



Performance Implications of Family Firms' Idiosyncratic Responses to Recessionary Pressures

*A Comparative Study on Family Firm and Non-Family Firm
Behaviour over the Business Cycle in Norway.*

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*“Difficulties mastered
are opportunities won.”*

- Winston Churchill

Executive Summary

In recent years, the body of research around family firm behaviour has grown continuously. This paper reviews this literature by examining how family firms differ from non-family firms. It takes the recent financial and economic crisis that started in 2007 as a unique exogenous shock to investigate the financial performance of family firms in steady-state conditions as opposed to situations of severe economic distress.

The literature proposes socioemotional wealth to be the key differentiator between the two groups of firms. The preference for affective endowment of family owners, however, seems to manifest in steady-state situations only. When external hazard threatens the existence of the firm, family principals are believed to prioritise financial results by enhanced risk taking, which coincides with prospect theory predictions.

Using a difference-in-difference model, the entire population of Norwegian profit-maximising companies over the period 2005 – 2012 was analysed. It was observed that family firms significantly outperformed non-family firms in the face of the economic crisis. Although the two supporting models for supposedly prerequisite behaviours are not significant, the study confirms that the advantage of family firms exactly manifests when ownership is at stake. This indicates that family firms are superior absorbers of exogenous shocks.

In terms of theoretical implications, the study adds to the ongoing literature of family firms and speaks for the application of socioemotional wealth as tool for analysing family firm behaviour. Furthermore, it indicates policymakers the importance of family firms for national economies.

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List of Abbreviations

BAM	Behavioural Agency Model
CSR	Corporate Social Responsibility
GDP	Gross Domestic Product
IOA	Investment on Assets
LOS	Labour Cost on Sales
MBE	Menon Business Economics AS
NACE	European Classification of Economic Activities Code
NBER	National Bureau of Economic Research
ROA	Return on Assets
R&D	Research and Development
SEW	Socioemotional Wealth
SNF	Samfunns- og Næringslivsforskning AS
TMT	Top Management Team

1. Introduction

1.1 Background of the Thesis

One of the most important questions in the realm of strategic research is related to performance differences (Hoskisson, Hitt, Wan, & Yiu, 1999; Rumelt, Schendel, & Teece, 1994). Why does one company show a higher performance than another company? There is a number of different explanations for that. One of the angles looks at the governance of a specific firm. More particularly, it looks at the ownership structure. Within that field, there is a whole thread of research only devoted to the question whether family firms show a higher performance than non-family firms (e.g. Lee, 2006; Maury, 2006; Miller, Le Breton-Miller, Lester, & Cannella Jr., 2007; Saito, 2008; Sraer & Thesmar, 2007; Westhead & Howorth, 2006). However extensive the attention of scholars to this central topic over the last three decades, there is a lack of clear understanding whether and in what ways family influence is beneficial or detrimental to firm performance.

Astrachan and Pieper (2012) hypothesise that the performance of family businesses has effects on whole economies. They argue that the “rapid German recovery after the recent economic crisis can be largely attributed to the resilience and performance of family businesses” (p. V). This sounds astonishing and valid at the same time because family firms often aggregate to a major part of an economy. They are the predominant form of organisations worldwide (La Porta, Lopez-De-Silanes, & Shleifer, 1999), and in Europe 70 % - 80 % of businesses are family firms (Mandl, 2008). Whilst they account for around 40 % - 50 % of European employment, they contribute 20 % - 70 % of the respective national GDP (Mandl, 2008).

Since family firms play such a vital role in everyday life it is not merely important to see whether they perform better than non-family firms. The question is whether they can recover faster after an exogenous shock than non-family firms, in order to stimulate a whole economy after such a crisis.

Hence, the research question for this thesis is: “How and why does family ownership affect performance differences during and after an economic crisis?”

1.2 Aim of the Thesis

The goal of this master thesis on a meta-level is to elaborate whether the recovery after an exogenous shock, such as the recent financial crisis, is different for family firms as compared to non-family firms. Furthermore, the aim is to identify on what basis such a difference could occur in a theoretical setting. Subsequently, company data of several thousand companies in Norway will be analysed in order to find such a difference and explain where it might stem from.

1.3 Organisation of the Thesis

To achieve this goal the thesis is split into five different parts. In the first part, relevant literature is reviewed. Since the thesis investigates effects that are particular for family firms, the literature review is very extensive and thorough. This is on the one hand to give an introduction to family firm research and on the other hand to lay a groundwork for a discussion of the results. It does not mean, however, that all concepts that are introduced in that section will be used in the analysis part of the thesis. This would simply go beyond the scope of the thesis. The review first takes up the definition of family firms and what idiosyncratic particularities are to be considered when investigating performance effects in family firms. Secondly, relevant business cycle literature is studied with a focus on effects of a recession on organisations. Thirdly, those two theoretical concepts will be synthesised and analysed together in order to see what outcomes can be expected. In the second part of the paper, the methodological procedure is specified. It explains how data is arranged and evaluated to receive relevant information. The third part shows the results from the data analysis and gives a first interpretation. The fourth part goes one step further and discusses the findings from the results in the light of the theoretical groundwork that has been established in the literature review. After the discussion, there is a fifth part that will conclude the thesis and add some comments about the practical and theoretical importance of the findings as well as recommended areas for future research.

2. Theoretical Background

This part of the paper aims to convey already existing findings in the relevant literature. It gives a thorough picture of family firms and their idiosyncratic nature. Furthermore, it evaluates what business cycles are and how they affect companies. Subsequently, it explains how the unique characteristics of family firms interplay with effects of business cycles and how this results in beneficial or detrimental outcomes for family firms.

2.1 Family Firm

Already the first issue of the newly formed family business review has asked the question what a family business is. Nowadays, 29 years later, this question still has no clear answer. Hence, before any particularities of family firms are outlined, a closer understanding of what is understood when talking about family firms is elaborated.

2.1.1 Definition

There has been a huge effort of scholars to conceptualise the notion of family firms (Astrachan & Shanker, 2003; Chua, Chrisman, & Sharma, 1999; Handler, 1989; Heck & Trent, 1999; Klein, Astrachan, & Smyrnios, 2005; Sharma & Nordqvist, 2008; Westhead & Cowling, 1998). As one can image this definitional lack of clarity can have immense impacts on the outcome of an actual study as some researchers might consider firms as family firms that others neglect (Astrachan & Shanker, 2003; Lansberg, Perrow, & Rogolsky, 1988).

The ambiguity of what is a family firm does not stop there. Jaskiewicz and Dyer (2017) go one step further and ask themselves what is a family. Is it still the same concept that has been applied in the past as based on Malinowski's ethnographic studies in 1922? This question, however, is not relevant for the research at hand and will, therefore, be neglected here.

Litz (1995) tried to fill this gap of a clear definition in the literature and offered two conceptual approaches how to classify family firms. This was the origin of the two approaches that are used nowadays to define family firms. Namely they are: (i) the components-of-involvement approach and (ii) the essence approach.

Components of Involvement Approach

This approach to define a family firms is rather pragmatic by using some combination of a family's involvement: ownership, governance, management, and transgenerational succession (cf. Chua et al., 1999). Hence, it presupposes that the family's involvement in the business is a sufficient condition for considering a business to be a family firm. This definition leaves a very fragmented picture and more importantly lacks a theoretical basis for explaining why family involvement in a business leads to behaviours and outcomes that differ from non-family firms (Chrisman, Chua, & Sharma, 2005). It does not logically follow that when a firm is owned by a family, the characteristics of that firm are associated to what is understood as a family firm. Hence, two firms might be owned by two respective families with the same percentage. On the two extreme sides, there might be one firm that has its values deeply rooted in the family's values and the owners diligently oversee the company, whilst another firm might only be owned by a family for investment purposes. Under the components of involvement approach both firms might be considered family firms. Regardless of the logical flaw of this approach, it is often applied because it is purely objective and a lack of information might not allow the second approach to be used.

Essence Approach

Whilst the components of involvement approach sees the family involvement as sufficient condition to make a firm a family firm, the essence approach is based on the belief that this is merely a necessary condition. The family involvement in the firm must result in some behavioural distinctiveness before it can be considered a family firm (Chrisman et al., 2005). This has prompted some scholars to define the family business theoretically by its essence: (i) a family's influence over the strategic direction of a firm (Davis & Tagiuri, 1989); (ii) the intention of the family to keep control (Litz, 1995); (iii) family firm behaviour (Chua et al., 1999); and (iv) unique, inseparable, synergistic resources and capabilities arising from family involvement and interactions (Habbershon, Williams, & MacMillan, 2003). This necessary intersection between the family and the firm in the essence approach is often referred to as systemic overlap within the systems theory (Rogoff & Heck, 2003) and makes the family firm a systemic hybrid, embodying the overlap of two subsystems; the family and the firm.

Having looked at a more structural approach, the table on the next side, collected by Lindow (2012), gives a very practical example of family firm definitions as used in the literature.

Table 1: Selected Family Firm Definitions from the Literature.

Author(s)	Year	Family Firm Definition
(Arosa, Iturralde, & Maseda, 2010)	2010	A large body of common stock is held by the founder or family members and family members participate actively in monitoring the firm. (p. 239)
(Astrachan, Klein, & Smyrnios, 2002)	2002	The F-PEC scale measures the family influence as continuous variable. (p. 51)
(Barth, Gulbrandsen, & Schønea, 2005)	2005	A person or family owns 33 percent of the shares in the firm. (p. 111)
(Chua et al., 1999)	1999	A firm governed and/or managed with the intention to shape and pursue the vision of the firm held by a dominant coalition controlled by members of the same family or a small number of families in a manner that is potentially sustainable across generations of the family or families. (p. 25)
(Donckels & Fröhlich, 1991)	1991	Family members own 60 percent or more of the equity. (p. 152)
(Klein, 2000)	2000	Sum of percentage share of the family ownership, management, and/or governance is at least 1 or more to classify a business a family firm. Sum of (percentage of family stock ownership) + (percentage of family members in management board) + (percentage of family members in supervisory board) ≥ 1 . (p. 158)
(La Porta et al., 1999)	1999	A person controls 20 percent or more of the voting rights. (p. 478)
(McConaughy, Matthews, & Fialko, 2001)	2001	The firm's chief executive officer (CEO) is either the founder or a member of the founder's family. (p. 37)
(Miller et al., 2007)	2007	Multiple family members are either insiders (officers or directors) or large owners (5 percent or more of the firm's equity) at the same time or over the life of the company as family descendants. (p. 837)
(Shanker & Astrachan, 1996)	1996	Broad definition: Effective control of strategic direction, intended to remain in family. Middle definition: Founder/descendants run company, legal control of voting stock. Narrow definition: Multiple generations, family directly involved in running and owning, more than one member of owning family having significant management responsibility. (p. 109)
(Smyrnios, Tanewski, & Romano, 1998)	1998	One out of four criteria to be fulfilled: (1) 50 percent or more of the ownership is held by a single family; (2) 50 percent or more of the ownership is held by multiple members of a number of families; (3) a single family group is effectively controlling the business; and (4) a significant proportion of the senior management is drawn from the same family. (p. 50)
(Ward, 1987)	1987	A firm that will be passed on for the family's next generation to manage and control. (p. 252)

Note. Adapted from "A strategic fit perspective on family firm performance" (Doctoral dissertation) (p.11), by Corinna Lindow, 2013, Leipzig, Leipzig Graduate School of Management.

Reading through those working definitions of major family firm scholars in Table 1, it becomes obvious that a broad arrangement of definitions is in active use. Although narrow definitions are still in place (cf. Barth et al., 2005; Donckels & Fröhlich, 1991; La Porta et al., 1999) there is a trend towards more broad definitions as for example by Shanker and Astrachan (1996). Handler (1989) explains that this allows considering the whole range of family firms whilst still differentiating it from other firms. Another reason is that this broader definition permits the formation of subsets. This enables the identification, classification, and comparison of different types of family firms (Chua et al., 1999).

Another trend in the field is a move towards multidimensionality of definitions. This means that instead of only looking at ownership, it includes a mix between ownership, management, and supervision. This approach has been used by (Klein, 2000) as shown in Table 1. The reason for the emergence of this multidimensionality is that family firms are perceived to differ on a range of dimensions and, therefore, are considered to be heterogeneous entities that need more than one dimension to be assessed against (Astrachan et al., 2002).

Lastly, there is a trend of coming away from the binary approach of strictly distinguishing between family firms and non-family firms. Many of the examples in Table 1 use a certain percentage cut-off point. This, however, is arbitrary because no specific cut off point exists in reality (Astrachan et al., 2002). Furthermore, firms are not either a family firm or a non-family firm (Tsang, 2002). Therefore, a continuous scale has been suggested. Jaskiewicz (2006) noted that such a non-dichotomous scale leads to improvements in the reliability of the research.

To summarise, definitions of family firms have been, and still are, highly controversial. There are two structural approaches how to define them. Whilst the components of involvement approach is somewhat logically flawed, there is often a lack of information for the essence approach. Additionally, there are certain trends that will lead the definition to include more firms that might be considered as family firms. However, the multidimensionality and continuous scale of “familyfirmship” leads to a better distinction between family firms. This way, frameworks might be better accepted because they can include a wider range of firms, which potentially leads to better results because in-group differences can be revealed.

2.1.2 Socioemotional Wealth

Having clarified some conceptual differences for the definition of family firms, this part is an introduction to what makes family firms behave differently as compared to non-family firms.

The distinguishable concept, based on behavioural theory (Wiseman & Gomez-Mejia, 1998), is called Socioemotional Wealth (SEW). Berrone, Cruz, and Gomez-Mejia (2012) argue that it “is the most important differentiator of the family firm as a unique entity and, as such, helps explain why family firms behave distinctively” (p. 258). It basically labels the noneconomic utilities family members receive from their firms. This includes the family’s desire to exercise authority, enjoyment of family influence, maintenance of clan membership within the firm, appointment of trusted family members to important posts, retention of a strong family identity, continuation of the family dynasty, et cetera (Gomez-Mejia, Haynes, Núñez-Nickel, Jacobson, & Moyano-Fuentes, 2007). Hence, family firms not only maximize their economic returns but also the affective endowment they receive in form of SEW (Gomez-Mejia, Cruz, Berrone, & Castro, 2011).

Whilst there is a whole body of research for the roots and verification of SEW (Gomez-Mejia, Cruz, et al., 2011) it is enough to note here that boundaries between the family and the firm are often blurred. Thus, emotions flow back and forth, ultimately affecting how the firm conducts business (Baron, 2008). Criticism of the concept will be reviewed at the end of the sub-chapter, after the dimensions have been explained thoroughly.

Although Gomez-Mejia et al. initially introduced the overarching concept of SEW in their 2007 paper about Spanish olive oil mills and the choice whether to join a cooperative or not, it was Berrone et al. (2012) who initiated a more tangible normative set of dimensions to instrumentalise SEW. They labelled the dimensions with the acronym FIBER that stands for; *F*amily control and influence, *I*dentification of family members with the firm, *B*inding social ties, *E*motional attachment of family members, and *R*enewal of family bonds to the firm through dynastic succession. In the following paragraphs, each of those dimensions will be explained individually.

Family Control and Influence

The first dimension addresses the control of the family over the company. It is one key differentiation for family firms that families actually exert control over strategic decisions (Chua et al., 1999). This control can be direct in the sense of a family member being CEO or chairman of the board, or it can be indirect when family members appoint top management team roles and thereby influence the strategic direction (Berrone et al., 2012). In either case, it is believed that control and influence are desired by the family members and, therefore, an integral part of SEW (Zellweger, Kellermanns, Chrisman, & Chua, 2011). Thus, in order to preserve SEW, the control and influence needs to stay within the family boundaries.

Identification of Family Members With the Firm

The second dimension refers to the identification of the family members with the firm. The identity of a family firm's owner is inextricably tied to the organization also because the firm often carries the same name (Dyer & Whetten, 2006). This causes the firm to be seen by internal and external stakeholders as an extension of the family itself. Hence, the image and reputation of family owners is directly linked to how others perceive the firm (Chen, Chen, Cheng, & Shevlin, 2010). Externally, this makes family members quite sensitive about the image they project to their customers, suppliers, and other external stakeholders (Micelotta & Raynard, 2011). Consequentially, to preserve SEW, the family wants to keep this good image of the firm, and thereby of itself, intact.

Binding Social Ties

The third dimension refers to specific social ties that are unique to family firms. Those kinship ties are not exclusively between family members but are likely to be extended to a wide set of constituencies (Miller, Lee, Chang, & Breton-Miller, 2009). This might include time-honoured vendors or suppliers (Uhlener, 2006). These social ties promote a feeling of stability and commitment to the firm by family members, as well as non-family employees (Miller & Breton-Miller, 2005). Those social ties are also formed towards communities with which the firm engages. Family firms pursue welfare for those who surround them albeit there might not be economic gains in doing so (Berrone, Cruz, Gomez-Mejia, & Larraza-Kintana, 2010). Schulze, Lubatkin, and Dino (2003b) argue that they do so for altruistic reasons and / or for the enjoyment of receiving recognition for generous actions. Inevitably, family firms want to keep these social ties in order to preserve SEW.

Emotional Attachment of Family Members

The fourth dimension covers the role of emotions in family firms. Although emotions are normal in everyday business situations, family firms often have a longer history of shared experiences through past events that converge to influence and shape current activities, events, and relationships (Berrone et al., 2012). As already mentioned above, boundaries between the family and the firm are blurry (Baron, 2008). Hence, these emotions often affect the decision-making process. Therefore, whereas in a non-family firm an ongoing discontent with an employee might potentially lead to the termination of the contract, in family firms, this employee is likely to be kept on board because of the emotional attachment and the hope that the relationship will return to a harmonious one. Hence, to preserve SEW, the family wants to keep all parts together because they are emotionally attached to it.

Renewal of Family Bonds to the Firm Through Dynastic Succession

The fifth and last dimension addresses one of the central parts of SEW, namely the transgenerational sustainability of family firms. Zellweger et al. (2011) argue that it is one of the key goals of family firms to maintain the business for the future generations. Therefore, the firm is not only seen as a collection of assets that might be sold off (regardless of the previous four dimensions), but it can be viewed as a family's heritage and tradition (Casson, 1999; Tagiuri & Davis, 1992). Whilst the previous dimensions mainly influenced the factual decision-making process, this dimension has important implications on the time horizon of decision, meaning that family firms generally have longer term planning horizons (Miller & Le Breton-Miller, 2006; Miller, Le Breton-Miller, & Scholnick, 2008; Sirmon & Hitt, 2003). This long-term strategising not only influences the building of capabilities and learning (Berrone et al., 2012) but also provides more effective structures to administer financial capital because the managers are less concerned about short-term results as are non-family firms. Therefore, to preserve SEW, family firms want to keep the firm within their control for passing on the baton to the next generation.

The SEW approach significantly influences the way decisions are made. Whilst for non-family firms economic theories, such as agency theory, prospect theory, and behavioural theory are applied, for family firm the SEW approach is used (although this is also based on behavioural theory). This means that family owners look at decision outcomes through the lens of SEW.

Hence, they do not necessarily put the economic goals of the firm as priority but, in fact, prefer to forgo economic benefits if it fosters or saves the SEW of the company (Berrone et al., 2012).

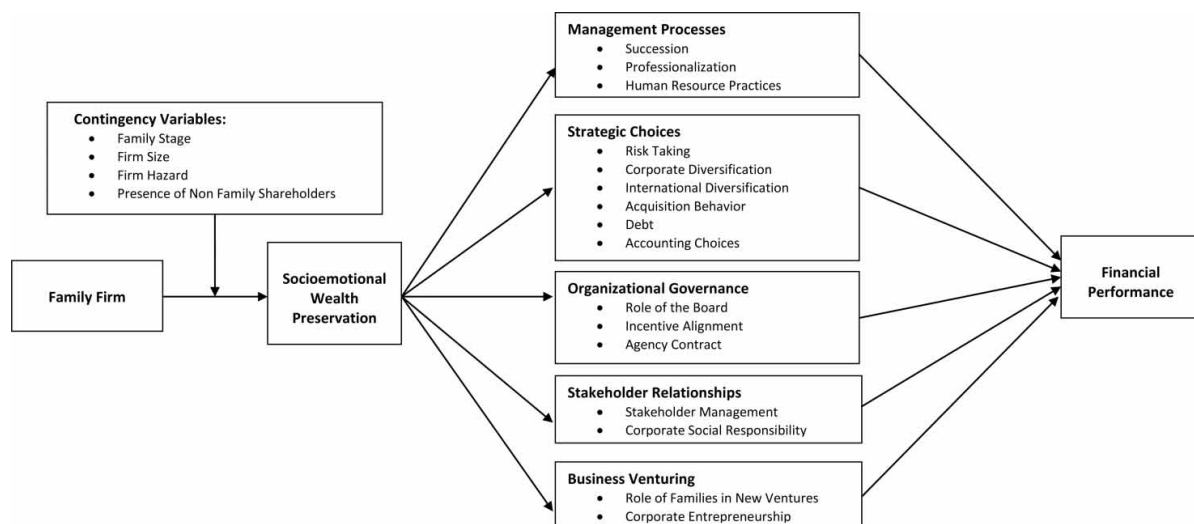
Although the SEW approach is widely accepted by family-firm scholars, Miller and Le Breton-Miller's 2014 paper "Deconstructing Socioemotional Wealth" shows some drawbacks of the concept. The overarching criticism is a well-known problem that is ubiquitous in research: the quest for causation. For their first issue, the problem of connecting cause and effect, they argue that outcomes are often attributed to SEW that might have their origin in other fields. For example, a limited geographical diversification is generally attributed to preserve SEW however, could also be a quest for short-term financial returns (Gomez-Mejia, Makri, & Kintana, 2010). On the contrary, whereas focus on financial performance would be understood as neglect of SEW, it might be that for the specific family excellent financial performance brings prestige and satisfies its need for social status, and therefore, eventually is rooted in SEW (Miller & Le Breton-Miller, 2014). The second point of criticism suggests that SEW is not restricted to family firms. Miller and Le Breton-Miller argue that for example entrepreneurs or CEOs of big firms also have a vested interest in social recognition and not only financial outcomes. This questions whether SEW really is the one distinguishable concept that separates family firms from non-family firms. The third and last point is that preferences are measured indirectly and not directly. This point coincides with the definitional procedure of component-of-involvement vs. essence approach. Miller and Le Breton-Miller contend that SEW preferences are assessed by governance of family involvement in ownership and management instead of the underlying family motivation per se.

