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- Master Thesis -

The Capital Structure, Ownership and Survival of Newly Established Family Firms

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Abstract

The present thesis seeks to outline the determining factors for financing of Norwegian family firms initiated between 2001 and 2011. We test what characterizes the initial financing, timing of minority inclusion and survival probability. Our findings indicate that, compared to non-family firms, family firms are initially financed with more leverage, especially long-term debt, and start with a higher ownership concentration. The inclusion of minority investors tends to happen later for family firms than non-family firms, particularly when the CEO is a family member. Family firms tend to survive longer than non-family firms, but die earlier when they are heavily financed with leverage. Hence, we conclude that newly founded family firms have special characteristics.

**Key words:** Family Firms, Start-Ups, Financing, Capital Structure, Debt Structure, Ownership Concentration, Minority Investors, Family CEO, Survival
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1. Introduction

Family firms are widespread on a worldwide basis (La Porta, Lopez-De-Silanes and Shleifer 1999). There is no standard definition on what a family firm is. We base our definition on Bøhren (2011) and classify a firm as a family firm if owners are related through marriage or blood, ultimately owning more than 50% of the shares in the firm. With this definition approximately 2/3 of all Norwegian AS and ASA firms are classified as family firms (Berzins and Bøhren 2013).

The research on family firms is limited, with a lack of information about this major organizational form. Previous literature concerning family firms typically address performance related issues (e.g. Villalonga and Amit 2006; Silva and Majluf 2008; Miller et al. 2007). The purpose of our study is to investigate other important features of family firms by basing our research on newly founded family firms. The Centre for Corporate Governance Research provides access to unique data that give us the opportunity to investigate Norwegian family firms that started up during the period 2001-2011. Hence, we are able to contribute with new knowledge to the field of family firms in Norway.

It has been argued that family firms are more financial constrained than non-family firms. They have incentives to keep the controlling position of the family and may therefore be reluctant to issue equity to investors outside the family (Berzins and Bøhren 2013). Consequently, we test whether family firms are financed with more debt than non-family firms, as debt issuance is associated with less loss of control than issuing equity.

Further, we test whether family firms have more concentrated ownership structure in order to have tighter control, and also if this feature makes it more difficult to receive minority investment. We assess whether family firms include minority investors later than non-family firms. Family firms with a CEO as a family member tend to better protect the interests of the family (Anderson and Reeb 2003). Therefore, we test whether the timing of minority investment is associated with the CEO being a family member or not.

Family firms are claimed to be conservative and have a long-term perspective (Bertrand and Schoar 2006). We examine whether this is reflected in their debt
structure by testing if they are financed with more long-term debt than non-family firms. This would also support our assumption that they to some extent use debt as replacement for equity investment.

In line with their long-term focus it has been argued that family firms are more concerned with survival (Le Breton- Miller and Miller 2006). We investigate whether this is reflected in a higher survival rate for new firms that are established by families. Further, we assess whether debt financing, debt structure and inclusion of minority investors affect the probability of family firms’ survival.

We find that family firms are initially financed with more debt than non-family firms. Besides, their early ownership structure is more concentrated than the one in non-family start-ups. Our findings suggest that family firms include minority investors later than non-family firms. If the CEO is a family member the firm tend to include minority investors later than if the CEO is outside the family. These findings are consistent with family firms’ incentives to keep control.

We find that family firms tend to start with more long-term debt financing than non-family firms. Their long-term focus is also reflected in the finding implying that family firms survive longer than non-family firms. Capital structure affects family firm survival in that leverage is associated with earlier death. We find no evidence for any effect of debt structure or minority investor inclusion on the prospects for survival. Our findings tend to be significantly affected by external shocks as the tax reform in 2006 and the financial crisis in 2007.

Our study is structured as follows: Section 2 outlines the background of our thesis, starting with the motivation behind our research, followed by relevant theories on capital structure, family firms and historical events. Section 3 describes our data sample. In section 4 we present the research questions, hypotheses and methods used to test the hypotheses. Section 5 presents the variables used in our research and descriptive statistics. In section 6 we outline the empirical models used to conduct our research. Section 7 presents our findings, the intuition behind the findings and confirmatory robustness tests. We present our conclusions and final remarks in section 8. The main results in this thesis are presented in Tables 8 to 19 in section 7, while Tables 20 to 30 consist of the robustness results and can be
found in the Appendix in section 10. Detailed information about the variables, the sample and the industry coding are also in the Appendix.

2. Background

2.1 Motivation
Family firms are widespread on a worldwide basis (La Porta, Lopez-De-Silanes and Shleifer 1999). Berzins and Bøhren (2013) state that about 2/3 of all Norwegian AS and ASA firms are family firms, making this organizational form significant in Norway. The features that distinguish family- from non-family firms make family held organizations an interesting topic to study.

2.1.1 Contribution
Even though the importance of family firms is recognised, it is still an issue that needs to be further explored. A large part of the existing literature on family firms concerns the performance of companies (e.g. Villalonga and Amit 2006; Silva and Majluf 2008; Miller et al. 2007). However, we have recognised a lack of research on newly established family firms in Norway. We have access to unique data of all public and private firms in Norway through the CCGR database (Berzins, Bøhren and Rydland 2008). Magnussen and Sundelius (2011) found that Norwegian family firms have a higher debt/asset ratio, and we find it interesting to study their capital structure further. Our intention is to contribute with new knowledge to the field of family firms by investigating capital structure, ownership and survival of recently established family firms.

2.2 Capital Structure
The capital structure refers to how a firm finances its assets with different sources of funding including debt and equity. In their classic paper Modigliani and Miller (1958) claim that in a perfect and frictionless market the value of a firm is unaffected by its capital structure. However, in the real world market imperfections like taxes, asymmetric information and agency costs make the choice of capital structure matter (Myers 2001). There is no single theory stating what is the optimal capital structure for a company, but several useful conditional theories. The trade-off theory, pecking order theory, free cash flow theory and
market timing theory are all examples of renowned theories on the rationale behind the choice of capital structure (Frank and Goyal 2009). Trade-off theory emphasizes taxes, pecking order theory emphasizes information asymmetry, free cash flow theory emphasizes agency costs, and market timing exploits the current market conditions (Myers 1984, 2001).

As we are investigating start-up firms, issues with information asymmetry are highly relevant (see section 2.5 for further explanation) and we will therefore further outline this in the context of the pecking order theory. We are operating in the field of corporate governance and it is therefore natural to continue with agency theory and the free cash flow theory. We have chosen not to investigate tax benefits and their implications for leverage and will therefore not further explain the trade-off theory.

2.3 Information Asymmetry

When a firm is searching for a source of financing, the pecking order theory suggests that the firm will prefer internal over external funding (Myers 2001). The rationale behind the pecking order is that the cost of financing increases with information asymmetry. External funding like debt and equity is considered the least favourable source of financing due to the information asymmetries that might arise between the managers and the investors (Myers and Majluf 1984). From the investors’ point of view equity is riskier than debt because the managers of the company have an information advantage. Investors interpret equity issue as a signal that managers believe their stocks are overpriced and respond by placing a lower value on the shares. Debt holders have senior claim, and issuing debt therefore has a smaller impact on stock price (Myers 2001). One way to overcome the problem and minimize the costs of information asymmetry is to convey information to the market. However, in the real world direct transfer of information on project quality is challenging. A way to transfer the information is through actions that the investors can observe (Leland and Pyle 1977). One such action is for an insider to commit personal wealth to a project. The larger the willingness to invest in its own firm, the more outside investors are willing to pay for their share of it (Myers and Majluf 1984).
2.4 Agency Theory

Jensen and Meckling (1976, 5) define agency relationships as “a contract under which one or more persons engage another person to perform some service on their behalf which involves delegating some decision making authority to the agent”. The classic agency problem is the potential conflict between owner and manager. Assuming that both parties are utility maximizers, diverging interests between the two are sources of agency conflict. There is reason to believe that the manager not always will act in the best interests of the owners and this creates the need for monitoring (Jensen and Meckling 1976).

2.4.1 Free Cash Flow Theory

Jensen (1986) introduced the “control hypothesis” for debt creation. Large free cash flows can trigger an agency problem between manager and owner because it gives the managers room for taking advantage of cash at hand for personal benefits. Debt can have a disciplining effect on the firm as managers then have the obligation to pay out future cash flows (Graham and Harvey 2001). Additionally, debt has senior claim, and shareholders may take the firm into the bankruptcy court if interest and principal are not paid. Hence, taking on debt reduces agency costs of free cash flow because less free cash flow is available for the managers to spend (Jensen 1986).

2.4.2 Ownership Structure

The probability of the classic agency problem occurring increases when the ownership structure becomes less concentrated. The reason for this is that the owner gets a smaller fraction of the outcome and therefore has incentives to try to reap benefits in other ways (Jensen and Meckling 1976). The more concentrated ownership, the more costs and benefits are borne by the owner, and he has incentives to attend the tasks of the ownership (Demsetz and Lehn 1985). While the classic agency problem tends to decrease as a consequence of a more concentrated ownership, other issues arise from this situation. The second agency problem is the potential conflict between large and small owners (Bøhren 2011). Large owners hold the majority of shares, and small owners hold the minority. A large shareholder may take advantage of its position by extracting private benefits at the expense of the small shareholders, making it less attractive to be a minority investor (Berzins and Bøhren 2013).
2.4.3 Agency Costs of Debt
The third agency problem is the potential conflict between shareholders and creditors (Bøhren 2011). This is present when there is a risk of default (Myers 2001). External debt has a trade-off effect on the firm, leading to greater liquidity but also higher distress costs (Robb and Robinson 2012). Because equity is the residual claim, equity holders can benefit from taking more risk. They will capture most of the gain from a successful investment while debt holders bear the consequences if an investment fails (Jensen and Meckling 1976). As a result, creditors may be reluctant to give loans and more restrictive when setting the terms for debt financing (Myers 2001).

2.5 Start-Up Financing
The availability and requirement of firm financing tend to fluctuate over the operational business cycle. The access to start-up financing is to a large extent affected by information asymmetries between entrepreneur and investors as the firms have no history and little information is available to the public. The firms often have low or no collateral and do not have track records, which makes it harder for entrepreneurs to receive outside financing (Berger and Udell 1998). Besides, the failure rate for newly started companies is fairly high (Ballinger, Bernet and Gnan 2009). Robb and Robinson (2012) found the somewhat surprising result that start-ups use bank financing as their main source of funding. Berger and Udell (1998) found that small firms tend to start with funds from the principal owner, commercial banks and trade creditors. They also observed that institutional debt is an important source of financing. This finding can be linked to the study of Robb and Robinson (2012), stating that entrepreneurs use personal assets as collateral.

2.6 Family Firms
One distinguishing feature of family firms is that the ownership, board and management are closely related. This is contrary to what is common in listed firms, where one often see a distinction between the management and the ownership (Bøhren 2011). By definition the family owns the majority of the shares in a family firm and therefore has great incentives to monitor the manager. Thus, the classic agency problem between owner and manager is mitigated in family firms. However, the family may have incentives to exploit minority
investors, and this might trigger the agency problem between large and small owners (Villalonga and Amit 2006). The problem is more severe the less shares the family own because then the costs of the second agency problem to a larger extent are borne by the minority shareholder (Bøhren 2011). As Berzins and Bøhren (2013) exemplify in their paper; if the family owns 51% of the shares in the company they can gain 100% of the benefits and only bear 51% of the costs, while the minority investors are charged with the remaining 49%. One the other hand, if the family owns 99%, the minority owners only have to cover 1% of the costs. However, Berzins and Bøhren (2013) further claim that family firms have few incentives to exploit minority investors. Anderson and Reeb (2003) find that minority shareholders actually can benefit from family firm management.

Family firms have incentives to maintain the controlling position of the family. Berzins and Bøhren (2013) claim that family firms are reluctant to issue stocks to investors outside the family because it would threaten family control. Consequently, they have limited access to equity, and frequently the only ways of increasing equity are to retain earnings or to invest more of the family’s private wealth. This can make family firms more capital constrained than other private firms (Berzins and Bøhren 2013). Besides, Croci, Doukas and Gonenc (2011) claim that since family firms are less transparent to outside investors, the cost of equity relative to debt is higher for family firms than for non-family firms.

The family can potentially exhibit the greatest influence on the firm by choosing a CEO within the family (Anderson and Reeb 2003). However, the firm may forgo the opportunity to have the most talented and qualified CEO as he might be found outside the family. A family CEO typically holds the position for a longer time period than in a non-family firm. This is associated with a reluctant attitude towards risky projects and a conservative investment policy (Le Breton-Miller and Miller 2006).

Family ownership is associated with unsystematic risk because family owners have large exposure towards one company. They invest a significant part of their wealth in one company and often get their salary from the same company. This makes family owners undiversified (Bøhren 2011). Bertrand and Schoar (2006) claim that family firms are utility maximizers rather than value maximizers and
run a low-risk strategy resulting in a long-term focus. Family firms tend to have a nonfinancial mission with long-term goals, as opposition to non-family firms who often are forced by shareholders to focus on the financial bottom line (Le Breton-Miller and Miller 2006). The long-term perspectives of family firms are associated with a strong desire for survival. The family’s pride and reputation is at stake, and they often want to preserve the values for future generations. Anderson, Mansi and Reeb (2003) found that family firms’ long-term focus and low desire for risk taking are consistent with the interests of debt claimants. Therefore, the previously mentioned agency costs of debt are reduced. Their analysis indicates that family ownership reduces the cost of debt financing.

2.7 Historical Events
In this section we will outline historical events that took place during our sample period, and thus might affect our study as external shocks.

2.7.1 The Tax Reform
The Norwegian Government announced a tax reform in 2004, which was implemented in 2006. Previous to the tax reform there were no personal or corporate taxes to be paid on dividends. However, after the reform, personal taxes had to be paid, but still no corporate taxes (Berzins, Böhren and Stacescu 2013).

During the transition period of this tax reform there was made a temporary rule only applying for 2005. This rule stated that individual shareholders were able to transfer shares from their personal holdings to companies, without having to pay taxes on this transaction. Due to this rule many individual candidates started investing in companies, namely holding companies. As a consequence, the number of holding companies increased significantly in 2005 (Berzins, Böhren and Stacescu 2013). The real purpose of this type of companies was to store cash, and not generating any further cash flows. The tax reform was a meaningful event in Norway. Hence, we expect to find results indicating that firms born in 2005 are affected by the reform.

2.7.2 The Financial Crisis
The financial crisis that started in 2007 was a significant event in the world (Bekaert and Hodrick 2012), including Norway. Several financial institutions
experienced losses during the financial crisis, leading to restricted bank loans to firms and individual consumers. Moreover, the value of firms’ collateral decreased, indicating less financing opportunities (Bekaert and Hodrick 2012). Consequently, we believe the financial crisis will have an impact on our research, especially when considering the capital structure of firms initiated during the financial crisis.

3. Data Sample

The necessary data for our thesis is extracted from the Centre for Corporate Governance Research (CCGR). This database provides data on every firm with limited liability registered in Norway (Berzins, Bøhren and Rydland 2008). CCGR consists of accounting data from 1994 until 2011, industry information from 1998 until 2011, and ownership data from 2000 until 2011. We have obtained data from 2000 to 2011 in our study, as information regarding ownership will be essential when conducting our analysis. Because the data is based on accounting information, all values are book values. See Table 1 in the Appendix for a complete list of variables obtained from the database.

3.1 Filters

Our data initially consisted of 1 225 629 observations. We have applied the following filters on the dataset:

- **Filter 1**: All firms are independent
- **Filter 2**: All firms are AS or ASA
- **Filter 3**: Firms with negative revenue are removed
- **Filter 4**: Firms with negative or zero assets are removed
- **Filter 5**: Firms with negative liabilities are removed
- **Filter 6**: Firms with ultimate ownership held by families exceeding 100 are removed
- **Filter 7**: Firms in the financial industry are removed
- **Filter 8**: Firms in the utility industry are removed
- **Filter 9**: Firms in the public administration industry are removed
- **Filter 10**: Firms in the gambling industry are removed
Filter 1 is set because we look at privately owned, independent businesses and want to remove conglomerates and corporate chains. Filter 2 is set so that we only have firms that are registered as AS or ASA. Filter 3 to 5 are set in order to only take into account active firms, and hence eliminate passive firms. However, as we are looking at start-ups we have chosen to include firms that have zero revenue. Filter 6 is set in order to have a consistency in our values. Filter 7 is set due to special regulations in the capital structure of financial firms. Filter 8 and 9 are set because the government tend to be the majority stockholder in firms belonging to both utility and public administration industries (Berzins, Bøhren and Stacescu 2013). Finally, filter 10 is set as a consequence of firms in the gambling industry being a special business. A detailed overview of the filters and sample sizes can be found in Table 2 in the Appendix.
4. Research Questions and Hypotheses

We will in this section outline the research question, the hypotheses and the methods used in order to test the hypotheses.

