

Do family firms grow differently than non-family firms?

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Abstract

This thesis seeks to explain family firm growth in a corporate governance context, and provide statistics on how family firms grow in Norway. We set up a simple panel data model based on contemporary knowledge, and find that family ownership has something to say on growth. We find that unlisted family firms show lesser growth than non-family firms. Even after we consider for financial stress and other known factors influencing growth, the effect still persist.

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1 Introduction

The recent financial crisis has shown us how important growth is, and that the consequence of weak growth can be social unrest and political instability. In this context we know that the economy in our part of the world is very dominated by family ownership (Morck, Wolfenzon, and Yeung, 2005). Since these families might have different attitude towards investment projects, it will be very interesting to see if this corporate governance issue of aligned interest will result in different growth rates. Because there is a difference and corporate governance will matter for the economy. Also, in the real economy, family owners would clearly benefit on both the cost and on controlling their firms by their own, rather than hiring professional managers. Although aligned interest of ownership and management is beneficial for the owner, it might not be beneficial for overall economical growth, because the family firms might have conflicting incentives and preferences. We will contribute with using a huge and very detailed Norwegian dataset, and exploratively investigate whether a theoretical corporate governance framework could explain some of the different growth rates that exist between family and non-family firms. Our research question is:

In what way does family ownership influence the growth of a company?

Specifically, we are analyzing in what direction does family ownership contribute to the growth of the firm. Our research question signals that we believe that there are certain influencing factors arising from a family ownership. The research question should be read in the context of the growing corporate governance literature, particularly the stream related to family ownership. Indirectly, we also examine if families invest differently, although we are unable to provide much empirical insight to the same. This thesis questions whether family ownership creates a better growth-conditions than those created by a non-family firm.

This paper is structured as follows: It starts with a review of existing literature, theory and empiric followed by our research and finally our methodology is presented.

2 Literature review

The corporate governance literature on family control is divided into what can be coined the competitive advantage and the private benefits of control (Villalonga and Amit, 2010). The first category of papers seeks to explain that there is a competitive advantage with family control, i.e., the structure

of ownership and control is optimal and provide better alignment of interests among the most important stakeholders in the firm. The second category explains why family ownership is beneficial for the family only, while it is non-beneficial for minority owners. Fortunately, some of the literature is supported by quantitative empirical investigations, and we will refer to some of these results during the course of this paper. It is important to mention that it is only recently that corporate governance from a quantitative financial perspective has gained momentum in terms of published articles. We review literature with the objective of giving a theoretical foundation for our model, based on theories on firm growth, financial theories and theoretical propositions taken from the corporate governance area.

2.1 Family firms

Agency problems and growth are two subjects that have considerable attention, particularly on the aggregate (**macro**) level. The subject is studied from a range of perspectives, and much of the research have been qualitative, for instance in strategy and organizational disciplines. Still, an increasing amount of literature is being conducted in a quantitative manner due to the increasing availability of data. Little research has been done on the relationship between family ownership and growth in unlisted companies. The aim of this thesis is to investigate how family ownership affects the growth rate of family firms. An outcome of our research will be increased clarity on how family firms grow, and how this growth differs from non-family private firms.

Generally, non-listed firms owned by large families dominate the economy Morck, Wolfenzon, and Yeung (2005). Furthermore, a significant part of the corporate governance literature concerning family firms has been conducted on listed firms. One explanation is the scarce availability of reliable data material and the fact that most research is done on the Anglo-Saxon countries that are known to have a large part of their companies listed.

The literature does not provide us with a clear definition of a family firm. Several empirical studies use different thresholds on ownership concentration as a proxy for control of the firm. There has been several different thresholds levels which creates a dummy variable in the corporate governance literature. The most common threshold is the 20% threshold. In contrast, the literature uses ownership concentration and low thresholds, often in the 10-20% region on listed firms. The low threshold is often explained by small owners not attending board meetings and in that way a large investor could control a firm with a smaller fraction of ownership.

Investing in unlisted family businesses is something that the most successful and wealthy investors do. For instance, Warren Buffet, the third richest man

in the world looks for family businesses when he is searching for new firms in Europe¹. He has successfully pursued a strategy of acquiring family firms and let the family still be in-charge of the firms (in which many have been unlisted beforehand). Since the one of the worlds best investors find special value in family firms, it it interesting to get more insight into the mechanics and incentives of family firms.

Summarizing, family firms are special because they are governed differently and have a different investment behavior. Understanding family firms can be valuable for an investor. Next subsection will mention some growth insights and how they are related to family firms.

2.2 Growth

Coad and Holzll (2010) find that growth rate are hard to predict, and that it is better modeled as a random process, because there is very little persistence in the growth rate. Growth levels are not clustered in certain sectors, nor are the high growth firms young or small. Another insight they provide us with is that growth distribution is heavily tailed, in which the tail provides the growth of the economy, and where the average firms create very moderate growth levels.

