Aalto University
School of Economics

Family Firms, Share Liquidity, and the Effect on Firm Value

Economics

Master's thesis

Maija Laihomäki

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Aalto University
School of Economics

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HELSINKI SCHOOL OF ECONOMICS
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ABSTRACT

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The main objective of this master's thesis is to discover how the share liquidity of family firms affects firm value. First I investigate the impact concentrated ownership has on firm performance. After that I heighten my investigation and take share liquidity into account.

The first half of this master's thesis discusses the comparisons between the performance of family and non-family firms according to existing literature. I present the results of previous studies about family firm's performance and how active or passive control can affect it. The investigation of stock liquidity is also based on current literature. I discuss liquidity measures and liquidity adjusted capital asset pricing model.

The second half of this master's thesis consists of the empirical part. I use a regression analysis in which firm value is measured with Tobin's q or the P/E-ratio. Share liquidity is measured with the Amihud liquidity measure. Finally I investigate a Finnish family firm, Lemminkäinen, and find out how the results that I get in my empirical analysis can be applied to their case.

My dataset is a panel of 108 firms listed on the Helsinki Stock Exchange from 1997 to 2008. I restrict the panel to non-financial firms only. I found that Finnish family firms are worse market performers than non-family firms. The coefficient estimate for family firms is statistically significant at the one-percent level. I also found a strong negative relationship between a family firm's share illiquidity and firm value. The coefficient estimate for a family firm's share illiquidity is statistically significant at the one-percent level as well. However, I did not find a statistically significant effect of a non-family firm's share illiquidity on firm value. As a conclusion, it is evident that family firms suffer the effect of share illiquidity on firm value.

Keywords: family firm, firm value, Tobin's q, P/E-ratio, share liquidity, Amihud illiquidity

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1 Introduction

Law professor Adolf Berle and economist Gardiner Means famously claimed in their book, *The Modern Corporation and Private Property* in 1932 that a new condition has developed within the largest American firms. There are no dominant owners, and control is maintained apart from ownership. However, a series of recent studies have questioned the Berle-Means orthodoxy, as will I. A remarkable part of the firms are still under a dominant owner and control is not maintained apart from ownership. (Cheffins and Bank 2009 (ref. Berle and Means, 1932))

Family firms are an essential part of Finnish economic life. There are about 30 family firms on the Helsinki Stock Exchange in which a family, a member of the family, or relative owns at least 25 percent of the firm's voting rights. It is fascinating to find out how firms that are under the ownership of one family manage financially compared to non-family firms. This is a subject I will write about and one which the media has covered recently as well. In November 2003 Taloussanomat announced that the share price of Finnish family firms rose extremely high. The share price increased up to several hundred percent in old family firms in early 2000. In 2008 taloustieto.fi wrote that family firms are doing well on the stock market. According to Kalevi Tourunen's doctoral thesis, firms on the Helsinki stock exchange benefit from family ownership since there is a slight difference in profitability in the favour of family firms (Tourunen, 2009).

Unfortunately family firms have downsides as well. Concentrated ownership reduces investors' interest towards family firms as an investment target due to weak liquidity concerning a family firm's share. Share liquidity has been proved to have a negative effect on the share's expected return – weak liquidity is compensated by a higher expected return (Pástor and Stambaugh; 2003 and Chordia, Subrahmanyam, and Anshuman; 2001). This is how liquidity might affect the share price as well. Consequently one might think that concentrated ownership has a sort of a negative effect on a family firm's value on the stock market. In 2005 Helsingin Sanomat announced that Sanoma Oyj, Finnish family firm, sold 6.50 percent of its capital stock. One reason for that was to improve their share liquidity.

It is significant to find out the financial effect that a family firm status can create on firm value. It is important because about a third of the firms on the Helsinki Stock Exchange are family firms (excluding financials companies) and about 20 percent of the sales by listed firms come from family firms. Is a Finnish family firm a better market performer than a non-family firm or does weak liquidity affect a family firm's value to the point that family firms are worse performers than non-family firms after all.