4.1 Research Question

The overall research question for our thesis is “How are newly established family firms financed?” In general we intend to figure out what characterizes family start-ups in different time scenarios during their operational business cycle. We aim to answer the following three sub research questions:

1. What determines the initial financing of a family firm?
2. What determines the inclusion of minority investors in a family firm?
3. What determines the survival of a family firm?

4.2 Hypotheses

4.2.1 Initial Financing

There are high information asymmetries between family start-ups and their investors. Hence, the pecking order theory suggests that external equity will be difficult to get and a costly source of financing. The cost of information asymmetry is lower for debt financing than for equity financing since debt holders have the senior claim (Myers 2001). Additionally, issuing equity to external investors indicates giving up a part of the family control, which would be against the family firms’ desire. Debt financing will allow the family to keep controlling the majority of the equity in the firm. Hence, we expect the desire for choosing debt over equity financing to be greater for family firms than for non-family firms in the first year of operation.

**H1: Family firms are initially financed with more leverage than non-family firms**

The debt structure of a firm reveals information regarding the firms’ choice between long-term and short-term financing. Family firms tend to have a long-term perspective, indicating that they might prefer a long-term financing
commitment. Equity tends to be a profitable option for long term investment (Forbes 2012), implying that investors would prefer to invest in equity for a long time horizon. Consequently equity can be seen as a long-term financing option from the firm’s side. As previously mentioned, we believe family firms will prefer debt to equity, when debt is available. Hence, long-term debt can act as a substitute for long-term features of equity. Therefore, we expect family firms to have a higher proportion of long-term debt, compared to non-family firms.

**H2: Family firms are initially financed with more long-term debt than non-family firms**

By our definition of family firm, the family is the controlling shareholder. This implies that family members together hold the largest fraction of the ownership in the firm. We want to test differences in ownership concentration between family firms and non-family firms further by investigating the proportion of equity held by the largest owner. As we believe family firms prefer debt over outside equity, they are likely to have a concentrated ownership. A concentrated ownership structure will give the family tighter control. By having a large share, the monitoring of the company increase as the owner gets a larger fraction of the outcome. This will provide the ability to align the family’s interests with the interests of the company and give sufficient control to ensure the owner’s interests are respected (Shleifer and Vishny 1997). Therefore, we expect family firms to start with a more concentrated ownership structure than non-family firms, measured by the proportion of equity held by the largest owner.

**H3: Family firms start with a more concentrated ownership structure than non-family firms**

**4.2.2 Minority Inclusion**

As previously argued, we believe family firms will start with a more concentrated ownership structure than non-family firms to have tight control. We expect them to have incentives to keep this controlling position also after their first year of operation and thereby be more reluctant to include minority shareholders than non-family firms. Additionally, including minority shareholders may force the
family to be more focused on short-term value maximization in order to serve the interest of outside shareholders and take focus away from family interests.

**H4: Family firms include minority investors at a later stage than non-family start-ups**

Family firms where the CEO is a family member have better potential to protect the interests of the family. A CEO in a family firm is expected to sit in the position for a long time period (Le Breton-Miller and Miller 2006). Therefore, we expect family firms with a family CEO to be even more interested in keeping control of the company and serve the long-term interests of the firm. We anticipate this to be reflected in a slower rate of minority inclusion for family firms led by a family CEO.

**H5: Family firms with a CEO from the family include minority investors later than family start-ups with a CEO outside the family**

**4.2.3 Survival**

In contrast to non-family firms, family firms typically focus more on the survival of the company than on short-term value maximization. It is therefore likely to assume that they do survive longer than non-family firms. The study of Morikawa (2013) on family firms in Japan concludes that the probability of survival is higher for family firms than for non-family firms. Wilson, Wright and Scholes (2013) find the same result using data on private firms in the UK. We expect to find similar results for Norway as well.

**H6: Family firms survive longer than non-family start-ups**

Leverage can make family firms less capital constrained. However, leverage is also associated with increased probability of default and financial distress (Robb and Robinson 2012). The failure rate for start-ups is basically high, and we believe that bank loans increase the risk of early death.

**H7: Family firms die earlier if they are heavily financed with leverage**
A firm must have sufficient collateral in order to receive long-term debt. This means that the lenders can legally take ownership of the firm's assets if the firm defaults in paying the required interests and obligations. The fact that a firm has long-term debt might indicate it is deemed less risky by the creditors (Croci, Doukas and Gonenc 2011). We assume family firms financed with more long-term debt to have a long business perspective and thus be more concerned with survival of the firm.

**H8: Family firms survive longer if they are financed with long-term debt**

Family firms that include minority investors have the benefit of receiving equity from a wider set of sources and may therefore have more capital at hand. Consequently, a higher number of investors will diversify the risk of default. The choice of including minority investors might therefore indicate a long-term planning, motivated by reducing the risk of undiversified financing. Hence, we believe an inclusion of minority investors will lead to a higher survival rate.

**H9: Family firms survive longer if they include minority investors**

### 4.3 Hypotheses Testing

#### 4.3.1 Testing for Initial Financing

In order to model initial financing we will use the Fama-MacBeth (FMB) procedure (Fama and MacBeth 1973). It is conducted in two steps. First, the betas for each regression coefficient are estimated by individual cross-sectional regressions for the years 2001 through 2011, only including firms that start up in the relevant year. Second, the average betas across all years are estimated for each coefficient, with its corresponding t-values. The Fama-MacBeth procedure will be used in order to test Hypotheses 1 to 3.

#### 4.3.2 Testing for Minority Inclusion and Survival

We apply the Proportional Hazards regression analysis introduced by Cox (1972) in order to model the time it takes before start up firms include minority investors, and in order to model survival. Advantages of using this technique are that it models the expected time to failure and has few underlying assumptions (Lane,
Looney and Wansley 1986). The model will produce hazard ratios indicating the probability of failure (Altman 1991). In our regressions “failure” refers to minority inclusion and death. The resulting hazard rates will thus give us an indication of the probability of including minority investors and the probability of survival at time $t$ for any firm with specific values of the variables in the model. The model has a strong assumption of proportional hazard, meaning that the hazard ratio between groups must be constant (Altman 1991). The Proportional Hazard model will be used in order to test Hypotheses 4 to 9.
5. Variables

In the following section we describe the variables we have used in order to conduct our study. A complete overview of the operationalization based on the item numbers from CCGR can be found in Table 3 in the Appendix.

5.1 Explanatory Variables

Family Firm
We define family firms as firms with members that are related through marriage or blood, ultimately owning more than 50 % of the shares in the firm. Hence, the ownership share consists of the sum of the family’s direct ownership and indirect ownership through other firms. This definition is consistent with Bøhrens (2011) definition, and tends to be a relevant proxy as it accounts for the family effects when the family is the majority owner in the firm. Consequently, we have made a dummy variable that takes the value one if the family firm holds more than 50 % of the shares, and zero otherwise.

Family CEO
The CEO of the firm is defined as the family CEO when the family holds the largest share of the ultimate ownership in the company. Hence, this is a dummy that takes the value one if the family holding the largest ownership has CEO, and zero otherwise.

5.2 Dependent Variables

Capital Structure
We have used leverage as proxy for capital structure, in accordance with Frank and Goyal (2009). We define leverage as total institutional debt relative to total assets. Total institutional debt consists of both short- term and long- term institutional debt.

\[
\text{Leverage} = \frac{\text{Total Institutional Debt}}{\text{Total Assets}}
\]
Debt Structure
We define debt structure as the ratio of long-term institutional debt over total institutional debt (Barclay and Smith 1995). Long-term debt is defined as institutional debt with maturity of more than one year. Based on this, we can explore how much weight is given to long-term debt relative to short-term debt.

\[
\text{Debt Structure} = \frac{\text{Total Long-term Debt}}{\text{Total Institutional Debt}}
\]

Ownership Concentration
We define ownership concentration by the proportion of equity owned by the largest owner. This variable is based on ultimate ownership.

\[
\text{Ownership Concentration} = \frac{\text{Rank1}}{100}
\]

Minority Investor
We define a minority investment as the proportion of the equity that is not owned by the largest owner. Consequently, minority investor is defined as the candidates contributing with the minority investment.

\[
\text{Minority Investor} = 1 - \frac{\text{Rank1}}{100}
\]

5.3 Control Variables
We base the choice of control variables on the core model for leverage proposed by Frank and Goyal (2009). However, as this model is based on market values, we have to modify it as we only have book-values available. There will be no variation in the expected inflation when studying the first operational year, and the inflation in Norway was relatively low and stable over the years 2000 until 2011 (Statistics Norway 2014). Additionally, Frank and Goyal (2009, 3) mention that expected inflation is the “least reliable factor”. Hence, we eliminate expected inflation in our study.

Profitability
We define profitability as net income relative to total assets. High profitability implies that the company is able to finance its operations with its own earnings,
and thus less external financing will be needed. This can be supported by the findings of Myers (2001) and Titman and Wessels (1988), stating that internal financing will be chosen over external financing when internal capital is available. Hence, we expect “Profitability” to be negatively related to leverage and debt structure, and positively related to ownership concentration. We expect profitable firms to include minority investors at a later time and have better prospects for survival.

\[
\text{Profitability} = \frac{\text{Net Income}}{\text{Total Assets}}
\]

**Tangibility**

We define tangibility as the ratio of tangible assets to total assets. This measure shows what fraction of the firm’s total assets that consists of tangible asset. When the fraction of tangible assets is large, assets can be used as collateral, and thus reduce the agency costs of debt (Rajan and Zingales 1995). Also, tangible assets are easier for outside investors to value (Frank and Goyal 2009). Due to this, lenders tend to be more willing to offer debt when the tangibility of a firm is high (Rajan and Zingales 1995). We expect “Tangibility” to be positively related to leverage and debt structure, and negatively related to ownership concentration. We expect firms with tangible assets to include minority investors earlier and to have better prospects for survival.

\[
\text{Tangibility} = \frac{\text{Tangible Assets}}{\text{Total Assets}}
\]

**Growth Opportunities**

We define growth opportunities as the ratio of revenue to total assets. The higher the growth opportunities are, the higher revenues the company is expected to generate based on the assets it owns. Frank and Goyal (2009) mention that growth opportunity leads to an increase in the financial distress costs, and a reduction in free cash flow and thereby debt-related agency costs. We expect “Growth Opportunities” to be negatively related to leverage and positively related to debt structure and ownership concentration. We expect this variable to be associated with earlier inclusion of minority investors and earlier death. However, growth prospects are not constant the first year of operations, making this measure associated with uncertainty.
Growth = \frac{Revenue}{Total\ Assets}

Industry

We define the industry variable as the median leverage for firms within a specific industry. The industry measures are based on the two-digit SIC codes. See Table 4 in the Appendix for a complete list of how we have defined each industry. Firms belonging to the same industry are affected by common factors, and thus have more similar characteristics than firms across industries (Harris and Raviv 1991). Also, the median leverage in the industry can serve as a benchmark for deciding capital structure (Frank and Goyal 2009). We have two industry variables, where the first one is based on median institutional debt-to-assets for each industry, and the second is based on the median long-term to total institutional debt within each industry. We expect “Industry” to be positively related to leverage and debt structure. This control variable is not directly linked to minority, ownership concentration and survival, but it serves as a useful control factor for the common features in each industry.

Firm Size

We define firm size as the natural logarithm of total asset. Larger firms tend to be creditworthy, have greater access to capital markets, and have lower costs of borrowing (Achleitner et al. 2009). Thus, we expect “Firm Size” to be positively related to leverage and debt structure, and negatively related to ownership concentration. We expect big firms to include minority investors early and have better prospects for survival.

Firm Size = \text{Log}\ (Total\ Assets)
5.4 Descriptive Statistics

See Table 5 in the Appendix for a complete overview of summary statistics. To avoid the problem of large outliers all ratios are winsorized with 2.5 % in each tail. \(^1\) Compared to non-family firms, the mean values for family firms are higher for debt structure, ownership concentration, growth and profitability, while they are lower for leverage, tangibility and firm size. The general tendencies in the differences between family and non-family firms are the same for the first year of operation and for all years.

Figure 1: Evolution of Firm Characteristics for Start-Ups

Figure 1 depicts how firm characteristics have evolved for start-ups with their first year of operation being between 2001 and 2011. The numbers are based on the percentage values of the mean. For leverage the highest value was 19 %, in 2001-2002 for family firms, and in 2002 and 2007 for non-family firms. 12 % was the lowest value of leverage, in 2005 and 2007 for family firms, and in 2009 for non-family firms. Debt structure was highest at 28-29 %, in 2001 for family firms, and in 2002 for non-family firms. The lowest value was 18-19 % in 2005 and 2009 for family firms, and in 2009 for non-family firms. Family firms had the highest value of ownership concentration in 2005-2006 with 76-77 %, while non-family firms had the highest value in 2005, 2007 and 2010 with 52-54 %. The lowest ownership concentration values were 65 % for family firms in 2002-2003, and 43-44 % for non-family firms in 2002 and 2006.

There is a clear trend between debt structure and leverage for family firms, while ownership concentration tends to have somewhat contrary movements. For non-

---

\(^1\) This indicates that 2.5 % of the smallest and largest observation values are set equal to the closest value in each end. Hence, we have minimized the risk of extreme values affecting our results.
family firms there also seems to be a clear trend between debt structure and leverage, however only from 2006 and onwards. The values for leverage and debt structure tends to be relatively similar for both family- and non- family firms, the ownership concentration does however show a significantly higher value for family firms. Leverage mainly takes into account total institutional debt, while debt structure mainly focuses on long- term institutional debt. Hence, the fluctuations in the leverage value seem to be driven by short- term debt. This is particularly evident for non- family firms in the period prior 2005-2006.

Figure 2: Distribution of Entry and Exit of the Firms

The distribution of entries and exits of the firms is illustrated in Figure 2. This diagram shows how many firms were born and how many firms died in each of the years 2001 to 2011.\(^1\) The highest number of new start- ups was in 2007, with 14 597 new firms, where 13 368 were family firms. 2005 was the year with the second highest number of new entries, with a total of 12 093 new firms, where 11 056 were family firms. The year with the lowest number of entries was in 2009, with only 5444 new firms, where 4396 family firms. The highest number of firms exiting was in 2004, while the lowest number of exits was in 2002.

Figure 3: Distribution of Activity Level of the Firms

\(^1\) We lack information regarding the firms’ exit in 2011 and therefore they are not presented in the diagram.
As our study focuses on start-up firms, we have chosen to keep firms that have zero revenues the first year of operation. The reason for this choice is that new-born firms often start to generate positive revenue after some years of operations. Figure 3 shows a distribution of the firms based on their activity level the first year of operation for the start-up years 2001 to 2011. Active firms are defined as firms that have revenues higher than zero, while passive firms indicate a revenue level of zero. The largest share of active start-up firms was in 2003, with 73% of the firms having positive revenues, 67% was family firms while 6% was non-family firms. The largest share of passive start-up firms was in 2005, with 47% of the firms having zero revenue. Out of these, 43% are family firms while the rest 4% are non-family firms.

From Figure 2 and 3, we can conclude that 2005 was a year with a high number of new-born firms, where a large share of these new firms were family firms with zero revenues. When considering firm characteristics the years 2005, 2007 and 2009 seem to deviate from other years, and thus might indicate external shocks.

5.5 Correlation and Multicollinearity
If the independent variables in a regression are closely related to each other, it might be difficult to draw sharp inferences because it can cause wide confidence intervals and the regression becomes very sensitive to small changes in the specification (Brooks 2008). The correlation matrix (Table 6 in the Appendix) shows an overall trend of low or moderate correlation between the variables that are used in the same regressions (see section 6 for regression models), indicating an absence of multicollinearity. We would suspect multicollinearity if the correlation exceeded 0.7 or the Variance Inflation Factor (VIF) exceeded 2.5. Table 7 in the Appendix presents a VIF test showing that there is no problem with multicollinearity between the variables as the highest VIF is 1.42.
6. Empirical Models

We have found implications suggesting that the tax reform in 2006 affected the nature of many firms born in 2005. Due to the consequences of the tax reform, many new firms started up in 2005 without any incentives to operate actively (see section 2.7.1). As previously mentioned in section 5.4, 2005 was the year in our sample with the highest percentage of new-born firms with zero revenue, with the majority being family firms. This indicates that many of the new-born firms in 2005, especially family firms, are in fact holding companies. On this base, we believe that many of the firms born in 2005 will not be representative for the population we are studying in this paper. Consequently, we have chosen to exclude firms born in 2005 from all models except when testing initial leverage (Table 8). In this section we will further outline the setup of the regression models used to test our hypotheses.

6.1 Initial Financing

We will use the Fama-MacBeth (FMB) procedure described in section 4.3.1 in order to model initial financing. We have included the year-by-year and pooled regressions in Tables 8 – 11 in order to evaluate whether the estimates from Fama-MacBeth regressions have been stable across years.