Also, many managers are very concerned about growing their firms. Growth is associated with more prestige for some managers. Still, for some families, growth might be a result of more risk-taking.

Few studies of family firms have been done with growth as a dependent variable. On the contrary, performance is often the object of measure for empirical studies. Still, growth is indirectly used in studies as a control variable. Lately empirics have shown that listed family firms increased their sales on an average by 2% more than that of non-family listed firms from 2006-2009 (Villalonga and Amit, 2010). Another study with 1000 listed French firms in the period from 1994-2000 revealed a sales growth rate of 16% for family firms that were run by the founders, and 7% for both descendant managed and widely held non-family firms (Sraer and Thesmar, 2007). Thus they argued that family firms significantly outperformed comparable non-family firms. Their definition of a family firm required one family to own a voting block of at least 20%.

Firms benefit with economies of scale, for example, by serving larger markets and minimizing fixed cost as a part of the total cost picture. Growing firms attract more qualified employees due to better expected career opportunities, and the growth is often more sustainable than performance on profitability (Coad, 2009). Growth is a critical factor in the investors' process of valuing firms (Koller, Goedhart, Wessels, Copeland, McKinsey, and Company, 2005).

¹ <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=aIz3cvRYvHW0>
Retrieved 08/26/11

To achieve growth a firm needs to have the capital to invest and the growth opportunities. To detect the growth opportunities the firm needs the knowledge to detect them. They also need the power to act upon them before they disappear.

Hamelin (2009) studied the firm growth of French non-listed SMEs. We categorize this as a study on the **micro level** since the sample consisted of accounting statements from many individual firms. Her result was that family firms grow slower than non-family firms. Hence we adopt the following hypothesis:

H_{A1} : Family firms grow slower than non-family firms.

To sum up, growth is hard to predict. Furthermore, unlisted firms have different growth percentages than those that are listed firms. Still, growth is important for the firm, investors and the economy. In addition, SME family firm grows slower than non-family firms in France. We adapt Hamelin (2009) as our base case and follow her methodology in our model.

2.3 Agency theories

Agency Problem 1 (A1) In one of the most cited articles about corporate governance Jensen and Meckling (1976) incorporated agency theories into a financial setting. They identified and modeled agency conflicts between owner (principal) and management (agent), which they labeled A1. The theory argues that there is less reason to monitor this conflict in an owner managed firm than it is in a family firm because of the aligned interests with respect to growth opportunities and risk preferences.

Agency Problem 2 (A2) A2 is between the majority owner who controls the firm, and the minority owners, who might be exploited. Specifically for family firms, there have been a series of debates on exploitation of private benefits of control (Grossman and Hart, 1980). Here, the incumbent owning management exploit the minority shareholders through extracting benefits. The cost can be allocated either from the management to the shareholders, or from large shareholders to minority shareholders. It is appropriate to restrict the problem to exploitation of minority shareholders (A2), because the management-shareholders problem (A1) is not relevant for a family firm by definition. In a series of seminal articles, Porta, Lopez-De-Silanes, and Shleifer (1999) found evidence of **pyramid structures**, and a split of controlling and owning shareholder classes, both with the suspected intention of taking advantage of the private benefits. This is a cost for both the minority shareholders, and the society, which might result in a growth that is not optimal compared with the firm's growth potential.

Unlisted firms generally have higher ownership concentration. A1 is less likely to be a severe problem for the total population of unlisted firms. On the other hand, A2 is a significant problem because dominant owners want to exploit the minority owners.

Agency Problem 3 (A3) A3 is the possible conflict between shareholders and creditors. Because the family firm have less incentive for transparency, we expect A3 to be higher. As a consequence banks will be more reluctant to give loans, causing financial constraints and hence underinvestment. A3 might also reduce the willingness to take risky project and thus give a lower growth rate. On the other hand Myers (1977) has shown that with leverage being too high the firm underinvests because of too much debt. Less capital makes the firm prioritize between positive NPV projects. Family firms are reserved from issuing stocks because they do not want to dilute their ownership. This could make the family firms more capital constrained than other private firms. The argument that firms with a high debt are more eager to grow is working in a different direction than the capital constraint argument. Family firms are more willing to lever up because of the high benefit of increasing the sales. When the debt holders are paid their fixed fees, the residual claim flows to the equity holders. We believe the net effect of leverage will be reduced growth on the long term, because of the **debt overhang problem**.

Overall, there are several agency theories and we believe they affect growth. We test for the first and third agency problem in our model.

2.4 Diversification loss

High ownership concentration, as in family firms, can create a diversification loss. The family owner foregoes the benefits of diversification and require a compensation for this in terms of higher return. The portfolio would be many times riskier with a high concentration in one company, compared to spreading the risk through several smaller investments in different firms(Bohren, 2011). If he is forgoing the benefits of diversification, he will require a compensation of higher return to maintain his high ownership concentration. This is congruent with Meulbroek (2001) who found a large deadweight loss in stock and option rewards for managers who have a large ownership fraction in a corporation. The diversification loss can be particularly risky in combination with high leverage. It is also in line with empirics that shows owner-managed firms to grow slower but perhaps be more profitable (Coad, 2007).

