of Firms
TOTAL FIRMS ACCUSED OF FINANCIAL FRAUD 1990-2007	390
Less:	
- Firms with not specified fraud amount	169
- Financial institutions, banks and insurance firms	27
- Firms with missing data about earnings management	124
Final fraud sample	**70**

Table 4.2 – Variables description

DEPENDENT VARIABLE	Definition
DUMMYFRAUD	Dummy variable equal to 1 if the firm experienced a financial statement fraud and 0 otherwise
FRAUD	The intensity of the fraud is expressed through the ratio between the amount deceived with the fraud and the total asset of the firm This variable can assume 4 values: - 0: for all the firms included in the matched sample which did not commit a fraud - 1: for all the firms with a Low Level of Fraud (between 0 and 5% included) -2: for all the firms with a Medium Level of Fraud (between 5% and 30% included) -3: for all the firms with a High Level of Fraud (more than 30%)
INDEPENDENT VARIABLE	Definition
Corporate Governance	
BLOCK	Dummy variable equal to 1 if a blockholder exists and 0 otherwise. We define a blockholder according to the previous literature (Larcker et al., 2007; Chen et al. 2007) as a single shareholder, or a group of shareholders, who owns a percentage
BODSIZE	The number of Board members
BODIND	Dummy variable equal to 1 if the majority of BoD members are outside directors, 0 otherwise
CEOTENURE	Number of years that the CEO covered his/her role
CEOSO	The ratio between the value of the stock option granted to CEO and his/her total annual compensation
AUDFINEXP	Dummy variable equal to 1 if there is a financial expert in the Audit Commitee, 0 otherwise
BIG 5	Dummy variable equal to 1 if the auditor of the firm belongs to the group of the so-called "Big 5" (PriceWaterHouseCoopers, KPMG, Ernst&Young, Deloitte&Touche and Artur Andersen) and 0 otherwise
NONAUDITFEES	The ratio between non-auditfees paid and total fees paid to the external auditor
TIME	Dummy variable equal to 1 if the firm committed the fraud after the adoption of the reform in the belonging country and 0 otherwise
Financial	
ROE	The ratio between Net Income and Equity
ROI	The ratio between Ebit and Net Operating Invested Capital
FINLEV	The ratio between Financial debts and Equity
RESTAT	Dummy variable equal to 1 if a restatement occurred the year before the fraud, 0 otherwise
Dimensional	
SALES	The sum of Total revenues of the firm

Table 4.3 – Descriptive statistics

Variables	FRAUD SAMPLE Observations= 70				NO FRAUD SAMPLE Observations= 70			
	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max
tavda	0.00000147	0.00000424	0	0.0000294	0.00000115	0.00000239	0	0.0000134
dummyfraud	0.9859155	0.1186782	0	1	0.8874635	0.1227365	0	0
fraud	2.225352	0.7782248	0	3	3.837264	0.8873625	0	0
block	0.2535211	0.4381229	0	1	0.1285714	0.3371418	0	1
bodsize	9.915493	4.534775	4	30	8.057143	2.718086	4	17
bodind	0.5915493	0.4950459	0	1	0.8285714	0.3796042	0	1
ceotenure	7.084507	4.88071	1	32	9.057143	7.214891	1	34
ceoso	0.3705553	0.3412577	0	1.098032	0.3141981	0.3336384	0	0.9886906
audfinexp	0.4647887	0.5023086	0	1	0.9654387	0.3021661	0	1
big5	0.7464789	0.4381229	0	1	0.8714286	0.3371418	0	1
nonauditfees	0.4551677	0.2523642	0	0.9247863	0.461138	0.2505304	0	0.9847193
time	0.1126761	0.3184469	0	1	0.1345870	0.3021661	0	1
roe	8.056197	22.27518	-85.92	51.38	15.27043	23.20929	-46.72	108.26
roi	6.478	17.44795	-79.29	42.86	2.924429	72.91445	-585.97	55.76
finlev	1.019584	1.218989	-2.732357	5.795759	-1.739763	22.09433	-183.6953	7.412227
restat	0.1830986	0.3895	0	1	0.1785466	0.3021661	0	1
sales	4,438,904	8466565	3861	4.14E+07	3,674,200	314000000	13038	2.63E+09

Table 4.4 – Logistic regression results

DUMMYFRAUD	Prediction	Coef.	Robust Std. Err.	z	P>|z|		[95% Conf. Interval]	
tavda	(+)	148897.3	64109.98	2.32	0.02	**	23244.02	274550.5
block	(+)	1.607467	0.5845771	2.75	0.006	**	0.4617173	2.753218
bodsize	(+)	0.2071529	0.0763833	2.71	0.007	**	0.0574443	0.3568614
bodind	(-)	-0.4842212	0.4724694	-1.02	0.305		-1.410244	0.4418018
ceotenure	(+)	-0.0172657	0.0526203	-0.33	0.743		-0.1203995	0.0858681
ceoso	(+)	1.387273	0.6848798	2.03	0.043	*	0.0449333	2.729613
audfinexp	(-)	-3.039579	0.6448892	-4.71	0.000	***	-4.303539	-1.77562
big5	(-)	-0.5353597	0.7016538	-0.76	0.445		-1.910576	0.8398565
nonauditfees	(+)	0.299394	0.8162765	0.37	0.714		-1.300479	1.899267
time	(-)	-1.26359	0.8489113	-1.49	0.137		-2.927426	0.4002451
roe	(-)	0.0032381	0.0124017	0.26	0.794		-0.0210689	0.0275451
roi	(-)	-0.0029394	0.0177226	-0.17	0.868		-0.0376751	0.0317963
finlev	(+)	0.1741459	0.1410339	1.23	0.217		-0.1022755	0.4505674
restat	(+)	1.317052	0.6896408	1.91	0.056	*	-0.0346192	2.668723
sales	(+)	-2.83E-09	1.90E-09	-1.49	0.136		-6.55E-09	8.89E-10
_cons		-0.2168721	1.294389	-0.17	0.867		-2.753828	2.320084