6.1.1 Model (1) – Leverage

\[
\text{Leverage} = \alpha + \beta_1 \text{Profitability} + \beta_2 \text{Tangibility} + \beta_3 \text{Growth} + \beta_4 \text{Industry} + \beta_5 \text{FirmSize} + \beta_6 \text{FamilyFirm}
\]

Regression model (1) tests differences in initial financing between family firms and non-family firms. The family firm dummy is the key independent variable in these regressions. Based on our first hypothesis, we expect \(\beta_6\) to be positive and statistically significant in this regression, indicating that family firms are initially financed with more leverage than non-family firms. The resulting regression outputs can be seen in Tables 8 and 9.
6.1.2 Model (2) – Debt Structure

\[
\text{Debt Structure} = \alpha + \beta_1 \text{Profitability} + \beta_2 \text{Tangibility} + \beta_3 \text{Growth} + \beta_4 \text{Industry2} + \beta_5 \text{FirmSize} + \beta_6 \text{FamilyFirm}
\]

Regression model (2) tests differences in debt structure between family firms and non-family firms. This regression is identical to (1), except that now debt structure is the dependent variable. The family firm dummy is the key independent variable. In line with hypothesis 2 we expect \(\beta_6\) to be positive and statistically significant, indicating that family firms start with more long-term debt than non-family firms. The resulting regression output can be seen in Table 10.

6.1.3 Model (3) – Ownership Concentration

\[
\text{Ownership Concentration} = \alpha + \beta_1 \text{Profitability} + \beta_2 \text{Tangibility} + \beta_3 \text{Growth} + \beta_4 \text{Industry1} + \beta_5 \text{FirmSize} + \beta_6 \text{FamilyFirm}
\]

Regression model (3) tests whether family firms start with a higher ownership concentration than non-family firms. The family firm dummy is the key independent variable. Based on hypothesis 3 we expect \(\beta_6\) to be positive and statistically significant, denoting that family firms start with a more concentrated ownership. The resulting regression output can be seen in Table 11.

6.2 Minority Inclusion

We apply the Proportional Hazards regression analysis outlined in section 4.3.2, in order to model the time it takes before start-up firms include minority investors. We define 10% minority share as the threshold for inclusion of minority investors. The analysis is performed including companies that start with an ownership concentration of minimum 90%. We test whether these include minimum 10% minority share at a later stage. The models are run including all relevant firms that start up during the period 2001-2010. In addition, we have run separate regressions for the years 2001 and 2007. The firms that started up in 2001 are potentially the oldest firms and are therefore interesting to look at. The motivation behind looking at firms that started up in 2007 is that they were
initiated at the beginning of the financial crisis. Unreported plots of the variables indicate that the proportionality assumption of the Cox model is not violated.

6.2.1 Model (4) – Family Firms

\[ h(t) = \alpha + \beta_1 \text{FamilyFirm} + \beta_2 \text{Growth} + \beta_3 \text{Tangibility} + \beta_4 \text{Profitability} + \beta_5 \text{FirmSize} + \beta_6 \text{Industry} \]

Model (4) relates the timing of minority investors to whether the firm is a family firm or not. We include the family firm dummy and the control variables. The family firm dummy is the key independent variable. According to hypothesis 4 we expect the coefficient for \( \beta_1 \) to be negative and statistically significant indicating that family firms include minority investors later than non-family firms. Correspondingly, we expect the hazard ratio to be less than one, meaning that the rate of including minority investors during time \( t \) is lower for family firms than for non-family firms. We also run stratified regressions only based on the sample defined as family firm to see how the control variables affect the time when family firms open up for minority investors. The resulting regression outputs can be seen in Tables 12 and 13.

6.2.2 Model (5) – Family CEO

\[ h(t) = \alpha + \beta_1 \text{FamilyCEO} + \beta_2 \text{Growth} + \beta_3 \text{Tangibility} + \beta_4 \text{Profitability} + \beta_5 \text{FirmSize} + \beta_6 \text{Industry} \]

Model (5) relates the timing of minority investors to whether the CEO of the firm is a member of the family. This regression is run based on family firms only. The Family CEO dummy is the key independent variable. In line with hypothesis 5 we expect the coefficient for \( \beta_1 \) to be negative and statistically significant and the hazard ratio to be below one, indicating that firms with CEO from the family include minority investors later than firms with CEO outside family. The resulting regression output can be seen in Table 14.
6.3 Survival

We use the same Proportional Hazards regression analysis to model survival, and now we relate the time until a company dies to various factors. Because our sample ends in 2011, we censor the data in this year since the firms that exist at the end of year 2011 still exist today or have died in an unknown year after 2011. Unfortunately, our model does not allow us to include companies that start-up and die in the same year, so the resulting regressions hold for firms that exist at least one year. Therefore we run the regressions including the firms that started up between 2001 and 2009. We run the separate regressions for the years 2001 and 2007 for survival as well. Unreported plots of the variables indicate that the proportionality assumption of the Cox model is not violated.

6.3.1 Model (6) – Family Firms

\[
(6) \quad h(t) = \alpha + \beta_1 \text{FamilyFirm} + \beta_2 \text{Growth} + \beta_3 \text{Tangibility} + \beta_4 \text{Profitability} + \\
\beta_5 \text{FirmSize} + \beta_6 \text{Industry1}
\]

Model (6) has the same setup as model (4) but it relates the variables to the time when the company dies. It is used to test whether there are differences in the survival rate between family firms and non-family firms. The key independent variable is the family firm dummy. According to hypothesis 6 we expect the coefficient for \( \beta_1 \) to be negative and the hazard ratio to be below one, indicating that family firms die later than non-family firms. We run this regression also as a stratified regression by the family firm dummy to see how the control variables affect the timing of family firms’ death. The resulting regression outputs can be seen in Tables 15 and 16.

6.3.2 Model (7) – Leverage

\[
(7) \quad h(t) = \alpha + \beta_1 \text{Leverage} + \beta_2 \text{Growth} + \beta_3 \text{Tangibility} + \beta_4 \text{Profitability} + \\
\beta_5 \text{FirmSize} + \beta_6 \text{Industry1}
\]

Model (7) relates the time until a firm dies to the extent that their assets are financed with institutional debt, after controlling for factors that may affect leverage. We run this regression for family firms only. The key independent
variable is “Leverage”. In line with hypothesis 7 we expect the coefficient $\beta_1$ to be positive and the hazard ratio to be above one, indicating that family firms financed with more institutional debt die earlier than family firms financed with less institutional debt. The resulting regression output can be seen in Table 17.

6.3.3 Model (8) – Debt Structure

(8) \[ h(t) = \alpha + \beta_1 \text{DebtStructure} + \beta_2 \text{Growth} + \beta_3 \text{Tangibility} + \beta_4 \text{Profitability} + \beta_5 \text{FirmSize} + \beta_6 \text{Industry} \]

Model (8) relates the debt structure to the time when a firm dies, after accounting for the control variables. Similar to Model (7), this regression is also run for family firms only. The key independent variable is “DebtStructure”. In line with hypothesis 8 we expect the coefficient $\beta_1$ to be negative and the hazard ratio to be below one, indicating that family firms financed with more long-term debt have better prospects for survival than family firms that are financed with more short-term debt. The resulting regression output can be seen in Table 18.

6.3.4 Model (9) – Minority Investors

(9) \[ h(t) = \alpha + \beta_1 \text{Minority} + \beta_2 \text{Growth} + \beta_3 \text{Tangibility} + \beta_4 \text{Profitability} + \beta_5 \text{FirmSize} + \beta_6 \text{Industry} \]

Model (9) relates the inclusion of minority investors to the time it takes until a firm dies, after accounting for the control variables. The sample for this regression is exclusively based on firms that initially had minority investors holding 10% or less ownership. The key variable in model (9) is the minority dummy. In this regression, “Minority” is a dummy equal to 1 in the first year a firm includes minority investors and for all the following years. It is 0 for the years prior to minority investment and for firms where minority investors never hold more than 10% of the ownership. This allows us to test whether the firm has better prospects for survival after including minority investors. In line with hypothesis 9 we expect the coefficient $\beta_1$ to be negative and the hazard ratio to be less than one, indicating that family firms survive longer if they include minority investors. The resulting regression output can be seen in Table 19.
Empirical Findings and Intuition

7.1 Initial Financing

7.1.1 Leverage

Table 8: Model (1a) – Leverage, all years

<table>
<thead>
<tr>
<th>Leverage</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>Fama-MacBeth</th>
<th>Pooled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profitability</td>
<td>-0.136***</td>
<td>-0.131***</td>
<td>-0.146***</td>
<td>-0.119***</td>
<td>-0.119***</td>
<td>-0.166***</td>
<td>-0.142***</td>
<td>-0.111***</td>
<td>-0.119***</td>
<td>-0.119***</td>
<td>-0.134***</td>
<td>0.134***</td>
<td>0.134***</td>
</tr>
<tr>
<td>Tangibility</td>
<td>0.370***</td>
<td>0.394***</td>
<td>0.562***</td>
<td>0.356***</td>
<td>0.366***</td>
<td>0.382***</td>
<td>0.373***</td>
<td>0.357***</td>
<td>0.348***</td>
<td>0.325***</td>
<td>0.254***</td>
<td>0.350***</td>
<td>0.365***</td>
</tr>
<tr>
<td>Growth</td>
<td>-0.003</td>
<td>-0.002</td>
<td>-0.001</td>
<td>-0.004**</td>
<td>-0.000</td>
<td>-0.005***</td>
<td>-0.006***</td>
<td>-0.003**</td>
<td>-0.002</td>
<td>-0.006***</td>
<td>-0.006***</td>
<td>-0.008***</td>
<td>-0.003***</td>
</tr>
<tr>
<td>Industry 1</td>
<td>0.080</td>
<td>0.069</td>
<td>0.168</td>
<td>0.066</td>
<td>0.065</td>
<td>0.064</td>
<td>0.064</td>
<td>0.064</td>
<td>0.064</td>
<td>0.064</td>
<td>0.064</td>
<td>0.080</td>
<td>0.080</td>
</tr>
<tr>
<td>Firm Size</td>
<td>0.002***</td>
<td>0.004***</td>
<td>0.045***</td>
<td>0.045***</td>
<td>0.029***</td>
<td>0.034***</td>
<td>0.040***</td>
<td>0.027***</td>
<td>0.035***</td>
<td>0.038***</td>
<td>0.043***</td>
<td>0.031***</td>
<td>0.033***</td>
</tr>
<tr>
<td>Family Firm</td>
<td>0.040***</td>
<td>0.001***</td>
<td>0.016***</td>
<td>0.014***</td>
<td>0.020***</td>
<td>0.026***</td>
<td>0.024***</td>
<td>0.025***</td>
<td>0.024***</td>
<td>0.026***</td>
<td>0.025***</td>
<td>0.030***</td>
<td>0.030***</td>
</tr>
<tr>
<td>Constant</td>
<td>-0.674***</td>
<td>-0.578***</td>
<td>-0.938***</td>
<td>-0.955***</td>
<td>-0.759***</td>
<td>-0.423***</td>
<td>-0.856***</td>
<td>-0.955***</td>
<td>-0.555***</td>
<td>-0.554***</td>
<td>-0.520***</td>
<td>-0.519***</td>
<td>-0.519***</td>
</tr>
</tbody>
</table>

The FMB regression in Table 8 shows a positive and statistically significant family firm dummy indicating that family firms are financed with more leverage in their first operating year, compared to non-family firms. The pooled regression and year-by-year regressions indicate that this relationship has been stable over the period, except in the year 2005 where the dummy is not statistically significant.

Table 9: Model (1b) – Leverage, excluding 2005

<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Profitability</td>
<td>-0.136***</td>
<td>-0.131***</td>
<td>-0.146***</td>
<td>-0.119***</td>
<td>-0.166***</td>
<td>-0.142***</td>
<td>-0.111***</td>
<td>-0.119***</td>
<td>-0.134***</td>
<td>0.134***</td>
<td>0.134***</td>
<td>0.134***</td>
</tr>
<tr>
<td>Tangibility</td>
<td>0.370***</td>
<td>0.394***</td>
<td>0.562***</td>
<td>0.356***</td>
<td>0.366***</td>
<td>0.382***</td>
<td>0.373***</td>
<td>0.357***</td>
<td>0.348***</td>
<td>0.325***</td>
<td>0.254***</td>
<td>0.350***</td>
</tr>
<tr>
<td>Growth</td>
<td>-0.003</td>
<td>-0.002</td>
<td>-0.001</td>
<td>-0.004**</td>
<td>-0.000</td>
<td>-0.005***</td>
<td>-0.006***</td>
<td>-0.003**</td>
<td>-0.002</td>
<td>-0.006***</td>
<td>-0.006***</td>
<td>-0.008***</td>
</tr>
<tr>
<td>Industry 1</td>
<td>0.080</td>
<td>0.069</td>
<td>0.168</td>
<td>0.066</td>
<td>0.065</td>
<td>0.064</td>
<td>0.064</td>
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<td>0.064</td>
<td>0.064</td>
<td>0.080</td>
<td>0.080</td>
</tr>
<tr>
<td>Firm Size</td>
<td>0.002***</td>
<td>0.004***</td>
<td>0.045***</td>
<td>0.045***</td>
<td>0.029***</td>
<td>0.034***</td>
<td>0.040***</td>
<td>0.027***</td>
<td>0.035***</td>
<td>0.038***</td>
<td>0.043***</td>
<td>0.031***</td>
</tr>
<tr>
<td>Family Firm</td>
<td>0.040***</td>
<td>0.001***</td>
<td>0.016***</td>
<td>0.014***</td>
<td>0.020***</td>
<td>0.026***</td>
<td>0.024***</td>
<td>0.025***</td>
<td>0.024***</td>
<td>0.026***</td>
<td>0.030***</td>
<td>0.030***</td>
</tr>
<tr>
<td>Constant</td>
<td>-0.674***</td>
<td>-0.578***</td>
<td>-0.938***</td>
<td>-0.955***</td>
<td>-0.759***</td>
<td>-0.423***</td>
<td>-0.856***</td>
<td>-0.955***</td>
<td>-0.555***</td>
<td>-0.554***</td>
<td>-0.520***</td>
<td>-0.519***</td>
</tr>
</tbody>
</table>

Table 9 shows the FMB, the pooled regressions and the year-by-year regressions when excluding firms initiated in 2005. This results in a stable, positive and

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1, 2 The table gives the coefficient values, with their corresponding p-values written underneath. The significance level indications are as follows: *** = statistically significant at a 1% level, ** = statistically significant at a 5% level, and * = statistically significant at a 10% level. R² represents the adjusted R² for the year-by-year and pooled regressions, while R² represents the average R² for the Fama-MacBeth regressions. N is the number of observations.
statistically significant family firm dummy. We believe the deviating result in 2005 reflects the special features of family registered holding companies that started during the transition period of the tax reform. Thus, indicating that the capital structure decisions of these firms have been affected by the tax reform.

The control variables profitability, tangibility and firm size are stable and have the predicted signs and significance (Table 9). Growth and industry have the predicted signs but are not statistically significant for all years. We choose to keep them in the regressions because previous research and theories state that they are expected to influence capital structure decisions. However, we are careful in interpreting their implications for leverage.

We have found support for hypothesis one. After controlling for the core factors of leverage, we see that start-ups initiated by a family tend to be financed with more leverage than non-family start-ups. One explanation why family firms seem to have stronger preferences for debt financing than non-family firms might be their incentives to have a controlling position. As suggested by Berzins and Bøhren (2013), this can make them reluctant to issue equity to outside investors. Besides, issuing debt is associated with lower information asymmetries between the firm and its investors. Therefore, it may be a less costly source of financing than equity and also easier to get (Myers 2001).