Alternatively, since the owner has the power, he/she is able to push the firm in the direction of more diversification. If the firm is diversified, the standard

deviation is lower, and this dampens the growth rate.

Summing up, unlisted family firms might face a diversification loss, and lower growth rates, but will still be profitable. We will not test for diversification in our model since the evidence is not clear on diversification and growth, but we will incorporate the arguments in the inference of our result.

2.5 Short-termism

Family management might be associated with a different profit horizon compared to other shareholders. One reason might be that the family considers their role as to preserve the firm in order to survive through the current and future generations. Therefore, the horizon of family firms might span for years and decades, alternately professional managers are often criticized for being “short-termed”. Two Norwegian examples are Løvenskiold (started in 1649)² which was owned and controlled the 13th generation, and Ugland (started the business activity in 1773)³. The payback period of many positive NPV projects can be longer than the expected horizons of the professional and public firm managers (Villalonga and Amit, 2010). This might turn out to be advantageous for the family firms if they are able to utilize a possible long-term premium.

To conclude, family firm might be more long term in their project selection, and hence be more profitable in the long term.

2.6 Control variables

Industry We adjust for industry sectors because different sectors grow at different rates. Some might also grow differently during various business cycle stages. We will use dummy variables to capture the industry effect of nine different sectors that are available in the CCGR data base. A similar approach has been used by Hamelin (2009).

Firm size Size is a variable that we believe has some influence on the growth rate. A large compilation of literature exists concerning size and growth, but we want to test for the size effect through using the lagged size as a control. Size is a common variable to adjust for especially in growth studies. Since small firms often grow faster than larger firms, it is quite important to adjust for size. Nevertheless, Gibrats law claims that growth is independent of size, but Evans (1987) falsifies this. We follow Evans’ approach, because Gibrats

² <http://www.lovenskiold.no/konsern/historie>
Retrieved 08/08/2011

³ <http://www.jjuc.no/main.php?group=592>
Retrieved 08/08/2011

law has not yet been formally tested in the CCGR database (Berzins, Bohren, and Rydland, 2008).

Age Older firms might be less capable to be able to adapt to changes in the industry. On that note, they might lack the entrepreneurial desire to take risks. The employees in older firms might also become entrenched in their routines and resist change. Evans (1987) proposes that the age does have a negative impact on the firms' growth rate.

Financial constraints The corporate governance literature has brought up several different problems affecting a firm when the availability of capital is restricted. Debt overhang occurs when firms with high long term debt wouldn't be financed even if they had a highly profitable project (Myers, 1977). Another problem is the asset substitution where highly leveraged firms choose short term projects even when the long term project gives a higher NPV. We expect financial constraint to have a negative impact on growth

Financial performance A more profitable firm will be more capable in financing projects with a higher portion of internal capital. We will expect a positive financial performance to have a positive impact on the growth of the firm.

Separation of control If the CEO position is occupied by a member of the dominant family owner, it is often assumed that there is no separation between ownership and control. Furthermore, a CEO from the dominant family might have a negative impact on the growth, because of the many issues connected to family ownership.

2.7 Discussion

Family firms have special characteristics that affect the value of the firm. But the growth picture is still unclear since listed family firms grow faster than listed non-family firms. On the other hand, unlisted French SMB family firms grows slower than non-family unlisted firms.

The reduction of separation of ownership and control is an argument for higher growth because it gives clarity on who is controlling the firm. The development of the theories after Jensen and Meckling (1976) is more ambiguous. Incompetence is a factor that could have a very negative impact on investing in the right project. Inefficient investment due to owners' personal interests is another factor that might lead to suboptimal investment decisions. The longer horizon inherent in family firms would drive up the growth because

they are not over-investing in the projects which would be referred to as “short term projects”. In our opinion, the key issue with family firms is their unwillingness to raise new funds together with the desire to diversify, both these attributes contribute to slowing a growth rate down compared to non-family firms. The data and methods that have been used throughout the recent years is much more powerful than before, but proof of any different diversification between family firms and non-family firms seems to be a bit weak, but it still indicates that there are some differences. Diversification may be a key for the growth family firms produce, but we will not include any diversification variable in our model mostly because we are convinced that there will be noise in the measurements which will give less reliable inferences. Moreover, we are more convinced that there is some value in adding firm age, size and financial performance as controls in our model as many other studies have done the same (Coad, 2009).

3 Model and variables

The model is designed to absorb the effect family firms have on growth. We separate the effect of A1 and A3 by using proxy variables for these theoretical constructs. In this way we might be able to interpret some of the unexplained growth that emerges from the A2 problem, but we cannot state that A2 is explaining all the residual growth yet to be explained, as there might be several other omitted variables.