Table 4.5 – Multinomial logistic regression results

fraud	Prediction	Coef.	Robust Std. Err.	z	P>|z|		[95% Conf. Interval]	
0 (base	outcome)							
1								
tavda	(+)	-1047.45	154258.9	-0.01	0.995		-303389.4	301294.5
block	(+)	1.29688	1.614961	0.8	0.422		-1.868386	4.462145
bodind	(-)	-1.73048	1.070934	-1.62	0.106		-3.829472	0.3685122
bodsize	(+)	0.2484441	0.0985896	2.52	0.012	**	0.055212	0.4416763
audfinexp	(-)	-3.579011	1.907332	-1.88	0.061		-7.317312	0.1592904
ceotenure	(+)	-0.6464083	0.2924272	-2.21	0.027	**	-1.219555	-0.0732614
big5	(-)	-2.586506	1.486611	-1.74	0.082		-5.50021	0.3271972
nonauditfees	(+)	-1.236053	3.189633	-0.39	0.698		-7.487619	5.015513
restat	(+)	1.250454	1.598262	0.78	0.434		-1.882081	4.38299
ceoso	(+)	0.9971523	1.596377	0.62	0.532		-2.131689	4.125993
finlev	(+)	0.7866732	0.4464839	1.76	0.078		-0.0884192	1.661766
sales	(+)	-9.55E-10	9.57E-10	-1	0.318		-2.83E-09	9.21E-10
time	(-)	1.205934	1.860976	0.65	0.517		-2.441512	4.853381
roe	(-)	-0.0119622	0.038775	-0.31	0.758		-0.0879597	0.0640354
roi	(-)	0.0074063	0.0386642	0.19	0.848		-0.0683742	0.0831868
_cons		17.05993	2.865829	5.95	0		11.44301	22.67685
2								
tavda	(+)	115536.4	84187.22	1.37	0.17		-49467.49	280540.4
block	(+)	1.882168	0.82084	2.29	0.022	**	0.2733509	3.490985
bodind	(-)	0.0739967	0.6772272	0.11	0.913		-1.253344	1.401338
bodsize	(+)	0.2268137	0.092977	2.44	0.015	**	0.0445821	0.4090453
audfinexp	(-)	-3.45179	0.779502	-4.43	0.000	***	-4.979586	-1.923995
ceotenure	(+)	-0.0045439	0.0719347	-0.06	0.95		-0.1455333	0.1364455
big5	(-)	-0.2032854	0.9952985	-0.2	0.838		-2.154035	1.747464
nonauditfees	(+)	0.4644496	1.232317	0.38	0.706		-1.950846	2.879746
restat	(+)	0.8889974	0.9571374	0.93	0.353		-0.9869575	2.764952
ceoso	(+)	0.3971031	0.876666	0.45	0.651		-1.321131	2.115337
finlev	(+)	-0.0167607	0.0764151	-0.22	0.826		-0.1665316	0.1330101
sales	(+)	-1.29E-09	7.89E-10	-1.64	0.101		-2.84E-09	2.54E-10
time	(-)	-1.272067	0.9296768	-1.37	0.171		-3.0942	0.5500658
roe	(-)	-0.0339288	0.0188187	-1.8	0.071		-0.0708127	0.0029551
roi	(-)	0.0204113	0.0243159	0.84	0.401		-0.027247	0.0680697
_cons		14.87484	1.699898	8.75	0		11.54311	18.20658
3								
tavda	(+)	221219.3	100404.8	2.2	0.028	**	24429.53	418009.1
block	(+)	1.821232	0.7459466	2.44	0.015	**	0.3592038	3.283261
bodind	(-)	0.0756868	0.6389703	0.12	0.906		-1.176672	1.328045
bodsize	(+)	0.2456535	0.1004903	2.44	0.015	**	0.0486961	0.4426108
audfinexp	(-)	-3.41913	0.8107752	-4.22	0.000	***	-5.00822	-1.83004
ceotenure	(+)	0.037095	0.0488335	0.76	0.447		-0.0586169	0.1328068
big5	(-)	-0.6857332	0.78163	-0.88	0.38		-2.2177	0.8462334
nonauditfees	(+)	0.3851644	1.012263	0.38	0.704		-1.598834	2.369163
restat	(+)	1.874109	0.9650313	1.94	0.052	*	-0.0173173	3.765536
ceoso	(+)	2.413096	0.916032	2.63	0.008	**	0.6177059	4.208485
finlev	(+)	0.5291821	0.1930109	2.74	0.006	**	0.1508878	0.9074765
sales	(+)	-1.40E-07	7.45E-08	-1.88	0.06		-2.86E-07	6.04E-09
time	(-)	-1.375031	1.087203	-1.26	0.206		-3.50591	0.7558472
roe	(-)	0.0087065	0.012107	0.72	0.472		-0.0150227	0.0324357
roi	(-)	0.0343564	0.0258165	1.33	0.183		-0.016243	0.0849559
_cons		13.93469	1.553534	8.97	0		10.88982	16.97956

Business Planning in Biobanking:
How to Implement a Tool for Sustainability

Mirella Ciaburri,[1,2] Mariarosaria Napolitano,[2] and Elena Bravo[2]

Worldwide, the sustainability of public health systems is challenged by the increasing number and cost of personalized therapies. Quality biological samples stored in biobanks are essential for the provision of appropriate health services and also act as a reservoir for the development of precision medicine and biotechnological innovation. Economic sustainability is a crucial factor in the maintenance of biobanking activities. Traditionally, management of biobanking is performed by health researchers and/or clinicians whose knowledge of economic issues is inadequate. On the other hand, familiarity with financial instruments used by economists is not often accompanied by a consolidated understanding of biobanking features. This article aims to be a guide for the implementation of business plans in biobanking and proposes models for the facilitation of their preparation, thus contributing to recognition of the importance of efficient management of resources of public health services.

Keywords: biobanks, bioresource, business plan, cost analysis, sustainability

Introduction

THE ECONOMIC AND SOCIAL importance of biobanking is growing due to the rapid acceleration of biotechnology[1] and to the parallel augmented impact of human samples in translational medicine.[2–4] Notwithstanding the increasing interest of public and private sectors, a major unresolved question is still the economic sustainability of both individual collections and of biobanking complex infrastructures,[5,6] of which the main products are the human samples that are not commercial goods.[7] Thus, the development of economically sustainable models for biobanking is a matter of debate, and different models of economic revenues based on different cost recovery processes have been proposed.[4,5,8]

In the private sector, activities are primarily approached from an economic point of view, using economic tools to assess the feasibility of the operation and its sustainability in the future. Thus, there is a long-lasting cultural tradition in planning the business prospectively and in using economic tools such as the Business Plan (BP) and quality implementation systems to both increase quality of the products/services and decrease operating costs. These instruments are fundamental to allow economic sustainability and success of the initiatives. The most important instrument that is used in evaluating the project is the BP.[9–11] The BP must be organized according to a strict scheme,[9,12] which defines all the contents of the project that will be achieved in the long term, and its major goal is to show that the company will not only be able to survive in the future but will also generate positive results.

Traditionally, on the other hand, biobanks, especially when embedded in public health policies, have not been recognized as individual economic units, and biobanking activities have been managed with little attention to the breakdown of expenses and possible revenues. For instance, clinical biobanks originating in their home structure (i.e., hospital and healthcare institutes) and the economic value of their activities were not analyzed separately. Thus, their costs were included in the total financial statements of the home institute, and the sustainability of these structures was a hidden cost of the public healthcare system. In the public sector, most of the services were provided with a major focus on the political and social needs of health services, with less attention paid to the long-term sustainability of services offered and insufficient development and application of key performance indicators.[13]

In parallel, population and clinical biobanks[14,15] accumulated a huge number of valuable biospecimens and data, which were collected to respond to the specific scientific aims of clinical and/or epidemiological studies. However, such projects and collections did not make any prospective (economic) plans for the maintenance of their bioresources.

Basically, scientists have the know-how necessary to manage a biobank, but their familiarity with economic tools

---

[1]Department of Management, University LUISS Guido Carli, Rome, Italy.
[2]Departments of Haematology, Oncology and Molecular Medicine, Istituto Superiore di Sanità, Rome, Italy.

is limited. Traditionally, management of public health services was not multidisciplinary, scientific work was not generally supported by economists, and, in several cases in the public sector, there is a general lack of the cultural background required for economic planning and for the use of appropriate tools designed for managing sustainability. Thus, this article aims to increase awareness of the importance of the use of proper tools for the management of economic sustainability of biobanks and to implement the use of economic tools, which are essential for correct management of such infrastructures.[16]

We aim to depict features of the BP and to provide a practical basic guide to its development for biobankers, scientists, managers, and stakeholders. Although this article is mainly focused on human samples and related biobanks, the principles and ideas reported may be applied to any other structure dedicated to an organized storage of biomaterials and their associated data for research purposes.