1.1 The goal of the thesis

There are some studies about family firms and the researchers of these studies have investigated Standard & Poor's firms as well as Fortune 500 and 1000 firms. These firms are fairly big and valuable, so there is no certainty that, for a fact, we could generalize the results of these studies on the Finnish stock market. That is why I want to find out if there are any differences in the performances of Finnish family firms when being compared to Finnish non-family firms, and what the differences might be. As a result of this master's thesis I want to find out how concentrated ownership affects firm value on the market.

To specify the subject of my thesis even more I want to heighten my investigation of the performance differences between family and non-family firms. I will take share liquidity into account and investigate the effects it has on the performance measures of a firm. It can be taken for granted that the shares of a family firm are more illiquid than the shares of a non-family firm but I want to find out the effect this has on a firm's value. This thesis revolves around three concepts: family firms, share liquidity, and firm value. As a whole I want to find out how the liquidity of a family firm's share affects the firm's value which is measured by performance measures.

1.2 Research data

For my investigation, I use firms that are currently (February 2010) listed on the Helsinki Stock Exchange. My dataset is a panel of 108 firms from 1997-2008 and I restrict the panel to non-financial firms only. The empirical part of this master's theses consists of two parts. The first part looks at the effects of concentrated ownership on performance measures. I measure a firm's value with two performance measures which are known as Tobin's q and the P/E-ratio.

My primary value measure is Tobin's q and the alternative measure is the P/E-ratio. The second part extends the previous section and takes share liquidity into consideration. I use the same value measures as before as well as introduce the Amihud illiquidity measure to be used as the liquidity measure. Finally I investigate a Finnish family firm, Lemminkäinen, and find out how the results that I get in my empirical part can be applied to their case.

1.3 The structure of the thesis

My thesis is organized in the following manner. Chapter 2 examines the existing literature of family firms. I present the differences in both accounting performances and market performances between family and non-family firms. I also discuss the definition and endogeneity problems concerning the studies of family firms. Chapter 3 moves on to study share liquidity. I state the liquidity costs and three different liquidity measures. After these subjects I discuss how share liquidity affects the expected return and dividend policy. Chapter 4 then combines the previous two subjects together. I discuss the relationship between three important concepts which are family firms, share liquidity and firm value. In chapter 5 I present my empirical study. I study listed companies on the Helsinki Stock Exchange from 1997 through 2008. In the first part I find out how concentrated ownership affects a firm's value and in the second part I extend the previous part taking share illiquidity into account. In chapter 6 I interpret the results from the previous chapter applying them to case Lemminkäinen.

2 Family firms

Approximately 20 percent of the companies found on the Finnish TOP 500 companies' list are family firms (Finnish Family Firms Association). Over 30 firms of the listed companies on the Helsinki Stock Exchange are family firms. Sraer and Thesmar (2007) noticed that the premises of the Berle and Means's model of a firm, where (1) the CEO is not an owner and (2) ownership is dispersed are not valid for all firms when looking at French companies on the French Stock Exchange. This is the case with almost a third of the Finnish public companies as well. It is important to investigate the relationship between family ownership and firm performance and also discover how concentrated ownership affects the firm's value.

In this chapter I discuss family firms. I divide existing studies regarding family firms into two groups depending on the measure used to calculate the performance of family firms. First I state the accounting performance of a family firm; return on assets (ROA) is used as the accounting performance measure. After that I discuss the value of a family firm; Tobin's q is used as the market performance measure or value measure. The two subjects under discussion are based on previous studies. Later on in this master's thesis I present a comparison between family firms and non-family firms that are listed on the Helsinki Stock Exchange. In this part I use market performance measures because I want to investigate what the effects are on a firm's value. It is interesting to know if the results found from Finnish data are consistent with existing literature based on inter alia S&P firms, Fortune firms and the firms on the French stock market.