Our empirical model can be summarized by the following econometrical equation:

$$\ln \Delta size_{it} = \alpha + \beta_1 family_{it} + \beta_2 firm\ age_{it} + \beta_3 firm\ age_{it}^2 + \ln firm\ size_{it-1} + \beta_4 financial\ performance + \beta_5 financial\ constraint_{it} + \beta_6 ceo_{it} + \beta_7 average\ industry_{it} + error\ terms_{it}$$

We summarize the model in table 1.

Tab. 1: Summary of our model and its variables

The table shows our predetermined opinion of the regressions sign.

Theoretical variable	Empirical proxy	Prediction
Family ownership	Family dummy (50% ownership)	-
Age	Firm age	-
Industry	NAIC dummy	+
Financial performance	ROA	-
Financial constraint	Debt/assets	-
A1	Family has CEO	-

Growth We use revenue as a growth parameter. This is a common growth parameter used in corporate governance papers like (Schulze, Lubatkin, Dino, and Buchholtz, 2001) and in several articles about firm dynamics such as Huynh and Petrunia (2010).

Age We measure age by the year since the firm was founded. The Age is believed to follow exponential distribution (Coad and Tamvada, 2008). Therefore, we adjust our age-variable by squaring it to account for the non linear effect.

Industry We will adjust for the growth in the different sectors by using dummy variables for each sector. The sectors are classified by the NAIC coding making nine different dummy variables. Adjusting for the industry average is a common practice and is done in the related study by Villalonga and Amit (2010) and Hamelin (2009).

Financial performance Our proxy for financial performance is asset (ROA). A firm with a higher profitability has an easier job funding their investment projects. The return on asset is measured by the net income divided by the asset. ROA is a commonly used performance indicator in the literature as a measure of profitability, see for instance Villalonga and Amit (2010).

Financial constraint We test for the problems mentioned in section 2.3 on page 9, because we think financial constraints will affect the family firms in our sample. We use *debt/asset* as our empirical proxy which is similar to the approach Villalonga and Amit (2010) have used. We expect financial constraint to negatively affect growth.

Family firm Our family dummy is created out of ultimate ownership data that matches family relationship by blood and marriage. Contrary to the thresholds mentioned in subsection 2.1 on page 6, we use a stricter threshold that requires 50% ownership held by the largest family in order to be defined a family firm. Most of the unlisted firms in our sample have fewer owners than listed firms, which, we believe is an argument for a strict threshold. Conversely, if we had used a threshold of 20%, most of the firms would be family firms.

A1 We add one variable to measure A1 that was mentioned in subsection 2.3 on page 8. We do this by inserting one dummy variable into the model, with the value 1 if the largest family has the CEO in the firm, otherwise with a value of 0.

4 Data

The CCGR database covers all Norwegian firms with limited liability in our sample throughout the period 1994-2009, and contains fifteen years of accounting data. In Addition, nine years of governance data is included in the sample (2000-2009) (Berzins, Bohren, and Rydland, 2008). Relevant data are gathered from the database. The CCGR database will provide relevant data for our proxy variables in the time span 2000 to 2009 because ownership concentration on corporate governance data. We have used several filters on the dataset in order to produce a sample that is suitable and represent the firms we are interested in. The dataset is very large, consisting of many firms with either poor accounting quality or little activity. The following filters are applied:

1. All the non-limited companies are removed.
2. All companies that have observations below 15 mill NOK in operational revenue are filtered away.
3. All parent companies are eliminated from the sample.
4. All financial companies are excluded from the sample.
5. All firms with no ownership data are excluded.
6. All the listed companies are removed.
7. All the firms with no asset are excluded from the sample.
8. All the firms with no employees are removed.

We filtered out all micro-firms that had below 15 million in revenue as it is the threshold that the European Commission operates with, in their definition of a micro firm (Commission, 2003). We filtered out micro-firms because they have extreme growth rates and make excessive amounts of noise. Also, it makes this study more comparable with similar studies of SMB firms in Europe. We also believe that SMB firms are suitable for our research objectives where we investigate family governance effects on the growth, partly because there might be more owners in a SMB firm, compared with the micro-firms. Furthermore, listed firms are deleted because we believe they should not be mixed with unlisted firms, as they have a wider and perhaps more liquid sources of financing opportunities than most unlisted firms. The latter is relevant because of the suggested financing constraint mentioned in 2.6 on page 11. Moreover, we try to avoid listed firms to prevent taking the the double impact of a firm we need to take away the parent companies. The financial companies are taken out of the sample because of their special accounting regulations. This makes them hard to compare to the other companies.

5 Methodology

We want to analyze our dataset using the most data points possible, to answer our research question. Our methods have been used before, but there has recently been a huge development of analytical methods for panel data. The ways we use panel methods has some known and unknown biases, e.g. that it is hard to predict causality (see section 5.2).