Methodology for Implementation

In this article, we present the principles, the structure, and the model of a BP for biobanking, according to principles drafted by Stutely[9] in 2005. The sections of a typical BP are as follows:

(1) Cover
(2) Entrepreneur and organization data
(3) Project description and mission
(4) Market analysis
(5) Marketing strategies
(6) Organizational structure
(7) Economic and financial provisions
    (7.1) Costs
    (7.2) Funds
    (7.3) Revenues

The BP is generally structured on a medium to long time horizon, usually no longer than 5 years[17] and possibly with a greater level of detail for the initial years.

In the following sections, the different parts of a typical BP are analyzed. Each outlines a simplified guide for the document, supplying information either in general terms and/or for specific issues related to biobanking, with a final summary of the main points, which need to be included.

Cover

The cover[10] represents the opening page of each BP. It contains the name of the project or of the firm and an indication of the time horizon to be considered in the following pages.

The cover of a biobank BP must include this same information. In addition, if available, it should indicate the unique identifier of the biobank, which can be used reliably to readily recognize and trace on the Web any activity of the biobank.[18]

Entrepreneur and organization data

The purpose of this section is to provide general data on the activities to be performed and includes a presentation of the entrepreneur and a description of the most important organizational data.

Entrepreneur presentation. In a general BP, this section has a descriptive function and outlines the personality of the entrepreneur and of the founder.[12] Personal data, professional profile, past experiences, and competencies that may be relevant for the covered role should be reported. In some cases, that is, when the business has been recently created, the entrepreneur may also be the founder of the business. The founder is the person who started the business using his own capital or that raised from other financers.

For a biobank, the identification of the founder and the entrepreneur requires an analysis of the biobank structure and origin. If the biobank originated from collections from a specific project, the founder is identified as the principal investigator of that project. Other biobanks originate from private or public/private foundation initiatives as a response to demands from investigators and funded by disease-focused foundations, advocacy organizations, and/or commercial entities who want to develop new therapies and diagnostic tools for the disease.[19] In this case, the founder(s) and source of capital are generally well defined and the identification of funder and entrepreneur is facilitated.[20]

In most cases, however, identification of the founder of a biobanking project is more difficult. Sometimes, with a large-scale infrastructure, the biobank or the biological resource center[21] manages several types of biospecimen collections derived from diverse studies, which may or may not still have a direct link with the original principal investigator. Another common case is a disease biobank that originated from healthcare activities set in a hospital/healthcare institution. In the vast majority of these, with very few exceptions, it is difficult to identify the typical entrepreneur depicted by the BP. This role is then assigned to the Senior Manager, who is designated as responsible for the biobank. According to the Organization for Economic Co-operation and Development (OECD) Best Practice Guidelines for Biological Resource Centres,[22] the Senior Manager of the biobank must be qualified to make decisions on ethical, scientific, and managerial issues and may also delegate responsibilities to qualified staff.

The Senior Manager has, in fact, the primary responsibility for the implementation of biobank policies and for decisions on ethical, scientific, and managerial issues. He/she may also delegate individual responsibility and the corresponding authority to suitably qualified members of the staff. The senior management is also in charge of ensuring appropriate administration, monitoring, updating of quality systems, and internal compliance with biosecurity by appointing, respectively, the Quality Manager and the Biosecurity Officer.[22]

In such a case, this section of the BP reports a brief profile of the Senior Manager to highlight how their experience and competencies fulfill the requirements needed to manage a biobank.

Organization data. For a generic firm, this subsection of a BP includes general information, such as the type of products the firm provides to its customers, the industry in which it operates, the date of founding, the size in terms of number of employees, and other elements useful to define the business.

All the elements listed above are considered in the context of a biobank.

A simplified panel of information to be included is indicated below:

- The type of biobank (population, clinical, genetic, multispecialty, biodiversity, institutional, cell, microbiologic, etc.).
- The origin of the samples stored (i.e., research, diagnosis, therapeutics, outpatient, germs, environment).

- The number of samples (as derived from each individual organism) stored.
- The kind of biospecimens stored (i.e., blood, urine, solid tissues, biological fluids, microorganism, infectious agent) and/or their derivatives (i.e., buffy coat, plasma, serum, DNA, RNA).
- Biobank products available according to the adopted sharing policy (biospecimen and/or derivatives).
- Provision of annual sample management (see also the Economic and financial provisions section).

In summary, the section—Entrepreneur and organization data—should report a short professional portrait of the person identified as the entrepreneur and the organization data related to the type and/or services offered by the biobank and general policies adopted for their use.

Project description and mission

The aim of the third part of a BP is to provide a detailed rationale for the project. For a biobank, this will lay out the objectives to be reached through the implementation/maintenance of biobanking activities.

Project description. For a generic firm, this section must identify the product/service in all its features, together with the technology used, the existing independent certification, the patents owned, and the know-how applied. These elements are fundamental to demonstrate that the knowledge needed for proper management of activities of the project is available.

For a biobank, the description of the project defines in detail the features of the samples stored, including the reason for their collection and the way it was done. Products of the biobank can primarily consist of data, samples and associated data, and services offered for any type of activity by the biobank. It is useful to define the biological nature of available samples, such as organism, infectious agent, tissue, or biomaterial derivative (serum, cells, DNA, RNA; proteins, etc.), as well as the state of the sample (i.e., dry, frozen) and storage conditions (temperature, container, quantity for aliquot, etc). The inclusion of a brief history of the biobank is appropriate.

For long-lasting biobanks, the history of the biobank may be complex because of the variable origin and development of the infrastructure. If different collections are stored in the infrastructure, the description in this section of the BP will include a list of completed and ongoing collections of the sample stored. The administrative and functional relationships between the Senior Manager and the scientists responsible for each collection must be reported. Ongoing prospective collection will be clearly indicated. In this section, inclusion of a table showing a list of biospecimen collections managed by the biobank may also be useful. This table should give the title, mission, starting date of collection, actual state of the project (completed/ongoing), ethical, scientific, and legal staff responsible for each collection, and their relationship with the Senior Manager of the infrastructure.

SWOT analysis. An integral part of any project description is the SWOT analysis[23] designed to assess its strengths, weaknesses, opportunities, and threats. The first two elements (strengths and weaknesses) are internal factors, while the last two elements (opportunities and threats) are external factors.

The strengths of a biobank may derive from its quality, the number of samples and specific features of the material, and simplified procedures for access to samples. Quality

(i.e., adherence to standard quality principles and procedures, certification, accreditation) and richness of the data associated with the sample represent a *strength* for the biobank. In particular, biobanks that implement an international, recognized quality management system (QMS) are regarded as preferential partners for development of market applications. The Organization for Standardization (ISO) is now setting requirements for bioresources for research and market use using the working group, biobanking, established in the Technical Committee (TC) 276 Biotechnology.[24]

The clinical origin, detailed information on the preanalytical procedures, the scope of the study, its geographical origin, inclusion criteria of high-efficiency organization, reliability of the institution, certification, the extent of available knowledge associated with the samples, rare derivatives, laboratory equipment, and storage technology are important elements, which determine *uniqueness or rarity* of material. Further strengths may come from the policy adopted and capability of offering efficient services (i.e., an easy and clear access policy, affordable service costs, efficient delivery systems, speed, and security of data transfer).