2.1 The definition of family firms

The definition of a family firm varied in different studies and literature concerning family businesses is generally quite wide-ranging. Miller et al. (2007) have put together 28 definitions of family firms that have been used in various studies in finance and management journals around the world from 1996 to 2006. I have found a consensus between Sraer and Thesmar's (2007), Villalonga and Amit's (2006) and Anderson and Reeb's (2003) definitions of a family firm. In general they report a firm as a family firm when the founder or a member of the founder's family is a blockholder of the company. The first two I mentioned impose an additional condition that this block has to represent more than 20 percent of the voting rights.

In this master's thesis I use the Finnish Family Firms Association's definition for family firms. It is as follows:

> *In a family company business, ownership and family are tied to each other. The definition of a family company is as follows:*
>
> 1. *A natural person, or his / her wife / husband, or his / her other relative owns the majority of the voting rights.*
> 2. *The majority of the voting rights can be direct or indirect voting rights.*

3. *The presence of at least one family member, a relative or his / her authorized representative on the board of directors or management of the firm.*
4. *In a listed company a family, a member of the family or relative owns 25 percent of the voting rights. Indirect voting rights have to be over family control.*

Source: The Finnish Family Firms Association

In the empirical part of my master's thesis I study companies that are listed on the Helsinki Stock Exchange. Thus throughout the thesis when I refer to a family firm I also mean a listed company. That is why the fourth point in the Finnish Family Firms Association's definition is important to my work and I use it to separate family firms from non-family firms.

The definition of a family firm is a very important concept. It is critical to pay attention to the definition when for example comparing the performances of family firms and non-family firms. The result of a company's performance may vary greatly depending on the definition of the family business. This fact defines why Miller et al. came to a different conclusion than e.g. Villalonga and Amit (2006), and Anderson and Reeb (2003). I will return to these results later on in this chapter.

The next matter I will discuss is the performance of family firms and how it might differ from the performance of non-family firms. In section 2.3 I state a comparison between the accounting performance of family firms and non-family firms. Later on in section 2.4 I present how a firm's market performance varies between family and non-family firms. However, before discussing these subjects I briefly present the accounting and market performance measures.

2.2 Performance and value measures

In this chapter I make a distinction between a firm's accounting performance and market performance i.e. firm value. When measuring the accounting performance of a firm one might

use accounting measures like ROA or ROE.[1] When trying to find out the value of the firm however, one can use e.g. Tobin's q. The P/E-ratio is also used to measure a firm's value.[2] I deepen the discussion concerning ROA and Tobin's q here because the case studies that I present later on use these measures as dependent variables. ROA (return on assets) is a good accounting measure of performance for it tells us how profitable a firm is relative to its total assets. ROA is defined as a net profit or net income divided by total assets (Cinnamon and Helweg-Larsen, 2006).

Tobin's q is a market measure of performance and it tells us how valuable a firm is. Tobin's q is the ratio of a firm's market value to the replacement cost of all assets (Lee, 2006). If a firm is worth more than its value, based on what it would cost to rebuild it – Tobin's q is more than 1 – then excess profits are being earned. These profits are above and beyond the level that is necessary to keep the firm in the industry. This measure is not necessarily used as often as rates of return or price-cost margins. However, according to Linderberg and Ross (1981) the advantage of using Tobin's q is that the difficult problem of estimating rates of return and marginal costs is avoided. On the other hand, for Tobin's q to be meaningful, one needs accurate measures of both the market value and replacement costs of a firm's assets.

Miller et al. suggested however, that Tobin's q is an imperfect measure of performance linked to investor perceptions and expectations which may be off the mark. The measure doesn't directly assess the actual returns of a stock, nor its risk. Tobin's q can also be influenced by ownership structure thus it is critical to assess endogeneity.

2.3 The relationship between ownership and accounting performance

Prior international research suggests that family firms could be weaker performers than non-family firms. Family ownership is commonly perceived as a less efficient and also a less

[1]ROE is defined as net income/net profit divided by total shareholders' equity (Cinnamon and Helweg-Larsen, 2006).