The criticism brought forward is legitimate and it is necessary to acknowledge it. It is also important to see, however, that the critique is mainly focused around individual firms and thus, the effect is diminished when analysing the spectrum of a whole economy. Therefore, in the light of this research, the points will be considered when the results are analysed. For simplicity however, no further steps are undertaken to circumvent the points of critique.

2.1.3 Effect of Socioemotional Wealth on Performance

The debate about whether, how, and why family firms perform differently to non-family firms is vast and yet, much confusion exists about this ambivalent relationship (Lindow, 2013). For reference, Gomez-Mejia, Cruz, et al. (2011) offer a list of research in favour of a positive relationship and a list of research in favour of a negative relationship. Benavides-Velasco, Quintana-García, & Guzmán-Parra (2013) employ a more theoretical approach by highlighting areas and concepts where a conclusive explanation could be found. This paper, however, refrains from engaging in this conflict and elaborates how the SEW approach can explain performance differences. As explained before, researchers agree that SEW is the main characteristic that differentiates family firms from non-family firms. Gomez-Mejia, Cruz, et al. (2011) argue that the SEW preservation is the key determinant for financial performance differences. The relationship between SEW preservation and financial performance, however, is mediated by five key aspects as shown in Figure 1. This part of the thesis looks at each of these five mediators and explains how it affects financial performance, before the contingency variables, that moderate the family firm – SEW preservation relationship, will be investigated.

Figure 1: Effect of SEW on Financial Performance.



Note. From “Family Firm Research from a Socioemotional Wealth Preservation Perspective” by Gomez-Mejia, L. R., Cruz, C., Berrone, P., & Castro, J. D. (2011). The Bind that Ties: Socioemotional Wealth Preservation in Family Firms (p. 657). *The Academy of Management Annals*, 5(1).

Mediating Variables

Management Processes

This variable explains differences that result from SEW preservation in terms of decision making in management processes. Key areas are succession, professionalisation, and human resource practices.

Succession is not only a very important topic in family firm research (Dyer & Sánchez, 1998; Sharma, Chrisman, Pablo, & Chua, 2001) but it even has its own dimension within the SEW framework. As mentioned above, one of the key goals of family firms is to maintain the business for future generations (Zellweger et al., 2011). Thus, research suggests that family firms prefer family-internal candidates for management positions even if better external candidates exist (Kets de Vries, 1993). This not only ensures the dynastic succession but also preserves the first dimension, family control and influence (Astrachan et al., 2002). This decision is clearly based on SEW preservation and not on economic rationality.

Professionalisation terms the incorporation of specialists and managers from outside the firm and the introduction of more formal management structures (Dyer, 1989). Research suggests that those practices are not encouraged because it would among others decrease the family's control over strategic decisions and increase information asymmetries between decision makers and the family (Gomez-Mejia, Cruz, et al., 2011; Kets de Vries, 1993).

In terms of human resource practices family firms differentiate themselves once again from non-family firms. The overarching aspect is that the processes are less formal than the ones from non-family firms (De Kok, Uhlaner, & Thurik, 2006; Renee S. Reid & John S. Adams, 2001). As an example, for the recruitment process in family firms there are less clear-cut explicit criteria to screen applicants and the firms rely more on social networks (Adkins, 1995; Scase, Goffee, & Goffe, 1987). A fit between the candidate and the firm is more important to make sure the family's values and culture are shared (Cruz, Gómez-Mejia, & Becerra, 2010). Also in terms of promotion, seniority is higher valued for promotion consideration and establishing wage levels (Carrasco-Hernandez & Sánchez-Marín, 2007), there is a higher importance on non-monetary rewards (Cruz et al., 2010), and variable pay is a smaller component of the total compensation (Gomez-Mejia, Larraza-Kintana, & Makri, 2003). All

those measures are aimed to reduce information asymmetries, indoctrinate family values and cultures, incentivise long-termism and thereby, preserve SEW.

Strategic Choices

This part about strategic choices is particularly important because those decisions steer the firms in a particular direction and require large resource commitments. They are also often difficult to reverse and thereby, have a long-term impact on the firm.

The generally accepted view on family firms' risk taking is that they are rather risk averse because the family's holdings are not diversified but concentrated in one firm. Therefore, agency theory suggests that the firm does not engage in risky endeavours and forgoes potentially profitable engagements by assessing the risk of failing higher (prospect theory). Although this view is popular, it is inconsistent with empirical findings. Agency theory falls short in explaining the paradox of an undiversified family firm considering to engage in risky projects regardless of the potential returns associated with them when the economic welfare of the family is at stake (Gomez-Mejia, Cruz, et al., 2011). The neglect of the SEW is the main problem of the agency theory approach. Therefore, Gomez-Mejia et al. (2007) addressed this paradox by using the behavioural agency theory model (BAM) (Wiseman & Gomez-Mejia, 1998). This model combines elements from agency theory, prospect theory, and behavioural theory of the firm. Thereby, the BAM evaluates strategic choices in the light of different alternatives that vary in potential gains or losses. Hence, the model looks at the accumulated endowment (in this case economic profit / loss and SEW) and shows that the risk preference of loss-averse decision makers can vary depending on how the problem is framed (Wiseman & Gomez-Mejia, 1998). A key notion of BAM is that risk evaluation is subjective and therefore, decision makers weigh perceived threats to their endowment according to the subjective importance of the endowment components (Gomez-Mejia, Cruz, et al., 2011). Hence, for a family firm the SEW component is considered to be more important than economic factors and thereby, family firms are willing to accept higher risks for their financial performance if they can prevent losses on their SEW endowment. This effect is empirically supported by the paper "Socioemotional wealth and business risks in family-controlled firms: Evidence from Spanish olive oil mills" by Gomez-Mejia et al. (2007).

The idea of diversification strongly connects to the logic of risk taking. A general agency theory view on the topic would suggest that family firms engage in corporate as well as international diversification. This would spread the risk of an undiversified firm and could result in imperfectly correlated cash-flows from other than only the domestic market. A study by Gomez-Mejia et al. (2010) however, shows that diversification is negatively related to family ownership. There are several explanations that are all founded in the SEW theory. First, any kind of diversification normally requires external funding. This release of control can lead to a conflict of interest which clearly harms the SEW. Second, diversification usually requires additional expertise and managerial know how. This is often not readily available within the family or within the firm and hiring outsiders would diminish the family's control and influence. Hence, this would lead to a decrease in SEW. Lastly, diversification may require the firm to change the way it is organised and adds touchpoints to new stakeholders and institutions. This means that important decision making roles will be needed and therefore, family control would diminish, together with SEW.

The same logic also makes the argument for the acquisition behaviour of family firms. Miller, Le Breton-Miller, & Lester (2010) found that the number and size of acquisitions decrease with the ownership percentage of the family. They see the reason for that also in the dilution of the SEW. Furthermore, they found that although family firms engage in fewer and smaller acquisitions, if they acquire, they tend to diversify their core business. One explanation is that firms mainly acquire when their business is at threat and therefore, they do so to minimise hazard and preserve SEW (Gomez-Mejia, Cruz, et al., 2011).

Applying the SEW idea to debt, agency theory suggests that family firms have lower levels of debt as it would take away control. Schulze, Lubatkin, & Dino (2003a) find evidence for that. However, they argue that family harmony plays an important role. They find that family firms are most vulnerable to conflict when the ownership is split relatively equally among family members. In that case, the firm tries to sustain family harmony and forgo the additional risk as given by additional debt.

The accounting choices by family firms can be divided in two categories. The first is tax aggression where firms falsely report their numbers to minimise taxes paid. The second point is earnings manipulation that shows the firm in a superior role to its actual standings. Family

firms would have an incentive to engage in tax aggression because they receive the whole benefit of paying lower taxes. However, Chen et al. (2010) found that family firms are less likely to engage in tax aggression. The explanation is that family firms are more concerned with tax penalties and the enclosed reputational loss to their firm. This lowers their SEW and, therefore, they are less tax aggressive than their non-family counterparts. The same goes for earnings management. Family firms are more likely to provide honest reporting to the public and less likely to manage earnings (Chen, Chen, & Cheng, 2008). This for the reason that they want to prevent negative publicity that goes with the discovery of earnings management.

The last point for strategic choices concerns R&D investments. This issue is in line with the general diversification point talked about above. Although it is conventional wisdom that R&D spurs innovation and is an integral part especially of technology savvy firms, SEW gives arguments why family control is associated with lower R&D expenditure (Gomez-Mejia, Hoskisson, Makri, Sirmon, & Campbell, 2011). Gomez-Mejia, Cruz, et al. (2011) give three main reasons that mostly coincide with the arguments given for a lower degree of diversification. Firstly, R&D usually requires expertise in a specific field. This expertise must be acquired outside the firm and therefore, control is given away. Secondly, R&D often goes along with experimenting and thereby creating new routines. This is against a typical family firm's "tried and true" method. Thirdly, financial outlays for R&D are often shared with outside investors. This loss of control and influence also potentially harms SEW.

Organisational Governance

The distinct ownership structure of a family firm originally led researchers to believe that there is no agency conflict within such firms. Especially in owner-managed firms the interests should be directly aligned and there is no need for monitoring (Chrisman, Chua, & Litz, 2004). However, research has advanced to find governance problems that are unique to family firms. Those problems can be sorted around two distinct issues. The first is the so called "principal-principal" agency conflict. It means that the interests of family investors are often different to non-family investors. However, since the family often has a higher share and even embodies the top management team (TMT) the family's interests get priority and come at the expense of other shareholders' interests (Morck & Yeung, 2003). The second problem is the managerial entrenchment. It means that family executives are often exempt from performance

accountability (Gomez-Mejia, Cruz, et al., 2011). These two problems are evaluated among three different dimensions in the governance structure of a firm.

Research suggests that an external board of governance has a positive effect on a business by providing resources and expertise to top managers and monitoring executives (Hillman & Dalziel, 2003). The monitoring task is key because otherwise, according to agency theory, managers would engage in opportunistic behaviour and there would be room for moral hazard. In family firms however, especially where family ownership has a critical level, boards are likely to be seen as a tool to reinforce the family's control and pursue their objectives. Hence, the family as shareholder uses the board to elect and retain key family executives to ensure the family's SEW preservation. Hence, family firms forgo the economically beneficial board setting with outside board members for an economically inferior setting that preserves the family's SEW.

Another governance instrument used by firms is the incentive alignment. Gomez-Mejia et al. (2003) find that CEOs who are at the same time members of the owner family receive a lower compensation. Furthermore, the CEO compensation is negatively related to the level of ownership of the controlling family. Gomez-Mejia, Cruz, et al. (2011) give several reasons for this, all based on the SEW concept. First, the CEO has two roles. This is on the one side as the steward of the company and on the other side as a fulfiller of the family obligation. The lower pay is compensated by a relatively more secure job. Second, as mentioned earlier, the CEO is less subject of clear performance objectives. This means that even when the company is not performing well, the owners might cite other reasons than poor-quality management. Third, the family CEO is emotionally attached to the firm, and therefore, accepts a lower pay. Fourth, the CEO is less likely to be on the labour market because she or he is inextricably connected to the family. Fifth, even if the CEO would consider an outside option, the labour market might be biased because it discounts the CEO's service due to the question why the CEO was appointed in the first place: demonstrated competence or nepotism (Volpin, 2002).

The last point of inquiry is the agency contract, an instrument that proclaims the mutual expectations of the principal and the agent (Eisenhardt, 1989). Gomez-Mejia, Nuñez-Nickel, and Gutierrez (2001) found that family firms decouple agent's employment from performance and business risk when said agent is part of the family. Hence, the agency contract protects

family managers and blames non-family managers even though they had less control. Cruz et al. (2010) go one step further and look at the perception of the investor family towards the TMT. They divide contracts into controlling contracts and caring contracts. Whilst the former is the classical principal-agent instrument that consists monitoring, accountability and disciplinary action, the caring contract is concerned with understanding, supporting, and considering the agent's welfare. They found that if there is a family tie between the owner and the manager, more often caring contracts are in place. For non-family managers, however, traditional controlling contracts govern the relationship. This clearly shows that SEW plays a role in the governance of a firm and that family members are protected by the family investors.

A whole discussion of the family firm governance and the move towards stewardship theory can be found in Madison, Holt, Kellermanns, & Ranft's (2016) article "Viewing Family Firm Behavior and Governance Through the Lens of Agency and Stewardship Theories".

Stakeholder Relationships

Researchers agree that there are mainly three reasons why family firms approach their stakeholder relationships differently. Although those reasons are not explicitly grounded in the SEW perspective, they all argue in that directions because they are driven by non-economic utilities derived by dominant family owners (Gomez-Mejia, Cruz, et al., 2011). Firstly, as mentioned above, family firms do not only have the reputation of their firms on the line but also the reputation of the whole family that stands behind the firm. Therefore, they are more likely to engage in what is called good corporate citizenship, although there is no direct financial link to it. Secondly, the long-term orientation of family firms also makes them engage with stakeholders in long-term relationship in order to build social capital and reserves of goodwill (Carney, 2005). These social capital and goodwill reserves serve as insurance to protect the firm in times of crises (Godfrey, 2005). Thirdly, because family firms are not driven by short-term performance measures, they adopt a more patient strategy towards stakeholder that allows the building of long-term relationships (Miller & Breton-Miller, 2005).

A similar logic applies to the family firm's attitude towards corporate social responsibility (CSR). Researchers found that family firms engage more often in CSR activities as a good corporate citizenship (Berrone et al., 2010) and show a stronger commitment towards philanthropic activities (Déniz & Suárez, 2005). Both studies show that the protection of SEW,

by having a good reputation and not being seen as socially irresponsible, is the main driver for such a behaviour.

Business Venturing

Although there is only a limited number of studies available on the subject of families within business venturing, it has been shown that the role of families is often key in new business ventures. Chua et al. (1999) suggest that most new firms commence with a substantial involvement of the family. This insinuates that in the beginning of a firm the family plays an important role and influences how these firms are managed. Often more family members are employed than optimal. This shows a preservation of the family already in the nascent firms.

Although there is even less research on corporate entrepreneurship in families, some scholars suggest that family firms try to find and create roles within the firm for as many family members as possible (Miller, Steier, & Le Breton-Miller, 2003). This gives the firm non-economic utilities by providing jobs to the extended family and therefore, contributes to the SEW. The SEW however, restricts the firm in product and technology innovation in new ventures as discussed in the diversification section under strategic choices.

It is important to take one step back and see how those findings play into the bigger picture of the thesis. Although there is still no clear link between the status family firm and financial performance, the last paragraphs clearly explained that many important actions a family firm undertakes are to preserve SEW. This means that many decisions they take are not in the economically best interest for the firm. The next paragraphs speak about the four contingency variables that moderate the relationship between the family firm and the SEW preservation as shown in Figure 1.

Moderating Variables

The previous chapter has shown that family firms have other primary goals than economic utility, namely the preservation of SEW. This chapter explains how four factors affect the decisions to what degree SEW is being preserved or not. Each of the factors is explained individually in the following paragraphs.

Family Stage

The family stage variable mainly talks about the generation in which the family firm is held. The general view is that the older the family firm, the less the focus on SEW and the more important financial considerations become. This is because family identification, influence, sense of legacy, emotional attachment, regard for family image, and strength of social ties decrease as the firm is passed from one generation to the next. Gomez-Mejia, Cruz, et al. (2011) summarise that older family firms are more professionally run, show more formal HR policies, have more objective and formal control systems, relinquish control, have outsiders on board of directors, and are more likely to terminate family executives for bad performance. These are many characteristics that have been mentioned above as unique characteristics of family firms. However, Gomez-Mejia et al. (2007) explain that in a “more advanced ownership stage, family influence becomes more dispersed or fractionalized, with a smaller average shareholding per person. The family as a monolithic entity begins to lose its grip over the firm in later stages, and financial considerations of multiple stakeholders move to the forefront.” (p. 109).

Firm Size

The same negative effect goes for firm size. Wasserman (2006) argues that as family firms grow the families need to share control with outside parties. This decreases the level of psychological ownership and thereby, makes the family members pursue self-interested motives instead of the welfare of the organisation. Therefore, managerial decisions are less based on SEW preservation but on economic utility. Miller et al. (2010) for example, show that bigger family firms tend to engage more in acquisitions and therefore, give away control, what in turn decreases SEW.

Firm Hazard

The key variable for this paper that moderates SEW preservation is firm hazard. The underlying logic is that when a firm is in turmoil, priorities need to be set. Hence, if the firm keeps following the SEW preservation, it might end with the loss of the company. In that scenario, not only the company is lost, but with it goes the SEW of the family and its economic well-being. On the other hand, the company could be saved by compromising on SEW preservation. This results in a better outcome since some of the SEW can be retained within the company. There is a lot of evidence that strategic choices and the firm governance are adapted in the light of a crisis. For example, firms are more likely to terminate family directors (Gomez-Mejia et al., 2001), give away control by joining cooperatives (Gomez-Mejia et al., 2007), diversify (Gomez-Mejia et al., 2010), and invest in R&D (Gomez-Mejia, Hoskisson, et al., 2011) when the company is at risk. In other words, “family principals are more willing to compromise on socioemotional wealth preservation when there is clear evidence of the firm’s financial deterioration.” (Gomez-Mejia, Cruz, et al., 2011, p. 688). The next subchapter will elaborate on that moderator more extensively.

Presence of Non-Family Shareholders

The research on non-family shareholders within family firms is very concise but also very straightforward. The idea is that with dispersed ownership, multiple interests need to be combined and compromising is inevitable. Since it is mainly the family that profits from SEW it is a reasonable assumption that a higher number of non-family shareholders leads to a lower preservation of SEW. Evidence for that comes from Gomez-Mejia, Hoskisson, et al. (2011) which found that the negative relationship between family ownership and R&D investment is negatively moderated by institutional investor ownership. Institutional investors also discourage the awarding of stocks to family CEOs as this would increase their control which is not desirable for non-family investors, as objectives are often misaligned (Gomez-Mejia et al., 2003).

Having established the link between family firm and financial performance via SEW preservation, the subsequent chapter will look at business cycles.

2.2 Business Cycles

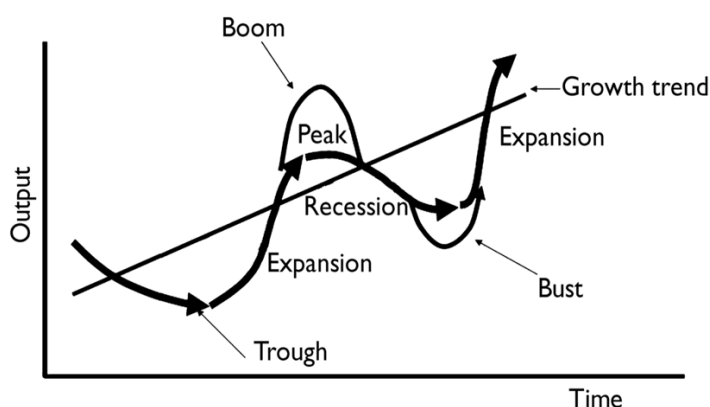
The part about business cycles is held concise. The reason is that the starting point of this research is that family firms are in danger and that this situation triggers specific reactions. Hence, it is more about the family firms' actions and reasons for their actions rather than why they are in danger. Nevertheless, it is important to get a common understanding of business cycles.

2.2.1 Definition

The term business cycle has been coined in the late 19th century and gained a lot of attention in the first half of the 20th century (Bergmann, 1895; Mitchell, 1913; Schumpeter, 1930). It explains that a crisis is not merely an exogenous event that affects an economic system, but more that it is inherently part of the economic system and describes a deviation from a long-term growth trend. Gartner (2009) explains that business cycles are short run up and downs that fluctuate around a long-term growth rate.

Bromiley, Navarro, and Sottile (2008) explain that business cycles are measured by changes in the inflation adjusted gross domestic product (GDP). This can be depicted as in Figure 2. The y-axis shows the output as measured in GDP and the x-axis shows the time. Normally, there is a growth trend for an economy as shown by the straight line. However, the actual development of any economy is rather an arbitrarily shaped line along this growth trend. The movements of actual income around this potential income as depicted by the growth trend, are called business cycles. An expansion drives actual income above potential income. At the peak might be a boom as for example the housing boom in the early 2000s. A recession is the opposite when the actual income falls below potential income. This can end in a bust at its trough (Gartner, 2009). The actual period of a recession depends on the operational definition which may differ between organisations or countries. In the US, the National Bureau of Economic Research (NBER) gives ex post the exact starting and end dates for a recession. It also defines that a recession starts at the peak of a business cycle and ends at its trough (NBER, 2017).