5.1 Panel data

Panel data is more informative than that of a time series since it gives more data points which are able to be analyzed. With panel data, we look at both the firms in our sample, and watch them over time as well. This increases our number of observations considerably. Second advantage with panel data is that, with panel data, we are better able to study the growth of family businesses since we are conducting our study over time on a set of cross-sections observations. On the other side of the token, there exist problems with panel analysis as well. Cross section might exhibit heteroscedasticity, and over time; autocorrelation. In addition, panel data might feature correlation between the firms at the same point in time.

5.2 Endogeniety

Obviously, our study might be prone to the criticism that our model has omitted a variable that is correlated with the explanatory variables – and that it actually is one of those which are related to the origin of the the effects which are reported. This problem can be labeled Endogeniety and the implication might be that coefficients obtained from OLS is biased and of little value. Fortunately, panel data is able to exploit both the time dynamics in addition to the cross sectional information to control for non-observable variables. Another form for endogeniety that concerns the literature on family firms and growth is that it is hard to determine causality. Causality requires direction, sign and magnitude. In our case, we believe it is hard to determine whether growth causes family ownership, or vice versa. Since we are not aware of any specific exogenous shocks in our family ownership data, we will restrict ourselves from proposing any causality. The endogeneity problem is a problem for both the independent and the dependent variable.

5.3 Fixed Effects Model (FEM)

When the number of cross sectional units is large and the number of periods is small, FEM and random effects models (REM) can differ significantly. In FEM,

the statistical inference is conditioned on the observed cross-sectional units in the sample. This is appropriate if we strongly believe that the individual or cross sectional units in our sample are not random drawings from a larger sample. We believe that this is the case in our sample, and hence we infer that FEM is an appropriate model to take into consideration (Gujarati, 2003, 650).

5.4 Descriptive statistics

Descriptive statistics of the most important variables on overall sample is presented in table 2. . The growth variable variation is high even when we have excluded the smallest companies from our sample. The standard deviation is 26% with an average real growth of 6%. The family ownership concentration is quite high with an average of 81%. This means that most of the companies that are non-listed are controlled by a family. The size of the companies also differ a lot. Where the largest company has an asset side of 61 billion compared to the smallest of 179 thousand. The average company is 15,76 years, but it varies from 0 to 152 years. The non-family firms is 1,43 years older than the family firms. The sample consists of many more family firms than non-family firms, which is consistent with Berzins, Bohren, and Rydland (2008). Furthermore, family firms have a higher *debt/asset* ratio than non-family firms, which is in-line with our a priori expectation. This might indicate that family firms increase their debt in order to finance their projects.

In table 4 and figure 1, we show that family firms as a fraction of sample reduces with size. In the lowest quartile the fraction of family firms is 95%. Conversely, the highest quartile has a fraction of just 60 %. This could imply that family firms reduce their risk as they grow.

In line with our hypothesis, we observe that family firms grow slower than non-family firms when we look at real growth after inflation (2). There is clearly a discrepancy in the growth rates, and it seems to be time-varying at first sight.. Furthermore, it is interesting to note that the gap narrows in the business cycle contraction after the IT bubble (2001 to 2003) but it seems to be expanding during the financial crisis (2007-2009). Overall, both growth rates are going in the same direction, but the time varying behavior of the gap is strange though it might be consistent with our financial constraint argument, because during the financial crisis, the credit spread increased to levels much higher than during the IT-bubble. Because family firms are more indebted, it is reasonable that growth-gap is wider during the financial crisis than . t to but the gap might indicate that family firms growth is more robust during time of recession. We may suspect that the gap also can be caused by the higher degree of diversification and the longer time horizon as mentioned in

Tab. 2: Descriptive statistics of the total sample.

This table shows descriptive statistics for the dependent variable Growth and the independent variables *Debt/asset*, *ROA*, and various control variables for Norwegian limited liability firms in the period 2000-2008. Growth is yearly growth in operating revenue, Firm age is the number of years from establishment until the observation year. Firm size is total asset Leverage is debt over total assets as a proxy for financial constraints. In the sample the parent firms, companies less than 15 million in revenue, firms with no employees and financial companies is excluded. Growth is adjusted for inflation.

Total sample(n=63659)

	Mean	Standard error	Median	Minimum	Maximum
Revenue Growth	0,06	0,26	0,00	-0,98	2,98
Return on Asset	0,07	0,14	0,06	-5,80	1,62
Ownership concentration	81,06	28,98	100,00	0,01	100,00
Size(Asset)	86 406 069,05	651 794 958,16	18 204 000,00	179 000,00	61 240 000 000,00
Age	15,76	15,75	13,00	-	152,00
Leverage ratio	0,76	0,29	0,78	-	32,48

Tab. 3: Descriptive statistics for family and non-family firms.

The table reports descriptive statistics for the dependent variable Growth and the independent variables *Debt/asset*, *ROA*, and various control variables for Norwegian limited liability firms in the period 2000-2008. The result is divided to family and non-family firms. The firm is defined as a family firm if the largest family own more than 50%. Growth is yearly growth in operating revenue, Firm age is the number of years from establishment until the observation year, Firm size is total asset Leverage is debt over total assets as a proxy for financial constraints. In the sample the parent firms, companies less than 15 million in revenue, firms with no employees and financial companies is excluded. Growth is adjusted for inflation.