[2] The P/E-ratio is defined as the market price of a share divided by the earnings per share (Cinnamon and Helweg-Larsen, 2006).

profitable ownership structure than non-family (or dispersed) ownership. Anderson and Reeb (2003) refered to Demsetz (see Demsetz 1983) who stated that concentrated shareholders may choose nonpecuniary consumption and therefore take scarce resources away from profitable projects. Fama and Jensen (1983) also claimed that combining ownership and control allows owners to exchange profits for private rents. Later on Fama and Jensen (1985) analyzed the relations between the characteristics of the residual claims of different forms of organizational rules for investment decisions. They stated that large shareholders' investment behavior may vary, for such shareholders don't necessarily evaluate investments using market value rules that maximize the value of the firms' residual cash flow. They may, however, derive greater benefits from pursuing objectives such as firm growth, technological innovation, or firm survival.

Recent analyses of U.S. public companies indicate that family firms outperform non-family firms. Anderson and Reeb (2003) found, when comprising Standard & Poor's 500 firms from 1992 through 1999 that family firms outperform non-family firms. They used a profitability-based measure of firm performance (ROA) and found that family firms are significantly better performers than non-family firms. Anderson and Reeb used the fractional equity ownership of the founding family and (or) the presence of family members on the board of directors to identify a family firm.

Sraer and Thesmar (2007) also found that the ROA for family firms was greater than the one of non-family firms. They documented the performance of firms that are listed on the French Stock Exchange between 1994 and 2000. They defined a firm as a family firm when the founder or a member of the founder's family is a blockholder of the company. They also applied an additional condition that this block has to represent more than 20% of the voting rights.

Table 1 illustrates Anderson and Reeb's results of regressing firm performance on family ownership.[3] This table presents ROA calculated with the earnings before interest, tax, depreciation, and amortization (EBITDA). In addition Anderson and Reeb used net income divided by total assets as a dependent variable which I do not present here. Whether they used EBITDA or net income as a dependent variable they got results that are parallel to each other.

[3] See more accurate definitions and calculations of variables in appendix 1.

Table 1 The accounting measure of a firm's performance

	Return on Assets		
	(1)	(2)	(3)
INTERCEPT	0.287 (9.55)	0.265 (8.02)	0.266 (8.30)
FAMILY FIRM	0.010 * (2.42)		
YOUNG FAMILY FIRM (AGE <50 YEARS)		0.028 ** (2.90)	
OLD FAMILY FIRM (AGE ≥ 50 YEARS)		0.014 ** (3.51)	
CEO HIRE			0.008 (1.63)
CEO FOUNDER			0.035 ** (2.83)
CEO DESCENDANT			0.019 ** (3.61)
OFFICER/DIRECTORS OWN 0.014 (LESS FAMILY)	0.014 (0.22)	0.081 (1.00)	0.035 (0.57)
UNAFFILIATED BLOCKHOLDERS	-0.014 ** (3.80)	-0.013 ** (3.35)	-0.014 ** (3.61)
OUTSIDE DIRECTORS	-0.016 (1.43)	-0.006 (0.53)	-0.010 (0.88)
CEO EQUITY-BASED PAY	0.008 (1.18)	0.009 (1.20)	0.011 (1.58)
R&D/SALES	0.251 ** (3.07)	0.218 ** (2.61)	0.249 ** (3.02)
LT DEBT/TOTAL ASSETS	0.037 (1.86)	0.041 * (2.01)	0.039 * (1.99)
RETURN VOLATILITY	-0.207 ** (7.43)	-0.185 ** (6.86)	-0.211 ** (7.66)
LN(TOTAL ASSETS)	0.005 (2.14)	0.005 * (2.35)	0.005 ** (2.27)
LN(FIRM AGE)	-0.029 ** (5.93)	-0.029 ** (5.07)	-0.026 ** (4.95)
ADJUSTED R SQUARE	0.365	0.363	0.363
OBSERVATIONS	2,713	2,713	2,713

Anderson and Reeb's results of regressing firm performance on family ownership. *t*-values are in parentheses.
* Significant at the five-percent level. ** Significant at the one-percent level.