Figure 2: The Typical Business Cycle and its Turning Points.



Note. From “The typical business cycle and its turning points” by Bromiley, P., Navarro, P., & Sottile, P. (2008). Strategic business cycle management and organizational performance: a great unexplored research stream (p. 208). *Strategic Organisation*, 6(2).

There are two interconnected features that one should keep in mind when looking at business cycles. First, it has to be noted that business cycles are not consistent in periodicity. The duration as well as the amplitude might vary significantly from one cycle to the other. In fact, researchers say that “business cycles are like finger- prints – no two are alike.” (Bromiley et al., 2008, p. 209). Second, forecasting business cycles is very difficult as they are so unique and not periodic (Bromiley et al., 2008; Latham & Braun, 2011).

Having a general understanding of what a business cycle is and how it is measured, the next chapter will have a look at the recession part of a business cycle. In particular, it will elaborate how a recession affects a firm and what the organisational implications are for the affected firms.

2.2.2 Organisational Implications of a Recession

Researchers argue that economic recessions represent the most transformative event faced by organisations (Latham & Braun, 2011). In the great depression of the 1930s over 50% of the retailing businesses in the US were eliminated. Since the end of World War II there were 11 recessions according to NBER (2017). More recent data shows that in the US post-war recession of 1990-1991 as well as in the dot-com bubble burst of 2001, more than 500,000 companies went out of business (Pearce II & Michael, 2006). Given these numbers, recessions seem to be an occurrence worth investigating.

Although the origins of a recession might be different, the common locus is the depressing effect on consumer confidence partly due to weak employment growth and layoffs (Perry, Schultze, Tobin, & Friedman, 1993). This often happens as a vicious circle. Some event that is different from recession to recession depresses the consumers' confidence and thereby, consumers' private consumption is reduced. This means that they become more deliberate on their spending. They are more price sensitive and might abstain from or delay purchases. The same happens at the business end. Businesses cut their spending in order to conserve cash. Additionally, they defer or delay investment that would importantly boost the economy. Businesses might also become disloyal due to more focus on price and try to renegotiate contract terms. These occurrences lead to lower margins. This downward pressure for revenues and profits make the businesses fight harder for the share of the consumer's wallet. A drop in prices is matched by competitors and a war of attrition is inevitable. This swaps over to financial markets where banks try to improve the quality of their loan portfolio. They become stingy with their business loans and financially strained businesses are deprived of attractive loan opportunities – exactly when they are needed most. This results in further business decline and failure which in turn affects the consumers disposable income. Pearce and Michael (2006) summarise that “recessions cause lowered sales, decreased margins, and reduced credit, yielding significant shocks to the resources available to the firm, thus threatening its survival.” (p. 202).

Although this paints a fairly dark picture, next to demand contractions and capital restrictions, recessions also offer opportunities to businesses. Knudsen and Lien (2015) give three examples: fire sale of assets (Shleifer & Vishny, 2011), reduced price of talent (Greer, 1984), and reduced opportunity cost of employees' time (Aghion & Saint-Paul, 1998). This means that companies can profit from recessions. However, Knudsen and Lien (2015) also note that due to the temporary nature of recessions companies are often reluctant to make costly adjustments of their asset stock (Koberg, 1987). This is especially true since the average time from peak to trough of the last 11 cycles has significantly decreased when compared to earlier contraction phases (NBER, 2017).

There are also separate research streams that give guidelines how firms can manage business cycles (Bromiley et al., 2008; Navarro, Bromiley, & Sottile, 2010). These include countercyclical advertising and the product mix, countercyclical staffing, countercyclical

production and inventory control, countercyclical capital expenditures, acquisitions and divestitures, accounts receivable and credit management, and procyclical pricing. Although they are not further specified here, they will be kept in mind when analysing the effect of business cycles on family firms.

Having established the link between family firm and financial performance via SEW preservation, and a general understanding of business cycles, the subsequent chapter will bring the two concepts together. Thereby, the focus will lie on firm hazard as the moderating effect of the relationship between family firm and financial performance as shown in Figure 1.

2.3 Family Firms During Recessions

After the concept of business cycles and more particularly the organisational implications of a recession on firms have been given, it can be coupled with the SEW preservation of family firms from the previous subchapter. This subchapter first gives a solely descriptive overview of general firm dynamics during a recession. Second, it shows how family firms behave differently and how this alters the outcome.

2.3.1 Firms During a Recession

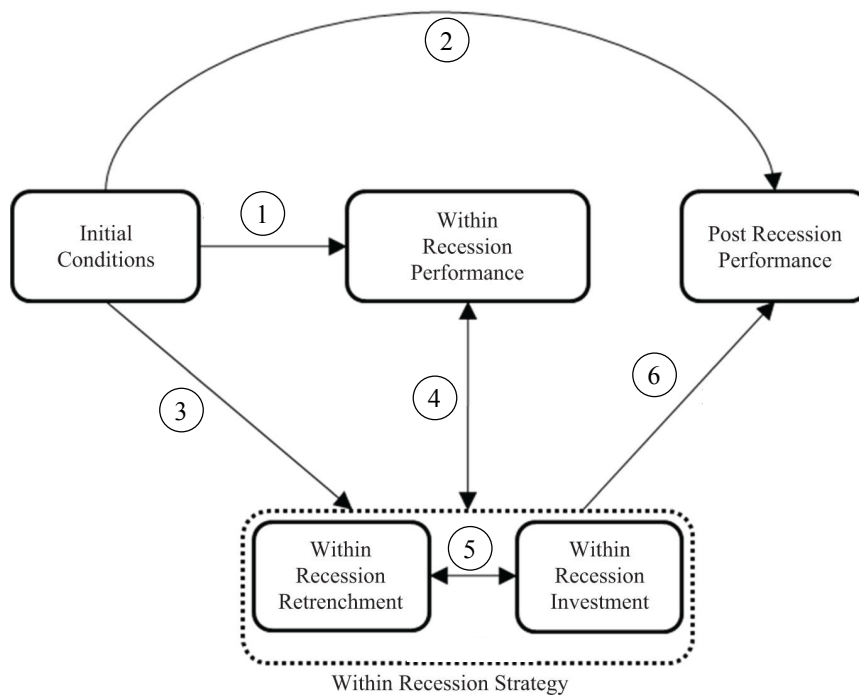
Latham & Braun (2011) offer an overview of firm dynamics during a recession by showing five different constructs and how they are interlinked as depicted in Figure 3 on the next page. Each of the linkages will be discussed before particularities of family firms are identified.

The first link explains that a firm's initial stock of resources and capabilities mitigates or accentuates recessionary pressures and thereby, affects the firm's performance during a recession. This is dependent on the nature of the external change. A recession caused by a sharp increase in resource prices affects firms differently than a recession caused by a burst of a housing bubble. Although, as brought forward by Perry et al. (1993) the common locus is the depressing demand, firms with different initial conditions face different recessionary pressures (Levinthal, 1991). Research suggests that for example the decision speed inherent in a dual governance structure where the CEO is also the chairman of the board, has positive effects on the within recession performance (Braun & Latham, 2009). Additionally, ample

slack resources have several benefits as will be explained when looking at the subsequent links.

The second link explains that a firm's initial condition not only affects the within recession performance, but it also determines the performance once the recession ends, including survivability and competitive advantage. What Schumpeter (1947) called creative destruction is used to argue here for the second link. It is Darwin's law "survival of the fittest" applied to corporations. It is understood that recessions reorder the economic system by purging "inefficient firms and industries, making way for more efficient and innovative modes of competing." (Latham & Braun, 2011, p. 104). This means that current resources and capabilities shape the long-term survival and competitive advantage after a recession. This is exemplified by slack resources. Braun & Latham (2009) argue that over the 2001 recession software firms with slack resources did better in terms of post-recession performance. This is because the slack resources helped them better withstand the scarcity posed by the recession and allowed them to engage in strategic investments to start at an advantage after the recession.

Figure 3: Firm Level Dynamics During a Recession



Note. Adapted from "An integrated framework for understanding firm level dynamics during recession" by Latham, S., & Braun, M. (2011). Economic recessions, strategy, and performance: a synthesis (p. 98). *Journal of Strategy and Management*, 4(2).

The third link shows maybe the most obvious connection, namely that a firm's initial condition dictates the firm's strategic response to a recession. In other words, the initial condition limits the firm's available options to react to a recession. Hence, firms that have limited financial resources might engage in retrenchment strategies such as cost reductions and operational streamlining whilst firms with ample financial resources can make use of investment strategies such as product innovation or new market entry.

The fourth link explains how the within recession performance and the within recession strategy are interlinked. More particularly, it shows how the manager's perception of the crisis affects the within recession strategy. This link borrows from the prospect theory as brought forward by Kahneman and Tversky (1979). The prospect theory firstly critiques the expected utility model as decision making tool and states that the decision maker's value function is concave in the gain section and convex in the loss section. Additionally, it is steeper in the loss section. Hence, when managers are perception-wise in the loss domain of their value function they are likely to engage in strategic actions that have increased levels of risk. Conversely, if managers are in the gain domain they are likely to opt for more risk-averse strategies.

The fifth link addresses the interaction between retrenchment strategies and investment strategies. The strategic response to a recession is complex because there exists a trade-off between short-termism and long-term prospects (Lavery, 2004). There is often a conflict because shareholders measure a firm's success, and thereby the TMT's abilities, by quarterly results. Hence, managers need to solve the underlying conflict of meeting performance benchmarks to satisfy external shareholders whilst making investments to ensure a long-term competitive advantage (Marginson & McAulay, 2008).

The sixth link shows then how this within recession strategy affects the post-recession performance. The general assumption here is that firms focussing on retrenchment strategies might experience short-term gains but are more likely to compromise their long-term competitive advantage.

The seventh and last link, that is not shown in Figure 3, addresses the recurring nature of recessions and their iterative impact on a firm's competitiveness. This means that the post-recession performance is part of the pre-recession initial condition. This assumption borrows

from Mancke (1974) who says that firm performance variances cannot solely be explained by industry or firm factors, but that part of it is the outcome of cyclical aggregation of successes and failures in strategies. Hence, firms that emerge from recessions with superior performance are believed to have a strengthened initial condition for a subsequent recession.

2.3.2 Idiosyncratic Particularities of Family Firms

Having looked at firm dynamics during recessions, this part of the thesis elaborates where family firms behave differently and how this might result in favourable or detrimental performance outcomes after a recession.

There are three main categories that will be looked at. Whilst they all differ in their nature, the overarching preposition is that family firms are “more willing to compromise on socioemotional wealth preservation when there is clear evidence of the firm’s financial deterioration.” (Gomez-Mejia, Cruz, et al., 2011, p. 688).

Risk Aversion in Strategising

In order to speak about risk there needs to be a differentiation between two kinds of risk. Gomez-Mejia et al. (2007) argue that firms face venturing risk and performance hazard risk. Venturing risk describes the uncertainties present when the firm is unhappy with the current situation and tries to improve it. This can evolve around uncertain outcomes in the search of new products or technologies. The performance hazard risk concerns risks associated with negative outcomes such as implications of a recession. When the second form of risk is present to family firms, they switch to “surviving mode” because the firm is threatened and thereby its long-term SEW (Berrone et al., 2012; Minichilli et al., 2016). Hence, their preferences change from aspirational to survival. According to the prospect theory (Kahneman & Tversky, 1979) this makes family firms risk seeking because they are in the perceived loss domain of the value function. Patel and Chrisman (2014) support this by saying that firms minimise their risk and search for stability and reliability of sales when the firm performance meets or exceeds aspirations and that they are willing to invest aggressively when performance falls below aspiration, accepting more risks than their non-family counterparts. This additional risk is accepted in the light of protecting long-term SEW (Minichilli et al., 2016). The non-family firms are not concerned by SEW preoccupations and therefore, follow a more risk-averse and

conservative behaviour. This leads them to take more time before the performance decline forces them to risk new strategies (March & Shapira, 1987).

Governance and Long-term Orientation:

Another family firm specific characteristics that differs to non-family firms is the governance. Agency theory suggests that owner-managers and CEOs at family firms have an increased long-term commitment towards the firm (McConaughy, 2000). This is not only because the owner-managers want to protect their personal wealth but also the SEW, specifically the reputation and trans-generational succession, connected with the firm (Berrone et al., 2012). Furthermore, the affective commitment and emotional attachment of the owners, managers, and employees toward the firm will ensure that the best efforts are directed to rescue the company from a difficult market situation (Kets de Vries, 1993). Another important aspect is the fact that CEO duality (the situation when the CEO also holds the position as the chairman of the board) is more common in family firms when compared to non-family firms (Voordeckers, Van Gils, & Van den Heuvel, 2007). This increases decision effectiveness and speed and allows for faster reaction to recessionary pressures (Finkelstein & D'aveni, 1994). Braun and Latham (2009) argue that this unified leadership has a positive effect on a firm's performance both at the onset of a recession and at its conclusion.

Another point to mention here is the alignment of interests between the owner family and other shareholders. As mentioned before, during the steady state operations of a family firm there is a misalignment of interests because non-family shareholders are not directly interested in the preservation of SEW. However, family firms are willing to forgo short-term SEW in order to preserve some of the SEW in the long-term. They do this by terminating contracts of family directors (Gomez-Mejia et al., 2001), joining cooperatives (Gomez-Mejia et al., 2007), diversifying (Gomez-Mejia et al., 2010), and investing in R&D (Gomez-Mejia, Hoskisson, et al., 2011), in order to rescue the company. This realigns interests with non-family shareholders and therefore, their support can be expected.

Distinct Resources and Capabilities

The specific governance structure as outlined before also has an impact on a family firm's resources and capabilities. It is argued that the unification of control by family members leads to parsimony, personalism, and particularism (Carney, 2005). Patel and Fiet (2011) argue that

when these propensities are directed toward entrepreneurial initiatives, they provide firms with advantages in developing the knowledge structures and constrained systematic search processes necessary for successful opportunity identification in entrepreneurial endeavours. Additionally, the long-term orientation of firms serves as an incentive for knowledge sharing and investments in firm-specific routines for opportunity search. Coupled with a reduced knowledge drain due to a lower turnover rate during a crisis (Gomez-Mejia, Cruz, et al., 2011), this results in innovation capabilities that are difficult to copy.

Another point refers to resource availability. As explained in chapter “2.3.1 Firms During a Recession”, slack resources are key to handle a recession. Miller, Le Breton-Miller, and Lester (2011) argue that conservation strategies, as employed by family firms, place more ample resources at the disposal of the firm. Moreover, controlling families can sponsor their companies in financially troubled times with financial support (Villalonga & Amit, 2010). This allows the firms to keep the employment level and continue investments during recessions. Furthermore, thanks to the close ties family firms have with their business partners, financiers and other stakeholders, they enjoy privileged access to constrained resources that other firms might not have (Berrone et al., 2012; Minichilli et al., 2016).

These three points outlined above are the main categories that would suggest family firms to be more resilient (Chrisman, Chua, & Steier, 2011; Kets de Vries, 1993; van Essen, Strike, Carney, & Sapp, 2015; Villalonga & Amit, 2010) as well as to have stronger incentives and resources to react to crises and weather a crisis with superior relative performance.

2.4 Hypotheses

This literature review lays the groundwork for three hypotheses that will be tested with the data. The first and most important is whether there is a difference between family firms and non-family firms in terms of performance difference. The theory suggests that due to the special situations family firms are in, as described in this chapter, family firms show a smaller drop in performance and recover faster from a crisis. Thus, the first hypothesis reads as follows:

- H1: There is a significant difference in performance change between family firms and non-family firms, where family firms show a better relative performance after the crisis as compared to non-family firms.

The second and third hypotheses go into the direction of explaining such a difference and verifying the logical reasoning in the theory. They are both based on findings from the synthesis chapter 2.3 Family Firms During Recessions. The second hypothesis looks at investments of family firms during a recession. It compares this value to the amount of investments before the recession and therefore tries to verify the assumption that family firms engage in within-recession-investments because they will show a lower risk profile due to the external threat.

- H2: There is a significant difference in investment change between family firms and non-family firms, where family firms show a higher relative amount of investment after the crisis as compared to non-family firms.

The third hypothesis analyses the workforce of a family firm during a recession. More specifically, it looks at how the labour cost changes from the pre-crisis to the post crisis level. Thereby, it tries to verify that family firms are more long-term oriented and thus, engage less in workforce downsizing than non-family firms.

- H3: There is a significant difference in labour cost change between family firms and non-family firms where family firms show higher relative labour cost after the crisis as compared to non-family firms.

3. Methodology

This part of the paper gives information about the methodological procedures employed in the thesis. It starts with introducing the overall research design. In a second step the data sample and data cleansing will be explained. The third part speaks about the different variables that are used in the analysis. After that, the actual statistical procedures used are described. The chapter ends with discussing quality criteria.

3.1 Research Design

As became evident throughout the paper so far, the research question at hand is whether family ownership lessens the impact of a recession on a firm and hence, enables the firm to recover faster from it. Saunders, Lewis and Thornhill (2009) discuss that the research question characterises the research strategy, and thereby the research design. Therefore, the methodological procedures have been built around the research question. Saunders et. al furthermore give a categorical framework by which a research design can be described. This categorisation will be applied to the design to allow for the appropriateness of the choices made. Hence, a discussion of the research purpose, the research approach and the data used will be given.

The purpose of a research can be described as exploratory, descriptive, or explanatory according to Saunders et al. (2009). An exploratory research is used to understand a problem or evaluate a certain phenomenon. As given in the name, a descriptive research aims to delineate a given state or occurrence. It is often used in conjunction with either exploratory or explanatory research. Explanatory research tries to establish or explain a causal relationship between variables. Important to note is that a research project can have multiple purposes.

The present research belongs to the explanatory category. Although it has elements from other categories it mainly investigates the relationship of ownership and performance change. The explanatory nature is mainly because of its deductive approach (see next paragraph). The theory clearly follows an explanatory reasoning establishing why family ownership should influence performance changes.

In terms of the approach there is a distinction between an inductive procedure and a deductive procedure. The former collects and analyses data in order to build a theory around it. The latter starts from the theory. It tests an already established theory with data to verify or falsify it. This paper makes use of the deductive approach which fits an explanatory research purpose. It takes data from the Norwegian business landscape in order to analyse whether the SEW preservation theory is applicable.

Given the research strategy so far it is clear that the data used is of quantitative nature. A qualitative data set is simply not applicable because it would not allow for inference to the research question. Table 2 gives a summary of the research design as applied for this thesis.

Table 2: Research Design

Research Question: How and why does family ownership affect performance differences during and after an economic crisis?			
Purpose	Exploratory	Descriptive	Explanatory
Approach	Inductive	Deductive	
Data	Quantitative	Qualitative	
Data Manipulation and Analysis			

Source. Author

3.2 Data and Sample

Having looked at the research design, this part of the paper provides a discussion of the data. It describes the data used and gives an account of how the data was manipulated before tests were conducted.

3.2.1 Data

The main data source for this thesis is the Norwegian Corporate Accounts Database by Samfunns- og Næringslivsforskning AS (SNF), the centre for applied research at NHH. SNF is one of Norway's leading research environments that conducts research and prepares research-based reports for major decision-makers both in the private and the public sector (Berner, Mjøs, & Olving, 2015). In their report, there is a thorough quality analysis of the data (p. 39 et seqq.) and some minor mistakes for individual companies are revealed. However, the authors also mention that the database is used for research purposes which means that the absence of individual companies is less of a problem, especially if the sample is sufficiently big. The database is split in accounting information and company information. Both databases include information from 1992 until 2014. For this research variables from both datasets will be used but for a restricted time period as explained in the next subchapters.

Regardless how vast the data collection, there is not sufficient information about governance of the companies in either database. This shortcoming is severe since the main objective of this research is directly dependent on such information. Luckily, the supervisors of the thesis were able to get access to some relevant information from Menon Business Economics AS (MBE). MBE is an economic consultancy that works in collaboration with SNF. Since they regularly provide data for the SNF database, and because no further options are available, the data provided by MBE is considered to be of the same quality. The dataset by MBE provides a family ownership variable for the year 2012. It gives the ownership percentage of family owners by company. This is used to supply the research model as explained in the coming subchapters.

All data sources used in this study are of secondary nature. Saunders et al. (2009) argue that this kind of data is often used for descriptive and explanatory research. It is generally accepted that the use of secondary data results in enormous savings in resources for the authors (Ghauri

& Grønhaug, 2005), and often has higher quality than if collected by the researcher (Stewart & Kamins, 1993). Therefore, it is the obvious choice of data in this thesis.