7.1.2 Debt Structure

Table 10: Model (2) – Debt Structure

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Profitability</td>
<td>-0.040***</td>
<td>-0.059***</td>
<td>-0.081***</td>
<td>-0.075***</td>
<td>-0.124***</td>
<td>-0.101***</td>
<td>-0.094***</td>
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<td>-0.082***</td>
<td>-0.087***</td>
<td>-0.080***</td>
<td>-0.079***</td>
<td>-0.060***</td>
</tr>
<tr>
<td>Tangibility</td>
<td>0.050***</td>
<td>0.040***</td>
<td>0.045***</td>
<td>0.048***</td>
<td>0.053***</td>
<td>0.051***</td>
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<td>0.051***</td>
<td>0.048***</td>
<td>0.046***</td>
<td>0.011***</td>
<td>0.017***</td>
<td>0.020***</td>
</tr>
<tr>
<td>Growth</td>
<td>0.010***</td>
<td>0.009***</td>
<td>0.005**</td>
<td>0.005*</td>
<td>0.011***</td>
<td>0.010***</td>
<td>0.008***</td>
<td>0.009***</td>
<td>0.004***</td>
<td>0.002**</td>
<td>0.007***</td>
<td>0.008***</td>
<td>0.008***</td>
</tr>
<tr>
<td>Industry2</td>
<td>0.002**</td>
<td>0.005***</td>
<td>-0.008</td>
<td>0.109***</td>
<td>0.189***</td>
<td>0.075**</td>
<td>0.171***</td>
<td>0.404***</td>
<td>0.176***</td>
<td>0.139***</td>
<td>0.103***</td>
<td>0.088***</td>
<td></td>
</tr>
<tr>
<td>Firm Size</td>
<td>0.005***</td>
<td>0.072***</td>
<td>0.081***</td>
<td>0.078***</td>
<td>0.055***</td>
<td>0.076***</td>
<td>0.060***</td>
<td>0.055***</td>
<td>0.072***</td>
<td>0.067***</td>
<td>0.067***</td>
<td>0.067***</td>
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</tr>
<tr>
<td>Family Firm</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
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<tr>
<td>Constant</td>
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<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
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<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td></td>
</tr>
</tbody>
</table>

R²: 24% 27% 26% 26% 27% 27% 27% 26% 26% 25% 26% 26% 26%
N: 12009 9332 6895 9531 8181 16979 8069 5444 5379 6898 52983 52983

---

1 The table gives the coefficient values, with their corresponding p-values written underneath. The significance level indications are as follows: *** = statistically significant at a 1 % level, ** = statistically significant at a 5 % level, and * = statistically significant at a 10 % level. R² represents the adjusted R² for the year- by- year and pooled regressions, while R² represents the average R² for the Fama- MacBeth regressions. N is the number of observations.
The family firm dummy in Table 10 is positive and statistically significant for FMB and the pooled regressions. This relationship is relatively stable for the year-by-year regressions, except for 2009 where the family firm dummy is not statistically significant. We believe that this is caused by the financial crisis, making financial institutions generally more restrictive in giving out long-term loans to new businesses (see section 2.7.2). The signs of the control variables are consistent with our expectations, and the significance is in line with what we found in Tables 7 and 8. Hence, we do not comment further on these.

We find support for hypothesis two. Family firms tend to be financed with more long-term debt than non-family firms, after accounting for the control variables. We believe that the deviating result in 2009 was because of an exogenous shock and that we can draw a conclusion even though we found a family firm dummy that was not significant. The finding that family firms tend to be financed with more long-term debt than non-family firms confirms our previous finding that family firms to some extent use debt as replacement for equity. Family firms tend to have a long-term perspective (Bertrand and Schoar 2006), and this is reflected in their debt structure.

### 7.1.3 Ownership Concentration

#### Table 11: Model (3) – Ownership Concentration

<table>
<thead>
<tr>
<th>Ownership Concentration</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>Fama-MacBeth</th>
<th>Pooled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profitability</td>
<td>0.055</td>
<td>0.027</td>
<td>0.036</td>
<td>0.054</td>
<td>0.047</td>
<td>0.144</td>
<td>0.111</td>
<td>0.107</td>
<td>0.095</td>
<td>0.122</td>
<td>0.089</td>
<td>0.096</td>
<td></td>
</tr>
<tr>
<td>Tangibility</td>
<td>-0.011</td>
<td>-0.003</td>
<td>-0.006</td>
<td>-0.014</td>
<td>-0.082</td>
<td>-0.079</td>
<td>-0.086</td>
<td>-0.071</td>
<td>-0.047</td>
<td>-0.060</td>
<td>-0.050</td>
<td>-0.061</td>
<td></td>
</tr>
<tr>
<td>Growth</td>
<td>0.007</td>
<td>0.005</td>
<td>0.007</td>
<td>0.006</td>
<td>0.007</td>
<td>0.002</td>
<td>0.001</td>
<td>0.002</td>
<td>0.005</td>
<td>0.001</td>
<td>0.002</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>Industry</td>
<td>-0.031</td>
<td>-0.259</td>
<td>-0.438</td>
<td>-0.247</td>
<td>-0.282</td>
<td>-0.296</td>
<td>-0.067</td>
<td>0.210</td>
<td>-0.145</td>
<td>-0.180</td>
<td>-0.174</td>
<td>-0.170</td>
<td></td>
</tr>
<tr>
<td>Firm Size</td>
<td>-0.011</td>
<td>-0.012</td>
<td>0.012</td>
<td>-0.014</td>
<td>-0.015</td>
<td>-0.022</td>
<td>-0.015</td>
<td>-0.025</td>
<td>-0.021</td>
<td>-0.028</td>
<td>-0.017</td>
<td>-0.017</td>
<td></td>
</tr>
<tr>
<td>Family Firm</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>Concentrate</td>
<td>0.026</td>
<td>0.020</td>
<td>0.164</td>
<td>0.172</td>
<td>0.310</td>
<td>0.395</td>
<td>0.204</td>
<td>0.244</td>
<td>0.188</td>
<td>0.202</td>
<td>0.209</td>
<td>0.212</td>
<td></td>
</tr>
<tr>
<td>R²</td>
<td>7%</td>
<td>6%</td>
<td>5%</td>
<td>5%</td>
<td>14%</td>
<td>6%</td>
<td>5%</td>
<td>5%</td>
<td>44%</td>
<td>55%</td>
<td>7%</td>
<td>8%</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>12,889</td>
<td>18,132</td>
<td>18,085</td>
<td>18,513</td>
<td>18,181</td>
<td>16,591</td>
<td>4,650</td>
<td>4,744</td>
<td>4,559</td>
<td>4,808</td>
<td>2,986</td>
<td>2,984</td>
<td></td>
</tr>
</tbody>
</table>

The FMB regression, the pooled regression and the year-by-year regressions in Table 11 indicate a stable, positive and statistically significant coefficient for the family firm dummy. This suggests that, after considering the control variables,
family firms start with more concentrated ownership structure than non-family firms. The signs of the control variables are in line with our expectations, but profitability and firm size are the only ones showing a stable and significant coefficient. Still, we choose to include these in the regression as they are expected from theory to affect financing decisions.

We have found support for hypothesis three. The largest owner of family firms tends to contribute with a larger proportion of the company’s equity than in non-family firms. This is in line with our previous results implying that family firms have stronger preferences for choosing debt over equity. As previously argued, high ownership concentration gives the owner of a family firm incentives to monitor the company and better ability to align the interests of the family with the interests of the firm (Shleifer and Vishny 1997). Their controlling position is less likely to be threatened.

7.2 Minority Inclusion

7.2.1 Family Firms

Table 12: Model (4a) – Family Firm

<table>
<thead>
<tr>
<th></th>
<th>2001</th>
<th></th>
<th></th>
<th>2007</th>
<th></th>
<th></th>
<th>Pooled</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>Hazard Ratio</td>
<td>Coefficient</td>
<td>Hazard Ratio</td>
<td>Coefficient</td>
<td>Hazard Ratio</td>
<td>Coefficient</td>
<td>Hazard Ratio</td>
</tr>
<tr>
<td>Family Firm</td>
<td>-2,375 ***</td>
<td>0,093 ***</td>
<td>-3,216 ***</td>
<td>0,040 ***</td>
<td>-2,560 ***</td>
<td>0,077 ***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0,000</td>
<td>0,000</td>
<td>0,000</td>
<td>0,000</td>
<td>0,000</td>
<td>0,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Growth</td>
<td>0,024</td>
<td>1,024</td>
<td>0,106 ***</td>
<td>1,115 ***</td>
<td>0,026 ***</td>
<td>1,027 ***</td>
<td>0,000</td>
<td>0,000</td>
</tr>
<tr>
<td></td>
<td>0,210</td>
<td>0,210</td>
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<td>0,000</td>
<td>0,000</td>
<td>0,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tangibility</td>
<td>-0,055</td>
<td>0,947</td>
<td>0,537 ***</td>
<td>1,712 ***</td>
<td>0,076 **</td>
<td>1,079 **</td>
<td>0,036</td>
<td>0,036</td>
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<tr>
<td></td>
<td>0,882</td>
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<td>0,000</td>
<td>0,000</td>
<td>0,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Profitability</td>
<td>-0,015</td>
<td>0,985</td>
<td>-0,218</td>
<td>0,804</td>
<td>-0,187 ***</td>
<td>0,829 ***</td>
<td>0,000</td>
<td>0,000</td>
</tr>
<tr>
<td></td>
<td>0,915</td>
<td>0,915</td>
<td>0,119</td>
<td>0,119</td>
<td>0,000</td>
<td>0,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm Size</td>
<td>0,070 ***</td>
<td>1,073 ***</td>
<td>0,088 ***</td>
<td>1,092 ***</td>
<td>0,075 ***</td>
<td>1,077 ***</td>
<td>0,000</td>
<td>0,000</td>
</tr>
<tr>
<td></td>
<td>0,007</td>
<td>0,007</td>
<td>0,009</td>
<td>0,009</td>
<td>0,000</td>
<td>0,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industry1</td>
<td>1,719</td>
<td>5,578</td>
<td>3,958 **</td>
<td>52,362 **</td>
<td>2,041 ***</td>
<td>7,699 ***</td>
<td>0,000</td>
<td>0,000</td>
</tr>
<tr>
<td></td>
<td>0,343</td>
<td>0,343</td>
<td>0,012</td>
<td>0,012</td>
<td>0,000</td>
<td>0,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>16669</td>
<td></td>
<td>18763</td>
<td></td>
<td>251728</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 The table gives the coefficient values and hazard ratios, with their corresponding p-values written underneath. The significance level indications are as follows: *** = statistically significant at a 1 % level, ** = statistically significant at a 5 % level, and * = statistically significant at a 10 % level. N is the number of observations.
The coefficient of the family firm dummy in Table 12 is negative and statistically significant, both for the regression including all start-ups, and for the individual years 2001 and 2007. The hazard ratio for the pooled regression is 0.077 indicating that, while holding all other variables constant, the rate of including minority investors is on average 92.3 %\(^1\) lower for family firms than for non-family firms. The regression for 2001 shows that slower rate for family firms also hold for the potentially oldest firms. The regression for 2007 shows that the slower rate of minority inclusion holds for firms born at the beginning of the financial crisis. The control variables for the pooled regression are in line with our expectations.

### Table 13: Model (4b) – Minority Inclusion, only family firm\(^2\)

<table>
<thead>
<tr>
<th></th>
<th>2001</th>
<th>2007</th>
<th>Pooled</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>Hazard Ratio</td>
<td>Coefficient</td>
</tr>
<tr>
<td>Growth</td>
<td>0.018</td>
<td>1.018</td>
<td>0.120</td>
</tr>
<tr>
<td></td>
<td>0.383</td>
<td>0.383</td>
<td>0.000</td>
</tr>
<tr>
<td>Tangibility</td>
<td>-0.173</td>
<td>0.841</td>
<td>0.578</td>
</tr>
<tr>
<td></td>
<td>0.224</td>
<td>0.224</td>
<td>0.000</td>
</tr>
<tr>
<td>Profitability</td>
<td>0.066</td>
<td>1.068</td>
<td>-0.283 *</td>
</tr>
<tr>
<td></td>
<td>0.671</td>
<td>0.671</td>
<td>0.071</td>
</tr>
<tr>
<td>Firm Size</td>
<td>0.100 ***</td>
<td>1.106 ***</td>
<td>0.136 ***</td>
</tr>
<tr>
<td></td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Industry 1</td>
<td>3.068</td>
<td>21.509</td>
<td>3.702 **</td>
</tr>
<tr>
<td></td>
<td>0.108</td>
<td>0.108</td>
<td>0.025</td>
</tr>
<tr>
<td>N</td>
<td>16513</td>
<td>18677</td>
<td>250151</td>
</tr>
</tbody>
</table>

Table 13 shows that family firms tend to include minority investors earlier the faster they grow and the bigger they are. They tend to include minority later if they have high profitability. The regressions for 2001 and 2007 show that there are some annual differences in what affect minority inclusion. The only factor that is statistically significant in 2001 is firm size. In 2007 all variables are statistically significant, but profitability only at the 10 % level. This indicates that firm-specific characteristics may have been more important in the decision of including minority investors for family firms born at the beginning of the financial crisis.

---

\(^1\) - Hazard Ratio

\(^2\) - The table gives the coefficient values and hazard ratios, with their corresponding p-values written underneath. The significance level indications are as follows: *** = statistically significant at a 1 % level, ** = statistically significant at a 5 % level, and * = statistically significant at a 10 % level. N is the number of observations. “Only family firm” means that the regressions are only based on the sample defined as family firms.
Our findings support hypothesis four, that family firms tend to include minority investors at a later stage than non-family firms. This finding is closely linked to the previous finding, that family firms tend to start with more equity contributed by the largest owner. The largest owner in a family firm seems to be interested in holding on to the position in the years following the first operating year. Hence, family firms’ incentive for having control appears to make them less willing to include minority shareholders than non-family firms. Including minority investors could also threaten family firms’ long-term view, as they may be forced to focus on short-term value maximization to serve minority shareholders’ interests.

7.2.2 Family CEO

Table 14: Model (5) – Family CEO, only family firm

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Family CEO</td>
<td>-0.579 ***</td>
<td>0.560 ***</td>
<td>-0.553 ***</td>
<td>0.575 ***</td>
<td>-0.556 ***</td>
<td>0.574 ***</td>
</tr>
<tr>
<td></td>
<td>0.000 0.000</td>
<td></td>
<td>0.000 0.000</td>
<td></td>
<td>0.000 0.000</td>
<td></td>
</tr>
<tr>
<td>Growth</td>
<td>0.037 *</td>
<td>1.038 *</td>
<td>0.142 ***</td>
<td>1.153 ***</td>
<td>0.047 ***</td>
<td>1.048 ***</td>
</tr>
<tr>
<td></td>
<td>0.067 0.067</td>
<td></td>
<td>0.000 0.000</td>
<td></td>
<td>0.000 0.000</td>
<td></td>
</tr>
<tr>
<td>Tangibility</td>
<td>-0.173</td>
<td>0.841</td>
<td>0.635 ***</td>
<td>1.886 ***</td>
<td>0.071 *</td>
<td>1.074 *</td>
</tr>
<tr>
<td></td>
<td>0.222 0.222</td>
<td></td>
<td>0.000 0.000</td>
<td></td>
<td>0.064</td>
<td>0.064</td>
</tr>
<tr>
<td>Profitability</td>
<td>0.091</td>
<td>1.096</td>
<td>-0.232</td>
<td>0.793</td>
<td>-0.181 ***</td>
<td>0.834 ***</td>
</tr>
<tr>
<td></td>
<td>0.551 0.551</td>
<td></td>
<td>0.138 0.138</td>
<td></td>
<td>0.000 0.000</td>
<td></td>
</tr>
<tr>
<td>Firm Size</td>
<td>0.097 ***</td>
<td>1.101 ***</td>
<td>0.119 ***</td>
<td>1.127 ***</td>
<td>0.099 ***</td>
<td>1.104 ***</td>
</tr>
<tr>
<td></td>
<td>0.001 0.001</td>
<td></td>
<td>0.000 0.002</td>
<td></td>
<td>0.000 0.000</td>
<td></td>
</tr>
<tr>
<td>Industry1</td>
<td>2.967 19.436</td>
<td></td>
<td>4.042 56.932 **</td>
<td></td>
<td>2.624 13.797 **</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.019 0.019</td>
<td></td>
<td>0.015 0.015</td>
<td></td>
<td>0.000 0.000</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>16513</td>
<td>18677</td>
<td>250151</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The coefficient for the family CEO dummy in Table 14 is negative and statistically significant for the pooled regression and in 2001 and 2007. Hence, the result is not affected by whether the firms are amongst the potentially oldest firms or whether the firms are born in the beginning of the financial crisis. The hazard ratio is 0.574 in the pooled regression. This implies that, holding the other variables constant, the rate of including minority investors on average is 42.6 %
lower for family firms with a CEO from the family than for family firms with a CEO from outside the family. The control variables are consistent with what we found in Tables 11 and 12.

Our findings support hypothesis five, that family firms with a CEO from the family tend to include minority investors later than family firms with a CEO outside the family. Family CEOs tend to sit in their position for a long time and have the potential of perfect alignment of interests between firm and family (Le Breton-Miller and Miller 2006). Therefore, they are expected to be even more willing to hold on to their controlling position and serving the firm in the long run.