So far, one of the most common recognized *weaknesses* of biobanking is the difficulty of covering the total cost of the infrastructure independently of the economic model adopted[4,8,20,25] and the scarce use of bioresources.[18,26] In addition, weakness may occur when the destiny of samples collected within a funded project is undetermined when the project ends.

Opportunities may refer to the possibility to develop and become a center of territorial (institution; region; national, global) reference for the management of samples in the specific area of activity, to join networks or merge with other centers, and to implement further biobanking services to offer to public and private sectors.

Threats. Disaster and the lack of contingency plans are some of the main threats that biobank may face.[27,28]

Natural, human, or technological accidents may threaten the biobank.[29] It is advisable to add to this section a part dedicated to alternative strategies, in which additional costs for risk assessment, mitigation, and contingency planning are considered and specifically adapted for the location and environment of the biobank.

Financial failure deriving from decrease/loss of public funding or charity support, bankruptcy, closure of the host institution, or a change in institutional policy involving disposal are other possible dangers.

Additional threats may derive from ethical–legal issues such as massive withdrawal of consent, for example, due to the social impact of a news story causing public distrust.

The mission. The definition[30] of the mission, that is, the statement of purpose of the organization is essential in any BP. The mission, generally stated in a few lines (mission statement), justifies the existence of the firm and guides the actions of the organization. Although the mission is a facultative field of the BP, careful drafting is highly recommended both for firms and biobanks.[30,31]

The mission targets and identifies the major scope of the biobank and it indicates why the biobank, even if embedded in a more complex institution, exists and needs to be maintained.

To summarize, the Project description and mission section should report the mission together with a description of the rationale and of the history of the biobank accompanied by a detailed description of products and services, policies, and personnel relationships.

SWOT analysis and alternative strategies are an integral part of this section.

Taking into account the quantity and importance of the information to be reported, the use of tables is highly recommended.

Market analysis

The purpose of this section is to identify and outline relationships with the stakeholders. Thus, this section of a BP shifts the focus to the external environment.

For a generic firm, this analysis aims to define the trends related to supply and demand inside the industry, to identify the competitors, and above all to indicate the stakeholders of the firm.

For a biobank, it is important to analyze the social, cultural, and political environment in which the infrastructure is integrated to identify and examine the stakeholders involved. A sort of identity kit of the different stakeholders is required to evaluate which of their interests the biobank has to protect and which of them are able to influence the biobank. According to the stakeholders' theory,[32] all the processes developed by an organization have to satisfy different stakeholders' expectations.[33,34]

In keeping with the different aims, structure, and organization, each biobank should identify the interested parties and address market activity that satisfies their expectations. The analysis of the type of biospecimens and of the services offered by the most competitive biobanks favors identification of additional/alternative activities to improve the response to stakeholders' requests.

The most common stakeholder categories include the following:

- Donors and/or patients
  Persons who give samples to biobanks are important stakeholders[19,33,35]; however, their role and involvement may vary markedly among bioresource centers. Donors are the engine of the population biobanks and are represented by all the people who accept the invitation to participate in a research/epidemiological program. The involvement of citizens is generally dependent on institution/biobank reliability and trust in the use of their specimens for research.[35,36] Disease-oriented biobanks collect data and samples from patients and their involvement is becoming more and more valuable. The activities of patient organizations[17,22] reflect the capability of patients and donors to advocate their interests and to favor biobanking policies that better safeguard their rights. Nowadays, in fact, several disease-focused foundations and patient advocacy organizations cover niche fields and are sustaining biobanks. This model represents a financial model for the operational sustainability of biobanking.[17]
- Researchers
  Public and private researchers interested in using samples and/or associated data for research purposes are fundamental stakeholders for biobanking. They can be considered the engine of the infrastructure because they are also the major providers of samples and play an important role in establishing and maintaining bioresources. Their capability to act as both providers

and users of samples is crucially dependent on the recognition of the impact of biobanking activities.[18]
- Private and public sectors
  Several biotechnologies need bioresources to develop applications in the performance and capabilities of many different sectors, such as healthcare and medicine, agricultural production, and industrial production.[1] Thus, biobanks are a precious source of samples and data for the development of commercial products in both public and private sectors. However, several issues related to Public–Private Partnerships are still under debate.[17,20] This section of the BP must define the relationship of the biobank to industrial sectors and its policy toward either private or public partners.
- Public institution/bodies
  Public sectors can be variously represented by the State or the region/district or hosting public institution. They are important stakeholders as they define current legislation. In particular, they are in charge of the accreditation of the institution and also provide partial or total funding of the biobank.
- The staff
  This category of stakeholders refers to both personnel reported in the organizational chart (see the Organizational structure section) and the external personnel. Very often, the building and maintenance of bioresources require additional competencies (i.e., medical staff, pathologists, surgeons, epidemiologists, nurses) that are devoted to the external collection of samples and data. Taking account of the expectations of these stakeholders is a factor in the success of the project as most of this highly specialized work is performed on a voluntary basis and sometimes performed as an in-kind contribution.
- Financial supporters
  Funders have to be included in the category of relevant stakeholders because they provide the biobank with the financial funds necessary for it to function (a detailed analysis of the financial supporters will be developed in the following section).
- Network/partnership/consortium
  The partners in a network/consortium are also important stakeholders and analysis of the importance of hierarchical and complementary relationships is outlined in this section.
  In summary, this section should include a simple and exhaustive stakeholder analysis. Each category of potential stakeholders has to be taken into consideration, and major attention has to be paid to categories that benefit from these activities as well as those that may contribute to the sustainability of the biobank.

Marketing strategies

For a generic firm, the marketing process is defined as a set of actions, which create a relationship with the customer, to keep the existing clients and acquire new ones.[37,38] In this section of the BP, all the marketing strategies are defined to render the firm and its products recognizable to customers.

The marketing strategies (from advertising to packaging to market positioning) have the ultimate target of creating value for the firm offering the product to the customers.

According to the defined budget and timescale, each firm operates different types of marketing and communication strategies, such as television or radio spots, the creation of a website dedicated to the single product or to the firm, roadside posters, newspaper advertising, flyers, and so on.

The market analysis (see the Market analysis section above) will indicate the best communication channel to meet the stakeholders' needs and the market strategies to be implemented to increase the trust of stakeholders and to attract more philanthropic donations.[4] Thus, in this section, the biobank needs to underline the importance of access to samples through the participation of relevant research projects, collaboration with private sectors, and also to make available data on the use of biobank samples/data/services.[4,18] Future public funding and private partnerships will be more and more based on evaluation of the capability of the biobank to contribute to red biotech development.