3.2.2 Selection Criteria

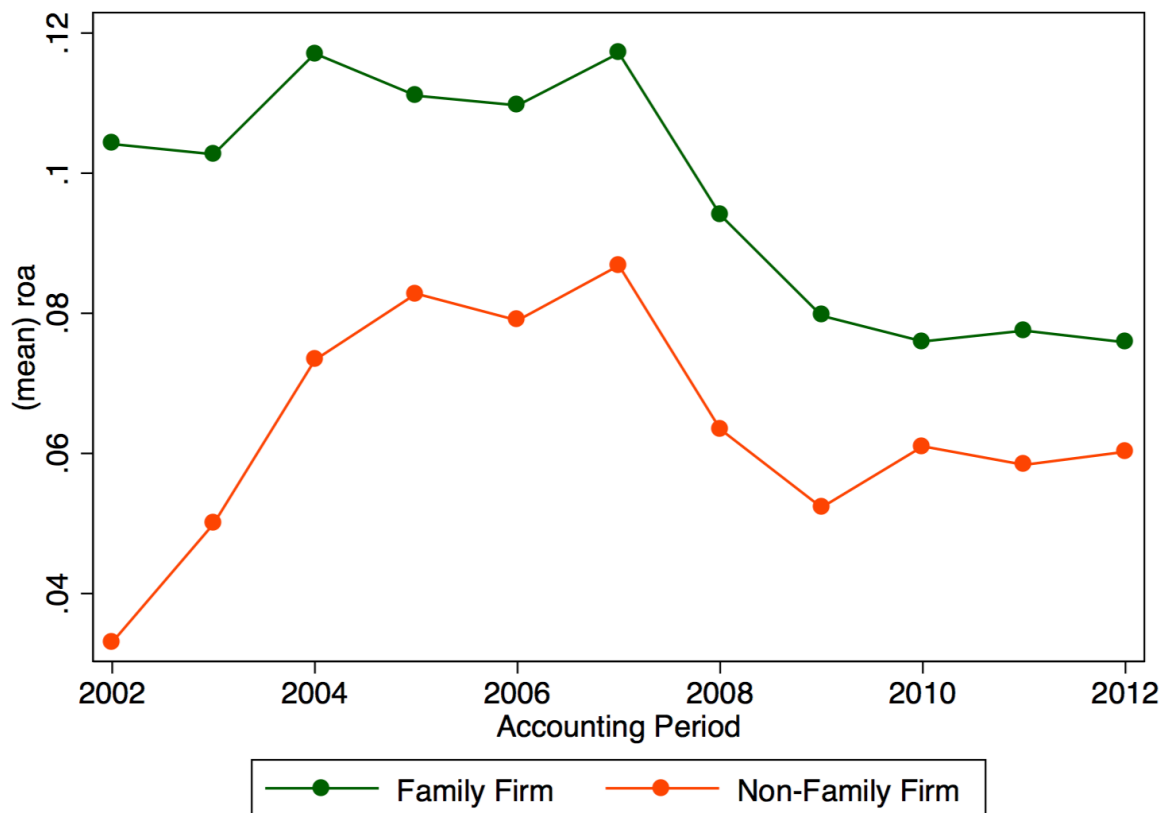
Since the SNF database contains accounts for all Norwegian enterprises (Berner et al., 2015), the analysis can be done on the census. Hence, an actual sampling of the population is not required. Nevertheless, the census still must be revised to the needs of the research question. This is necessary because the anticipated effect, as described in the theory, is not believed to appear in all firms. Therefore, the selection criteria describe how and why certain manipulations will be done with the census. This, however, will not result in a sample, but still be the census. In fact, it just trims the database of all Norwegian firms to those Norwegian firms that are subject to the researched effect.

The selection criteria are outlined below and it is clearly explained why specifications are applied by linking back to the theory part. The main idea is that all observations should be excluded where the theory does not apply to. At the end of the section, there is an overview of how many firms remain in the census after each manipulation.

Selection Criteria 1: Time Period 2005-2012

Time is an essential factor for this research since a time-sensitive effect is investigated. A keyword here is internal validity. This concept describes the extent to which the findings can be attributed to the interventions, in this case the recession (Saunders et al., 2009). If the time period starts too early or lasts too long, other external effects as for example the dot.com bubble or changes in oil prices might significantly influence the initial state or the recovery of firms. Therefore, in order to reduce the noise, a time frame from 2005 until 2012 is chosen. Figure 4 on the next page shows in a very preliminary manner how the mean return on assets (ROA) of family firms and non-family firms moved over time. This has been done before any of the selection criteria were applied and is also not controlled for other factors. The figure nicely shows that before 2005 the groups have different developments of the means. This might distort the result and therefore, should be excluded. The reason why 2012 should signal the end of the observation is because the chance that effects other than the financial crisis dilute the picture is too high. Hence, the time frame from 2005 until 2012 seems to be an appropriate choice.

Figure 4: Mean ROA of Family and Non-Family Firms Over Time



Source. Author

Selection Criterion 2: Sales Revenue > 9,705,189 NOK

The second selection criterion, sales revenue, has been chosen to exclude small or very specialised firms. The reason for their exclusion is that those firms might not be affected by a recession as severely as their bigger competitors. Hence, other factors than family ownership and recessionary pressure might determine their performance differences. Simultaneously, this criterion segregates all firms that are not active anymore. Furthermore, Norwegians often have firms for private tax purposes. Those firms are small and are expected not to show the effects under research. Thus, they should be excluded. In order to allow for comparison with other master theses, a value of 10,000,000 NOK for the year 2007 will be applied. This is inflation adjusted to the base year of 2005 and therefore, results in 9,705,189 NOK as calculated by the inflation tool from Statistics Norway. All companies that show sales revenue of less than the threshold are disregarded.

Selection Criterion 3: Labour Cost > 2,911,557 NOK

This selection criterion concerns the size of a firm. It is argued that firms with less than 10 employees do not reflect firm dynamics as prevalent in a typical family firm. Hence, variables other than ownership have a too high influence. This is also because there are many firms that only serve stock holding purposes such as real estate investment firms. These companies often do have very little labour cost because it is merely an investment instrument. Furthermore, Smith (2016) argues that bigger firms have more to lose compared to their “one-person peers”. It would be easiest to exclude those firms with employment levels below 10. However, Berner et al. (2015) explain that many of the SNF company variables are only valid at the time of delivery. Therefore, the labour cost has been taken as a proxy. Statistics Norway shows that the average labour cost per full-time equivalent employee amounted to 587,000 NOK in 2008 (closest available data to 2006). Multiplying this with 10 employees and allowing for the fact that the distribution in salaries (which is a main component of labour cost) is usually positively skewed (which leaves the median to be smaller than the mean), a total labour cost minimum of 5,000,000 NOK would be applicable. However, in order to allow for comparison with other master theses, a value of 3,000,000 NOK for the year 2007 will be applied. This is inflation adjusted to the base year of 2005 and therefore, results in 2,911,557 NOK as calculated by the inflation tool from Statistics Norway. All companies that have labour costs of less than the threshold are disregarded.

Selection Criterion 4: Legal Form = AS, ASA, ANS, or DA

This criterion is applied to narrow down the census to profit maximizing companies. Therefore, publicly owned entities and not-for-profit companies are excluded. SNF offers the variable *selskf* that gives the legal form of incorporation. This variable is restricted to unlimited companies (ANS), limited share companies (AS), public limited companies (ASA), and shared liability companies (DA). All other forms of corporations are excluded.

Selection Criterion 5: Industries

The same motivation goes for the data cleansing by industry. Here industries that are either not considered profit-maximising in nature or whose performance is largely affected by government regulations, such as for example subsidies, are excluded as recommended by Lee (2006). The two-digit European Classification of Economic Activities Code (NACE) has been used to accomplish this. The codes are described by Statistic Norway. The list of NACE codes

that were excluded is exhibited in Table 3 with the relative frequency of occurrences in the 2005 dataset after selection criteria 1-4 have been applied.

Table 3: Excluded Industries by NACE Codes

Two-digit NACE Code	Industry Name	Relative Frequency
1	Crop and animal production, hunting and related service activities	0.52%
2	Forestry and logging	0.14%
65	Financial Services	0.08%
67	Financial support services	0.44%
75	Public administration and defence, social security scheme	0.01%
80	Education	0.34%
85	Health and social services	1.71%
90	Sewerage and garbage disposal	0.65%
91	Interest groups	0.02%
92	Recreational activities, cultural services and sports	1.02%
Total		4.93%

Source. Author, Statistics Norway

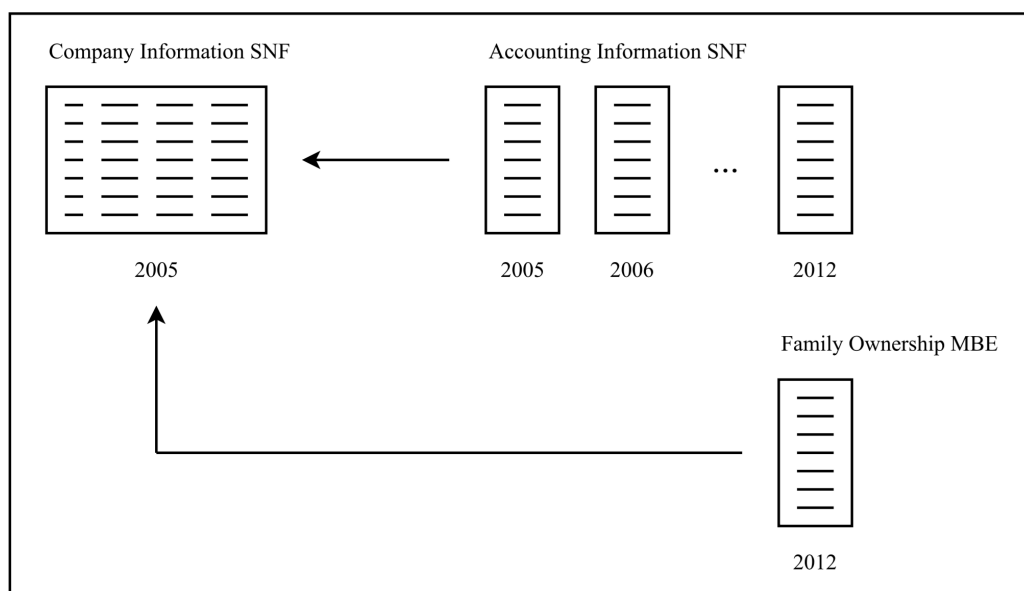
Selection Criterion 6: Balanced Panel

Panel data consists of repeated observation on the same cross section over time (Wooldridge, 2002). A panel can either be balanced or unbalanced. A balanced panel has observations for every case in every cross-section. An unbalanced panel is one that misses some of the observations. Wooldridge describes that unbalanced panels can have a sample selection problem. This is complicated when units “decide” to drop out of the panel. Especially problematic cases result when the decision is based on factors that are systematically related to the response variable (Wooldridge, 2002). This is the case for this research since companies drop out of the panel when they are bankrupt and this, obviously, has a direct influence on the dependent variable ROA. Hence, the panel is designed to be balanced. This means that if some

key variables are missing for firms during the observation period, they are excluded from the census. Also new firms that were incorporated during the time period are not considered. This has the reason that such newly founded firms would not show the dynamics and structures that explain the difference in performance during a crisis. They can for example not build up kinship relationships to their suppliers and financiers or other relevant stakeholders.

Another reason why this is important stems from a flaw in the dataset. To understand that a quick overview how the dataset has been arranged is given as illustrated in Figure 5.

Figure 5: Data Collection Procedure



Source. Author

The base year is 2005. Therefore, the dataset with the company information for 2005 is taken as base to build the panel around. For all those companies, the accounting measures are imported from the respective accounting databases from 2005-2012. Additionally, the family ownership variable is attached to every firm in the panel. The company information as well as the family ownership is kept constant over the time frame since it is unlikely that a firm switches industry in such a rather short period, or simply no further information is available (e.g. family ownership). This means that family firms that went out of business in the period between 2005 and 2012 would not show in the family ownership dataset as provided by MBE. Hence, those firms would not get the family ownership variable attached and therefore, be considered non-family firms in 2005. This would lead to biased results, because family firms that went out of business are considered to be non-family firms. In order to resolve this issue,

all companies that went out of business in the observation period are not considered. This results in a sub-optimal panel but is the only reasonable way for the author to allow for the incomplete data available.

It is assumed that these modifications still result in a valid finding for the thesis. Nevertheless, this major drawback of the data will be kept in mind when evaluating the results.

Final Census Size

Obviously all those manipulations to the dataset result in a smaller census size. Table 4 shows how each selection criteria reduced the number of observations by showing the resulting census size after the manipulation has been made.

Table 4: Census Size After Selection Criteria

Criterion	Companies	Family Firms	Non-Family Firms
I Time Period	170,928	47%	53%
II Sales	26,269	44%	56%
III Labour Cost	17,576	41%	59%
IV Legal Form	16,700	43%	57%
V Industries	15,878	44%	56%
VI Balanced Panel	12,073	56%	44%

Source. Author

The table shows that the sales revenue criterion has the most severe impact by excluding about 85% of the companies. This appears reasonable because there are many more small companies than large companies. Another interesting point to discuss is the change in family firm percentage. This is in an acceptable range with only small differences for the first five criteria. The sixth criterion shows a shift towards more family firms. This, however, does not mean that family firms were better at surviving the crisis as one might interpret at first sight. This shift is simply because of the data structure since firms that failed in the years up to 2012 were per construct labelled non-family firms. Therefore, the family firm percentage before the sixth criterion are biased and only the last criterion gives a proper number of split between family firms and non-family firms.

3.3 Variables

This part of the thesis explains the different variables that were used for the testing of the hypotheses. An overview of dependent and independent variables as well as control variables is given. At the end, there will be a short discussion of variables that were omitted because they were not part of the dataset but would have increased the validity of the results.

3.3.1 Dependent Variables

Performance

Every hypothesis has a different dependent variable. Forthcoming, there will be a discussion of the variables and how they are computed. The first dependent variable is a performance measure. This study uses the ROA as it is used commonly to assess the impact of governance on firm performance (Lee, 2006; Maury, 2006; Minichilli et al., 2016; Sraer & Thesmar, 2007). It is simply computed by dividing the net income by the total assets. The ROA has some drawbacks. First it needs to be noted that it does not consider off balance sheet items. This means that intangible assets that are not on the balance sheet are not considered in the measure. This results in an overvaluation of the performance of firms with big amounts of intangible assets. The second problem is that it does not give any information about the capital structure which is often an indicator of the success of corporations. Yet, ROA is still considered superior for this paper compared to other profitability measures such as return on equity or economic value added because return on equity is very susceptible to equity changes and economic value added would imply that there is information about the company's cost of capital, which is not always the case.

$$ROA = \frac{Net\ Income}{Total\ Assets} = \frac{aarsrs}{sumeind}$$

This paper uses two versions of ROA. The main indicator is total ROA where the total profit/loss for the year is taken as described by aarsrs in the dataset. For increasing the robustness of the model there is also the operating ROA included in the analysis as suggested by Lee (2006). Therefore, the driftsrs will be taken which gives the operating profit/loss for the year. For the denominator, SNF offers the number of total assets as found under the variable sumeiend.

Investment Activities

The second dependent variable is a generated variable to estimate the investment activities within a firm. SNF offers different kind of investment variables. For simplicity, only the aggregates are described here. There are three components that are considered to be investment activities. First is the research and development activities. This variable shows the capitalised R&D account of the firms. The second part is tangible fixed assets. This includes several measures machinery, plant, operating equipment et cetera. The third dimension is of financial nature. It shows investments in subsidiaries as well as associated companies. Hence, the investment variable is generated as the follows:

Investment Activities

$$\begin{aligned} &= \text{Research \& Development} + \text{Tangible Fixed Assets} \\ &+ \text{Investments in Subsidiaries} \\ &+ \text{Investments in Associated Companies} \end{aligned}$$

$$\text{Investment Activities} = fou + vardrmdl + invdtr + andrinv$$

There is a big difference in accounting laws between the Norwegian accounting standard and the IFRS that directly affects those measures. This can be in terms of capitalisation allowance for R&D but also for fair value measurement of tangible assets. Therefore, there needs to be a control value for the accounting standard. This is taken from SNF which gives a dummy variable of 1 if IFRS is used.

Labour Cost

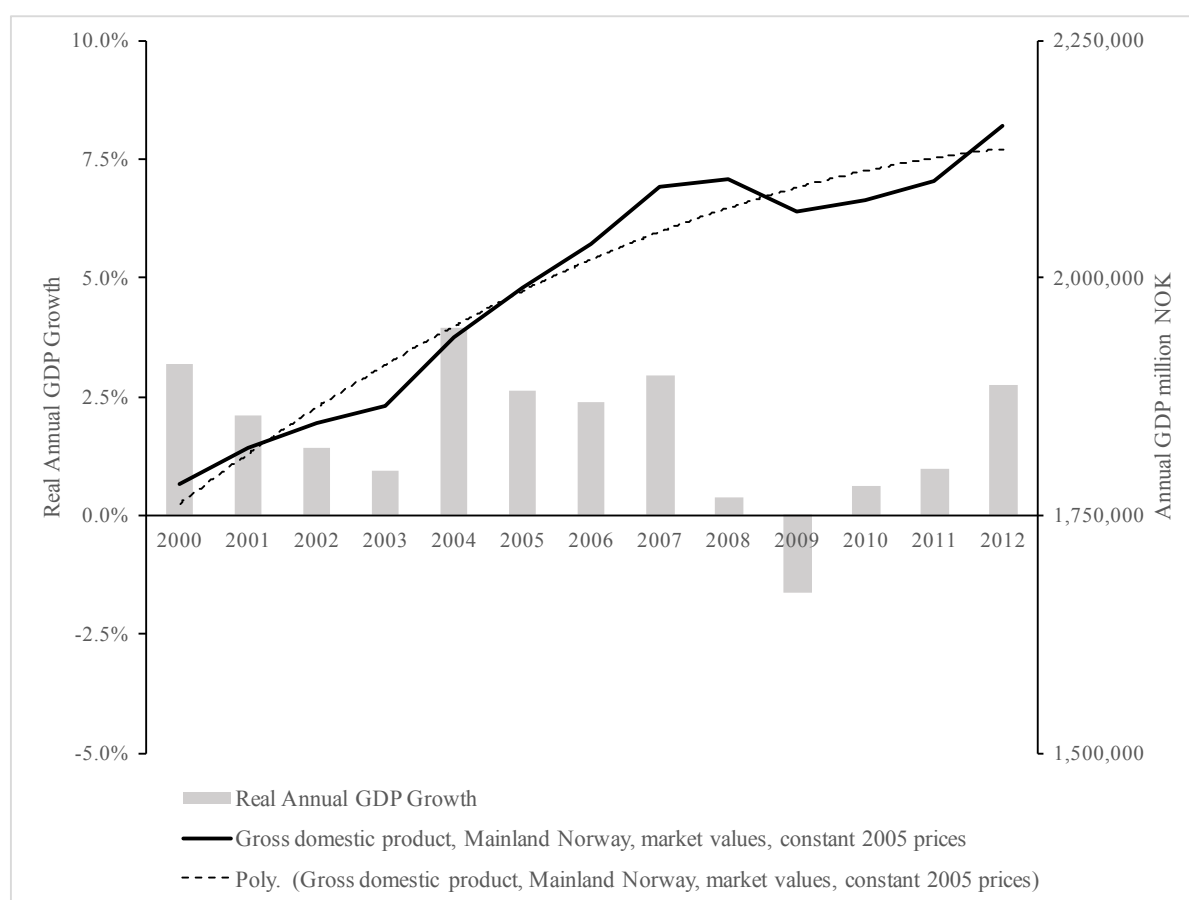
For the third hypothesis, the labour cost is the dependent variable. SNF gives the variable lonnsos that can be used to see the development in labour cost. Lonnsos is the payroll expense that comprises all form of remuneration to the company's employees and executive personnel. This includes bonuses, company cars, all kind of subsidised items, and more. Although this variable gives a very widespread picture of expenses, it is considered to be a reasonable estimator for how the company deals with employees in tough times.

3.3.2 Independent Variables

The methodological design consists of two independent variables for all three hypotheses tests. The baseline variable is the nature of ownership. The dummy variable family firm has been coded 1 if one person, or more people with the same last name, have a 50 percent ownership stake in the company. If this is not the case, the family firm variable shows the value 0.

The second variable is also a dummy variable but is a time measure. Therefore, the variable post-crisis has been created. This defines the period when the crisis has started and hence, a different behaviour is expected. It is coded 1 for the years after the major performance drop that Norwegian companies experienced. Although the crisis has started in 2007 in the United States (NBER, 2017), Figure 6 shows clearly that the performance drop in the Norwegian mainland GDP started in 2008. Hence the years after 2007 were coded 1.

Figure 6: GDP of Norway from 2000 until 2012



Source. Author, Statistics Norway

Additionally, in order to increase the robustness of the model, a replicated model has been created using a different time window. This defines the 2005-2008 period as pre-crisis and 2009-2012 as post crisis. A discussion of the difference will be given in the results chapter.

3.3.3 Control Variables

Control variables are used to isolate the causal effect of a particular variable (Wooldridge, 2012). Hence, specific control variables are included in the models to allow for an increase in robustness. The control variables are based on the idea that performance differences can occur because of differences between the firms or differences between the industries. For the latter, it is easier to control because the different industries are given by the SNF database. Hence, the industry effects are controlled by adding the two-digit NACE industry code to the model. This analyses the industries separately and allows for a performance difference between the different industries.