7.3 Survival

7.3.1 Family Firms

Table 15: Model (6a) – Family Firm

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Family Firm</td>
<td>-0.479 ***</td>
<td>0.619 ***</td>
<td>-0.520 ***</td>
<td>0.595 ***</td>
<td>-0.576 ***</td>
<td>0.562 ***</td>
</tr>
<tr>
<td></td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Growth</td>
<td>0.019 ***</td>
<td>1.019 ***</td>
<td>0.043 ***</td>
<td>1.044 ***</td>
<td>0.013 ***</td>
<td>1.013 ***</td>
</tr>
<tr>
<td></td>
<td>0.005</td>
<td>0.005</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Tangibility</td>
<td>-0.179 ***</td>
<td>0.837 ***</td>
<td>-0.005</td>
<td>0.995</td>
<td>-0.201 ***</td>
<td>0.818 ***</td>
</tr>
<tr>
<td></td>
<td>0.000</td>
<td>0.000</td>
<td>0.929</td>
<td>0.929</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Profitability</td>
<td>-0.688 ***</td>
<td>0.503 ***</td>
<td>-0.728 ***</td>
<td>0.483 ***</td>
<td>-0.617 ***</td>
<td>0.540 ***</td>
</tr>
<tr>
<td></td>
<td>0.000</td>
<td>0.000</td>
<td>0.929</td>
<td>0.929</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Firm Size</td>
<td>0.027 ***</td>
<td>1.027 ***</td>
<td>-0.010</td>
<td>0.990</td>
<td>-0.012 ***</td>
<td>0.988 ***</td>
</tr>
<tr>
<td></td>
<td>0.002</td>
<td>0.002</td>
<td>0.371</td>
<td>0.371</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Industry1</td>
<td>0.482</td>
<td>1.619</td>
<td>0.210</td>
<td>1.233</td>
<td>1.170 ***</td>
<td>3.223 ***</td>
</tr>
<tr>
<td></td>
<td>0.296</td>
<td>0.296</td>
<td>0.785</td>
<td>0.785</td>
<td>0.000</td>
<td>0.000</td>
</tr>
</tbody>
</table>

N | 55384 | 39834 | 763595

The table gives the coefficient values and hazard ratios, with their corresponding p-values written underneath. The significance level indications are as follows: *** = statistically significant at a 1 % level, ** = statistically significant at a 5 % level, and * = statistically significant at a 10 % level. N is the number of observations.

After considering the control variables, the coefficient for the family firm dummy in Table 15 is negative and statistically significant in the pooled regression, 2001 and 2007. The hazard rate of 0.562 in the pooled regression indicates that family firms on average die at a rate 43.8 % slower than non-family firms.
Table 16 indicates that for family firms, growth is a factor associated with earlier death. Growth opportunities are associated with risk and insecurity because they lie in the future. Tangibility, firm size and profitability are expected to lead to longer survival, in line with the expectations. We see some annual differences here as well. For family firms born in 2001 tangibility and profitability is associated with higher survival rate. Firm size is actually associated with earlier death, as well as growth. For family firms born in 2007 only profitability is an indication of survival and growth an indication for death.

Our findings support hypothesis six, that family firms do survive longer than non-family firms. Explanations might be that the family’s pride and reputation is at stake and that they want to preserve the values for future generations. Family firms tend to have a more long-term perspective than non-family firms, and thereby focus on survival of the company (Morikawa 2013).

---

The table gives the coefficient values and hazard ratios, with their corresponding p-values written underneath. The significance level indications are as follows: *** = statistically significant at a 1% level, ** = statistically significant at a 5% level, and * = statistically significant at a 10% level. N is the number of observations. “Only family firm” means that the regressions are only based on the sample defined as family firms.
7.3.2 Leverage

Table 17: Model (7) – Leverage, only family firm\(^1\)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Leverage</td>
<td>0.263 ***</td>
<td>1.300 **</td>
<td>0.343 ***</td>
<td>1.409 ***</td>
<td>0.325 ***</td>
<td>1.384 ***</td>
</tr>
<tr>
<td>Growth</td>
<td>0.013 *</td>
<td>1.013 *</td>
<td>0.044 ***</td>
<td>1.045 ***</td>
<td>0.008 ***</td>
<td>1.008 ***</td>
</tr>
<tr>
<td>Tangibility</td>
<td>-0.335 ***</td>
<td>0.715 ***</td>
<td>-0.158 **</td>
<td>0.854 **</td>
<td>-0.344 ***</td>
<td>0.709 ***</td>
</tr>
<tr>
<td>Profitability</td>
<td>-0.697 ***</td>
<td>0.498 ***</td>
<td>-0.714 ***</td>
<td>0.490 ***</td>
<td>-0.603 ***</td>
<td>0.547 ***</td>
</tr>
<tr>
<td>Firm Size</td>
<td>0.016</td>
<td>1.016</td>
<td>-0.029 **</td>
<td>0.972 **</td>
<td>-0.025 ***</td>
<td>0.975 ***</td>
</tr>
<tr>
<td>Industry1</td>
<td>0.360</td>
<td>1.434</td>
<td>0.250</td>
<td>1.284</td>
<td>1.084 ***</td>
<td>2.957 ***</td>
</tr>
<tr>
<td>N</td>
<td>51212</td>
<td>37605</td>
<td>723967</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The coefficient for leverage in Table 17 is positive and statistically significant for the overall regression, and for the individual years 2001 and 2007. The hazard ratio of 1.384 indicates that for each unit increase in leverage, the rate of a family firm’s death increases with 38.4\% on average. The control variables are consistent with what we found in table 15 and 16 and we will not further comment these.

We find support for hypothesis seven, that family firms die earlier if they are heavily financed with leverage. The failure rate for start-ups is basically high, and leverage is associated with financial distress and risk of default (Robb and Robbinson 2012). Our finding indicate that leverage will give family firms poorer prospects to survive, even though it makes them less capital constrained.

\(^1\) The table gives the coefficient values and hazard ratios, with their corresponding p-values written underneath. The significance level indications are as follows: *** = statistically significant at a 1\% level, ** = statistically significant at a 5\% level, and * = statistically significant at a 10\% level. N is the number of observations. “Only family firm” means that the regressions are only based on the sample defined as family firms.
7.3.3 Debt Structure

Table 18: Model (8) – Debt Structure, only family firm

<table>
<thead>
<tr>
<th></th>
<th>2001</th>
<th>2007</th>
<th>Pooled</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>Hazard Ratio</td>
<td>Coefficient</td>
</tr>
<tr>
<td>Debt Structure</td>
<td>-0.003, 0.997</td>
<td>-0.010, 0.990</td>
<td></td>
</tr>
<tr>
<td>Growth</td>
<td>0.015, **</td>
<td>0.045, ***</td>
<td>0.010, ***</td>
</tr>
<tr>
<td>Tangibility</td>
<td>-0.221, ***</td>
<td>-0.043, 0.958</td>
<td>-0.199, ***</td>
</tr>
<tr>
<td>Profitability</td>
<td>-0.733, ***</td>
<td>-0.757, ***</td>
<td>-0.649, ***</td>
</tr>
<tr>
<td>Firm Size</td>
<td>0.024, **</td>
<td>-0.020, 0.981</td>
<td>-0.017, ***</td>
</tr>
<tr>
<td>Industry2</td>
<td>0.225, 1.252</td>
<td>0.061, 1.063</td>
<td>0.375, ***</td>
</tr>
</tbody>
</table>

The coefficient for debt structure in Table 18 is negative, but not statistically significant. This applies for the overall coefficient for all years, in addition to 2001 and 2007 exclusively. The negative coefficient sign would mean that family firms have a higher survival probability when they are financed with more long-term than short-term debt. Nevertheless, due to the lack of significance our research does not give support for hypothesis eight, and we cannot state whether family firms tend to have better or worse prospects for survival if they are financed with more long-term debt.

---

1 The table gives the coefficient values and hazard ratios, with their corresponding p-values written underneath. The significance level indications are as follows: *** = statistically significant at a 1% level, ** = statistically significant at a 5% level, and * = statistically significant at a 10% level. N is the number of observations. “Only family firm” means that the regressions are only based on the sample defined as family firms.
7.3.4 Minority Investors

Table 19: Model (9) – Minority Investors, only family firm

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>Hazard Ratio</th>
<th>Coefficient</th>
<th>Hazard Ratio</th>
<th>Coefficient</th>
<th>Hazard Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minority</td>
<td>-0.047</td>
<td>0.954</td>
<td>-0.191</td>
<td>0.826</td>
<td>-0.002</td>
<td>0.998</td>
</tr>
<tr>
<td>Growth</td>
<td>0.025</td>
<td>1.025</td>
<td>0.068</td>
<td>1.071</td>
<td>0.027</td>
<td>1.027</td>
</tr>
<tr>
<td>Tangibility</td>
<td>-0.130</td>
<td>0.878</td>
<td>0.156</td>
<td>1.169</td>
<td>-0.101</td>
<td>0.904</td>
</tr>
<tr>
<td>Profitability</td>
<td>-0.653</td>
<td>0.521</td>
<td>-0.650</td>
<td>0.522</td>
<td>-0.585</td>
<td>0.557</td>
</tr>
<tr>
<td>Firm Size</td>
<td>0.008</td>
<td>1.008</td>
<td>-0.056</td>
<td>0.946</td>
<td>-0.030</td>
<td>0.970</td>
</tr>
<tr>
<td>Industry1</td>
<td>1.217</td>
<td>3.378</td>
<td>0.597</td>
<td>1.816</td>
<td>0.089</td>
<td>1.093</td>
</tr>
</tbody>
</table>

Table 19 shows that the dummy for minority investors is negative and not statistically significant. A negative sign indicates that family firms survive longer if they include minority investors. However, as we lack statistical significance for the minority dummy, we cannot draw any conclusions on hypothesis nine. We are inconclusive in evaluating whether inclusion of minority investors is associated with a higher survival rate or not.

---

1 The table gives the coefficient values and hazard ratios, with their corresponding p-values written underneath. The significance level indications are as follows: ** = statistically significant at a 1 % level, *** = statistically significant at a 5 % level, *** = statistically significant at a 10 % level. N is the number of observations. “Only family firm” means that the regressions are only based on the sample defined as family firms.
7.4 Robustness Test

To test the robustness of Models (1) – (9) (Tables 8-19) we explore alternative definitions of the variables used in the regressions. All of the regressions are run with the control variables used in the regressions from Tables 8-19. However, where there are no significant deviations only the key variables are presented in the tables. The regression outputs can be found in sections 10.1.3-10.1.6 in the Appendix (Tables 20-30).

7.4.1 Alternative Definitions of Family Firm

**Family Firm 20 % & Family Firm 70 %**

Villalonga and Amit (2006) highlight the sensitivity as to how family firms are defined. Therefore, we have run the regressions in Table 8-19 with alternative definitions of family firm. La Porta, Lopez-De-Silanes and Shleifer (1999) claim that at least 20 % family ownership is sufficient to be classified as a family firm. The first alternative definition is based on the family having negative majority, defined as 20 % family ownership. When defining family firm by family holding 50% ownership stake the proportion of family firms in our sample is relatively high (Figure 2). Therefore the second alternative definition of family firm is based on the family having supermajority, defined as 70 % family ownership stake.

When considering initial leverage, Table 20 shows that the resulting regressions are overall consistent with the result from Model (1) in the main regression. The family firm dummy is positive and statistically significant, however when defining family firm as the family owning 70 % of the shares it is only significant at 10 % level in 2011. We choose to accept this and say that the result stating that family firms start with more leverage than non-family firms is robust to the definition of family firm.

Looking at the debt structure, what we found in the main regression from Model (2) is relatively consistent to Table 20. Nevertheless, the significance of the family firm dummy is a bit different. When defining family firm by 20 % ownership the dummy for 2009 is statistically significant and the dummy for 2006 is significant at only 10% level. When defining family firm as the family owning 70 % of the shares the dummy in 2009 is significant at 10 % level. It is quite puzzling that the
family firm dummy is statistically significant for 2009 both with the broader and with the more narrow definition of family firms.

Overall, Table 20 shows that the resulting regressions are consistent with Model (3) in the main regression (Table 11). The result that family firms tend to start with a more concentrated ownership structure is robust to the definition of family firm.

When considering inclusion of minority investors the family firm dummy coefficient is still negative and statistically significant with the alternative definitions of family firms (Table 21, Model (4)). We conclude that the result that family firms include minority investors later than non-family firms is robust to the definition of family firm. We come to the same conclusion when considering family firms with a CEO from within the family (Model (5)). The table shows that the signs and significance of the family firm dummy coefficient are not very sensitive to the definition of family firm.

Table 22 shows that the results from our survival regressions are robust to the definition of family firm. The family firm dummies in the table show that family firms die later than non-family firms, regardless of the definition of family firm (Model (6)). The finding that family firms with more leverage die earlier is also consistent with this robustness test (Model (7)). The lack of statistical support when considering debt structure in Tables 18 is still present with the alternative definitions of family firm (Model (8)). However, when considering inclusion of minority investors (Model (9)) the minority dummy becomes statistically significant and positive when defining family ownership as 20%, but only at 5% level. We do not think this is sufficient to draw any conclusion and still say that we lack statistical support for a relationship between minority inclusion and family firm survival.
7.4.2 Alternative Definition of Leverage

**Total Debt to Assets**

As an alternative measure for capital structure we run Models (1) and (7) with total debt to assets as the dependent variable. Total debt is measured as total assets minus equity and consists of everything related to debt, including trade credit, accounts payable etc. For regression Model (1) we include the year 2005 as well.

\[
\frac{\text{Debt}}{\text{Assets}} = \frac{(\text{Total Assets} - \text{Equity})}{\text{Total Assets}}
\]

Table 23 shows that the family firm dummy is still not statistically significant for 2005 when defining leverage as total debt to assets. Now we also see a lack of statistical significance in 2011. Hence the result for 2011 seems to be quite sensitive to the definition of leverage. The family firm dummy is still positive and statistically significant for the remaining years. Additionally, the control variables have deviating results, in this case all control variables are statistically significant and growth is positive. Table 24 shows that the result that family firms financed with more leverage die earlier holds when defining leverage as total debt to assets.

7.4.3 Alternative Definitions of The Control Variables

**Margin**

All regressions are specified with alternative definitions of the control variables. Profitability is originally defined by ROA, a ratio that punishes firms that are asset heavy compared to firms that are not. The measure is also sensitive to the firms’ valuation of their own assets. Therefore we use an alternative measure by defining profitability as margin:

\[
\text{Margin} = \frac{\text{Net Income}}{\text{Revenue}}
\]

Table 25 shows that the family firm dummy in the FMB regressions is positive and statistically significant when considering initial leverage, debt structure and ownership concentration (Models (1), (2) and (3)). However, the dummy is not statistically significant for 2011 when considering initial leverage (Model (1)). When testing for minority investors, Table 26 shows that the hazard ratio for the
family firm dummy is still below 1 and statistically significant when defining profitability by margin (Model (4)). This is also the case for the family CEO dummy (Model (5)). Table 27 shows that the results from the survival regressions are robust to the definition of profitability (Models (6) – (9)).

**Firm Size 2**

As an alternative measure for firm size we choose the natural logarithm of revenue.

\[
\text{Firm Size 2} = \log(\text{Revenue})
\]

One shortcoming of this variable in our analysis is that we have chosen to include firms with zero revenue. Hence, there are a lot of missing values for the log of revenue. When considering initial leverage (Table 28, Model (1)) the family firm dummy is still positive and significant, except for the years 2004 and 2011 where it is not statistically significant. For debt structure it is not statistically significant in 2011 (Model (2)). We believe that these deviating results to some extent can be caused by the missing values for the log of revenue, but we see that the results for the year 2011 are sensitive to many of our robustness tests.

The alternative definition of firm size is robust when it comes to testing for ownership concentration (Model (3)). The results in Table 29 are consistent with the results showing what affects the timing of minority inclusion (Models (4) and (5)). The same holds for the survival regressions (Table 30, Models (6) – (9)).
8. Conclusion and Final Remarks

8.1 Conclusion

Family firms are a common organizational form, but research on their governance and financing is somewhat limited. The purpose of this study is to explore the field of family firms, and examine whether they have special features. Throughout this paper we investigate newly established Norwegian family firms, initiated within the period 2001 to 2011. We focus on their capital structure, ownership and survival to see whether these aspects reflect some of the characteristics that are claimed to distinguish family firms from non-family firms.

We start by testing whether family firms are financed with more debt than non-family firms, and if they have more long-term debt in their debt structure. Further, we test whether family firms have more concentrated ownership structure than non-family firms. Moreover, we assess whether family firms include minority investors later than non-family firms, and whether the timing of minority investment is associated with the CEO being a family member or not. Finally, we investigate whether family firms have a higher survival rate than non-family firms, and additionally assess whether debt financing, debt structure and inclusion of minority investors affect the probability of family firms’ survival.

We find that Norwegian family firms tend to be financed with more institutional debt than non-family firms when they are initiated. We also find indications that the temporary rule in 2005, caused by the tax reform in 2006, affected the capital structure of firms born in this year. Hence, we evaluate firms born in 2005 as not representative for the purpose of our study and therefore exclude them from the following research. Further, we find that Norwegian family firms are initially financed with more long-term debt than non-family firms, and that Norwegian family firms tend to start with a more concentrated ownership structure than non-family firms.