The marketing strategies define the communication channels chosen to best inform the stakeholders and include flyers, leaflets, brochures, newspaper advertising, in loco information, television, or radio spots. The website, however, is the most useful channel to provide information related to the biobank, its mission, and the activities it performs. Marketing strategies may differ over the years as they may be dependent on the stage of development (i.e., setting, initial, upgrading) and/or changes in the adopted policies. Social networks, smart applications, cartoons, specific patient association communication, and dedicated forums are also becoming more commonly used.

In summary, the Marketing strategies section includes the approaches that will be put in place to inform the stakeholders and to advertise the biobank's activities.

Organizational structure and governance model

In any BP, this section comprises two main sections that are strictly related: the organizational structure and governance. The organizational structure includes a definition of the legal form. The governance model adopted is largely dependent on the activities performed and may be very heterogeneous. In this section, whatever model is adopted, bodies/committees and related activities should be clearly defined.

Organizational structure. A generic firm would usually adopt one of the following organizational structures[39]:

- The functional structure, is a common type of organizational structure where all the activities are grouped together according to a common function (a function is a group of operations that are similar from a technical point of view). Classically, the employees are grouped hierarchically, managed through clear lines of management, and report ultimately to one senior person, and the firm divides departments by the functions performed. For example, the organization may be divided into smaller groups based on specialized functional areas, such as IT, finance, or marketing.[40]
- The divisional structure, where the units composing the firm are organized according to the output of the organization (products or services offered to customers). In other words, the divisional structure (or product structure) consists of self-contained divisions. A division is a collection of functions, which deliver a product. Employees who are responsible for certain market services or types of products are placed in divisional structure to increase their

flexibility. Each division may also have their own departments such as marketing, sales, and engineering.
- The matrix structure, where we can find two lines of authority: as per functions and per outputs. This structure can combine the best of both separate structures. The matrix organization structure is usually defined as one where there are multiple reporting lines—that is, people/functions have more than one formal reference to report their activity.

Many types of matrix combined schema may be built and, generally, they are complex structures that are generally not adopted by small businesses.

Any of these organizational structures may be adopted and developed by a biobank. However, for biobanks where storage activity is associated with a heterogeneous set of analytical procedures, the divisional structure seems to be the one that best fits the scope because biobank products (high-quality samples and associated data) may be best delivered by strong inter-relationships between the different activities. Figure 1 shows a simplified example of the major differences between a functional and divisional structure that are applied to a biobank.

In the past, the legal form adopted by a biobank was rarely specified because in most cases, the biobank was part of a larger institution such as a hospital or a private/public research or care institute.

When the biobank is an independent organization, it often assumes the form of an association (i.e., http://biobanknetwork .telethon.it) or of a foundation (i.e., www.davincieuropean biobank.org/it/home/about-us/the-repository). In this case, the BP will refer to what is reported in the statute of the organization.

This subsection must be completed with the personnel *organizational chart*, which shows the human resources employed. The organizational chart reports the different executive and operative positions covered by the personnel, together with a brief description of their profiles.

Governance model. The governance model adopted by a generic firm must be included in this section of the BP. Depending on the host country, each firm can freely choose which model to use.

The most common models[41] are as follows:

- The one-tier system, with one governing body responsible for management and control.
- The two-tier system, with two governing bodies, one responsible for management and the other for the control.

A large variety of governance models can be developed according to the complexity of the biobank. The governance should be determined by each biobank according to its organization, and other functions necessary to the biobank (i.e., bioinformatics, biosafety, engineers) may be covered by committees, personnel, or consultants. Defined functions and hierarchic positions must be reported in the governance schema and on the organizational chart (see the Organizational structure section) of the BP. The organizational chart must also show the composition of the committee(s), with a brief note on related function(s) and, possibly, requirements to cover the position. The decision-making level is generally covered by a Senior Manager and control functions by the Quality manager.

Other (i.e., Scientific, Ethics, Finance) committees are often implemented by highly complex biobanks or networks. The organizational chart is required to be publicly displayed in a position where all employees have direct access to it.
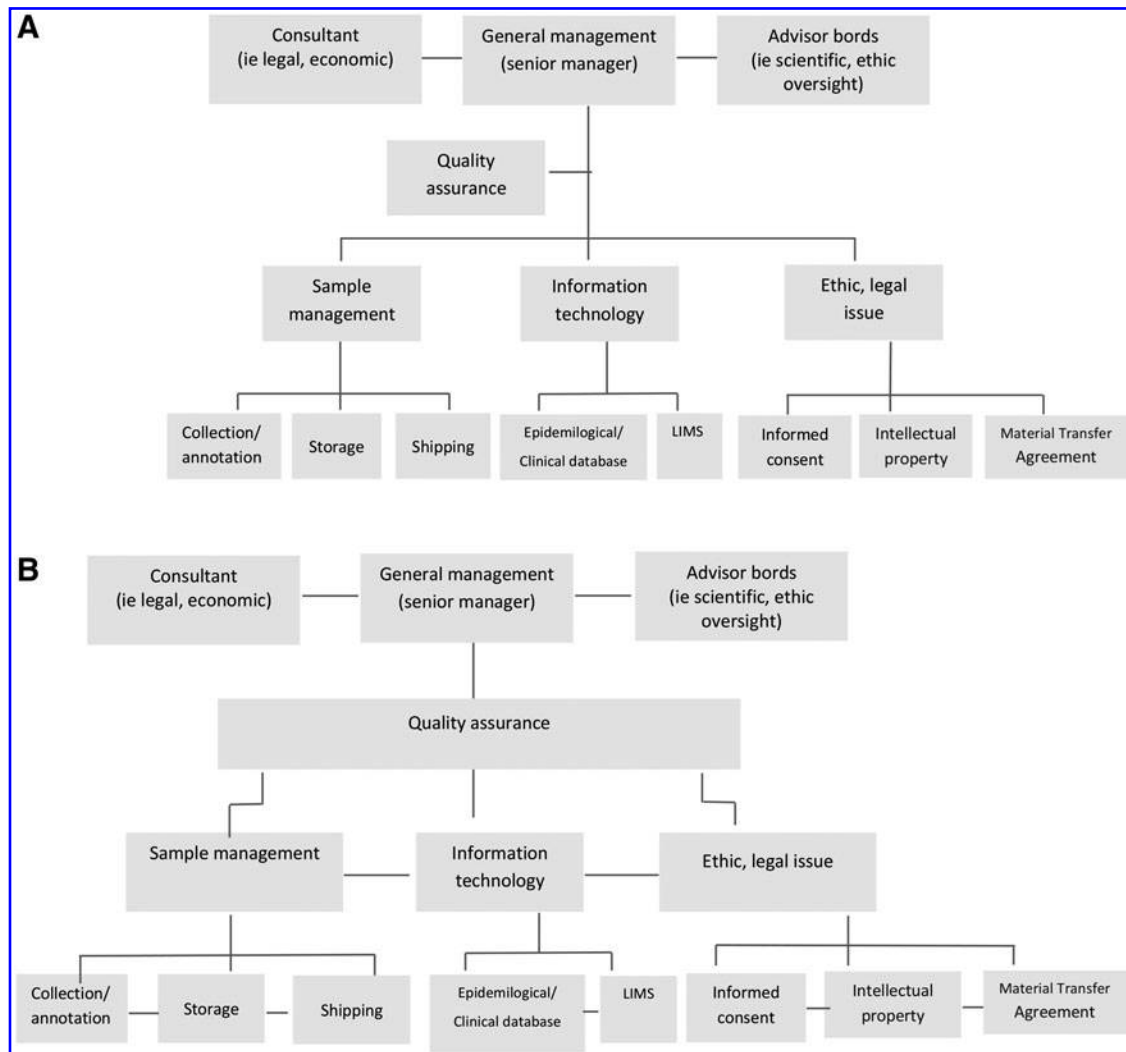
FIG. 1. Organizational structure. The figure shows simplified schemas of functional (**A**) and divisional (**B**) organizational structure applied to a biobank.