The firm effects are slightly more complicated because there needs to be a control for different characteristics of the firms. Consistent with previous master theses the model is controlled for firm age as well as firm size. This is in accordance with Gomez-Mejia, Cruz, et al. (2011) who brought those two indicators forward as contingency variables for the link between family ownership and firm performance (cf. Figure 2). The age is calculated by subtracting the founding year from the year of analysis. It is assumed that age has a diminishing impact of firm performance. This means that a one year difference of a 20 year old firm is less important than of a 1 year old firm. Therefore, the age is log-transformed. To ensure a correct transformation, 1 year is added to the firm age.

$$Firm\ Age = \ln(year\ of\ analysis - founding\ year + 1)$$

The size of a firm is also believed to influence a firm during a recession. There are several measure that could be used for that. For example assets or number of employees could be included. However, with both measures there is a problem. With firm assets there is again the problem of accounting standards. Some firms are allowed to capitalise items whilst others are not this leaves similar firms with completely different asset sizes. For the number of employees, the problem is that different industries require different numbers of employees. Therefore, a manufacturing firm might has a higher number of employees than a trading firm,

regardless of the size. Hence, the sales revenue is taken as a proxy measure for firm size. Where appropriate, the squared sales revenue has been controlled for as well.

A third variable that is included is the region in which the firm is located. The simple reason is that certain regions might be differently affected by recessionary pressures than other regions. Therefore, the variable *landsdel* is included that splits Norway into seven regions.

The last control variable included is a measure for leverage. For this thesis, the financial leverage ratio has been chosen because it is widely used in research as part of the DuPont formula. Research suggests that there is a link between leverage and performance (Vithessonthi & Tongurai, 2015) as well as between leverage and future investments (Cai & Zhang, 2011). Since both links are of relevance, it is important to control the model for it.

$$\text{Financial Leverage Ratio} = \frac{\text{Total Assets}}{\text{Total Equity}}$$

3.3.4 Not Included Variables

What is commonly referred to as omitted variable bias is simply the problem that not all relevant variables are included in the model (Wooldridge, 2012). This generally results in a biased model. Therefore, this part of the paper discusses the variables that could not be included in the model although a link to changes in performance differences is expected.

At this point a reference to chapter 2.1.1 Definition seems appropriate. It has been outlined that there are two main approaches to define a family firm, namely the components of involvement and the essence approach. The description of the family firm dummy variable clearly indicates that in this paper the components of involvement approach is applied. However, the theory outlines that there are major drawbacks with this approach. The main problem is that there is no logical link between family ownership and SEW preservative behaviour. Therefore, the essence approach would be optimal to use in this context. However, it is unrealistic to collect this highly qualitative information for all Norwegian companies. It would involve interviews or observations of several thousand firms. Nevertheless, there are several other governance variables that could result in a better model. One key variable would be the status of the CEO. Is it an owner-managed company or is there an outside CEO. It would also be interesting to analyse how this changed over the course of the recession since research

indicates that family CEOs can be let go. The same goes for family members in the board of directors. Additionally, the generation in which the family firm is held has a relevant role to play as well. Although the model is controlled for family age, this is only a proxy and does not specify further information.

To conclude, there are several governance variables that would result in a more valid model. However, these variables are difficult to collect and simply out of the scope of this research. Hence, an imperfect model needs to be accepted whilst the drawbacks are discussed.

3.4 Empirical Model

The standard way to analyse such a two-period panel data would be with a fixed effect model. The fixed effect is in this case a firm-specific effect that does not change over time. In a very simplistic model where y is the dependent variable, x is the independent variable, i is the subscript for observation, t is the subscript for time, and $d2$ is the dummy variable for pre- / post recession, the regression model would look as the following:

$$y_{it} = \beta_0 + \delta_0 d2_t + \beta_1 x_{it} + a_i + u_{it}$$

This denotes a_i as the fixed effect and u_{it} as an idiosyncratic error. The dummy variable $d2$ is coded 0 for pre-crisis and 1 for post crisis. This would lead to the following two equations:

$$y_{i2} = (\beta_0 + \delta_0) + \beta_1 x_{i2} + a_i + u_{i2}$$

$$y_{i1} = \beta_0 + \beta_1 x_{i1} + a_i + u_{i1}$$

If the second equation is subtracted from the first, the following first-difference equation is obtained:

$$(y_{i2} - y_{i1}) = \delta_0 + \beta_1 (x_{i2} - x_{i1}) + (u_{i2} - u_{i1})$$

or

$$\Delta y_i = \delta_0 + \beta_1 \Delta x_i + \Delta u_i$$

As seen from the equation above the fixed effect α_i has been “differenced away”. This makes absolutely sense because α_i is believed to be constant over time. However, one crucial assumption of this fixed-effect model is that Δx_i must have some variation across i . This is because under this model α_i can be correlated with x_{it} . Consequently, it is not possible to separate the effect of α_i on y_{it} from the effect of any variable that does not change over time. In other words, this effect would also be fixed and therefore not be included in the remainder of the model. Since the main independent variable of this research is a dummy variable for family firm which does not per definition change over time, the fixed effect model cannot be used. Therefore, a model similar to difference-in-differences is applied in this case.

The classical difference in difference model is used to analyse natural (or quasi) experiments where an exogenous event changes the environment in which individuals, families or firms operate (Wooldridge, 2012). In the normal setting, there is a treatment group that is affected by the event and a control group that is not affected by the event. The basic idea is that the treatment group would have developed alike the control group if the event did not have occurred. Hence, it can be analysed how the treatment (endogenous event) influenced the treatment group as compared to itself if there was no treatment.

For this thesis the setting is slightly different. There is no control group per se because both groups are affected by the exogenous event. However, the key assumption is that both firms would behave the same in terms of performance differences if there was no exogenous event and that the family ownership is the only variable that explains the difference in performance change. Therefore, the dummy variable for treatment vs. control group can be substituted by the dummy variable family firm vs. non-family firm. The dummy variable family firm is coded 1 for a family firm and 0 for a non-family firm.

In addition to this group variable there needs to be another variable to allow for the occurrence of the event. Therefore, the dummy variable post crisis has been developed. It is coded with a 0 before the event and with a 1 after the event. This leaves a total of four groups: family firms before the crisis, family firms after the crisis, non-family firms before the crisis, and non-family firms after the crisis. The estimator for the difference between the family firms and non-family firms is expressed as given on the next page:

$$\hat{\delta}_1 = (\bar{y}_{2,F} - \bar{y}_{2,NF}) - (\bar{y}_{1,F} - \bar{y}_{1,NF})$$

where F stands for family firm and NF stands for non-family firm. In other words, $\hat{\delta}_1$ is the difference over time in the average difference of performance between the two groups.

To evaluate whether $\hat{\delta}_1$ is statistically different to zero, its standard error needs to be calculated. This can be done by the following regression model:

$$y = \beta_0 + \delta_0 dC + \beta_1 dF + \delta_1 dC * dF + \text{control variables}$$

where dF is the dummy variable for family firm and dC the dummy variable for post crisis.

3.5 Quality Criteria

3.5.1 Validity

Bernard (2013) defines validity as “the accuracy and trustworthiness of instruments, data, and findings in research” (p. 45). This can be split up in internal and external validity (Saunders et al., 2009). Internal validity is the extent to which the findings can be attributed to the interventions rather than to any flaws in the research design. External validity is concerned with generalisability. To what degree can the findings of a study be generalised to a population at a whole. Hence, these concepts are ubiquitous throughout the whole research. If the instruments are not valid, the data will not be valid and so will not the findings. Therefore, validity is a concern that should be reconsidered throughout the research.

For this thesis a high degree of both, internal and external validity has been targeted by different measures. Firstly, a profound literature review was conducted in order to come up with a model and make substantiated evaluations. The literature review is mainly based on articles from top-ranked, peer-reviewed journals. Some second-tier journals have been used but only for complementary purposes. Secondly, the model as well as the methodological design has been reviewed by the two supervising professor who are both strategy experts and regular publishers of articles in top journals. Thirdly, when evaluating the data there is always a clear discussion of what further manipulations were done with the data as well as what implications this has.

A major concern for validity is the data available for the research. Unfortunately, as mentioned before, the author only had access to family ownership data for the year 2012. The data panel has hence been constructed in a way that excludes firms that failed during or after the crisis. This was imperative to allow for a non-biased panel. However, it decreases the validity of the thesis because firms that failed during the crisis could change the outcome. After the results, there is a section discussing the exclusion of bankrupt firms and contemplating what effects this had on the findings.

3.5.2 Reliability

”Whilst the validity appraises how correct the results of the research are, the reliability evaluates whether the same result would emerge if the research was done again (Bernard, 2013, p. 46). In other words, Saunders et al. (2009) note that reliability refers to the extent to which the data collection techniques and analysis procedures will yield consistent findings. Researcher agree that reliability increases if the applied procedures are explicitly described. This was done extensively throughout this paper. Not only the data manipulations are explained explicitly, but also the Stata code for the analysis has been included in the appendix. This allows for comprehension of the approach and opens it for scrutiny from other researchers.

It is also to mention that well-known econometric procedures have been used for the data evaluation. The resulting models are appropriate for the underlying cause of the paper and, therefore, a second, independent research, is believed to employ the same approaches, and hence, conclude the same results.

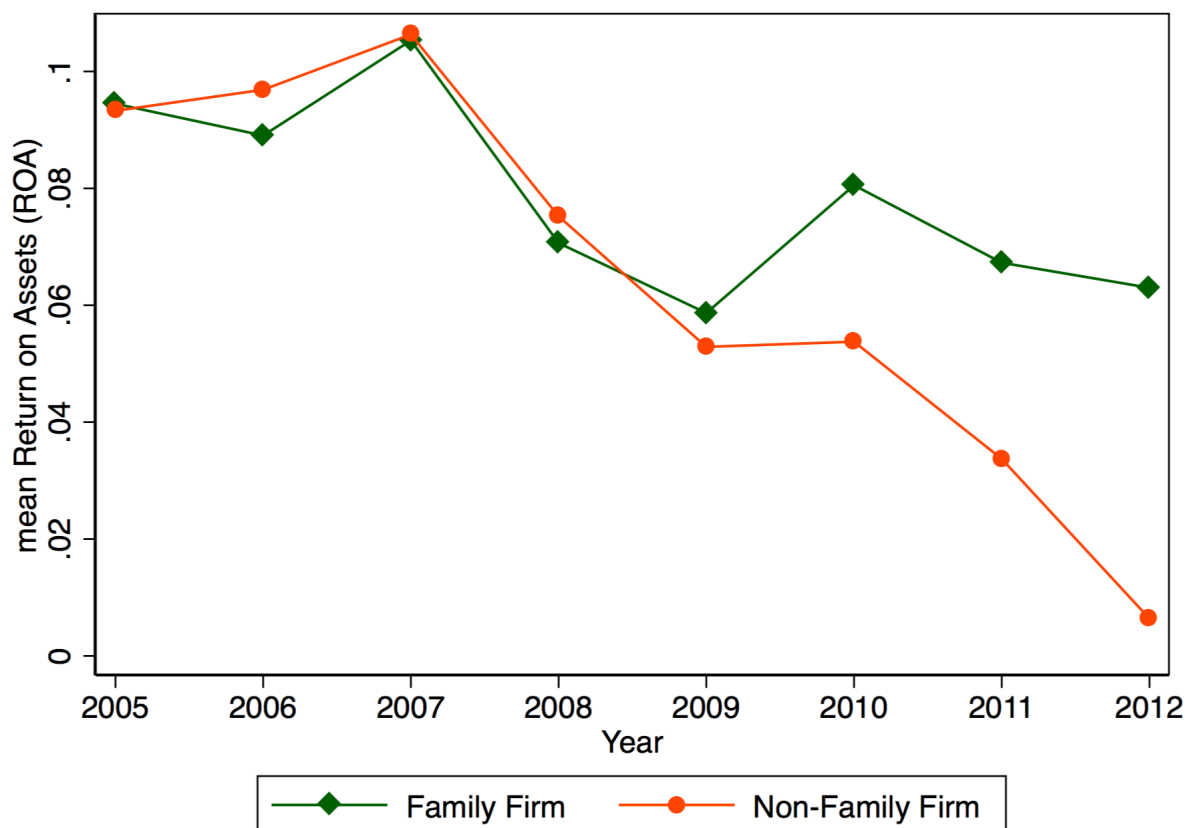
4. Results / Findings

This chapter examines the results from the data analysis. It is built around the three hypotheses. In order to allow for a clear train of thought each hypothesis is analysed individually. For each hypothesis, it first gives a descriptive overview. This is to offer a graphical illustration for the regression analysis that follows. The underlying model specification and data manipulations are outlined in the methodology chapter. However, where necessary, notes to the analysis are included directly in the text.

4.1 H1: Difference in Performance Change

The first hypothesis states that family firms are less severely affected by a recession and recover more quickly from recessions than their non-family peers. The indicator for this is the return on assets (ROA). Figure 7 shows that this is true on a descriptive basis.

Figure 7: Mean ROA of Adjusted Census



Source. Author

Up to the year 2007 the two groups of firms show on average an increasing ROA. Then after the recession hit in 2008 there is a drop for both groups. However, the family firms show on average an increase in ROA again for the year 2009 whilst non-family firms on average just held their performance constant. For the years after, the performance decreases again slightly. This is consistent to what the theory would suggest. Figure 7 also shows that on average the non-family firm nearly hits the 0% ROA in 2012. This is peculiar and could result from outliers. Therefore, a lower bound of mean minus two standard deviations has been set. The resulting figure can be viewed in Figure 8.

Figure 8: Mean ROA of Adjusted Census Outlier Corrected



Source. Author

This excludes 127 observations which represents about 0.13 % of the panel. The resulting Figure is nearly alike for the family firms but the non-family firms' mean stays at around 6 % ROA after the crisis. This means that most of the dropped observations are from non-family firms, as expected by the theory. The exclusion of outliers is omitted for the model for hypothesis one. Outlier exclusion is a well-discussed topic among researchers. There are

arguments for and against the exclusion. Since there is a rational for the non-family firm outliers as based in the theory, they will not be excluded in the regression model.

To verify the descriptive outcome from Figure 7, the differences must be tested for statistical significance. Therefore, the model as outlined in the methodology section has been put in place. In order to see whether the model suffers from heteroscedasticity, a Breusch-Pagan test has been executed. This shows that the variability is unequal across the different years. To void this problem, the model has been adjusted to use robust standard errors. This makes the tests valid regardless whether heteroscedasticity is observed or not. In fact, the use of robust standard errors is even valid when the standard errors are homoscedastic (Wooldridge, 2012). Therefore, the robust ordinary least square model is used for all tests.

Table 5 shows the output from the regression analysis. The first model is without the “interaction term” in order to see the significance of the “family firm” and “after crisis” variables. The key indicators are the first three table entries because they represent the independent variables. The first variable, family firm, is statistically significant in the first model. This means, that family firms have on average a 2 percentage points higher ROA. However, the literature review has already extensively talked about that some researchers believe family firms are better performers whilst other researchers believe they are inferior performers. Hence, this result is not further discussed here. The second variable, after crisis, is highly significant on a $p < 0.001$ level. The value means that after the crisis, firms’ ROA was on average 4.3 percentage points lower when compared to pre-crisis levels. This is as expected from the review of business cycles. The most interesting term for this paper is the interaction variable, also known as the average treatment effect given in the second model. This interaction term is significant on the $p < 0.01$ level. It explains that family firms are performing comparatively better after the crisis. On average, their ROA is 2.7 percentage points higher compared to the non-family firms. Family firms still perform worse after the crisis, yet, the performance decrease is significantly smaller compared to the non-family peers’. This verifies the main hypothesis of the paper and a thorough reasoning for that effect has been given in the theory part. The remaining variables do not play an important role for the analysis since they only serve as control variables. Due to limited space, the control for industry and region is only mentioned in the table. Since for each industry and each region respectively a dummy variable was created, this would result in superfluously large table.

Table 5: Hypothesis Test Performance Difference

	(1) Total Return on Assets	(2) Total Return on Assets
Family Firm	0.020** (0.007)	0.003 (0.003)
After Crisis	-0.043*** (0.005)	-0.059*** (0.006)
Interaction Terms		0.027** (0.010)
Log Age	0.006 (0.003)	0.006 (0.003)
Sales	0.000* (0.000)	0.000* (0.000)
Financial Leverage Ratio	-0.000** (0.000)	-0.000** (0.000)
Accounting Standard	-0.023 (0.014)	-0.0233 (0.014)
ROA previous Year	-0.099 (0.076)	-0.099 (0.076)
Industry	YES	YES
Region	YES	YES
r ²	0.010	0.010
N	96271	96271

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source. Author

It is worthwhile to evaluate the low r-square score of the model. The r-square, also known as coefficient of determination, is the ratio of explained variation as compared to total variation. Hence, it is interpreted as the fraction of variation in y that is explained by x (Wooldridge, 2012). In general, it can be said that it is a measure for evaluating the goodness of fit of a model. The r-square of this model indicates that only 1% of the total variation is explained by the model. This, however, does not necessarily mean that the model is impractical. It has to be analysed what the model is used for. If the model aims to estimate the ROA of one given firm, by adding the coefficients of the different variables, it would be rather inaccurate. However, for this use case, the goal is to determine which predictors are statistically significant and how changes in the predictors relate to changes in the response variable. Hence, r-square is

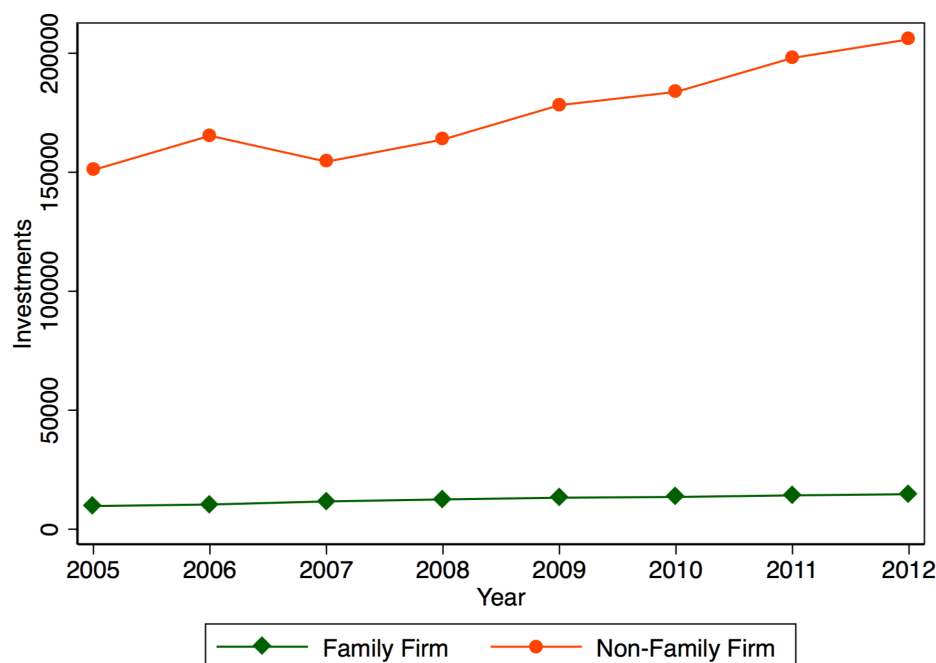
insignificant (Wooldridge, 2012). In this case, the low r-square only indicates that there are other variables that determine the change in differences, unobserved in the model.

In order to increase the robustness of the model, several variations of the parameters have been used for the regression. For example, the cut off for the after crisis dummy variable has been changed from 2008 to 2007 and 2009 respectively. Nevertheless, the 2008 cut off resulted in the best results. The same test has also been conducted for the operative ROA. The results, however, are strikingly similar indicating the same implications with changes in the coefficient in the per mille area.

4.2 H2: Difference in Investment Change

The second hypothesis assumes that family firms engage in a higher degree of within-recession investments because they will show a lower risk profile due to the external threat. Hence, the model looks at investments of family firms during a recession and compares this value to the amount of investments before the recession and contrasts this to non-family firms. The model is set up like the test for hypothesis one. The indicator is an investment composite consisting of different variables as explained in the methodology part.

Figure 9: Mean Investments Over Time



Source. Author

The results for this hypothesis are somewhat peculiar. The descriptive output in Figure 9 clearly shows that non-family firms invest on average more than non-family firms. This is as expected from the theory. However, there is no obvious effect from the recession. The drop in investments for non-family firms in 2007 could be a result from anticipating the recession and, thereby, postponing investments. Yet, already in 2008 the average investment is on a pre-crisis level again. Considering the family firms, the average investment stays very much the same.

If this is tested with the regression model it becomes obvious that the results are diluted. Of the three key variables, family firm, after crisis, and interaction term, only the first one is significant. However, its value, as taken from Table 6, says that family firms spend on average NOK 43 million more on investments. This seems unrealistic given the clear indication that non-family firms spend more in Figure 9.

Table 6: Hypothesis Test Investment Difference

	(1) IOA All	(2) Inv1
Family Firm	43004.7** (14690.4)	50973.6*** (14268.1)
After Crisis	3694.1 (8462.8)	10865.6 (18341.3)
Interaction Terms		-12711.0 (18150.5)
Log Age	222.0 (11614.0)	188.9 (11608.8)
Sales	0.522*** (0.088)	0.522*** (0.0884)
Accounting Standard	1687550.8*** (261265.8)	1687590.7*** (261271.9)
ROA previous Year	155.3 (527.0)	163.4 (528.8)
Industry	YES	YES
Region	YES	YES
r2	0.262	0.262
N	96280	96280

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source. Author

Yet, it has to be noted that the use of research and development (R&D) data has some limitations. It is often misused for earnings management in Norway and particularly small firms dilute the picture. Furthermore, different accounting standards treat the capitalisation of R&D differently. Therefore, the composite investments has been split up in four different composites. The initial Inv1 composite remains the same to allow for comparison to the baseline model. The second composite Inv2 excludes R&D. The third composite Inv3 includes only tangible fixed assets and investments in subsidiaries. The fourth composite Inv4 includes tangible fixed assets and investments in associated companies. The fifth composite Inv5 only includes tangible fixed assets. With each of those composites, another regression analysis has been run. Nevertheless, the results remained very similar to the one outlined in Table 6.