Moreover, we find that Norwegian family firms tend to include minority investors later than non-family firms, and that Norwegian family firms with a CEO from the family include minority investors later than family firms with CEO outside the
family. We find that Norwegian family firms on average survive longer than non-family firms, but die earlier if they are heavily financed with leverage. However, we do not find statistical support indicating that debt structure and inclusion of minority investors affect the survival of Norwegian family firms.

Overall, our results are robust to the definition of family firm, definition of leverage and definition of the control variables. However, considering the yearly cross-sectional regressions we see that the results for 2011 are sensitive to the alternative definitions.

8.2 Limitations and Suggestions for Further Research

First of all, one might argue that the decision of excluding all firms initiated in 2005 is a drastic decision. By eliminating these companies we are not able to take into account the characteristics of the regular family firms established in this year. One suggestion for further research is therefore to filter out the holding companies that were established only to store cash in a way so that one could keep the regular firms established in 2005 in the sample.

Another limitation of our research is that we know little about the background of the entrepreneur(s) initiating the start-up firms in our sample. Their education and previous experience will probably affect financing decisions and survival of the firms. In addition we know nothing about their private wealth and how much money they have at hand to contribute with equity to the firm. Their private wealth and personal assets can be used as collateral and give access to bank financing, as suggested by Robb and Robinson (2012).

To improve our research it would also be interesting to know the ideas and strategies of the start-up firms. We believe that their access to equity and bank loans will be affected by whether the investors believe in the success of the company. For example, if a firm is very innovative they may face high uncertainty but also great potential to success. This may also affect whether the firms survive.

We have not considered the firms’ cost of capital. As previously mentioned, Anderson, Mansi and Reeb (2003) found that family firms have lower cost of capital than non-family firms because their long-term orientation and focus on
survival is in line with creditor interests. To get an even more comprehensive picture it would have been interesting to see if this holds for Norwegian family firms also, and whether this is one of the explanations behind the findings that family firms tend to start with more leverage and more long-term debt than non-family firms. It would also be interesting to see if cost of capital affects leverage’s effect on firm survival.

Considering initial financing, we are not able to control for the month when the firms start up. The number reported in the balance sheet will probably be affected by whether the firm is born in January or December. Another limitation is that we are not able to see if the start-ups are actually spin-offs. If they are spin-offs from another company, they will probably have access to wealth from the parent company.

We have not evaluated whether issues related to the second agency problem affect the willingness of minority investors to invest in a family firms. One could also consider looking at characteristics of firms that include minority investors already in their first operating year. An interesting angle could be to investigate the minority holders’ contribution to the firms in terms of how much capital they bring into the firm.
9. References


Le Breton-Miller, Isabelle, and Danny Miller. 2006. “Why do some Family Businesses Out- Compete? Governance, Long- term Orientations, and


Magnussen, Torbjørn, and Martin B. Sundelius. 2011. “Do family firms grow differently than non-family firms?”


https://www.ssb.no/statistikkbanken/selectout/ShowTable.asp?FileformatId=


10. Appendix

10.1 Tables

10.1.1 Data from The Centre for Corporate Governance Research

Table 1 to Table 4 give a comprehensive overview of the data obtained from the Centre for Corporate Governance Research.

Table 1: Variables Extracted From CCGR

This table presents the item number of the variables, their corresponding name in the database, in addition to the proxy it will be used as in this study.

<table>
<thead>
<tr>
<th>Item Number in CCGR</th>
<th>Variable Name in CCGR</th>
<th>Proxy</th>
</tr>
</thead>
<tbody>
<tr>
<td>item_9</td>
<td>Revenue</td>
<td>Revenue</td>
</tr>
<tr>
<td>item_39</td>
<td>Net Income</td>
<td>Net Income</td>
</tr>
<tr>
<td>item_51</td>
<td>Total fixed assets (tangible)</td>
<td>Tangible Assets</td>
</tr>
<tr>
<td>item_63</td>
<td>Total fixed assets</td>
<td>Total Fixed Assets</td>
</tr>
<tr>
<td>item_78</td>
<td>Total current assets</td>
<td>Total Current Assets</td>
</tr>
<tr>
<td>item_87</td>
<td>Total equity</td>
<td>Total Equity</td>
</tr>
<tr>
<td>item_94</td>
<td>Liabilities to financial institutions</td>
<td>Long-term Debt</td>
</tr>
<tr>
<td>item_101</td>
<td>Liabilities to financial institutions (short-term)</td>
<td>Short-term Debt</td>
</tr>
<tr>
<td>item_1103</td>
<td>Industry codes at level two</td>
<td>Industry</td>
</tr>
<tr>
<td>item_14011</td>
<td>% Equity Held by ultimate owner with rank 1</td>
<td>Rank 1 Ownership</td>
</tr>
<tr>
<td>item_15304</td>
<td>Largest family has CEO</td>
<td>Family CEO</td>
</tr>
<tr>
<td>item_15311</td>
<td>Ultimate ownership held by families</td>
<td>Family Ownership</td>
</tr>
</tbody>
</table>

Table 2: Filtering

This table presents a detailed list over the filters and samples used in our study. Aggregated Observations indicate the number of the resulting observations. Sample 1 is used in order to test Model (1), Sample 1 is used in order to test Model (1) to Model (8), and Sample 3 is used in order to test Model (9).

<table>
<thead>
<tr>
<th>Filter/Sample Number</th>
<th>Description</th>
<th>Aggregated Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter 1</td>
<td>All firms are independent</td>
<td>1 225 629</td>
</tr>
<tr>
<td>Filter 2</td>
<td>All firms are AS or ASA</td>
<td>1 225 629</td>
</tr>
<tr>
<td>Filter 3</td>
<td>Firms with negative revenue are removed</td>
<td>1 224 703</td>
</tr>
<tr>
<td>Filter 4</td>
<td>Firms with negative or zero assets are removed</td>
<td>1 217 450</td>
</tr>
<tr>
<td>Filter 5</td>
<td>Firms with negative liabilities are removed</td>
<td>1 216 096</td>
</tr>
<tr>
<td>Filter 6</td>
<td>Firms with ultimate ownership held by families exceeding 100 are removed</td>
<td>1 105 765</td>
</tr>
<tr>
<td>Filter 7-10</td>
<td>Firms in the following industries are removed: financial, utilities, public administration and gambling</td>
<td>982 559</td>
</tr>
<tr>
<td>Sample 1</td>
<td></td>
<td>982 559</td>
</tr>
<tr>
<td>Sample 2</td>
<td>Excluding firms initiated in 2005</td>
<td>934 415</td>
</tr>
<tr>
<td>Sample 3</td>
<td>Excluding firms with minority investors initially holding more than 10 % ownership</td>
<td>282 527</td>
</tr>
</tbody>
</table>
Table 3: Operationalization of Variables

This table presents a thorough overlook of how the proxies have been operationalized based on the item numbers in the database\(^1\). Alternative definitions of variables used as proxies for robustness tests are in the separated area under the line.

<table>
<thead>
<tr>
<th>Proxy</th>
<th>Operationalization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family Firm</td>
<td>item_15311 &gt; 50%</td>
</tr>
<tr>
<td>Leverage</td>
<td>(item_94 + item_101) / (item_63 + item_78)</td>
</tr>
<tr>
<td>Debt Structure</td>
<td>item_94 / (item_94 + item_101)</td>
</tr>
<tr>
<td>Ownership Concentration</td>
<td>(item_14011) / 100</td>
</tr>
<tr>
<td>Minority Investor</td>
<td>(1 - item_14011) / 100</td>
</tr>
<tr>
<td>Profitability</td>
<td>item_39 / (item_63 + item_78)</td>
</tr>
<tr>
<td>Tangibility</td>
<td>item_51 / (item_63 + item_78)</td>
</tr>
<tr>
<td>Growth</td>
<td>item_9 / (item_63 + item_78)</td>
</tr>
<tr>
<td>Firm Size</td>
<td>Log (item_63 + item_78)</td>
</tr>
<tr>
<td>Family Firm 20%</td>
<td>item_15311 &gt; 20%</td>
</tr>
<tr>
<td>Family Firm 70%</td>
<td>item_15311 &gt; 70%</td>
</tr>
<tr>
<td>Total Debt over Assets</td>
<td>(item_63 + item_78) - item_87</td>
</tr>
<tr>
<td>Margin</td>
<td>item_39 / item_9</td>
</tr>
<tr>
<td>Firm Size 2</td>
<td>Log (item_9)</td>
</tr>
</tbody>
</table>

Table 4: Industries

This table presents an overview of the industry coding from CCGR, which is based on Standard Industrial Classification (SIC) codes both from 2002 and 2007. We have grouped the codes into ten categories. No class indicates observation with missing values of industry codes, and multi code indicates observations with more than one industry code. The last three columns indicate observation numbers with their relative percentage underneath each value.

<table>
<thead>
<tr>
<th>Industry Codes</th>
<th>Number of Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SIC 2002</td>
</tr>
<tr>
<td>Nature</td>
<td>1, 2, 5, 10-14</td>
</tr>
<tr>
<td></td>
<td>2 %</td>
</tr>
<tr>
<td>Heavy Industry</td>
<td>23-35</td>
</tr>
<tr>
<td></td>
<td>3 %</td>
</tr>
<tr>
<td>Light Industry</td>
<td>15 - 21, 36</td>
</tr>
<tr>
<td></td>
<td>2 %</td>
</tr>
<tr>
<td>Services</td>
<td>71, 73, 74, 92, 69-74, 77, 78, 80-82, 93, 95</td>
</tr>
<tr>
<td></td>
<td>19 %</td>
</tr>
<tr>
<td>Retail</td>
<td>50-52</td>
</tr>
<tr>
<td></td>
<td>22 %</td>
</tr>
<tr>
<td>Building</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>11 %</td>
</tr>
<tr>
<td>Transport</td>
<td>60-64</td>
</tr>
<tr>
<td></td>
<td>4 %</td>
</tr>
<tr>
<td>Tourism</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>3 %</td>
</tr>
<tr>
<td>Publishing</td>
<td>22, 72</td>
</tr>
<tr>
<td></td>
<td>4 %</td>
</tr>
<tr>
<td>Real Estate</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>19 %</td>
</tr>
<tr>
<td>No Class</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>6 %</td>
</tr>
<tr>
<td>Multi Code</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>2 %</td>
</tr>
</tbody>
</table>

Total | 925 281 | 57 278 | 982 559

\(^1\) Missing values resulting from ratios with zero are set equal to zero. This applies for Leverage and Debt Structure.
10.1.2 The Sample

Table 5 to Table 7 give an overlook of the characteristics of variables in this sample, and the relationship between them.

Table 5: Descriptive Statistics

In this table we find a summary statistics over the main variables in our research. Leverage is measured as total institutional debt over total assets. Debt structure is measured as long-term debt over total institutional debt. Ownership concentration is measured as the proportion of equity owned by the largest owner. Tangibility is measured as tangible assets over total assets. Growth is measured as revenue over total assets. Profitability is measured as net income over total assets. And finally, firm size is measured as the natural logarithm of total assets. This table gives the mean, median, maximum value, minimum value and the standard deviation for each of the mentioned variables. N is the number of observations. All ratios have been winsorized at 2.5% in each tail. The numbers are reported for the firms' first year of operation, and also for the pooled sample.

<table>
<thead>
<tr>
<th></th>
<th>First Year</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Family Firms</td>
<td>Family Firms</td>
<td>Total</td>
<td>Family Firms</td>
<td>Family Firms</td>
<td>Total</td>
</tr>
<tr>
<td>Leverage</td>
<td>Mean</td>
<td>0.154</td>
<td>0.161</td>
<td>0.154</td>
<td>0.161</td>
<td>0.172</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Max</td>
<td>0.944</td>
<td>0.944</td>
<td>0.944</td>
<td>0.944</td>
<td>0.944</td>
</tr>
<tr>
<td></td>
<td>Min</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>St. dev</td>
<td>0.270</td>
<td>0.280</td>
<td>0.271</td>
<td>0.267</td>
<td>0.282</td>
</tr>
<tr>
<td>Debt Structure</td>
<td>Mean</td>
<td>0.268</td>
<td>0.265</td>
<td>0.268</td>
<td>0.309</td>
<td>0.304</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Max</td>
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<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td></td>
<td>Min</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>St. dev</td>
<td>0.432</td>
<td>0.431</td>
<td>0.432</td>
<td>0.450</td>
<td>0.449</td>
</tr>
<tr>
<td>Ownership</td>
<td>Mean</td>
<td>0.701</td>
<td>0.495</td>
<td>0.683</td>
<td>0.705</td>
<td>0.470</td>
</tr>
<tr>
<td>Concentration</td>
<td>Median</td>
<td>0.660</td>
<td>0.500</td>
<td>0.640</td>
<td>0.660</td>
<td>0.500</td>
</tr>
<tr>
<td></td>
<td>Max</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td></td>
<td>Min</td>
<td>0.050</td>
<td>0.000</td>
<td>0.004</td>
<td>0.021</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>St. dev</td>
<td>0.281</td>
<td>0.210</td>
<td>0.282</td>
<td>0.279</td>
<td>0.216</td>
</tr>
<tr>
<td>Tangibility</td>
<td>Mean</td>
<td>0.245</td>
<td>0.250</td>
<td>0.247</td>
<td>0.249</td>
<td>0.275</td>
</tr>
<tr>
<td>Growth</td>
<td>Median</td>
<td>0.079</td>
<td>0.059</td>
<td>0.077</td>
<td>0.087</td>
<td>0.070</td>
</tr>
<tr>
<td></td>
<td>Max</td>
<td>0.976</td>
<td>0.976</td>
<td>0.976</td>
<td>0.976</td>
<td>0.976</td>
</tr>
<tr>
<td></td>
<td>Min</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>St. dev</td>
<td>0.318</td>
<td>0.344</td>
<td>0.321</td>
<td>0.316</td>
<td>0.349</td>
</tr>
<tr>
<td>Growth</td>
<td>Mean</td>
<td>1.483</td>
<td>1.173</td>
<td>1.456</td>
<td>1.693</td>
<td>1.278</td>
</tr>
<tr>
<td>Profitability</td>
<td>Median</td>
<td>0.943</td>
<td>0.331</td>
<td>0.895</td>
<td>1.277</td>
<td>0.471</td>
</tr>
<tr>
<td></td>
<td>Max</td>
<td>7.690</td>
<td>7.690</td>
<td>7.690</td>
<td>7.690</td>
<td>7.690</td>
</tr>
<tr>
<td></td>
<td>Min</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>St. dev</td>
<td>1.783</td>
<td>1.663</td>
<td>1.775</td>
<td>1.856</td>
<td>1.719</td>
</tr>
<tr>
<td>Firm Size</td>
<td>Mean</td>
<td>-0.017</td>
<td>-0.095</td>
<td>-0.023</td>
<td>0.007</td>
<td>0.006</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>0.014</td>
<td>0.000</td>
<td>0.012</td>
<td>0.035</td>
<td>0.007</td>
</tr>
<tr>
<td></td>
<td>Max</td>
<td>0.522</td>
<td>0.522</td>
<td>0.522</td>
<td>0.522</td>
<td>0.522</td>
</tr>
<tr>
<td></td>
<td>Min</td>
<td>-1.211</td>
<td>-1.211</td>
<td>-1.211</td>
<td>-1.211</td>
<td>-1.211</td>
</tr>
<tr>
<td></td>
<td>St. dev</td>
<td>0.317</td>
<td>0.359</td>
<td>0.322</td>
<td>0.297</td>
<td>0.342</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>167.102</td>
<td>15.811</td>
<td>182.913</td>
<td>925.281</td>
<td>57.278</td>
</tr>
</tbody>
</table>

1 Dummy variables are not included in the summary statistics.
Table 6: Correlation Matrix

The following table shows the correlation coefficient between the variables used in this research. Family firm is a dummy variable that takes the value one if the family holds more than 50% of the shares, and zero otherwise. Family CEO is a dummy that takes the value one if the family holding the largest ownership has CEO, and zero otherwise. Industry1 is measured as the median institutional debt-to-assets for each industry. Industry2 is measured as the median long-term to total institutional debt within each industry. The definitions of the remaining variables can be found in Table 5.