	Non-family(n=10464)		Family(n=53195)		Mean difference	t-value	p-value
	Mean	Standard error	Mean	Standard error			
Revenue Growth	0,083	0,302	0,056	0,246	0,027	26,71	0,00
Return on Asset	0,051	0,158	0,069	0,136	-0,018	-32,24	0,00
Size (Asset)	176 059 468	858 800 998	68 755 756	601 200 143	107 303 712	41,54	0,00
Age	16,95	17,46	15,52	15,39	1,43	22,90	0,00
Leverage ratio	0,72	0,45	0,76	0,24	-0,04	-38,91	0,00

Tab. 4: Percentage of Family firms in each size quartile

The table shows the percentage of family firms in each quartile. The smallest companies is in the first quartile and the larges in the fourth.

Fraction of family firms (n=63659)					
Quartile	non-family	Family	Total	% non-family	% family
1	620	11372	11992	5 %	95 %
2	1840	14202	16042	11 %	89 %
3	2849	14909	17758	16 %	84 %
4	5155	12708	17863	29 %	71 %
Total	10464	53195	63659		

Fig. 1: Percentage of Family firms in each size quartile

The figure shows table 4 graphically. I.e., the percentage of family firms in each quartile. The smallest companies is in the first quartile and the larges in the fourth.

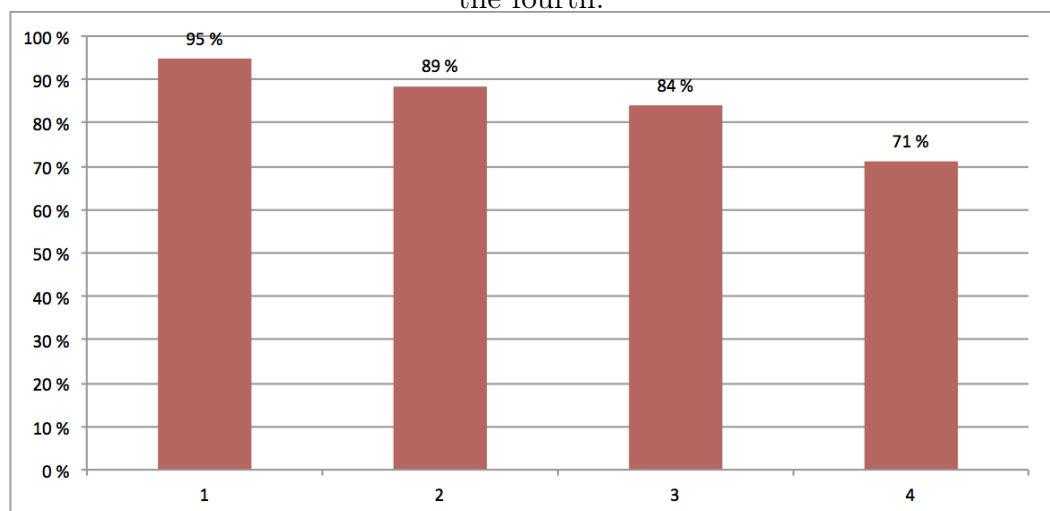
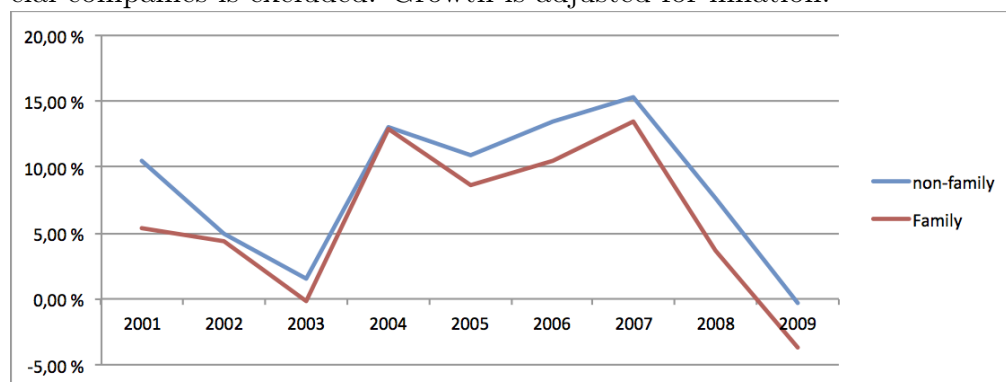


Fig. 2: Family ownership without CEO

This figure shows growth year by year. The sample period is 2001 to 2009. Growth is yearly growth in operating revenue, In the sample the parent firms, companies less that 15 million in revenue , firms with no employees and financial companies is excluded. Growth is adjusted for inflation.



section 2.5.