Of course, the value in family firm decreased as components were excluded. Furthermore, the control variable accounting standard was not significant for composite four and five anymore. One of the explanations for this is that in certain industries where the total investment level is very low, family firms invest significantly more. This control for region would explain why

Table 7: Hypothesis Test Investments without Industry Control

	(1) Inv All	(2) Inv w/o R&D	(3) Inv w/o R&D associated	(4) Inv w/o R&D subsidiaries	(5) Inv tangible fixed assets
Family Firm	-11600.3 (16414.4)	-11009.2 (16414.1)	-10195.8 (16210.3)	-3326.0 (10497.5)	-2512.5 (10338.8)
After Crisis	7170.9 (8679.0)	6784.0 (8678.8)	6832.5 (8601.8)	4441.1 (4053.4)	4489.5 (4006.7)
Log Age	-13385.6 (12060.9)	-13215.3 (12058.5)	-13440.2 (11929.7)	-17855.9** (5664.1)	-18080.7** (5589.9)
Sales	0.556*** (0.089)	0.556*** (0.089)	0.550*** (0.088)	0.385*** (0.062)	0.379*** (0.061)
Accounting Standard	1678619.4*** (269984.4)	1672661.8*** (270078.2)	1635877.3*** (266895.9)	56281.6 (58858.5)	19497.0 (56892.8)
Industry	NO	NO	NO	NO	NO
Region	YES	YES	YES	YES	YES
r ²	0.231	0.230	0.230	0.349	0.346
N	96584	96584	96584	96584	96584

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source. Author

the overall mean of family firms is lower whilst at the same time the variable family firm has a significant positive coefficient, because it is controlled for industry.

Table 7 shows that the coefficient for the variable family firm has changed considerably when the model is not controlled for industry anymore. It actually turned negative, as expected by the theory. However, it is also not significant anymore. Therefore, the explanation that the industry control variable is responsible for the reverted sign is only one part of the solution. The test results including the interaction term, which is also not significant, can be seen in Table 8.

Table 8: Amended Hypothesis Test Investments with Interaction Term

	(1) Inv1	(2) Inv2	(3) Inv3	(4) Inv4	(5) Inv5
Family Firm	-3973.5 (14488.0)	-3835.0 (14488.7)	-2730.4 (14291.5)	-2017.2 (8913.9)	-912.5 (8816.1)
After Crisis	14050.9 (18683.9)	13255.6 (18683.5)	13566.8 (18482.8)	5621.7 (9411.2)	5932.8 (9285.3)
Interaction Terms	-12204.7 (18434.4)	-11480.3 (18433.7)	-11946.3 (18204.2)	-2094.4 (9768.6)	-2560.4 (9625.9)
Log Age	-13417.1 (12056.0)	-13245.1 (12053.6)	-13471.1 (11925.3)	-17861.3** (5653.8)	-18087.3** (5580.0)
Sales	0.556*** (0.0892)	0.556*** (0.0892)	0.550*** (0.0881)	0.385*** (0.0615)	0.379*** (0.0607)
Accounting Standard	1678640.3*** (269988.6)	1672681.5*** (270082.4)	1635897.8*** (266900.3)	56285.2 (58865.0)	19501.4 (56899.5)
Industry	NO	NO	NO	NO	NO
Region	YES	YES	YES	YES	YES
r ²	0.231	0.230	0.230	0.349	0.346
N	96584	96584	96584	96584	96584

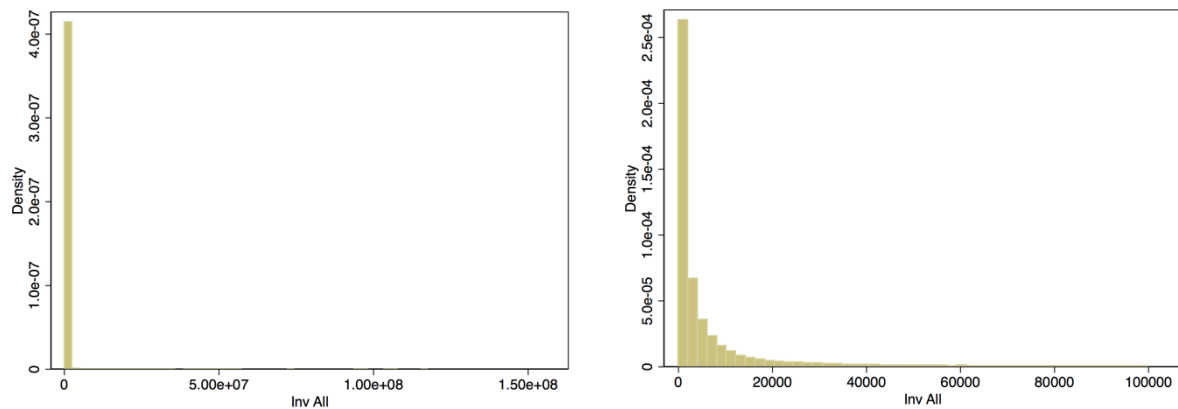
Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source. Author

Another explanation could be that there are outlier values that influence the regression to such a degree, that no significance can be detected. When looking at the histogram of the Inv1 variable on the left part in Figure 9, it becomes obvious that there are few companies that have vast stocks of investments. By cutting the top five percent a somewhat more normally distributed picture evolves as illustrated in the right part of Figure 9.

Figure 10: Histogram Inv1



Source. Author

If the regression model is applied on this outlier-corrected dataset the outcome resembles a result set that comes closer to what can be expected as seen in Table 9.

Table 9: Hypothesis Test Investment Outlier Corrected

	(1) Inv All	(2) Inv w/o R&D	(3) Inv w/o R&D associated	(4) Inv w/o R&D subsidiaries	(5) Inv tangible fixed assets
Family Firm	-3411.5*** (181.9)	-3287.1*** (179.2)	-3227.4*** (175.3)	-2760.2*** (155.3)	-2700.5*** (151.6)
After Crisis	136.8 (92.72)	44.58 (91.56)	36.97 (89.94)	-87.13 (81.10)	-94.74 (79.68)
Log Age	2124.1*** (86.67)	2144.9*** (85.66)	2083.2*** (84.29)	1839.5*** (75.16)	1777.8*** (73.89)
Sales	0.004* (0.002)	0.004 (0.002)	0.004 (0.002)	0.003 (0.002)	0.003 (0.002)
Accounting Standard	19557.0*** (2051.4)	16506.2*** (1888.7)	15232.9*** (1865.3)	7441.8*** (1340.1)	6168.5*** (1302.7)
Industry	YES	YES	YES	YES	YES
Region	YES	YES	YES	YES	YES
r ²	0.172	0.171	0.170	0.185	0.183
N	91476	91476	91476	91476	91476

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source. Author

The family firm status has now a significant negative impact on the average investment as argued in the theory. Interesting is, that firms seem to have a higher Inv1, Inv2 and Inv3

composite after the crisis but not a higher Inv4, and Inv5 composite. However, since these coefficients are not statistically significant, a further discussion is omitted. Table 10 shows the results with the interaction term.

Table 10: Hypothesis Test Investment Outlier Corrected with Interaction Term

	(1) Inv1	(2) Inv2	(3) Inv3	(4) Inv4	(5) Inv5
Family Firm	-3441.5*** (201.8)	-3411.2*** (199.1)	-3353.3*** (195.0)	-2961.8*** (173.9)	-2903.9*** (170.1)
After Crisis	108.6 (172.0)	-71.88 (169.0)	-81.23 (166.4)	-276.4 (148.8)	-285.8 (146.5)
Interaction Terms	48.27 (193.0)	199.3 (190.3)	202.3 (187.2)	323.9 (168.2)	326.9* (165.4)
Log Age	2124.2*** (86.65)	2145.4*** (85.64)	2083.8*** (84.27)	1840.4*** (75.14)	1778.7*** (73.88)
Sales	0.004* (0.002)	0.004 (0.002)	0.004 (0.002)	0.003 (0.002)	0.003 (0.002)
Accounting Standard	19556.5*** (2051.5)	16504.0*** (1888.6)	15230.7*** (1865.1)	7438.1*** (1339.6)	6164.8*** (1301.9)
Industry	YES	YES	YES	YES	YES
Region	YES	YES	YES	YES	YES
r2	0.172	0.171	0.170	0.185	0.183
N	91476	91476	91476	91476	91476

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source. Author

The coefficient for the interaction term is positive for all composites, which would indicate that family firms invest more after the crisis than non-family firms. This, however, is only significant for the tangible fixed assets. Given the negative coefficient for “after crisis” (NOK -94,740) from Table 9, the net effect would still be positive, meaning that family firms actually increase their stocks of tangible fixed assets after the crisis. Furthermore, the logage has a positive impact which means that the older a company is the higher its investment. As discussed in the methodology part, the accounting standard also plays a significant role. The results show that if the company uses IFRS it has, on average, NOK 19.56 million more investment assets (Inv1). The causality of this, however, cannot be inferred. Whether the companies have more investment assets because they use IFRS or whether they use IFRS

because they have more investment assets is unclear. The models have additionally been tested in several different variations such as not controlling for areas, including squared sales as additional control variable, excluding accounting standard as control measure et cetera. Yet, no meaningful results could be inferred.

Although the results from the outlier-corrected data show a more interesting outcome than the ones previously attained, it has to be mentioned that this is only because the data has been further manipulated. Obviously, it is not the goal of research to tweak data until a result can be shown that is in accordance with the theory. Hence, the results of the regression model after the data has been corrected for outliers is taken into consideration, but also the fact that this has the serious limitation of not taking outliers in account.

Another way of analysing investments is ratio-based. Therefore, the five investment composites were put in relation to the company's assets. This results in a new set of dependent variables. Each investment composite was divided by the company's assets for that year in order to compute the Investment on Assets (IOA) ratio 1-5. This gives a relative measure that shows how many percent of the assets are composed of investments for each company. Two observations needed to be dropped from the panel because one showed negative total assets in 2007 and one showed negative tangible fixed assets for the year 2012. These entries are deemed to be erroneous and therefore, not considered for the tests because their negative impact would be too critical.

Similarly to the total investment over time, the IOA does not seem to be negatively affected during the crisis as shown by Figure 11. However, after the crisis, investments tend to constitute a smaller amount to total assets. The key difference is that the mean IOA is higher for family firms as compared to non-family firms.

Both indications are confirmed by the tests results as displayed in Table 11. For all five IOA measures the variables family firm and after crisis are significant on a $p < 0.001$ level.

Figure 11: Mean Investments on Assets over Time



Source. Author

Table 11: Hypothesis Test IOA

	(1) IOA All	(2) IOA w/o R&D	(3) IOA w/o R&D associated	(4) IOA w/o R&D subsidiaries	(5) IOA tangible fixed assets
Family Firm	0.007*** (0.001)	0.008*** (0.001)	0.009*** (0.001)	0.014*** (0.001)	0.014*** (0.001)
After Crisis	-0.011*** (0.001)	-0.012*** (0.001)	-0.013*** (0.00126)	-0.016*** (0.001)	-0.016*** (0.001)
Log Age	0.028*** (0.001)	0.028*** (0.001)	0.027*** (0.001)	0.022*** (0.001)	0.0216*** (0.001)
Sales	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
Accounting Standard	0.165*** (0.011)	0.161*** (0.011)	0.146*** (0.011)	-0.033*** (0.007)	-0.048*** (0.007)
Industry	YES	YES	YES	YES	YES
Region	YES	YES	YES	YES	YES
r2	0.240	0.245	0.242	0.252	0.249
N	96572	96572	96572	96572	96572

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source. Author

This means that family firms indeed have a higher percentage of their assets devoted to what this paper coined as investment assets. This does not directly contradict the theory that family firms invest less because it is a relative measure. One explanation could be that family firms are run more efficiently and hence, have a lower working capital. Given the theory, however, this is not to be expected. Another, more reasonable explanation is that non-family firms might have a higher amount of goodwill. Goodwill is mainly accumulated through acquisitions. Since non-family firms are believed to engage more frequently in acquisitions than non-family firms, this would explain why investments constitute to a smaller relative amount to assets when compared to non-family firms. The variable of interest is, however, the interaction term. The results of the test with the interaction term can be found in Table 12. This term shows a very small negative coefficient for IOA 1 and a very small positive coefficient for all others. Yet, the statistical significance is not given for any of them. Hence, the investment ratio does also not allow for a conclusive statement.

Table 12: Hypothesis Test IOA with Interaction Term

	(1) IOA All	(2) IOA w/o R&D	(3) IOA w/o R&D associated	(4) IOA w/o R&D subsidiaries	(5) IOA tangible fixed assets
Family Firm	0.007*** (0.002)	0.008*** (0.002)	0.008*** (0.002)	0.013*** (0.002)	0.013*** (0.002)
After Crisis	-0.010*** (0.002)	-0.013*** (0.002)	-0.013*** (0.002)	-0.016*** (0.002)	-0.017*** (0.002)
Interaction Terms	-0.001 (0.003)	0.001 (0.002)	0.001 (0.002)	0.002 (0.002)	0.001 (0.002)
Log Age	0.028*** (0.001)	0.0282*** (0.001)	0.027*** (0.001)	0.022*** (0.001)	0.022*** (0.001)
Sales	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
Accounting Standard	0.165*** (0.011)	0.161*** (0.011)	0.146*** (0.011)	-0.033*** (0.007)	-0.048*** (0.007)
Industry	YES	YES	YES	YES	YES
Region	YES	YES	YES	YES	YES
r ²	0.240	0.245	0.242	0.252	0.249
N	96572	96572	96572	96572	96572

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source. Author

In order to give one last tool of analysis for the investment hypothesis, the four most important industries are analysed separately. These are construction, wholesale trade, retail and repairs, and other business services. Combined, they entail over 50% of all businesses in the census.

Figure 12 shows how the mean of the Inv1 composite changes over the years grouped together by family firms and non-family firms. Although it shows different movements in the different industries, it can be said that the one thing the four graphs have in common is that the family firm means barely show any changes.

Figure 12: Mean Investment by Industry



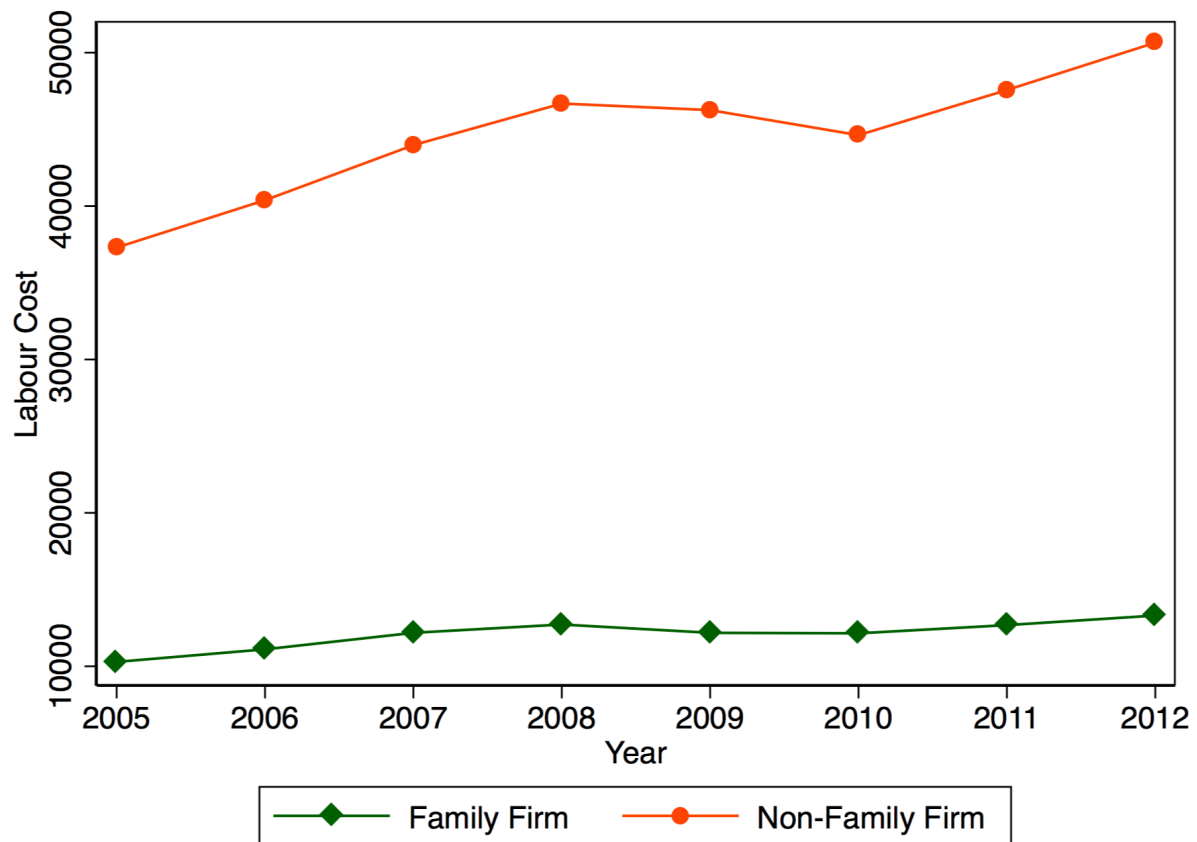
Source. Author

However, when tested for significance, the variables do not show any difference on a per-industry basis as compared to the results in Tables 7 and 8. Furthermore, the goal of this paper is to establish an economy-wide phenomena and not an industry-based one.

4.3 H3: Difference in Labour Cost Change

The third hypothesis analyses the workforce of a family firm during a recession. More specifically, it looks at how the labour cost changes from pre-crisis to post crisis. Thereby, it tries to verify that family firms are more long-term oriented and therefore, engage less in workforce downsizing than non-family firms.

Figure 13: Mean Labour Cost Over Time



Source. Author

Figure 13 shows how the mean labour cost for family firms and non-family firms changed over the years. The cost reach a peak in 2008 and then stagnate until 2010 before they start raising again. It is important to mention here that all labour costs are inflation adjusted to the 2005 base year. This means that the general upward trend is not based on inflation.

Table 13 gives the results from the regression model. It shows that family firms on average have lower labour cost. This can partly be explained by the fact that family employees, managers, and directors accept lower compensation packages because they profit additionally

from the employment as outlined in the theory. However, interestingly, the after crisis coefficient indicates that the labour cost are higher after the crisis. This is counter intuitive. Yet, Figure 13 shows that especially the non-family firms show on average a remarkable increase in labour cost before the crisis. This explains why the mean before the crisis is lower than the mean after the crisis.

Table 13: Hypothesis Test Labour Cost Difference

	(1) Labour Cost	(2) Labour Cost	(3) Labour Cost
Family Firm	-15808.0*** (1050.3)	-7516.0*** (1091.9)	-7090.3*** (1209.5)
After Crisis	1671.0** (637.5)	250.9 (572.1)	634.7 (1251.9)
Interaction Terms			-680.1 (1261.0)
Log Age	3549.4*** (845.7)	1705.4* (702.2)	1703.7* (701.8)
Sales	0.049*** (0.006)	0.108*** (0.008)	0.108*** (0.008)
Sales Squared		-0.000*** (0.000)	-0.000*** (0.000)
Accounting Standard	208459.4*** (29192.7)	175804.9*** (24674.9)	175809.4*** (24674.3)
Industry	YES	YES	YES
Region	YES	YES	YES
r ²	0.319	0.449	0.449
N	96280	96280	96280

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source. Author

The interaction term, not significant, indicates that family firms after the crisis have a lower labour cost, on average. In fact, comparing the numbers from after crisis and interaction term, it becomes clear that family firms nearly have the same labour cost after the crisis then before the crisis. This, if it was statistically significant, would be as expected by the theory. Now the reason why non-family firms have higher average labour costs after the crisis can be manifold. Additionally to the fact brought forward above, Figure 13 shows that there is a decrease in labour cost after 2008. This can mean that people were laid off during the recession. Engaging

in hiring activities after the crisis would then lead to increased labour cost. However, since there is no record of number of employees per company, this cannot be proven.

The remaining variables show that the age has a positive impact on labour cost. This means that older companies have higher labour cost. There is also a link between sales and labour cost. Sales has a positive but diminishing marginal effect on labour cost. This is shown by the positive coefficient of sales and the negative coefficient of the squared sales volume. The r-squared value for this model is also remarkably high. It shows that the variables in the model explain nearly 45% of the variation. Nevertheless, due to statistical insignificance of the two major variables, after crisis and interaction term, the model does not give much insight into the family firm performance explanation.

In order to allow for more inference from the labour cost, the panel was trimmed to exclude outliers. The results are listed in Table 14.