Source: Anderson and Reeb 2003, pp. 1316-1317

In table 1 we can easily see that family firms outperform non-family firms. The coefficient estimate for family firms (0.010) is positive and significant at the five-percent level. According to Anderson and Reeb's calculation family firms appear to return 6.65 percent more than non-family firms. They calculated it as follows; coefficient estimate divided by average ROA=0.010/0.1501=0.0665.

For comparison I will also present Sraer and Thesmar's (2007) results in table 2.[4] The dependent variable is ROA like it was in Anderson and Reeb's case. The Results in table 2 are shown to be parallel to table 1. The difference in the ROA between family and non-family firms is 1.7 percentage points and it is significant at the one-percent level.[5]

Slightly older studies have also observed the significance of family firms for according to Demsetz and Lehn (1985) concentrated ownership is good for a firm's value. They studied 511 U.S. corporations and argued, both conceptually and empirically, that the structure of corporate ownership varies systemically in ways that are consistent with value maximization. Family firms consist of concentrated investors and they have substantial economic incentives to diminish agency costs and maximize firm value, specifically because the family's wealth is so closely linked to the firm's welfare.

I will follow the previous topic by discussing two important factors which can be taken into account when measuring the performance of family firms. These two important factors are a family firm's control type and the firm's age.

[4] See more accurate definitions and calculations of variables in appendix 2.

[5] Notice that Sraer and Thesmar have multiplied results by 100 in the table 2.

Table 2 The accounting performance of family firms

	Return on Assets (x 100)	
	(1)	(2)
FAMILY FIRM	1.7** (0.6)	
FOUNDER CEO		1.8** (0.8)
DESCENDANT CEO		1.9** (0.7)
PROFESSIONAL CEO		1.5** (0.7)
LOG (ASSETS)	-0.3** (0.1)	-0.4** (0.1)
LOG (FIRM AGE)	-0.6* (0.3)	-0.7** (0.3)
FORMER SOE	-0.9 (0.7)	-1.0 (0.7)
FRACTION EQUITY OF LARGEST BLOCK	0.4 (1.0)	0.4 (1.0)
DEBT/ASSETS	-9.2** (1.2)	-9.3** (1.2)
STOCK RETURN VOLATILITY	-8.1** (1.9)	-8.2** (1.9)
INDUSTRY FE	yes	yes
YEAR FE	yes	yes
HEIR=PROFESSIONAL		0.65
ADJUSTED R SQUARE	0.22	0.22
OBSERVATIONS	2,325	2,325

Sraer and Thesmar's results of regressing firm performance. Standard errors are in parentheses.

* Significant at the five-percent level. ** Significant at the one-percent level.

Source: Sraer and Thesmar 2007, pp. 719

2.3.1 Active versus passive family control

There are different control types when it comes to family firms. The control type can either be active or passive. In an active control firm there is a family member as the firm's CEO or in a top management position. Whereas passive control means that family members don't participate in the firm's management. Some studies have taken these family control types into account in their regression analyses and they have had different results depending on whether there is active or passive control. I present some of these results which affect the performance of a firm.

It is a rather common characteristic in family firms that family members serve as the firm's CEO or fill other top management positions. This is how a family can align the firm's interests more readily with those of the family. In this case the classic owner-manager conflict can completely be deleted. Some studies (Anderson and Reeb, 2003; Amit and Villalonga, 2006; Sraer and Thesmar, 2007) have found evidence that family-managed firms are profitable. In table 1 we can examine the management effect. The CEO FOUNDER, CEO DESCENDANT and CEO HIRE denote whether the CEO is the founder of the firm, a descendant of the founder, or a non-family member in a family firm respectively. The coefficient estimate for the CEO FOUNDER is 3.5, for the CEO DESCENDANT the estimate is 1.9 and for the CEO HIRE it is 0.8.[6] Based on return on assets, family firms appear to be better performers only when a family member, either founder or descendant, serves as the CEO because the coefficient estimate on the CEO HIRE is not statistically significant. Instead the coefficient estimates for the CEO FOUNDER as well as for the CEO DESCENDANT are positive and statistically significant at the one-percent level. This indicates that active family involvement in management positions is associated with improved firm performance.