In summary, these sections report the organization and related authority that is responsible for all the different activities as well as the hierarchic interrelationships between them. For each biobank, the organization structure and steering/governance committee should be constructed so that the aims and activities ensure efficiency in the processes and services performed.

Economic and financial provisions

For a generic firm, as well as for a biobank, the economic and financial analysis aims to present the economic and financial structure of the project. In this article, this section is focused on the biobank.

The economic and financial provisions can be divided in three parts, the first related to costs and the second and the third to funds and to revenues, respectively.

For research biobanks, this part is often the most difficult to complete, as there is a general and recognized absence of data, due to the tradition of working in this sector without a BP.[42] According to the organization data (Organization data section), drafting this part of the BP requires a preliminary plan of the provisional operational activities associated with

an estimate of the number of samples that will be the subject of the different tasks. Before drafting a BP, it is also necessary to set an access policy and to adopt a cost recovery model. So far, many different economic models have been proposed and depending on the specific features of the biobank, caution is needed in making the choice.[4,8,24,43–46]

The first part of the financial provisions comprises the list of costs and a detailed analysis of each expense that a biobank will need to sustain its operational activities, broken down into individual cost categories. The yearly financial needs of the biobank are calculated from the sum of the total costs of each subcategory.

The second part of financial provision relates to funds. Funds represent the sustaining channels for all biobanks. They include all the money collected from private and public channels, which is provided to the institution to aid the operational activity of the biobank.

Revenues are the subject of the third part of financial provisions. Revenues raised by a biobank by providing different kind of services using the samples stored are reported in the Project description and mission section. The revenues will depend on the financial model adopted by the biobank. For each model, it implies a cost recovery (full,

partial, marginal)[4,8,24,45,46]; a systematic table reporting individual biospecimen/service costs to the user must be added to this BP section.

BP projections are calculated on a yearly basis. However, from a temporal point of view, the BP is structured in the medium to long term, usually no longer than 5 years[17] and possibly with a greater level of detail for the initial years. The time horizon should not be longer than 5 years because after that period, every forecast could be unreliable. The same considerations apply to the timeline of a biobank BP, unless the specific situation suggests otherwise.

It is likely that for each year of the time horizon considered, the economic and financial projections will be different and will vary in the different stages (i.e., setting, initial, consolidated, scaling-up phase) of the biobank life and/or changes in marketing strategies and policies.

Costs. Costs represent the core of the BP. The section contains the estimates of each expenditure category that the biobank expects to incur over the next few years for its operating activities. The costs may be different for well-established biobanks and newly established ones, which will need to provide the investment to enable the infrastructure to operate.

The main cost categories that can be considered in the case of a biobank are the following:

(1) Human resources
(2) Laboratory instruments
(3) Research programs
(4) Network costs
(5) Marketing costs
(6) Quality
(7) Safety

As a facilitating tool for drafting the biobank's BP, Table 1 represents an example of most of the cost categories that need to be considered over 1 year.

As there is great heterogeneity in scope, methodologies, typology, structure, size, and governance in biobanking, the tables proposed in these articles of necessity are basic simplified schemas to enable the reader to become familiar with BP drafting. What is reported in each of these tables will depend on specific features of the biobank and complexity of activities/services of the infrastructure. With increasing complexity, the main tables regarding cost, funds, and revenues may be complemented with several other ancillary tables that break each category down into more individual subcategories.

Financial requirements of the biobank are represented by the sum of the total cost for each subcategory of expenses (Table 1).

Human resource costs. The payment of biobank personnel represents the costliest category in any system. A number of professional figures with different educational backgrounds may be required: biologists, physicians, laboratory technicians, bioinformatic scientists, administrators, bioethicists, as well as engineers, lawyers, and economists, who will be variously designated to cover the roles, for example, of biobank manager, quality manager, data manager, researcher, technician, information and technology experts, biosafety and biosecurity officer, secretarial staff, and legal and economic consultants.

In many cases, for small- and medium-sized biobanks, several functions may be covered by the same person, and the personnel working in the biobank will cover most of the ordinary daily operational activities, while consultants will be used to cover time-limited specific competencies.

Training and updating of personnel are an essential part of human resource management and integral to the activities expected to be implemented. Any cost for personnel updates and specific education, either from intramural or extramural sources, has to be taken into account in this section.

Laboratory instruments and services. Laboratory apparatus necessary to process and store biospecimens is another essential cost. This category should also take into account the average estimated life of an instrument to plan the gradual replacement of machinery. Equipment may be purchased, rented, or leased.

The category of laboratory instruments can be broken down into several subcategories as follows:

(a) Storage sample equipment. These include any instrument that allows the storage of samples at well-controlled temperatures.
(b) Laboratory. Equipment for sample handling may be limited simply to aliquoting or it may include a number of more complex activities (i.e., tissue handling; cell culture establishment; extractions and purification robotic/automatic sample management machines).
(c) Raw materials. This subcategory includes the costs for the acquisition of raw materials, for instance, gases, chemicals, disposables, and analytical commercial kits necessary for operation of the biobank.[4,5,43]
(d) Office equipment (i.e., chairs, desks, stationery, lamps, and telephones).
(e) IT equipment. Data management systems and the cost for their updating is an essential activity of the biobank.
(f) Service costs. This subcategory includes the expenses related to the services used by the biobank to perform its activities (i.e., electricity and water consumption; sample transport, special waste disposal). Building rents and/or loan costs for the facility are included in this subcategory if the biobank does not own the buildings where it operates. The section should also take into account the institutional/administrative overhead costs charged to the biobank.
(g) Maintenance. Costs for contracts, which guarantee ordinary and extraordinary maintenance of any equipment, and for biosafety and biosecurity legal requirements are included here.

Research programs. An important source of sustainability for biobanks is partnership in research projects founded by either private or public bodies, which, however, may require additional costs.

Network and memberships. Each biobank may take advantage of networking and/or partnership with other biobanks or other complementary institutions or in membership of scientific societies. The expenses for such collaborations should be listed in this subsection.

Marketing costs. The costs for implementation of marketing strategies (see the Marketing strategies section above), including website setting and updating, as well as travel costs either for advertising/stakeholder meetings or fund raising, must also be taken into account in this category.