Table 14: Hypothesis Test Labour Cost Difference Outlier Corrected

	(1) Labour Cost	(2) Labour Cost
Family Firm	-5226.7*** (177.2)	-5073.6*** (192.2)
After Crisis	544.6*** (95.75)	687.3*** (185.5)
Interaction Terms		-245.4 (203.2)
Log Age	1387.4*** (89.24)	1386.5*** (89.16)
Sales	0.024*** (0.003)	0.024*** (0.003)
Sales Squared	-0.000*** (0.000)	-0.000*** (0.000)
Accounting Standard	11494.8*** (1337.7)	11500.0*** (1338.2)
Industry	YES	YES
Region	YES	YES
r ²	0.233	0.233
N	92270	92270

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source. Author

The most remarkable difference is that the after crisis variable has become significant. Hence, companies do indeed spend more in the years after 2008 as compared to before 2008. However, if the panel is trimmed further to only include the years 2007 until 2010, this significance vanishes again and the value even turns negative. This would indicate that in the light of the crisis the labour cost is lower than in the year 2007 if it was significant. To see whether significance could be achieved the threshold for the post variable has been changed to 2007. Yet, this does not result in any changes in respect of the significance.

Another way of analysing labour costs is ratio-based. Therefore, the labour cost is put in relation to the company's sales. This results in a new dependent variable. This ratio is computed by dividing the labour cost by the company's sales and is labelled Labour Cost on Sales (LOS). This gives a relative measure that shows how much of the company's sales are spent on labour. It basically says how many dollars are spent on labour for each dollar of sales. The census needed to be adapted for this measure because some companies showed negative sales in certain periods and other companies have immensely high labour cost compared to their sales volume. Therefore, the window for the LOS ratio was set between 0 and 1.5. This excludes merely 2.9% of the total observations.

The results from Table 15 show that family firms spend a miniscule higher amount on labour cost on every sales dollar attained. The more interesting number is the coefficient for the after-crisis variable. This means that after the crisis the LOS ratio decreased by one percentage point. Since it is a ratio, this can either be due to increasing sales or decreasing labour cost. Decreasing sales are one of the indicators for a crisis and therefore, the increasing sales revenue case can be excluded. Therefore, the decrease in LOS can be interpreted as a decrease in labour cost for every dollar of sales attained. The ratio is basically an inverse efficiency measure and the decrease of this measure shows that firms became more efficient. In other words, using less labour to attain the same number of sales. Similar to the base model of hypothesis number three, however, the interaction term does not show any significance. A positive coefficient, if significant, would mean that family firms have higher labour costs per sales after the crisis compared to non-family firms. This is what would be expected from the theory. Yet, it cannot be substantiated by the results.

Table 15: Hypothesis Test Labour Cost on Sales

	(1) Labour on Sales	(2) Labour on Sales	(3) Labour on Sales
Family Firm	0.007*** (0.001)	0.004*** (0.001)	0.002 (0.002)
After Crisis	-0.010*** (0.001)	-0.009*** (0.001)	-0.011*** (0.002)
Interaction Terms			0.004 (0.002)
Log Age	0.004*** (0.001)	0.005*** (0.001)	0.005*** (0.001)
Sales	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
Sales Squared		0.000*** (0.000)	0.000*** (0.000)
Accounting Standard	0.051*** (0.011)	0.064*** (0.011)	0.064*** (0.011)
Industry	YES	YES	YES
Region	YES	YES	YES
r2	0.346	0.352	0.352
N	93490	93490	93490

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source. Author

As a summary, it can be said that the labour cost for non-family firms is higher than for family firms in absolute terms. Due to the general upwards trend of labour cost, the post crisis level is higher compared to the pre-crisis level. Yet, there is no significance of the average treatment effect, and therefore, the third hypothesis cannot be verified.

5. Discussion

Most of the analysis outcomes have already been discussed in the results section. This part, therefore, takes a more general approach by taking one step back and looking at the research question. The results will be discussed in that aspect before touching upon limitations of the research and what changes would be expected if more suitable data would be the basis for analysis.

The research clearly shows that there is a difference in performance change between family firms and non-family firms in the light of a crisis. The first model exemplifies that in general, firm performance is worse after a crisis. This results from the decrease in demand and the resulting vicious circle that comes with it. However, interestingly, performance of family firms is significantly better when compared to the performance of non-family firms. They still perform worse compared to pre-crisis levels, but better than their non-family peers. According to the perpetual model, as outlined in the theory, this better performance leads family firms not only to recover faster from the crisis but also to be better prepared for a future crisis.

There are several reasons why family firms are expected to perform better. The main premise is that they are willing to forgo some of the SEW preservation in order to save the company. Not only do they have a higher motivation to sustain the company because they have vested their financial capital and also their emotional capital in the company, but also do they have a better starting point to lead a successful recovery. A key point is the kinship relationship with stakeholders. This allows them to work closely together during a shakedown. Hence, they benefit from preferential access to resources. This is not restricted to their products / services but is also valid for financial resources from financiers.

On a more tangible level, family firms are expected to be in a beneficial position at the end of a crisis because they invest more during a crisis and let go fewer employees. Although this results in similar outcomes, it has two different rationales. The investment reasoning starts with the presumption that family firms have a lower risk tolerance and, therefore, invest less during normal times. This risk averseness turns into risk seeking however, in the light of a crisis. The reason is that the whole family endeavour is at stake. The higher investment during the crisis leads family firms in a favourable position once demands starts increasing again. They are able to respond to market needs faster than their non-family competitors. Another

reason why they can do so is because family firms are expected to engage less in workforce downsizing. The reason for this, however, is not the risk preference. It is more rooted in the SEW dimension. Family firms have long-term relationships with their stakeholders and have a reputation to lose. Furthermore, family firms often engage in altruistic project and aim to be a good corporate citizen. Therefore, they refrain from workforce downsizing.

In the second and third hypothesis, these two behaviours were analysed for family firms in Norway. Since no specific data was readily available, the two behaviours were approximated by proxies. The results are rather ambiguous and unfortunately, often no clear conclusions can be drawn. Depending on how the data is manipulated, family firms show more or less investments than non-family firms. In the baseline models, family firms have significantly higher investments. If this model is not controlled for industry anymore or if outliers are excluded from the analysis, non-family firms show higher investments. No conclusive answer can be derived from the effect of the crisis. Neither whether the crisis reduced investment spending nor whether either group of firms invested significantly more or less than the other after the crisis. The employment of the Investment on Assets ratio gave some more insight. It showed that after the crisis investments as compared to total assets decreased. This means that investments per se might not have decreased, but if compared to the firms' assets, there is a drop after the crisis. However, again no inference from group-specific behaviour can be drawn.

The third hypothesis analyses labour cost and also indicates mixed results. It clearly shows that non-family firms have higher labour cost than family firms. It also reveals that firms tend to have higher labour costs after the crisis than before the crisis. This, however, is expected to be largely dependent on the average increase in labour cost over time. Therefore, a critical evaluation of the proxy labour cost will be given in the section about the appropriateness of the measures. The labour cost analysis gives no indication about group-specific differences. Hence, this explanation for a better recovery of family firms is also deemed to be invalid.

This means that there is a significant effect for the main model that answers the research question, but no significance in either model that try to explain the effect. This can have one of two reasons. Either the effect is not explained by the two dimensions investment and employee retention solely but also by other effects that were explained in the theory but not analysed in the models. This could include other stakeholder relations, access to capital et

cetera. Since both models look at measures that are linked to long-term orientation, it is worthwhile to investigate cultural dimensions of Norway to see whether there could be an idiosyncratic reasoning to why these two measures are not observed in Norway. When looking at Hofstede's work about cultural value dimensions across nations, it is the long-term orientation that could explain deviant observations. Norway scores at 35 for this dimension. This is a relatively low score and shows that the Norwegian culture is more normative than pragmatic. People in such societies exhibit great respect for traditions, a relatively small propensity to save for the future, and a focus on achieving quick results (Hofstede, Hofstede, & Minkov, 2010). This indeed could be a reason why the two measures, investments and employee retention, are not as pronounced as they are expected to be by the theory.

The other reason is that there would actually be a link but the model does not show one. This is called a type two error in research studies. It is the failure to reject a false null hypothesis (Peck & Devore, 2012). There are several reasons why the null hypothesis cannot be rejected. One of them is the use of inaccurate predictors for the effect. The appropriateness of the data used will be discussed in the next section about limitations of the research. Here it is important to mention that regardless whether there is no effect of investments and employee retention on superior post crisis performance of family firms or whether a type two error is present in the model, the main effect has statistically been established. Together with the strong predictions from the literature review section this result is deemed to be relevant and correct.

5.1 Limitations of Research

There are several factors that set limitations to this research. They are all outlined in this chapter individually and expected changes to the outcomes are given.

The first limitation concerns the data on family ownership. There are two limitations in that respect. First family ownership was computed based on the components of involvement approach. Hence, all companies that have one owner or multiple owners with the same last name with ownership stakes exceeding 50 percent are considered to be family firms. A more contemporary method would be to use the essence approach. It is an approach with a theoretical basis for explaining why family involvement in a business leads to behaviours and outcomes that differ from non-family firms. Yet, for analysing family firm specific effects it

might be somewhat tautological. One part of the essence approach describes family firms as firms that show family firm specific behaviour. When this behaviour is investigated and whether it differs from family firms to non-family firm, it is per-construct the case and hence, tautology is observed. However, the essence approach looks, next to family firm behaviour, also at the family's influence in decision making, the family's intention to keep control, and unique resources and capabilities arising from family involvement and interactions. Therefore, if the essence approach had been used, the outcome is expected to change in its significance. This means that the narrower definition of family firms should increase the significance of the outcomes. This is not a problem for the first hypothesis as it is significant either way. However, it might change the significance of the interaction term for hypothesis two and three where no significance was observed.

The second problem with the family ownership data is the time-restriction. The data was only delivered for the year 2012. This means that family firms that went bankrupt during the crisis are not considered in the data. To solve this bias, all the firms that went bankrupt during the crisis are not considered. This has a severe impact on the analysis because it artificially elevates the average returns. However, because all firms are excluded it is not biased towards family firms. In fact, the outcome of hypothesis one is expected to show even a higher divergence between family firms and non-family firms if data for all years would be given. Reason for that is because the theory predicts that more non-family firms would go bankrupt than family firms. Since the interaction term is already significant, the interpretation of the result would not change. Hence, this limitation is believed to be overcome by the manipulation of the data.

The second limitation concerns the data for the dependent variables. As already discussed in the methodology section, there are some considerations when using ROA as dependent variable. Furthermore, the dependent variables for hypothesis two and three also have their limitations. They are both proxies of the underlying effect. For hypothesis two there is an investment composite as built together using a combination of different investment specific asset stocks. This is used to approximate the investment behaviour of the firms. Yet, it has to be noted that these assets are not a perfect indicator. First, different asset categories underlie different accounting regulations depending on what standard is used. Second, especially the R&D asset is rather inaccurate for Norway as discussed before. In order to counteract these

particularities, the investment composite was adapted and five different composites were used in the model. Nevertheless, no significance could be found. It is difficult to find a good proxy for investments because an increase in a specific asset stock might be an investment for one company but it could have a different reason for another company. However, if there was a perfect measure for investment, the results of the hypothesis two model would be expected to be significant as reasoned in the theoretical background, because it would result in a smaller standard error what directly affects the significance.

A somewhat similar story goes for the employee retention hypothesis. The proxy for this behaviour is payroll expenses. Although it typically follows the number of employees, it has its limitations. For one it is not obvious how many employees a company has at any time. Furthermore, it does not reflect fluctuations. Companies might have let go some employees and hired other employees from the job market that is normally not efficient during a crisis. This would result in similar payroll expenses, although there was a fluctuation. The best indicator to observe the underlying effect of hypothesis three would be the total number of employees and number of employees that were let go and hired for every period. This way the model for hypothesis three could be set up differently and it is expected that non-family firms let go and hire more people than family firms. This turmoil and loss of knowledge could be one reason that explains the outcome of hypothesis one. Additionally, this change of workforce in non-family firms, if existing, would result in an additional investment component for family firms. Since the labour market is inefficient during crises, employees can be hired for a lower salary. This means that if a company does not engage in labour arbitrage, it invests in its workforce, and is therefore, expected to have better post-crisis results.

Regardless of those limitations, the research methods are deemed to be appropriate given the data available. Although there are a number of limitations, their impact on the findings have been discussed extensively and it is not expected that the main finding would change if different data was available.

6. Conclusion

This research has two main fields of implications. The first is the practical field of use and the second is the theoretical field. In terms of practical applicability, the findings from this research can be used in two ways. First, it should indicate policymakers the importance of family firms for national economies. If, on a very abstract level, two countries are compared where country A only has family firms and country B only has non-family firms this importance becomes obvious. Given the results from this research and assuming *ceteris paribus*, country A's economy would recover faster from the crisis compared to country B's. The theory elaborated that business cycles are repeating events. Hence, the perpetuity of these events indicates that the post-performance level of one cycle is the pre-performance level of the next cycle. Consequently, a faster recovery of the family firm, or country A's economy in this example, leads to a better stand point when the next crisis arrives. This has an aggregating effect because country A's economy would continuously outperform country B's economy. On top of that it has to be considered that crises occur in shorter time intervals. This means that the recovery period after a crisis is shorter and therefore, the post-crisis performance has a higher impact. Although this is a very abstract example, it should show the importance of family firms. The second practical implication is for non-family firm managers. Brauer (2013) shows that non-family firms can mimic traits of family firms and that this pays off. Hence, if non-family firms would engage more alike family firms, they could increase their resilience for crises.

In terms of theoretical application this research adds to an existing thread of family firm and SEW research. It firstly gives a thorough literature review and incorporates models from different fields that allow for an application of SEW to crises. Secondly, it answers to the quest from Minichilli et al. (2016) and Smith (2016) who recommend SEW specific research in other cultural contexts.

This thesis can also be the basis for future research. The research design was able to identify an effect of family ownership on post-crisis performance. The underlying rationales for this link, however, could not be identified. Hence, a future study could work out a different set of indicators to find such a link. Furthermore, it could be interesting whether other forms of ownership such as for example partnerships, have a similar effect on post-crisis performance.

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Appendix A: STATA Code

**** Data Compilation**

```
use "/Users/Sam/Desktop/Data/STATA/family_ownership.dta", clear
destring orgnr, replace
format %12.0g orgnr
duplicates drop orgnr, force
drop sex_u
label variable eierandel_u_fam "familyfirm"
rename eierandel_u_fam familyfirm
replace familyfirm = 1 if familyfirm >= 0.5
save "/Users/Sam/Desktop/Data/STATA/family_ownership.dta", replace

use "/Users/Sam/Desktop/Data/STATA/Foretak_Bransje_2005.dta"
merge 1:1 orgnr using "/Users/Sam/Desktop/Data/STATA/rskap0616_sel_2005.dta"
drop if _merge != 3
drop _merge
recast long orgnr
merge 1:1 orgnr using "/Users/Sam/Desktop/Data/STATA/family_ownership.dta"
drop if _merge == 2
save "/Users/Sam/Desktop/Data/STATA/compilation.dta"
```

*** Data import**

clear

use "/Users/Sam/Desktop/Data/STATA/compilation.dta"

```
keep orgnr aar driftsrs aarsrs ordres sumeiend fou vardrmdl invdtr andrinv ifrs ///
lonnsos bransjek_02_2s selskf stiftaar salgsinn landsdel familyfirm ek
```

```
label variable aar "Year"
label variable driftsrs "Operating Profit"
label variable aarsrs "Profit"
label variable ordres "Profit excluding Extraordinary"
label variable sumeiend "Total Assets"
label variable fou "R&D"
label variable vardrmdl "Tangible Fixed Assets"
label variable invdtr "Investments Subsidiaries"
label variable andrinv "Investments Associated"
label variable ifrs "Accounting Standard"
label variable lonnsos "Labour Cost"
label variable bransjek_02_2s "Industry"
label variable selskf "Incorporation Category"
label variable stiftaar "Incorporation Year"
label variable salgsinn "Sales"
label variable landsdel "Region in Norway"
label variable ek "Total Equity"
```

***Selection Criteria**

```
drop if salgsinn<9705
drop if lonnsos<2911
keep if inlist(selskf, "AS", "ASA", "ANS", "DA")
drop if inlist(bransjek_02_2s, 1, 2, 65, 66, 67, 75, 80, 85, 90, 91, 92, 99)
```

```
append using "/Users/Sam/Desktop/Data/STATA/rskap0616_sel_2006.dta", keep(orgnr aar driftsrs
aarsrs ordres sumeiend fou vardrmdl invdtr andrinv lonnsos salgsinn ek)
```

```

append using "/Users/Sam/Desktop/Data/STATA/rskap0616_sel_2007.dta", keep(orgnr aar driftsrs
aarsrs ordres sumeiend fou vardrmdl invdtr andrinv lonnsos salgsinn ek)
append using "/Users/Sam/Desktop/Data/STATA/rskap0616_sel_2008.dta", keep(orgnr aar driftsrs
aarsrs ordres sumeiend fou vardrmdl invdtr andrinv lonnsos salgsinn ek)
append using "/Users/Sam/Desktop/Data/STATA/rskap0616_sel_2009.dta", keep(orgnr aar driftsrs
aarsrs ordres sumeiend fou vardrmdl invdtr andrinv lonnsos salgsinn ek)
append using "/Users/Sam/Desktop/Data/STATA/rskap0616_sel_2010.dta", keep(orgnr aar driftsrs
aarsrs ordres sumeiend fou vardrmdl invdtr andrinv lonnsos salgsinn ek)
append using "/Users/Sam/Desktop/Data/STATA/rskap0616_sel_2011.dta", keep(orgnr aar driftsrs
aarsrs ordres sumeiend fou vardrmdl invdtr andrinv lonnsos salgsinn ek)
append using "/Users/Sam/Desktop/Data/STATA/rskap0616_sel_2012.dta", keep(orgnr aar driftsrs
aarsrs ordres sumeiend fou vardrmdl invdtr andrinv lonnsos salgsinn ek)

```

```

forvalues aar = 2005/2012 {
    gen todrop = 1 if aar==`aar'
    by orgnr (todrop), sort: replace todrop = todrop[_n-1] if missing(todrop)
    drop if todrop!=1
    drop todrop
}

```

*Complete Panel

```

by orgnr (familyfirm), sort: replace familyfirm = familyfirm[_n-1] if missing(familyfirm)
replace familyfirm=0 if missing(familyfirm)

by orgnr (stiftaar), sort: replace stiftaar = stiftaar[_n-1] if missing(stiftaar)
by orgnr (landsdel), sort: replace landsdel = landsdel[_N] if missing(landsdel)
by orgnr (selskf), sort: replace selskf = selskf[_N] if missing(selskf)
by orgnr (ifrs), sort: replace ifrs = ifrs[_n-1] if missing(ifrs)
by orgnr (bransjek_02_2s), sort: replace bransjek_02_2s = bransjek_02_2s[_n-1] if
missing(bransjek_02_2s)

```

```

replace landsdel = "1" if landsdel== "ØSTVIKEN"
replace landsdel = "2" if landsdel== "INNLANDET"
replace landsdel = "3" if landsdel== "VEST-VIKEN"
replace landsdel = "4" if landsdel== "SØRLANDET"
replace landsdel = "5" if landsdel== "VESTLANDET"
replace landsdel = "6" if landsdel== "TRØNDELAGE"
replace landsdel = "7" if landsdel== "NORD-NORGE"
destring landsdel,replace

```

```
sort orgnr aar
```

```
save "/Users/Sam/Desktop/Data/STATA/Panel.dta",replace
```

```
*****
```

* Start

```

clear
capture log close
set more off

```

```
cd "/Users/Sam/Desktop/Data/STATA/Analysis"
```

```
ssc install estout
```

* Set graphic scheme

```
set scheme slcolor
```

* Import Data

use "/Users/Sam/Desktop/Data/STATA/Panel.dta"

* Prepare data

 *Performance

gen ROA = aarsrs / sumeiend
label variable ROA "Total Return on Assets"

gen oROA = driftsrs / sumeiend
label variable oROA "operating Return on Assets"

 *Investments

gen Inv1 = fou+vardrmdl+invdtr+andrinv
label variable Inv1 "Inv All"
gen Inv2 = vardrmdl+invdtr+andrinv
label variable Inv2 "Inv w/o R&D"
gen Inv3 = vardrmdl+invdtr
label variable Inv3 "Inv w/o R&D associated"
gen Inv4 = vardrmdl+andrinv
label variable Inv4 "Inv w/o R&D subsidiaries"
gen Inv5 = vardrmdl
label variable Inv5 "Inv tangible fixed assets"

gen IOA1 = Inv1 / sumeiend
label variable IOA1 "IOA All"
gen IOA2 = Inv2 / sumeiend
label variable IOA2 "IOA w/o R&D"
gen IOA3 = Inv3 / sumeiend
label variable IOA3 "IOA w/o R&D associated"
gen IOA4 = Inv4 / sumeiend
label variable IOA4 "IOA w/o R&D subsidiaries"
gen IOA5 = Inv5 / sumeiend
label variable IOA5 "IOA tangible fixed assets"

 *Labour

replace lonnsos = lonnsos * 0.9774 if aar == 2006
replace lonnsos = lonnsos * 0.9705 if aar == 2007
replace lonnsos = lonnsos * 0.9352 if aar == 2008
replace lonnsos = lonnsos * 0.9155 if aar == 2009
replace lonnsos = lonnsos * 0.8936 if aar == 2010
replace lonnsos = lonnsos * 0.8821 if aar == 2011
replace lonnsos = lonnsos * 0.8765 if aar == 2012

gen LOS = lonnsos / salgsinn
label variable LOS "Labour on Sales"