<table>
<thead>
<tr>
<th></th>
<th>Family Firm</th>
<th>Family CEO</th>
<th>Ownership Concentration</th>
<th>Leverage</th>
<th>Debt Structure</th>
<th>Tangibility</th>
<th>Growth</th>
<th>Profitability</th>
<th>Firm Size</th>
<th>Industry1</th>
<th>Industry2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family Firm</td>
<td>1,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family CEO</td>
<td>0,171</td>
<td>1,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ownership</td>
<td>0,195</td>
<td>0,291</td>
<td>1,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concentration</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leverage</td>
<td>-0,009</td>
<td>-0,036</td>
<td>-0,090</td>
<td>1,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Debt Structure</td>
<td>0,003</td>
<td>-0,006</td>
<td>-0,085</td>
<td>0,695</td>
<td>1,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tangibility</td>
<td>-0,019</td>
<td>-0,045</td>
<td>-0,092</td>
<td>0,519</td>
<td>0,480</td>
<td>1,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Growth</td>
<td>0,053</td>
<td>0,097</td>
<td>0,020</td>
<td>-0,109</td>
<td>-0,068</td>
<td>-0,266</td>
<td>1,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Profitability</td>
<td>0,052</td>
<td>0,047</td>
<td>0,020</td>
<td>-0,118</td>
<td>0,015</td>
<td>-0,028</td>
<td>-0,022</td>
<td>1,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm Size</td>
<td>-0,075</td>
<td>-0,042</td>
<td>-0,127</td>
<td>0,199</td>
<td>0,295</td>
<td>0,236</td>
<td>-0,119</td>
<td>0,348</td>
<td>1,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industry1</td>
<td>-0,012</td>
<td>0,001</td>
<td>-0,042</td>
<td>0,072</td>
<td>0,056</td>
<td>0,066</td>
<td>-0,054</td>
<td>-0,024</td>
<td>0,054</td>
<td>1,000</td>
<td></td>
</tr>
<tr>
<td>Industry2</td>
<td>-0,009</td>
<td>-0,004</td>
<td>-0,037</td>
<td>0,066</td>
<td>0,047</td>
<td>0,062</td>
<td>-0,065</td>
<td>-0,021</td>
<td>0,050</td>
<td>0,946</td>
<td>1,000</td>
</tr>
</tbody>
</table>

Table 7: Multicollinearity

The following table give an overview of the variance inflation factor (VIF) between variables in the main regressions in this research. The definitions of the variables can be found in Tables 5 and 6.

<table>
<thead>
<tr>
<th>VIF</th>
<th>1 / VIF</th>
<th>VIF</th>
<th>1 / VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leverage</td>
<td>1,42</td>
<td>0,704</td>
<td>Ownership Concentration</td>
</tr>
<tr>
<td>Profitability</td>
<td>1,20</td>
<td>0,833</td>
<td>Profitability</td>
</tr>
<tr>
<td>Tangibility</td>
<td>1,49</td>
<td>0,671</td>
<td>Tangibility</td>
</tr>
<tr>
<td>Growth</td>
<td>1,09</td>
<td>0,917</td>
<td>Growth</td>
</tr>
<tr>
<td>Industry1</td>
<td>1,01</td>
<td>0,990</td>
<td>Industry1</td>
</tr>
<tr>
<td>Firm Size</td>
<td>1,27</td>
<td>0,787</td>
<td>Firm Size</td>
</tr>
<tr>
<td>Family Firm</td>
<td>1,02</td>
<td>0,980</td>
<td>Family Firm</td>
</tr>
<tr>
<td>Mean VIF</td>
<td>1,21</td>
<td>Mean VIF</td>
<td>1,11</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VIF</th>
<th>1 / VIF</th>
<th>VIF</th>
<th>1 / VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debt Structure</td>
<td>1,38</td>
<td>0,725</td>
<td>Family CEO</td>
</tr>
<tr>
<td>Profitability</td>
<td>1,17</td>
<td>0,855</td>
<td>Profitability</td>
</tr>
<tr>
<td>Tangibility</td>
<td>1,42</td>
<td>0,704</td>
<td>Tangibility</td>
</tr>
<tr>
<td>Growth</td>
<td>1,09</td>
<td>0,917</td>
<td>Growth</td>
</tr>
<tr>
<td>Industry2</td>
<td>1,01</td>
<td>0,990</td>
<td>Industry1</td>
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<tr>
<td>Firm Size</td>
<td>1,30</td>
<td>0,769</td>
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<tr>
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</tr>
<tr>
<td>Mean VIF</td>
<td>1,20</td>
<td>Mean VIF</td>
<td>1,11</td>
</tr>
</tbody>
</table>
10.1.3 Robustness Tests – Family Firm 20 % & Family Firm 70 %

Tables 20 to 22 show robustness tests for our main regressions presented in Tables 9 to 19, with alternative definitions of family firm. “Family firm 20 %” is a dummy variable that takes the value one if the family holds more than 20 % of the shares, and zero otherwise. “Family firm 70 %” is a dummy variable that takes the value one if the family holds more than 70 % of the shares, and zero otherwise. The definitions of the variables can be found in Tables 5 and 6. Each of the regression lines in these tables indicate separate regression results, each run with their own set of control variables. The number in brackets on the left- hand side indicates the model number. For further explanation of these regressions, see sections 7.1.1 – 7.3.4.

Table 20: Initial Financing

The dependent variable in the two first regressions is leverage, in the two next regressions is debt structure, and in the last two regressions is ownership concentration.

<table>
<thead>
<tr>
<th>leverage</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>Pooled</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Family Firm 20%</td>
<td>0,076***</td>
<td>0,068***</td>
<td>0,077***</td>
<td>0,065***</td>
<td>0,036***</td>
<td>0,090***</td>
<td>0,058***</td>
<td>0,015***</td>
<td>0,088***</td>
<td>0,061***</td>
<td>0,069***</td>
<td>0,068***</td>
</tr>
<tr>
<td>R²</td>
<td>28%</td>
<td>31%</td>
<td>29%</td>
<td>29%</td>
<td>31%</td>
<td>31%</td>
<td>30%</td>
<td>28%</td>
<td>27%</td>
<td>30%</td>
<td>30%</td>
<td>29%</td>
</tr>
<tr>
<td>(2) Family Firm 70%</td>
<td>0,038***</td>
<td>0,032***</td>
<td>0,030***</td>
<td>0,027***</td>
<td>0,017 ***</td>
<td>0,034 ***</td>
<td>0,034 ***</td>
<td>0,018 ***</td>
<td>0,019 ***</td>
<td>0,014 *</td>
<td>0,028 ***</td>
<td>0,029 ***</td>
</tr>
<tr>
<td>R²</td>
<td>28%</td>
<td>31%</td>
<td>29%</td>
<td>29%</td>
<td>31%</td>
<td>31%</td>
<td>30%</td>
<td>28%</td>
<td>27%</td>
<td>30%</td>
<td>30%</td>
<td>29%</td>
</tr>
</tbody>
</table>

Table 21: Minority Inclusion

The first two regressions are based on the whole sample, while the next two regressions are only based on the sample defined as family firm.

<table>
<thead>
<tr>
<th>coefficient</th>
<th>2001</th>
<th>2007</th>
<th>Pooled</th>
</tr>
</thead>
<tbody>
<tr>
<td>(4) Family Firm 20%</td>
<td>-0,887***</td>
<td>0,412***</td>
<td>-2,178***</td>
</tr>
<tr>
<td>(4) Family Firm 70%</td>
<td>-2,818***</td>
<td>0,060***</td>
<td>-3,412***</td>
</tr>
<tr>
<td>N</td>
<td>16669</td>
<td>18763</td>
<td>251728</td>
</tr>
</tbody>
</table>

Family Firm 20%

<table>
<thead>
<tr>
<th>coefficient</th>
<th>2001</th>
<th>2007</th>
<th>Pooled</th>
</tr>
</thead>
<tbody>
<tr>
<td>(5) Family CEO</td>
<td>-0,646***</td>
<td>0,524***</td>
<td>-0,511***</td>
</tr>
<tr>
<td>N</td>
<td>16584</td>
<td>18725</td>
<td>250911</td>
</tr>
</tbody>
</table>

Family Firm 70%

<table>
<thead>
<tr>
<th>coefficient</th>
<th>2001</th>
<th>2007</th>
<th>Pooled</th>
</tr>
</thead>
<tbody>
<tr>
<td>(5) Family CEO</td>
<td>-0,648***</td>
<td>0,523***</td>
<td>-0,543***</td>
</tr>
<tr>
<td>N</td>
<td>16438</td>
<td>18637</td>
<td>249264</td>
</tr>
</tbody>
</table>
Table 22: Survival

The first two regressions are based on the whole sample, while the last six regressions are only based on the sample defined as family firm.

<table>
<thead>
<tr>
<th>Family Firm 20%</th>
<th>2001</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>Hazard Ratio</td>
<td>Coefficient</td>
<td>Hazard Ratio</td>
<td>Coefficient</td>
<td>Hazard Ratio</td>
<td>Coefficient</td>
<td>Hazard Ratio</td>
<td>Coefficient</td>
<td>Hazard Ratio</td>
</tr>
<tr>
<td>(6)</td>
<td>-0.510 **</td>
<td>0.601 ***</td>
<td>-0.386 ***</td>
<td>0.680 ***</td>
<td>-0.609 ***</td>
<td>0.544 ***</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>(6) Family Firm 70%</td>
<td>-0.417 **</td>
<td>0.659 ***</td>
<td>-0.425 ***</td>
<td>0.654 ***</td>
<td>-0.396 ***</td>
<td>0.673 ***</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>N</td>
<td>55384</td>
<td>39834</td>
<td>763595</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Family Firm 20%

<table>
<thead>
<tr>
<th>Leverage</th>
<th>0.270 ***</th>
<th>1.310 ***</th>
<th>0.329 ***</th>
<th>1.389 ***</th>
<th>0.318 ***</th>
<th>1.374 ***</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>Debt Structure</td>
<td>-0.004</td>
<td>0.996</td>
<td>0.067</td>
<td>1.070</td>
<td>-0.010</td>
<td>0.990</td>
</tr>
<tr>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>54088</td>
<td>39211</td>
<td>753145</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minority</td>
<td>0.033</td>
<td>1.034</td>
<td>-0.093</td>
<td>0.911</td>
<td>0.041 **</td>
<td>1.042 **</td>
</tr>
<tr>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>19029</td>
<td>19421</td>
<td>28125</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Family Firm 70%

<table>
<thead>
<tr>
<th>Leverage</th>
<th>0.269 ***</th>
<th>1.308 ***</th>
<th>0.347 ***</th>
<th>1.414 ***</th>
<th>0.325 ***</th>
<th>1.384 ***</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>Debt Structure</td>
<td>0.002</td>
<td>1.002</td>
<td>0.072</td>
<td>1.075</td>
<td>-0.010</td>
<td>0.990</td>
</tr>
<tr>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>48165</td>
<td>36134</td>
<td>686356</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minority</td>
<td>-0.050</td>
<td>0.951</td>
<td>-0.193</td>
<td>0.825</td>
<td>-0.011</td>
<td>0.989</td>
</tr>
<tr>
<td>0.488</td>
<td>0.488</td>
<td>0.152</td>
<td>0.152</td>
<td>0.594</td>
<td>0.594</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>18538</td>
<td>19243</td>
<td>275677</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
10.1.4 Robustness Tests – Total Debt to Assets

Tables 23 and 24 show robustness tests for our main regressions presented in Table 8 and Table 17, with leverage measured as total debt over total assets, denoted as “Total D/A” in the regressions. The industry variable is in this case measured as the median total debt over total assets for each industry, and is denoted as “Industry”. The definitions of the variables can be found in Tables 5 and 6. For further explanation of these regressions, see sections 7.1.1 and 7.3.2.

Table 23: Model (1a), all years

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient 2001</th>
<th>Coefficient 2007</th>
<th>Coefficient Pooled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total D/A</td>
<td>0.129 *** 1,137 ***</td>
<td>0.129 *** 1,137 ***</td>
<td>0.125 *** 1,133 ***</td>
</tr>
<tr>
<td>Growth</td>
<td>0.006 1,006</td>
<td>0.025 1,026</td>
<td>0.000 1,000</td>
</tr>
<tr>
<td>Tangibility</td>
<td>-0.251 0,778 ***</td>
<td>-0.066 0,936</td>
<td>-0.237 0,789 ***</td>
</tr>
<tr>
<td>Profitability</td>
<td>-0.609 0,544 ***</td>
<td>-0.627 0,534 ***</td>
<td>-0.534 0,586 ***</td>
</tr>
<tr>
<td>Firm Size</td>
<td>0.035 1,035 ***</td>
<td>-0.009 0,991</td>
<td>-0.005 0,995 *</td>
</tr>
<tr>
<td>Industry</td>
<td>0.042 1,043</td>
<td>1,186 3,275 ***</td>
<td>0.122 1,130 ***</td>
</tr>
</tbody>
</table>

Table 24: Model (7), only family firm

<table>
<thead>
<tr>
<th>Year</th>
<th>Coefficient</th>
<th>Hazard Ratio</th>
<th>Coefficient</th>
<th>Hazard Ratio</th>
<th>Coefficient</th>
<th>Hazard Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>0.129 *** 1,137 ***</td>
<td>0.000 1,000</td>
<td>0.025 1,026</td>
<td>0.000 1,000</td>
<td>0.000 1,000</td>
<td>0.000 1,000</td>
</tr>
<tr>
<td>2007</td>
<td>-0.251 0,778 ***</td>
<td>0.066 0,936</td>
<td>-0.627 0,534 ***</td>
<td>0.000 1,000</td>
<td>-0.009 0,991</td>
<td>-0.005 0,995 *</td>
</tr>
<tr>
<td>2008</td>
<td>0.035 1,035 ***</td>
<td>0.051 0,501</td>
<td>1,186 3,275 ***</td>
<td>0.000 1,000</td>
<td>0.000 1,000</td>
<td>0.000 1,000</td>
</tr>
<tr>
<td>N</td>
<td>51212</td>
<td>37605</td>
<td>723967</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
10.1.5 Robustness Tests – Margin

Tables 25 to 27 show robustness tests for our main regressions presented in Table 9 to 19, with profitability measured as revenue over total assets, denoted as “Margin”. The definitions of the variables can be found in Tables 5 and 6. Each of the regression lines in these tables indicate separate regression results, each run with their own set of control variables. The number in brackets on the left-hand side indicates the model number. For further explanation of these regressions, see sections 7.1.1 – 7.3.4.

Table 25: Initial Financing

The dependent variable in the first regression is leverage, in the next regression is debt structure, and in the last regression is ownership concentration.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Family Firm</td>
<td>0.036***</td>
<td>0.000 ***</td>
<td>0.015***</td>
<td>0.006 ***</td>
<td>0.038***</td>
<td>0.017***</td>
<td>0.009***</td>
<td>0.001***</td>
<td>0.005***</td>
<td>0.016***</td>
<td>0.002***</td>
</tr>
<tr>
<td>N</td>
<td>21%</td>
<td>24%</td>
<td>25%</td>
<td>22%</td>
<td>27%</td>
<td>26%</td>
<td>27%</td>
<td>28%</td>
<td>24%</td>
<td>25%</td>
<td>26%</td>
</tr>
</tbody>
</table>

Table 26: Minority Inclusion

The first regression is based on the whole sample, while the last regression is only based on the sample defined as family firm.

<table>
<thead>
<tr>
<th>2001</th>
<th>2007</th>
<th>Pooled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coefficient</td>
<td>Hazard Ratio</td>
<td>Coefficient</td>
</tr>
<tr>
<td>(4) Family Firm</td>
<td>-2.322***</td>
<td>0.098***</td>
</tr>
<tr>
<td>N</td>
<td>12143</td>
<td>11997</td>
</tr>
<tr>
<td>(5) Family CEO</td>
<td>-0.748***</td>
<td>0.473***</td>
</tr>
<tr>
<td>N</td>
<td>12053</td>
<td>11945</td>
</tr>
</tbody>
</table>

Table 27: Survival

The first regression is based on the whole sample, while the last three regressions are only based on the sample defined as family firm.

<table>
<thead>
<tr>
<th>2001</th>
<th>2007</th>
<th>Pooled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coefficient</td>
<td>Hazard Ratio</td>
<td>Coefficient</td>
</tr>
<tr>
<td>(6) Family Firm</td>
<td>-0.554***</td>
<td>0.575***</td>
</tr>
<tr>
<td>N</td>
<td>41432</td>
<td>26717</td>
</tr>
<tr>
<td>(7) Leverage</td>
<td>0.479***</td>
<td>1.614***</td>
</tr>
<tr>
<td>N</td>
<td>38783</td>
<td>25402</td>
</tr>
<tr>
<td>(8) Debt Structure</td>
<td>0.031</td>
<td>1.032</td>
</tr>
<tr>
<td>N</td>
<td>38783</td>
<td>25402</td>
</tr>
<tr>
<td>(9) Minority</td>
<td>-0.080</td>
<td>0.923</td>
</tr>
<tr>
<td>N</td>
<td>13878</td>
<td>12431</td>
</tr>
</tbody>
</table>
10.1.6 Robustness Tests – Firm Size 2

Tables 28 to 30 show robustness tests for our main regressions presented in Tables 9 to 19, with firm size measured as the natural logarithm of revenue, denoted as “Firm Size 2”. The definitions of the variables can be found in Tables 5 and 6. Each of the regression lines in these tables indicate separate regression results, each run with their own set of control variables. The number in brackets on the left-hand side indicates the model number. For further explanation of these regressions, see sections 7.1.1 – 7.3.4.