Multicollinearity is the presence of high degree of correlation among the independent variables (Miller, 2005). Table 7 on page 24 exhibit that the highest correlation is between the industry dummies for manufacturing and trade. and the family dummy and the CEO dummy (with a correlation coefficient of respectively -0.356 and 0.296). It is also not a high correlation between the variable. Based on the correlation matrices. it does not seem that there is an imminent multicollinearity problem.

5.5 Regressions

We have intable 5 shown the results from our panel data test. Regression 1 to 4 shows the relationship between family gatherings and growth. In 5 and 6, we introduce financial performance. In 7 and 8 we add the variable for the debt ratio. In the last two regressions we include the variable for distinguishing between management and ownership. We have chosen to look at real growth and therefore inflation-adjusted growth variable comes into perspective.

Family company variable is negative and significant at 1% level in all regression. It varies from -0,0183 to -0,0211. Size and age have a negative coefficient. Size varies from -0,1232 to -0,1369. Age varies from -0,0003 to -0,0005. Size is significant on 1% level in all regressions. Age is not significant in any of the regressions. Financial performance is positive and significant on 1% level. The variable ranges from 0.4771 to 0.5341. The leverage ratio is positive and significant on 1% level. The variation of the coefficient ranges between 0.1143 and 0.1244. The CEO variable is negative and significant on 5% level. The coefficient is -0,0119.

The family dummy variable is negative supporting our hypothesis. Family

companies grow slower than non-family firms. Size and age have a negative effect on growth. This is consistent with what firm dynamics studies have shown. The age variable is non significant. This is possibly because the size variable absorbs a lot of the same things as the age variable. The ROA is positive showing that higher financial performance generate higher growth. The puzzling finding is that higher leverage gives higher growth. This is not in line with our thought that financial constrained firms grow slower. Huynh and Petrunia (2010) explains this with fast growing firms lever up to get most out of their investment opportunities. As we thought, the alignment of management and control create a negative growth.

The regression result indicate that family firms grow slower than non-family firms. This is, after adjusting for common firm dynamic variables. Financial strength is important, but the firms with high leverage grow faster. Therefore the A3 problem seems to be less important for firm growth. The A1 problem is an important issue, but the regression shows that it not the sole reason for the lower growth.

5.6 Robustness

5.6.1 Alternative methodology

There are several alternatives to the fixed effects model. We have conducted the random effect model on the sample in table 6. We have tested for the appropriateness of FEM using the Hausman Test for Correlated Random Effects. This test compares a Random effect model with the FEM Random Hausman. The results are presented in table 6. The Hausman test yields a p-value of 0 which allows us to reject the null hypothesis, i.e. that a random effect model is appropriate, and we prefer using our FEM model.

5.6.2 Alternative model specification

We regressed asset growth and employee growth as alternative empirical proxies instead of income. The result shows that family companies have a lower asset growth than non family companies. Here the family dummy coefficient is negative and significant. That is -0.0354. This strengthens our choice of explanatory variables. When it comes to employee growth, the result is reversed. This result is of the view that family companies operate on motives other than solely economic motives. We have also looked at whether there is any difference if we use real or economic growth. The results of the regression of economic growth have a negative coefficient of 0.0163 which is very similar to the result of real growth.

Tab. 5: Regressions

This panel table shows the relationship between growth and family firms. The dependent variable is Growth. Growth is measured as change in operating revenue. Firm age is the number of years from establishment until the observation year. Firm size is log of total asset, leverage is debt over total assets. In the sample parent firms, companies less than 15 million in revenue, firms with no employees and financial companies is excluded. Growth is adjusted for inflation. We have applied a Firm Fixed Effect model. Significance levels of 1%, 5% and 10% are indicated by respectively ***, ** and *.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
All Sample	-0,021064***		-0,018554***		-0,018489***		-0,019141***		-0,018288***	
Family ownership		-0,000388***		-0,000384***		-0,000363***		-0,000370		-0,000354***
Size(total asset(-1))			-0,136912***	-0,137505	-0,131994***	-0,132246***	-0,126177***	-0,126424***	-0,1232***	-0,123451***
Age			-0,000455	-0,000442	-0,00034	-0,000324	-0,000361	-0,00037	-0,000542	-0,000525
Age ²			0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
Roa					0,477160***	0,476887***	0,534300***	0,534012***	0,534111***	0,533789***
Bank Lleverage (D/A)							0,124429***	0,124406***	0,114324***	0,114297***
CEO									-0,011878**	-0,011483***
Intercept	0,077932***	0,091749***	2,312488***	2,340362***	2,199888***	2,218063***	2,007346***	2,025432***	1,952320***	
Industry dummies	no	no	yes	yes	yes	yes	yes	yes	yes	yes
Number of observations	63 659	63 659	53 936	53 936	53 936	53 936	53 936	53 936	48 457	48 457
F statistics	1,073199***	1,074376***	1,728785***	1,728361***	1,949204***	1,950406***	1,997943***	1,9999142***	2,000956***	2,002225***
R2	0,1621	0,1623	0,2519	0,2518	0,2752	0,2753	0,2802	0,2803	0,2777	0,2778
Adjusted R2	0,0111	0,0112	0,1062	0,1061	0,1340	0,1342	0,1400	0,1401	0,1389	0,1391
Akaike	0,2444	0,2442	0,3032	0,3033	0,2766	0,2714	0,2648	0,2646	0,2374	0,2373