 *Dummy Variables

gen post = 1 if aar>2007
label variable post "After Crisis"
replace post = 0 if missing(post)

lab var familyfirm "Family Firm"

gen effect = post*familyfirm
label variable effect "Interaction Terms"

```

*Control Variables

gen age = (aar - stiftaar) + 1
label variable age "Copmany Age"

gen logage = log(age)
label variable logage "Log Age"

gen logsales = log(salgsinn + 5200)
label variable logsales "Log Sales"

gen sales2 = salgsinn^2
label variable sales2 "Sales Squared"

gen finlev = sumeiend/ek
label variable finlev "Financial Leverage Ratio"

append using "/Users/Sam/Desktop/Data/STATA/2004 ROA oROA.dta", keep(orgnr aar ROA oROA)
by orgnr (aar), sort: gen ROAlag = ROA[_n-1] if aar==aar[_n-1]+1
label variable ROAlag "ROA previous Year"
replace ROA=0 if missing(ROA)
drop if aar==2004

save "/Users/Sam/Desktop/Data/STATA/readyforanalysis.dta",replace

*****

**** Analysis

* Import Data

use "/Users/Sam/Desktop/Data/STATA/readyforanalysis.dta"

* Hypothesis I (ROA)

    * Graph I

        * Standard deviation Trimming
drop if ROA > 2.0070856
drop if ROA < -1.86247534

preserve

collapse (mean) ROA, by (aar familyfirm)
twoway (connected ROA aar if familyfirm==1, msymbol(D)) ///
      (connected ROA aar if familyfirm==0, msymbol(O)), ///
      xtitle (Year) ///
      xlabel(2005(1)2012) ///
      ytitle(mean Return on Assets (ROA)) ///
      yscale(range(0 0.1)) ///
      ylabel(0(0.02)0.1) ///
      legend(label(1 "Family Firm") label(2 "Non-Family Firm"))

restore

* Regression

reg ROA familyfirm post effect i.bransjek_02_2s logage salgsinn finlev ifrs i.landsdel ROAlag,
r

* Output table H1.1

```

```
reg ROA familyfirm post i.bransjek_02_2s logage salgsinn finlev ifrs i.landsdel ROAlag, r
estadd local Industry = "YES"
estadd local Region = "YES"
estimates store Name
esttab Name using reg_H1_1.rtf, se replace title("Hypothesis Test") ///
keep(familyfirm post logage salgsinn finlev ROAlag ifrs) label s(Industry Region r2 N)

* Output table H1.2

reg ROA familyfirm post effect i.bransjek_02_2s logage salgsinn finlev ifrs i.landsdel ROAlag, r
estadd local Industry = "YES"
estadd local Region = "YES"
estimates store Name
esttab Name using reg_H1_2.rtf, se replace title("Hypothesis Test") ///
keep(familyfirm post effect logage salgsinn finlev ROAlag ifrs) label s(Industry Region r2 N)

* Output table wiht oROA

reg ROA familyfirm post effect i.bransjek_02_2s logage salgsinn ifrs i.landsdel ROAlag, r
estadd local Industry = "YES"
estadd local Region = "YES"
eststo m1

reg oROA familyfirm post effect i.bransjek_02_2s logage salgsinn ifrs i.landsdel ROAlag, r
estadd local Industry = "YES"
estadd local Region = "YES"
eststo m2

esttab m1 m2 using reg_H1.2.rtf, se replace title("Hypothesis Test") ///
keep(familyfirm post effect logage salgsinn ROAlag ifrs) label s(Industry Region r2 N)

* Hypothesis I.II (oROA)

* Graph 1.2

preserve

collapse (mean) oROA, by (aar familyfirm)
twoway (connected oROA aar if familyfirm==1, msymbol(D)) (connected oROA aar if familyfirm==0,
msymbol(O)), ///
legend(label(1 "Family Firm") label(2 "Non-Family Firm"))

restore

* Regression

reg oROA familyfirm post effect i.bransjek_02_2s logage salgsinn ifrs i.landsdel ROAlag, r

* Output table H1.2

reg oROA familyfirm post effect i.bransjek_02_2s logage salgsinn ifrs i.landsdel ROAlag, r
estadd local Industry = "YES"
estadd local Region = "YES"
estimates store Name
esttab Name using reg_H1.rtf, se replace title("Hypothesis Test") ///
keep(familyfirm post effect logage salgsinn ROAlag ifrs) label s(Industry Region r2 N)

*****
```

* Hypothesis II (Investments)

```
reg IOA5 familyfirm post effect i.bransjek_02_2s logage salgsinn ifrs i.landsdel, r

reg Inv1 familyfirm post effect i.bransjek_02_2s logage salgsinn ifrs i.landsdel, r
reg Inv2 familyfirm post effect i.bransjek_02_2s logage salgsinn ifrs i.landsdel, r
reg Inv3 familyfirm post effect i.bransjek_02_2s logage salgsinn ifrs i.landsdel, r
reg Inv4 familyfirm post effect i.bransjek_02_2s logage salgsinn ifrs i.landsdel, r
reg Inv5 familyfirm post effect i.bransjek_02_2s logage salgsinn ifrs i.landsdel, r
```

* Graph II

```
preserve
collapse (mean) Inv1, by (aar familyfirm)
twoway (connected Inv1 aar if familyfirm==1, msymbol(D)) ///
      (connected Inv1 aar if familyfirm==0, msymbol(O)), ///
      xtitle (Year) ///
      xlabel(2005(1)2012) ///
      ytitle(Investments) ///
      legend(label(1 "Family Firm") label(2 "Non-Family Firm"))
restore
```

```
preserve
collapse (mean) IOA1, by (aar familyfirm)
twoway (connected IOA1 aar if familyfirm==1, msymbol(D)) ///
      (connected IOA1 aar if familyfirm==0, msymbol(O)), ///
      xtitle (Year) ///
      xlabel(2005(1)2012) ///
      ytitle(Investment on Assets) ///
      yscale(range(0 0.25)) ///
      ylabel(0(0.05)0.25) ///
      legend(label(1 "Family Firm") label(2 "Non-Family Firm"))
restore
```

```
preserve
collapse (mean) sumeiend, by (aar familyfirm)
twoway (connected sumeiend aar if familyfirm==1, msymbol(D)) ///
      (connected sumeiend aar if familyfirm==0, msymbol(O)), ///
      xtitle (Year) ///
      xlabel(2005(1)2012) ///
      ytitle(Investments) ///
      legend(label(1 "Family Firm") label(2 "Non-Family Firm"))
restore
```

* Graph by Industry

```
preserve
collapse (mean) Inv1, by (aar familyfirm bransjek_02_2s)
twoway (connected Inv1 aar if familyfirm==1 & bransjek_02_2s==45, msymbol(D)) ///
      (connected Inv1 aar if familyfirm==0 & bransjek_02_2s==45, msymbol(O)), ///
      xtitle (Year) ///
      xlabel(2005(1)2012) ///
      ytitle(Investments) ///
      yscale(range(0 30000)) ///
      ylabel(0(10000)30000) ///
      title(Construction) ///
      legend(label(1 "Family Firm") label(2 "Non-Family Firm")) saving(graph_Inv1_industry1,
replace)

collapse (mean) Inv1, by (aar familyfirm bransjek_02_2s)
```

```

twoway (connected Inv1 aar if familyfirm==1 & bransjek_02_2s==51, msymbol(D)) ///
      (connected Inv1 aar if familyfirm==0 & bransjek_02_2s==51, msymbol(O)), ///
      xtitle (Year) ///
      xlabel(2005(1)2012) ///
      ytitle(Investments) ///
      yscale(range(0 30000)) ///
      ylabel(0(10000)30000) ///
      title(Wholesale Trade) ///
      legend(label(1 "Family Firm") label(2 "Non-Family Firm")) saving(graph_Inv1_industry2,
replace)

collapse (mean) Inv1, by (aar familyfirm bransjek_02_2s)
twoway (connected Inv1 aar if familyfirm==1 & bransjek_02_2s==52, msymbol(D)) ///
      (connected Inv1 aar if familyfirm==0 & bransjek_02_2s==52, msymbol(O)), ///
      xtitle (Year) ///
      xlabel(2005(1)2012) ///
      ytitle(Investments) ///
      yscale(range(0 50000)) ///
      ylabel(0(10000)50000) ///
      title(Retail and Repairs) ///
      legend(label(1 "Family Firm") label(2 "Non-Family Firm")) saving(graph_Inv1_industry3,
replace)

collapse (mean) Inv1, by (aar familyfirm bransjek_02_2s)
twoway (connected Inv1 aar if familyfirm==1 & bransjek_02_2s==74, msymbol(D)) ///
      (connected Inv1 aar if familyfirm==0 & bransjek_02_2s==74, msymbol(O)), ///
      xtitle (Year) ///
      xlabel(2005(1)2012) ///
      ytitle(Investments) ///
      yscale(range(0 50000)) ///
      ylabel(0(10000)50000) ///
      title(Other Business Services) ///
      legend(label(1 "Family Firm") label(2 "Non-Family Firm")) saving(graph_Inv1_industry4,
replace)

graph combine graph_Inv1_industry1.gph graph_Inv1_industry2.gph graph_Inv1_industry3.gph
graph_Inv1_industry4.gph, ///
      cols(2) iscale (*.7)
graph export treatment_Inv1_robust.png, replace
restore

```

* Output table H2

```

reg Inv1 familyfirm post i.bransjek_02_2s logage salgsinn ifrs i.landsdel ROAlag ,r
estadd local Industry = "YES"
estadd local Region = "YES"
estimates store Inv1
esttab Inv1 using reg_H2_1.rtf, se replace title("Hypothesis Test") ///
keep(familyfirm post logage salgsinn ROAlag ifrs) label s(Industry Region r2 N)

reg Inv1 familyfirm post effect i.bransjek_02_2s logage salgsinn ifrs i.landsdel ROAlag,r
estadd local Industry = "YES"
estadd local Region = "YES"
estimates store Inv1
esttab Inv1 using reg_H2_2.rtf, se replace title("Hypothesis Test") ///
keep(familyfirm post effect logage salgsinn ROAlag ifrs) label s(Industry Region r2 N)

```

* Compiled Output table H2 normal

```

reg Inv1 familyfirm post effect i.bransjek_02_2s logage salgsinn ifrs i.landsdel,r
estadd local Industry = "YES"

```

```

estadd local Region = "YES"
eststo m1

reg Inv2 familyfirm post effect i.bransjek_02_2s logage salgsinn ifrs i.landsdel,r
estadd local Industry = "YES"
estadd local Region = "YES"
eststo m2

reg Inv3 familyfirm post effect i.bransjek_02_2s logage salgsinn ifrs i.landsdel,r
estadd local Industry = "YES"
estadd local Region = "YES"
eststo m3

reg Inv4 familyfirm post effect i.bransjek_02_2s logage salgsinn ifrs i.landsdel,r
estadd local Industry = "YES"
estadd local Region = "YES"
eststo m4

reg Inv5 familyfirm post effect i.bransjek_02_2s logage salgsinn ifrs i.landsdel,r
estadd local Industry = "YES"
estadd local Region = "YES"
eststo m5

esttab m1 m2 m3 m4 m5 using reg_H2_wIndustry.rtf, se replace title("Hypothesis Test") ///
keep(familyfirm post effect logage ifrs salgsinn) label s(Industry Region r2 N)

* Compiled Output table H2 without effect

reg Inv1 familyfirm post i.bransjek_02_2s logage salgsinn ifrs i.landsdel,r
estadd local Industry = "YES"
estadd local Region = "YES"
eststo m1

reg Inv2 familyfirm post i.bransjek_02_2s logage salgsinn ifrs i.landsdel,r
estadd local Industry = "YES"
estadd local Region = "YES"
eststo m2

reg Inv3 familyfirm post i.bransjek_02_2s logage salgsinn ifrs i.landsdel,r
estadd local Industry = "YES"
estadd local Region = "YES"
eststo m3

reg Inv4 familyfirm post i.bransjek_02_2s logage salgsinn ifrs i.landsdel,r
estadd local Industry = "YES"
estadd local Region = "YES"
eststo m4

reg Inv5 familyfirm post i.bransjek_02_2s logage salgsinn ifrs i.landsdel,r
estadd local Industry = "YES"
estadd local Region = "YES"
eststo m5

esttab m1 m2 m3 m4 m5 using reg_H2_oEffect.rtf, se replace title("Hypothesis Test") ///
keep(familyfirm post logage ifrs salgsinn) label s(Industry Region r2 N)

*** without Industry Control

reg Inv1 familyfirm post effect logage salgsinn ifrs i.landsdel,r
estadd local Industry = "NO"
estadd local Region = "YES"
eststo m1

```

```
reg Inv2 familyfirm post effect logage salgsinn ifrs i.landsdel,r
estadd local Industry = "NO"
estadd local Region = "YES"
eststo m2

reg Inv3 familyfirm post effect logage salgsinn ifrs i.landsdel,r
estadd local Industry = "NO"
estadd local Region = "YES"
eststo m3

reg Inv4 familyfirm post effect logage salgsinn ifrs i.landsdel,r
estadd local Industry = "NO"
estadd local Region = "YES"
eststo m4

reg Inv5 familyfirm post effect logage salgsinn ifrs i.landsdel,r
estadd local Industry = "NO"
estadd local Region = "YES"
eststo m5

esttab m1 m2 m3 m4 m5 using reg_H2_oIndustry.rtf, se replace title("Hypothesis Test") ///
keep(familyfirm post effect logage ifrs salgsinn) label s(Industry Region r2 N)

*** without effect without industry control

reg Inv1 familyfirm post logage salgsinn ifrs i.landsdel,r
estadd local Industry = "NO"
estadd local Region = "YES"
eststo m1

reg Inv2 familyfirm post logage salgsinn ifrs i.landsdel,r
estadd local Industry = "NO"
estadd local Region = "YES"
eststo m2

reg Inv3 familyfirm post logage salgsinn ifrs i.landsdel,r
estadd local Industry = "NO"
estadd local Region = "YES"
eststo m3

reg Inv4 familyfirm post logage salgsinn ifrs i.landsdel,r
estadd local Industry = "NO"
estadd local Region = "YES"
eststo m4

reg Inv5 familyfirm post logage salgsinn ifrs i.landsdel,r
estadd local Industry = "NO"
estadd local Region = "YES"
eststo m5

esttab m1 m2 m3 m4 m5 using reg_H2_oIndustryoEffect.rtf, se replace title("Hypothesis Test")
///
keep(familyfirm post logage ifrs salgsinn) label s(Industry Region r2 N)

*** without industry control without region control

reg Inv1 familyfirm post effect logage salgsinn,r
estadd local Industry = "NO"
estadd local Region = "NO"
eststo m1
```

```

reg Inv2 familyfirm post effect logage salgsinn,r
estadd local Industry = "NO"
estadd local Region = "NO"
eststo m2

reg Inv3 familyfirm post effect logage salgsinn,r
estadd local Industry = "NO"
estadd local Region = "NO"
eststo m3

reg Inv4 familyfirm post effect logage salgsinn,r
estadd local Industry = "NO"
estadd local Region = "NO"
eststo m4

reg Inv5 familyfirm post effect logage salgsinn,r
estadd local Industry = "NO"
estadd local Region = "NO"
eststo m5

esttab m1 m2 m3 m4 m5 using reg_H2_oIndRegion.rtf, se replace title("Hypothesis Test") ///
keep(familyfirm post effect logage salgsinn) label s(Industry Region r2 N)

* IOA Compiled Output table H2 without effect

reg IOA1 familyfirm post i.bransjek_02_2s logage salgsinn ifrs i.landsdel,r
estadd local Industry = "YES"
estadd local Region = "YES"
eststo m1

reg IOA2 familyfirm post i.bransjek_02_2s logage salgsinn ifrs i.landsdel,r
estadd local Industry = "YES"
estadd local Region = "YES"
eststo m2

reg IOA3 familyfirm post i.bransjek_02_2s logage salgsinn ifrs i.landsdel,r
estadd local Industry = "YES"
estadd local Region = "YES"
eststo m3

reg IOA4 familyfirm post i.bransjek_02_2s logage salgsinn ifrs i.landsdel,r
estadd local Industry = "YES"
estadd local Region = "YES"
eststo m4

reg IOA5 familyfirm post i.bransjek_02_2s logage salgsinn ifrs i.landsdel,r
estadd local Industry = "YES"
estadd local Region = "YES"
eststo m5

esttab m1 m2 m3 m4 m5 using reg_H2_IOAoEffect.rtf, se replace title("Hypothesis Test") ///
keep(familyfirm post logage ifrs salgsinn) label s(Industry Region r2 N)

* IOA Compiled Output table H2 normal

reg IOA1 familyfirm post effect i.bransjek_02_2s logage salgsinn sales2 ifrs i.landsdel,r
estadd local Industry = "YES"
estadd local Region = "YES"
eststo m1

reg IOA2 familyfirm post effect i.bransjek_02_2s logage salgsinn sales2 ifrs i.landsdel,r
estadd local Industry = "YES"

```

```
estadd local Region = "YES"
eststo m2

reg IOA3 familyfirm post effect i.bransjek_02_2s logage salgsinn sales2 ifrs i.landsdel,r
estadd local Industry = "YES"
estadd local Region = "YES"
eststo m3

reg IOA4 familyfirm post effect i.bransjek_02_2s logage salgsinn sales2 ifrs i.landsdel,r
estadd local Industry = "YES"
estadd local Region = "YES"
eststo m4

reg IOA5 familyfirm post effect i.bransjek_02_2s logage salgsinn sales2 ifrs i.landsdel,r
estadd local Industry = "YES"
estadd local Region = "YES"
eststo m5

esttab m1 m2 m3 m4 m5 using reg_H2_IOA.rtf, se replace title("Hypothesis Test") ///
keep(familyfirm post effect logage ifrs sales2 salgsinn) label s(Industry Region r2 N)

*****

* Hypothesis III (Labour Cost)

    * Graph III

preserve
collapse (mean) lonnsos, by (aar familyfirm)
twoway (connected lonnsos aar if familyfirm==1, msymbol(D)) (connected lonnsos aar if
familyfirm==0, msymbol(O)), ///
    xtitle (Year) ///
    xlabel(2005(1)2012) ///
    ytitle(Labour Cost) ///
    legend(label(1 "Family Firm") label(2 "Non-Family Firm"))
restore

*** Lonnsos

reg lonnsos familyfirm post effect i.bransjek_02_2s logage salgsinn sales2 ifrs i.landsdel
ROAlag, r
reg lonnsos familyfirm post effect i.bransjek_02_2s logage salgsinn sales2 i.landsdel, r

    * Output table H3 without sales squared

reg lonnsos familyfirm post i.bransjek_02_2s logage salgsinn ifrs i.landsdel ROAlag, r
estadd local Industry = "YES"
estadd local Region = "YES"
estimates store Name
esttab Name using reg_H3_osales2oeffect.rtf, se replace title("Hypothesis Test") ///
keep(familyfirm post logage ifrs salgsinn) label s(Industry Region r2 N)

    * Output table H3 without effect

reg lonnsos familyfirm post i.bransjek_02_2s logage salgsinn sales2 ifrs i.landsdel ROAlag, r
estadd local Industry = "YES"
estadd local Region = "YES"
estimates store Name
esttab Name using reg_H3_oeffect.rtf, se replace title("Hypothesis Test") ///
keep(familyfirm post logage sales2 ifrs salgsinn) label s(Industry Region r2 N)

    * Output table H3
```

```

reg lonnsos familyfirm post effect i.bransjek_02_2s logage salgsinn sales2 ifrs i.landsdel
ROAlag, r
estadd local Industry = "YES"
estadd local Region = "YES"
estimates store Name
esttab Name using reg_H3.rtf, se replace title("Hypothesis Test") ///
keep(familyfirm post effect logage sales2 ifrs salgsinn) label s(Industry Region r2 N)

*** LOS

*drop if LOS < 0 | LOS > 1.5

preserve
collapse (mean) LOS, by (aar familyfirm)
tway (connected LOS aar if familyfirm==1, msymbol(D)) (connected LOS aar if familyfirm==0,
msymbol(O)), ///
xtitle (Year) ///
xlabel(2005(1)2012) ///
ytitle(Labour Cost) ///
legend(label(1 "Family Firm") label(2 "Non-Family Firm"))
restore

* Output table H3 without sales squared

reg LOS familyfirm post i.bransjek_02_2s logage salgsinn ifrs i.landsdel ROAlag, r
estadd local Industry = "YES"
estadd local Region = "YES"
estimates store Name
esttab Name using reg_H3_LOS_osales2oeffect.rtf, se replace title("Hypothesis Test") ///
keep(familyfirm post logage ifrs salgsinn) label s(Industry Region r2 N)

* Output table H3 without effect

reg LOS familyfirm post i.bransjek_02_2s logage ifrs i.landsdel ROAlag, r
estadd local Industry = "YES"
estadd local Region = "YES"
estimates store Name
esttab Name using reg_H3_LOS_oeffect.rtf, se replace title("Hypothesis Test") ///
keep(familyfirm post logage ifrs) label s(Industry Region r2 N)

* Output table H3

reg LOS familyfirm post effect i.bransjek_02_2s logage ifrs i.landsdel ROAlag, r
estadd local Industry = "YES"
estadd local Region = "YES"
estimates store Name
esttab Name using reg_H3_LOS.rtf, se replace title("Hypothesis Test") ///
keep(familyfirm post effect logage ifrs) label s(Industry Region r2 N)

```