Quality certification. To increase reliability and confidence in the samples and services implemented, the biobank may

COSTS		TIME COVERAGE			
CATEGORIES	SUB CATEGORIES	Year 1*			
		n. employee	hours of work/year	hour/cost	total cost
HUMAN RESOURCES	Personnel Typology (i.e. Technician)				
	Personnel Typology (i.e.: Quality manager)				
	Personnel Typology …				
	Training				
LABORATORY INSTRUMENTS	STORAGE SAMPLE EQUIPMENT	n. unit	cost		total cost
	Storage equipment (i.e. nitrogen thank)				
	Storage equipment (i.e.: freezer)				
	Storage equipment ..				
	LABORATORY EQUIPMENT	n. unit	cost		total cost
	Laboratory instrument (i.e: Centrifuge)				
	Laboratory instrument..				
	RAW MATERIALS	n. unit	cost		total cost
	Raw material (i.e. Gases, Kits)				
	Raw material (i.e:. disposables,)..				
	OFFICE EQUIPMENT				
	Office equipment (i.e.: Stationery)				
	Office equipment..				
	IT EQUIPMENT	n. unit	cost		total cost
	IT equipment (i.e: Computers)				
	IT equipment..				
	SERVICE COSTS		cost		
	Service cost (i.e.: electricity)				
	Service cost (i.e: institutional /administrative overhead)				
	MAINTENANCE	description	n. unit	cost	total cost
	Ordinary maintenance ..				
	ExtraOrdinary maintenance …				
RESEARCH PROJCTS		cost			total cost
	Project research 1 (i.e: title, internal identifier..)				
	Project research 2 (i.e: title, internal identifier..)				
	Fund raising cost (i.e: call identification, consortium building etc..)				
NETWORK COSTS		fee			total cost
	Network Participation (i.e.: fees)				
	Network Participation (i.e.: travel cost, communication platforms..)				
MARKETING COSTS		cost			total cost
	Marketing strategies (i.e.: Web site, publication..)				
	Marketing strategy…				
QUALITY		cost			total cost
	Quality (i.e: Quality control program / Proficiency test)				
	Quality (i.e: Accreditation/ Third part certification, QMS)				
SAFETY/		cost			total cost
	Safety (i.e: risk assessment /contingency plan..)				
	Safety (i.e: disaster recovery…)				
	Total Cost (Financial NEED) **				

According to the activities, each category listed in the first column has to be broken down into individual subcategories that are reported in the second column. The following columns contain the indicators necessary to calculate the estimated total cost listed in the last column. For each cost category, a few indicative examples are indicated.

*To complete for the following years covered by the BP.[17]

**Financial need: the sum of each cost reported in the last column is the provision of yearly total expenditure.

BP, business plan; QMS, quality management system.

Costs for services vary and are based on either partial or total cost recovery.[4,8,45,49] Often the price reflects the users' willingness to pay, which means that the price is set by the market.[50]

Specific competencies (i.e., ethical, cryotechnology, legal) may become a source of revenue in terms of consultancy. However, more often, biobank delivers services related to biological material such as access, storage, collection, transportation, processing, testing of samples, and data management.[4,19,43] Biospecimens and their derivatives are released by biobanks for public or private use[38,51] without charge or with a cost established for each individual bioresource made available.[4,5] Table 2 represents a simplified facilitating tool for the biobank to report its revenue channels. As specified above, the table does not intend to be exhaustive as each biobank defines this table in agreement with the cost recovery model adopted.

Funds. Possible financing channels for biobanks in addition to revenues are philanthropic donations, grants, research project funding, budgets from the host institution, and, more often, a variable mixture of all of these.[4,20,38,51]

Public funding is highly dependent on the host institution and country.

Research grants may also represent a primary support for biobanks.[5] Grants refer to the funds received by the biobank from institutions as nonrepayable money. The biobank may be an active participant in research projects financed by local, regional, national, or international institutions. Sometimes, when the biobank is incorporated into a hospital/institution, part of the funds (corporate budget) of the host organization are dedicated to the biobank also in the form of research grants.

Philanthropic donations are the funds collected from private citizens who want to finance the structure directly or using not-for-profit organizations created on an *ad hoc* basis to support the biobank.[19,20]

Each type of funding, alone or in combinations of varying proportions, will contribute to the sustainability of a biobank. Table 3 represents a facilitating tool the biobank can use to define its per annum financial needs, and it should be repeated for each year of the time horizon considered in the BP.

Conclusion

Economic and financial sustainability represents a major challenge for the survival of a biobank. Too often, the management of public health institutions is undertaken without an economic approach, and this may affect their long-term sustainability. Although this concept is becoming recognized as important in biobanking, there is still scarce familiarity and knowledge of basic principles for drafting and implementing a useful and strategic BP.[12,16,45]

The primary purpose of this article is to facilitate communication between biobanker scientists and economists and to assist with familiarization of BPs, which are instruments created in the economic world that favor long-term sustainability of companies. In fact, the BP lays out the future evolution of the biobank mission, it shows costs and revenues, and represents the best managerial tool to achieve the long-term targets and to preserve the interests of all the stakeholders[33] involved in the biobanking process. Its ultimate purpose is to call for rethinking the organization of biobanks to successfully ensure their sustainability in the long term.

Author Disclosure Statement

No conflicting financial interests exist.

References

1. OECD. Statistical definition of biotechnology. Available at www.oecd.org/sti/biotech/statisticaldefinitionofbiotechnology.html (accessed September 20, 2016).
2. Douglas CMV, Scheltens P. Rethinking biobanking and translational medicine in the Netherlands: How the research process stands to matter for patient care. Eur J Hum Genet 2015;23:736–738.
3. Marko-Varga G. BioBanking as the central tool for translational medicine CTM issue. Clin Transl Med 2013;2:4.
4. Clement B, Yuille M, Zaltoukal K, et al. Public biobanks: Calculation and recovery of cost. Sci Transl Med 2014;6:261fs45.
5. Simeon-Dubach D, Henderson MK. Sustainability in biobanking. Biopreserv Biobank 2014;12:287–291.
6. Campos AH, Schreeder M, Parry-Jones A, et al. Addressing the challenge of financial sustainability in biobanking. Biopreserv Biobank 2015;13:387–395.
7. Recommendation CM/Rec(2016)6 of the Committee of Ministers to member States on research on biological materials of human origin. Available at: https://search.coe.int/cm/Pages/result_details.aspx?ObjectId=090000168064e8ff (accessed September 20, 2016).
8. Gonzalez-Sanchez MB, Lopez-Valeiras E, Morente MM, Fernandez Lago O. Cost model for biobanks. Biopreserv Biobank 2013;11:272–277.
9. Stutely R. Il Business Plan. Financial Times Prentice Hall. 2007;89–128. Available at www.rumahstudio.com/kuliah/rbti/_Marketing/The%20Definitive%20Business%20plan.PDF (accessed September 20, 2016).
10. Karlsson T, Honig B. Judging a business by its cover: An institutional perspective on new ventures and the business plan. J Bus Ventur 2009;24:27–45.
11. Brinckmann J, Grichnik D, Kapsa D. Should entrepreneurs plan or just storm the castle? A meta-analysis on contextual factors impacting the business planning-performance relationship in small firms. J Bus Ventur 2008;25:24–40.
12. Sahlman WA. How to write a great Business Plan. Harvard Bus Rev 1997;75:98–108.
13. Mabile L, Dalglaish R, Thorisson GA, et al. Quantifying the use of bioresources for promoting their sharing in scientific research. GigaScience 2013;2:7.
14. Harris JR, Burton P, Knoppers BM, et al. Toward a roadmap in global biobanking for health. Eur J Hum Genet 2012;20:1105–1111.
15. Wichmann HE, Kuhn KA, Waldenberger M, et al. Comprehensive catalog of European biobanks. Nat Biotechnol 2011;29:795–797.
16. Henderson M, Simeon-Dubach D, Monique A. Finding the path to biobank sustainability through sound business planning. Biopreserv Biobank 2015;13:385–386.
17. Schneider JE. The way to a powerful business plan. Drug Discov Today 2002;7:342–345.