Tab. 6: Random Effects Model and Hausman test

This panel table shows the relationship between growth and family firms. The dependent variable is Growth. Growth is measured as change in operating revenue. Firm age is the number of years from establishment until the observation year. Firm size is log of total asset. Leverage is debt over total assets. In the sample parent firms, companies less than 15 million in revenue, firms with no employees and financial companies is excluded. Growth is adjusted for inflation. The fixed model shown in the general regression is the comparable model in the Hausman test. Significance levels of 1% and 10% are indicated by respectively *** and *.

Variable	Fixed	Random	Var(Diff.)
	Random model(n=48457)		
Family	-0.018288	-0.035526	0.000018***
CEO	-0.011878	-0.008786	0.000016
ROA	0.534111	0.393325	0.000081***
Debt/Asset	0.114324	0.08406	0.000029***
Age	-0.000542	-0.002849	0***
Age ²	0.000006	0.000027	0***
log(Total asset(-1))	-0.1232	0.000057	0.000014***
Agriculture	0.049516	0.080061	0.000381
Construction	0.12766	0.114442	0.000059*
Energy	0.06826	0.128349	0.003701
Manufacturing	0.089462	0.075253	0.000152
Multi	0.103146	0.077816	0.000043***
Service	0.088442	0.060721	0.000052***
Trade	0.077893	0.063142	0.000018***
Transport	0.131629	0.07617	0.000263***
		Chi-Sq. Stat.	Chi-Sq. d.f.
Hausman Test: Test cross-section random effects			
Cross-section random		1861.963798	15***

Tab. 7: Correlation and multicollinearity

This table shows correlation matrix for the dependent variable Growth, the independent variables *Debt/asset*, *ROA*, and various control variables for Norwegian limited liability firms in the period 2000-2008. Growth is yearly growth in operating revenue, Firm age is the number of years from establishment until the observation year, Firm size is total asset Leverage is debt over total assets. In the sample the parent firms, companies less than 15 million in revenue, firms with no employees and financial companies is excluded. Growth is adjusted for inflation.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Family	1.000													
Age	-0.034	1.000												
Total asset	-0.119	0.039	1.000											
Debt/Asset	0.067	-0.127	-0.028	1.000										
ROA	0.050	0.005	-0.011	-0.270	1.000									
CEO	0.296	-0.009	-0.080	0.035	0.063	1.000								
Agriculture	-0.028	-0.017	0.027	-0.028	-0.016	-0.007	1.000							
Construction	0.069	0.014	-0.022	-0.005	0.052	0.031	-0.062	1.000						
Energy	-0.129	0.006	0.053	-0.049	-0.008	-0.069	0.130	-0.024	1.000					
Manufacturing	-0.084	0.078	0.046	-0.098	-0.033	-0.074	-0.089	-0.160	-0.035	1.000				
Multi	-0.031	0.029	0.053	-0.021	-0.012	-0.006	-0.041	-0.073	-0.016	-0.105	1.000			
Service	-0.002	-0.050	-0.020	0.069	-0.041	-0.041	-0.103	-0.185	-0.040	-0.266	-0.122	1.000		
Trade	0.074	-0.020	-0.043	0.038	0.052	0.097	-0.119	-0.214	-0.046	-0.307	-0.141	-0.356	1.000	
Transport	-0.066	0.005	0.018	0.046	-0.012	-0.059	-0.031	-0.056	-0.012	-0.080	-0.037	-0.093	-0.108	1.000

5.6.3 Conclusion on robustness

We have tested for an alternative model and proxies in this section. The results from the alternative model is similar to our base case. The FEM seems to be the better model-choice when compared to REM. The alternative proxy Δ_{asset} generates negative growth for family firm. This is consistent with the result with operating revenue as dependent variable. This section shows that our result is robust and consistent even when we change dependent variable and model.

6 Conclusion

We have found indications that family firms grow differently compared to non-family firms. Furthermore, we have also seen that these family firms vary much more in their growth. The regression shows that a part of the slower growth could be explained by the separation of ownership and control. We find no support for our suspicion that financial constraints were the determining factor in the difference between growth of family firms and non-family firms.

When we were adjusting for the known controls, such as age, industry and firm size, there was still some residual effects of family ownership on firm growth that is unexplained. We found the difference between non-family firms and family firms growth rates to be time-varying and consistently positive. Our paper shows that exploitation of the minority owners could be an issue in non-listed companies. Family firm ownership could be beneficial for the family, but not for the society.

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