Table 28: Initial Financing

The dependent variable in the first regression is leverage, in the next regression is debt structure, and in the last regression is ownership concentration.

<table>
<thead>
<tr>
<th></th>
<th>Leverage</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>Firms-MacBeth</th>
<th>Pooled</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Family Firm</td>
<td></td>
<td>0.037***</td>
<td>0.025***</td>
<td>0.025**</td>
<td>0.013</td>
<td>0.000</td>
<td>0.021**</td>
<td>0.040***</td>
<td>0.000***</td>
<td>0.000***</td>
<td>0.000***</td>
<td>0.009</td>
<td>0.026***</td>
<td>0.026***</td>
</tr>
<tr>
<td>R²</td>
<td>21%</td>
<td>21%</td>
<td>25%</td>
<td>22%</td>
<td>27%</td>
<td>21%</td>
<td>29%</td>
<td>25%</td>
<td>21%</td>
<td>24%</td>
<td>25%</td>
<td>25%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

|                | Debt Structure | 0.061*** | 0.050*** | 0.051*** | 0.056*** | 0.073*** | 0.056*** | 0.058*** | 0.029*** | 0.055*** | 0.031*** | 0.050*** | 0.049*** |
|                | R²           | 20%      | 21%     | 21%     | 24%     | 23%     | 25%     | 25%     | 21%     | 22%     | 22%     | 22%     |

|                | Ownership Concentration | 0.199*** | 0.188*** | 0.156*** | 0.158*** | 0.254*** | 0.190*** | 0.183*** | 0.237*** | 0.185*** | 0.186*** | 0.194*** | 0.196*** |
|                | R²           | 6%       | 5%      | 4%      | 9%      | 6%      | 7%      | 13%     | 5%      | 6%      | 7%      | 6%      |
|                | N            | 7756     | 6743    | 6214    | 6427    | 6057    | 8948    | 5039    | 3452    | 6659    | 3600    | 61705   | 61705    |

Table 29: Minority Inclusion

The first regression is based on the whole sample, while the last regression is only based on the sample defined as family firm.

<table>
<thead>
<tr>
<th></th>
<th>2001</th>
<th>2007</th>
<th>Pooled</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>Hazard Ratio</td>
<td>Coefficient</td>
</tr>
<tr>
<td>(4) Family Firm</td>
<td>-2,316***</td>
<td>0,099***</td>
<td>0,000</td>
</tr>
<tr>
<td>N</td>
<td>12143</td>
<td>11997</td>
<td>181558</td>
</tr>
<tr>
<td>(5) Family CEO</td>
<td>-0,770***</td>
<td>0,463***</td>
<td>0,000</td>
</tr>
<tr>
<td>N</td>
<td>12053</td>
<td>11945</td>
<td>180545</td>
</tr>
</tbody>
</table>

Table 30: Survival

The first regression is based on the whole sample, while the last three regressions are only based on the sample defined as family firm.

<table>
<thead>
<tr>
<th></th>
<th>2001</th>
<th>2007</th>
<th>Pooled</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>Hazard Ratio</td>
<td>Coefficient</td>
</tr>
<tr>
<td>(6) Family Firm</td>
<td>-0,529***</td>
<td>0,589***</td>
<td>0,000</td>
</tr>
<tr>
<td>N</td>
<td>41432</td>
<td>26717</td>
<td>571275</td>
</tr>
<tr>
<td>(7) Leverage</td>
<td>0,324***</td>
<td>1,383***</td>
<td>0,000</td>
</tr>
<tr>
<td>(8) Debt Structure</td>
<td>0,035</td>
<td>1,036</td>
<td>0,044</td>
</tr>
<tr>
<td>N</td>
<td>38783</td>
<td>25402</td>
<td>545808</td>
</tr>
<tr>
<td>(9) Minority</td>
<td>-0,098</td>
<td>0,906</td>
<td>-0,095</td>
</tr>
<tr>
<td>N</td>
<td>13878</td>
<td>12431</td>
<td>202124</td>
</tr>
</tbody>
</table>
BI Norwegian Business School

Preliminary Thesis Report

Study program:
MSc in Business and Economics
Major in Finance

Title:
The Capital Structure of Family Firms

Name of supervisor:
Bogdan Stacescu

Exam code:
GRA 19003

Date of submission:
15.01.2014

Study place:
BI Oslo
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1. Introduction

The purpose of our thesis is to explore the capital structure of family firms in Norway. Our research will be based on investigating how the firms are financed, when they start up and if and when they get external investments. We will also look at what happens in the company after external investments. We expect to find differences across industries, and our hypotheses are based on this.

The motivation behind our thesis topic is that family firms are an extensive area in Norway, but need to be further explored. As far as we know, there is no existing research on the capital structure of family firms, making the capital structures and funding decision an open scope that still needs to be explored. Hence, we expect to contribute with new knowledge to the field of family firms.

The preliminary thesis report is structured as follows. In the second section we have a literature review where we focus on general theory of family firms, agency theory and capital structure. In the third section we explain our motivation behind the research and our expected contribution. The fourth section contains our research question and hypotheses. Then we go on to the fifth section, where we explain how we will go about in order to conduct our research and what data we are going to use. In the sixth section we have included a plan of the working progress.

2. Literature Review

2.1 Family Firms

There is no standard definition of family firms. Several studies, including Anderson and Reeb (2003), suggest that a family firm is characterized by the number of shares the family holds, in addition to the number of family members represented in the board. La Porta, Lopez-De-Silanes and Shleifer (1999) claim that at least 20% ownership is sufficient by the controlling shareholders. On the other side, Bøhren (2011) suggest that in a family firm, the family owns at least 50% of the shares in the firm. In a situation where the family owns 100% of the shares the firm is termed a real family firm (Bøhren 2011).

In our thesis we will define a family firm as a firm with members that are related through marriage or blood, owning more than 50% of the shares of the firm.
The ownership, board and management are closely related in a family firm. This type of ownership structure is the opposition of the one in listed firms, where it is common with a distinction between the management and the ownership (Bøhren 2011). Berzins and Bøhren (2013) state that about 2/3 of all AS and ASA firms in Norway are family firms, making this organizational form significant in Norway. Additionally, Morck, Stangeland and Yeung (2000) mention that this organizational form is the most common in the whole world, which is also confirmed by Lee (2004).

2.2 Agency Theory

Agency theory is central in the area of corporate governance (Bøhren 2011). Jensen and Meckling (1976) define agency relationships as “a contract under which one or more persons engage another person to perform some service on their behalf which involves delegating some decision making authority to the agent”. One can define four types of agency problems: between owner and manager (A1), between large and small owners (A2), between owner and creditor (A3) and between owner and stakeholders (A4) (Bøhren 2011).

The classic agency problem, A1, is the potential conflict between the owner and the manager. Assuming that both parties are utility maximizers, diverging interests between them are sources of agency conflict (Jensen and Meckling 1976). The manager of a family firm may be incentivised to act in its own interest rather than acting on behalf of the owners. However, due to the close ties in family firms the first agency problem is mitigated. The large shareholders have great incentives for monitoring the manager (Villalonga and Amit 2006).

The second agency problem, A2, is the potential conflict between large and small owners. A large shareholder may take advantage of its position to extract benefits at the expense of the small shareholders (Villalonga and Amit 2006). By considering the family as the majority shareholder, they might have incentives to exploit minority investors. For example by retaining earnings and investing in projects aligned with the family’s interest. These are not always the profit maximizing investments and therefore minority shareholders will prefer dividend payments (La Porta et al 2000). Villalonga and Amit (2006) found that whether
and which of the first two agency problems affect the firm is highly contingent upon whether the CEO is a founder or a descendant.

The third agency problem, A3, is the potential conflict between the owners and the creditors (Bøhren 2011). In general, the owners have higher incentives to take on risk than the creditors because they seek higher returns. As higher risk increases the chance of default on debt, there is a potential conflict of interest between the creditors and the owners. Family firms have less incentive for transparency, hence the banks may be restrictive in approving loans. At the same time, family firms are more reluctant to dilute their ownership by issuing stock and therefore are willing to lever up (Bøhren 2011).

The fourth agency problem, A4, is the potential conflict between the owners and the stakeholders. The stakeholders are all individuals that are not on the board or creditors, but still are affected by the actions of the company (Bøhren 2011). The employees are an important group of stakeholders, and an example of a conflict is if a transformation in the company causes downsizing.

2.3 Capital Structure
The capital structure of a company refers to how a firm finances its assets with different sources for funding. Today there are a wide variety of financing instruments, but the fundamental question in designing a capital structure is the choice between debt and equity (Koller et al. 2010). The capital structure is commonly specified as the debt-to-equity ratio and provides a picture of the level of risk in the company. In the classic paper by Modigliani and Miller (1958) they claimed that in a perfect and frictionless market the value of a firm is unaffected by its capital structure. However, the irrelevance proposition does not hold in the real world, with market imperfections like taxes, bankruptcy costs, asymmetric information and agency costs (Berk and DeMarzo 2007). For example, there are tax benefits related to having debt making the capital structure matter.

There is not one single theory of the optimal capital structure, but several useful conditional theories. Myers’ article from July 1984 is based on two approaches when trying to explain a firm’s capital structure. The first one is the static tradeoff, stating that a firm will work towards a target debt-to-equity ratio, while
the second is the pecking order. We have taken into account the theory from the Pecking Order when doing our background research.

2.4 Pecking Order Theory
The Pecking Order Theory was first termed by Myers in July 1984, but already described in 1961 by Donaldson (Myers 1984), and explained by Myers and Majluf in detail early 1984. When a firm is searching for a source of funding, this theory suggests that the firm will prefer internal funding to external funding. Internal funding includes wealth invested by the owners and retained earnings in the firm. The external funding can be divided into debt and equity, where debt will be chosen before the equity. External funding as debt and equity is considered least favourable as a financing source due to the information asymmetries that might arise between the managers and the investors of a firm (Leary and Roberts 2009). There is also a modified Pecking Order Theory that additionally includes the effect of distress costs associated with the use of debt (Leary and Roberts 2009). Based on this modified theory, firms tend not to follow the Pecking Order Theory strictly, but often rather choose external equity instead of debt even though both options are available (Berk and DeMarzo 2007).

The pecking order theory is to some degree supported by Magnussen and Sundelius (2011), stating that family firms prefer debt instead of equity when financing new projects. Based on this statement they additionally claim that family firms tend to have a higher debt-to-asset ratio. This assumption can be supported by the findings of Bøhren (2011), arguing that family firms do not often go public. Because the family members need to maintain the majority of the ownership, they are to some extent limited when raising funds. The reason for this is that by raising external equity the control of the firm is likely to be passed on to external members. Therefore, family firms often raise equity through either investing more of their own wealth, or retain earnings from operational profit (Bøhren 2011).

2.5 Asymmetric Information and Signalling
Leland and Pyle (1977) argue that information transfer is necessary for good projects to be financed. Direct transfer of information on project quality is prevented by moral hazard. Entrepreneurs have incentives for exaggerating good
qualities because this is a potential source for reward. As the true value of a project is difficult to find for outsiders it may be difficult for an entrepreneur to attract external investors. However, the authors claim that insiders’ willingness to invest may serve as a signal to the market of the true quality of the project. The rationale behind this is that an entrepreneur is motivated to choose a higher fraction of ownership in more favourable project (Leland and Pyle 1977). Hence, the value of the firm increases with the share held by the entrepreneur. Leland and Pyle (1977) suggest that financial intermediation can be viewed as a natural response to asymmetric information.

3. Motivation

Even though the importance of family firms is recognised, this is still an area that needs to be further explored. As former mentioned, a large proportion of Norwegian firms are family firms. The features of family firms that differ from non-family firms make it an interesting topic to do research on.

3.1 Contribution

When performing the background research of our study, we noticed that a large part of the existing literature on family firms concerns the performance of the companies. However, as far as we know, there are no studies investigating the financing of Norwegian family firms. This is largely due to lack of relevant data, but as we will explain in section five, we have the data needed. If we find significant support in our research, our study is expected to be a relevant contribution to this broad topic.

4. Research Topic

Our research topic is “The financing of family firms”. We will in general try to figure out how family firms are financed in different time scenarios during their operational business cycle. The research will be conducted in three steps, where we more specifically aim to answer the following research questions:

1. How is the capital structure the first operating year of a start up?
2. When does a family firm start with external financing?
3. What happens in a family firm after the external financing?
There are several variables that might be relevant based on these research questions. Following is a model of possible variables:

However, we have chosen to primarily focus on the industry as a variable when performing our research.

### 4.1 Industry

Firms in different industries run their operations through different types of assets. Some firms find it necessary to invest in tangible assets already in the first operational year. Other firms might have intangible assets where no upfront investment is required. This will probably also affect the timing of external investment. We believe that what happens after external investment also depends on industry characteristics. The growth of a company will most likely depend on the condition of the industry. It will therefore be relevant to consider how family firms are financed based on differences in the industry. As we can see from the findings of Magnussen and Sundelius (2011), the growth of a family firm tends to differ compared to a non-family firm. This finding makes us believe that there might be some special characteristics in a family firm that affect the growth. We base our research on the following three hypotheses.

1. **Start up**

   - **H1\_0** The industry a family firm belongs to have no effect on the financing of a start up
   - **H1\_A** The industry of a family firm will have significant effect on the initial financing of the start up.
(2) The timing of external investment

H1₀ The industry a family firm belongs do not affect the timing of external investment

H2ₐ The industry of a family firm will have significant effect on when the firm start with external financing.

(3) The effect of external investment

H₃₀ The growth of a family firm after external investment do not depend on the industry it belongs to

H₃ₐ The industry of a family firm will have a significant effect on the growth of the firm after external investment.

5. Methodology

Our research will, as previously mentioned, mainly be conducted in three steps. First, we will check how the initial capital structure is in the first operating year. This will be done by looking at the balance sheet for the start up year, and how the debt-to-equity ratio is for this time period. Second, we will check if and when the firms start with funding from external investors. This will be done by using a Poisson regression. Third, we will investigate what has happened after the potential external funding/investment. Based on these steps we hope to find an answer to our research, and a possible trend in the capital structure of family firms.

5.1 Data Collection

We will extract the necessary data from the Center for Corporate Governance Research (CCGR), which we will get access to through our supervisor, Bogdan Stacescu. CCGR provides relevant data mainly based on family- and non-listed firms in Norway, within the time range of 1994 to 2011. The data available in this database will be essential when doing our research. We will use the data from 2000- 2011 in the study.
5.2 Poisson Regression

Poisson regression is an example of Generalized Linear Model (Schwarz 2013). The variables that are being analysed using Poisson regression are numerical and countable variables. This might often be counts of rare events that has occurred during a given time period (Poisson Regression Analysis 2013). In our thesis we will use this regression in order to find the number of family firms having external financing per year. By doing so, we will hopefully be able to find when the respectively family firms started with their external funding. In our regression model the dependent variable will be how many family firms have external financing per year, described by a set of explanatory variables. Because the counts are positive integers, the mean will be higher than zero. Hence, it will be appropriate to use the natural logarithm of the dataset of the dependent variable when making the necessary regression model. (Poisson Regression Analysis 2013)

This will be the initial regression model, where $Y$ is the dependent variable, $X_n$ are the explanatory variables, and $\beta_n$ are the parameters (Stock and Watson 2012, 152).

$$\log (Y) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_n X_n$$

By using the natural logarithm, we obtain the following regression model:

$$Y = (e^{\beta_0})(e^{\beta_1 X_1})(e^{\beta_2 X_2})\ldots(e^{\beta_n X_n})$$

As we can see from equation (2), this Poisson regression expresses the dependent variable as a linear function with predictors.

In our thesis we will use the Poisson regression for the following analysis:
P1: The number of family firms that receive external investment per year.
6. Progress

6.1 Time Schedule

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Research       We will use approximately two months when doing the background research necessary for our thesis.

Deliver Preliminary The deadline for the submission is 15\textsuperscript{th} of January.

Feedback       We assume to receive feedback from our supervisor on our Preliminary Master Thesis about one week after the submission date.

Revision       The following week will contain revision of the Preliminary and progression according to the feedback received.

Presentation   The date for the presentation of the Preliminary Master Thesis is not set. However, we have scheduled it to be in February or beginning of March.

Estimation     In March our background research period will be done, and we will continue with the estimation period. This period will approximately last one month, and will contain the regressions that need to be conducted.

Delivery draft We hope to be able to deliver a draft to our supervisor in the very beginning of April.

Feedback       This will be feedback received on the delivery draft.

Finalize Thesis In the middle of April we will start finalizing our thesis by making the final revision and adjustments.

Delivery Thesis The Thesis will be signed, sealed and delivered within the submission date of 1\textsuperscript{st} of September.
7. References


Magnussen, Torbjørn and Martin B. Sundelius. 2011. “Do family firms grow differently than non-family firms?”