18. Bravo E, Calzolari A, De Castro P, et al. Developing a guideline to standardize the citation of bioresources in journal articles (CoBRA). BMC Med 2015;13:33.

19. Simeon-Dubach D, Watson P. Biobanking 3.0: Evidence based and customer focused biobanking. Clin Biotech 2014; 47:300–308.

20. Bromley RL. Financial stability in biobanking: Unique challenges for disease-focused foundations and patient advocacy organizations. Biopreserv Biobank 2014;12:294–299.

21. Baird PM, Frome RJ. Large-scale repository design. Cell Preserv Technol 2006;3:256–266.

22. OECD Best Practise Guidelines 2007. Available at www .oecd.org/sti/biotech/38777417.pdf (accessed September 20, 2016).

23. Johnson G, Scholes K, Sexty R. *Exploring Strategic Management.* Scarborough, Ontario, Canada: Prentice Hall; 1989: 69.

24. Bravo E. Biotecnologie: Nuove risposte ai problemi esistenti e alle sfide future. U&C 2015;7:29.

25. Vaught J, Rogers J, Carolin T, Compton C. Biobankonomics: Developing a sustainable business model approach for the formation of human tissue biobank. J Natl Cancer Inst Monogr 2011;42:24–31.

26. Federer LM, Lu YL, Joubert DJ, Welsh J, Brandys B. Biomedical data sharing and reuse: Attitudes and practices of clinical and scientific research staff. PLoS One 2015; 10:e0129506.

27. Simeon-Dubach D, Zaayenga A, Henderson MK. Disaster and recovery: The importance of risk assessment and contingency planning for biobanks. Biopreserv Biobank 2013; 11:133–134.

28. Hager R. Biobanking operations: Contingency planning and disaster recovery of research samples. BioProcess J 2014;13:56–58.

29. Baird PM, Benes FM, Chan CH, et al. How is your biobank handling disaster recovery efforts? Biopreserv Biobank 2013;11:194–201.

30. Bart CK, Bontis N, Taggar S. A model of the impact of mission statements on firm performance. Manage Decision 2001;39:19–35.

31. Stallworth Williams L. The mission statement: A corporate reporting tool with a past, present, and future. J Bus Comm 2008;45:94–119.

32. Freeman ER. *Strategic Management: A Stakeholder Approach.* Cambridge: Cambridge University Press; 1984: 126–152.

33. Bjugn R, Casati B. Stakeholder analysis: A useful tool for biobank planning. Biopreserv Biobank 2012;10:239–244.

34. Shaw DM, Elger BS, Colledge F. What is a biobank? Differing definitions among biobank stakeholders. Clin Genet 2014;85:223–227.

35. Mitchell D, Geissler J, Parry-Jones A, et al. Biobanking from the patient perspective. Res Involvem Engagem 2015;1:4.

36. Wallace S, Knoppers BM. The role of P3G in encouraging public trust in biobanks. In: Dabrock P, Taupitz J, Ried J (eds). *Trust in Biobanking. Dealing with Ethical, Legal and Social Issues in an Emerging Field of Biotechnology.* Berlin, Heidelberg: Springer-Verlag.

37. Kotler P, Armstrong GG. *Principi di Marketing. Pearson Educational Italia (Milano),* 11th Edition 2006: 215–552.

38. Zika E, Papatryfon I, Wolf O, et al. Consequences, Opportunities and Challenges of Biotechnology for Europe. 2007: 22–114. Available at: http://ftp.jrc.es/EURdoc/eur22 728en.pdf (accessed June 2015).

39. Daft RL. *Organization Theory and Design,* 2nd edition. Mason, USA: South-Western Cengage Learning. 2013: 75–115.

40. Boundless Management. Functional Structure. Available at www.boundless.com/management/functional-structure-146-3979 (accessed June 15, 2016).

41. Hopt KJ, Leyens PC. Board Models in Europe–Recent developments of internal corporate governance structures in Germany, the United Kingdom, France, and Italy. Eur Company Financ Law Rev 2004;18:135–168.

42. Odeh H, Miranda L, Rao A, et al. The Biobank Economic Modeling Tool (BEMT): Online Financial Planning to Facilitate Biobank Sustainability. Biopreserv Biobank 2015;13:421–429.

43. Wilson GD, D'Angelo K, Pruetz BL, et al. The challenge of sustaining a hospital-based biobank and core molecular laboratory: The Beaumont experience. Biopreserv Biobank 2014;12:306–311.

44. Barbareschi M, Cotrupi S, Guarrera GM. Biobanca: Strumentazione, personale e analisi dei costi. Pathologica 2008; 100:139–143.

45. Warth R, Perren A. Construction of a business model to assure financial sustainability of biobanks. Biopreserv Biobank 2014;12:381–389.

46. Albert M, Bartlett J, Johnston RN, Schacter B, Watson P. Biobank bootstrapping: Is biobank sustainability possible through cost recovery? Biopreserv Biobank 2014;12:374–380.

47. ISBER Biospecimen Science Working Group. Biorepository proficiency testing for the quality control of biospecimens for the global biobanking community. Biopreserv Biobank 2011;9:415–417.

48. Matzke EA, O'Donoghue S, Barnes RO, et al. Certification for Biobanks: The program developed by the Canadian Tumour Repository Network (CTRNet). Biopreserv Biobank 2012;10:426–432.

49. Vaught J, Rogers J, Myers K, et al. An NCI perspective on creating sustainable biospecimen resources. J Natl Cancer Inst Monogr 2011;42:1–7.

50. Pharma Report. 2015. Biobanking for medicine: Technology, industry and market 2015–2025. Available at www.vision gain.com/Report/1455/Biobanking-for-Medicine-Technology-Industry-and-Market-2015-2025 (accessed June 15, 2016).

51. Gee S, Georghiou L, Oliver R, Yuille M. 2013. Financing UK biobanks: Rationale for a National Biobanking Research Infrastructure. Available at www.stratumbiobanking .org/docs/STRATUM%20COST%20MODEL%20FINAL%20REPORT%20MAY%202013.pdf (accessed June 15, 2016).

Address correspondence to:
Elena Bravo, BD
Departments of Haematology, Oncology
and Molecular Medicine
Istituto Superiore di Sanità
Viale Regina Elena, 299
Rome 00186
Italy

E-mail: elena.bravo@iss.it

This article has been cited by:

1. Tarling Tamsin E., Lasser Frances, Carter Candace, Matzke Lise A.M., Dhugga Gurm, Arora Nidhi, Dee Simon, LeBlanc Jodi, Babinsky Sindy, O'Donoghue Sheila, Cheah Stefanie, Watson Peter, Vercauteren Suzanne M.. 2017. Business Planning for a Campus-Wide Biobank. *Biopreservation and Biobanking* **15**:1, 37-45. [Abstract] [Full Text HTML] [Full Text PDF] [Full Text PDF with Links] [Supplemental Material]

List of Figures and Tables