Nevertheless, the excellence of family-managed firms was not solely based on the absence of the owner-manager conflict. Amit and Villalonga (2006) as well as Sraer and Thesmar (2007) came to a conclusion that founder-managed firms are very profitable. One of the reasons for the founder-effect, according to Sraer and Thesmar, is that founders simply have greater labor

[6] I multiplied these numbers by 100 so it is now comparable with Sraer and Thesmar's numbers.

productivity. They came to this result by breaking down ROA into different components which are labor productivity, wage, capital intensity, covariance and the effect of observables. First they used the following decomposition of ROA:

$$ROA = (L/A) \times (Y/L - w), \tag{1}$$

where *L/A* represents labor intensity and it is measured as the ratio of the number of employees to book value of total assets. *Y/L* represents labor productivity and it is measured as the ratio of value added i.e. total sales less non-labor costs of inputs to the number of employees. Finally *w* is the average wage paid to employees and it is measured as total labor costs divided by the number of employees.

Then Sraer and Thesmar used equation (1) to break down the conditional difference in ROA between family and non-family firms into differences in productivity, wage, and capital intensity. Sraer and Thesmar's algebra showed that the unconditional difference in average ROA between family and non-family firms can be re-written as

$$\begin{aligned}\Delta ROA &= \overline{ROA_F} - \overline{ROA_{NF}} \\ &= \underbrace{\overline{(L/A)_F}\Delta(Y/L)}_{\text{unconditional difference in productivity}} - \underbrace{\overline{(L/A)_F}\Delta w}_{\text{unconditional difference in wage}} \\ &+ \underbrace{\overline{(Y/L - w)_{NF}}\Delta(L/A)}_{\text{unconditional difference in capital intensity}} + \underbrace{\Delta[Cov((L/A), (Y/L) - w)]}_{\text{difference in covariance}}.\end{aligned} \tag{2}$$

In additional to the three obvious effects, labor productivity, wage, and capital intensity, the difference in the covariance of *L/A* and *(Y/L – w)* for family and non-family firms are needed to include. Moreover, they were interested in the contribution of conditional rather than unconditional differences in labor productivity, wage, and capital intensity to total performance, as they did not want to capture effects stemming from differences in observables. So they added a fifth term to equation (2), which indeed captures the effect of differences in observable characteristics across types of firms. [7]

[7] See more detailed algebra Sraer and Thesmar 2007, pp. 747.

The difference in ROA between founder-run firms and non-family firms is 2.1 percentage points. Higher labor productivity accounts for 2.6 percentage points of the 2.1 percentage points. These numbers and others as well can be found in table 3. The labor productivity effect is very large for it explains nearly all of the differences in profitability between family firms and non-family firms. However, Sraer and Thesmar admit that this effect is very imprecisely estimated in their regression.

Table 3 The contributors in a family firm performance

ROA coming from…	*Higher capital intensity*	*Lower wage*	*Higher labor productivity*	*Difference in observables*	*Low covariance*	Total
Founder CEO	-0.003	0.4	2.6	-0.2	-0.7	2.1
Descendant CEO	-0.002	2.7	-0.6	-0.6	1.0	2.2
Professional CEO	0.015	3.6	-4.7	0.2	1.4	1.7

Source: Sraer and Thesmar 2007, pp. 725

Let's go back to table 2 and take a look at the effects of active and passive control once again. When looking at column 2 (the FOUNDER CEO, the DESCENDANT CEO and the PROFESSIONAL CEO -lines) we can see that over-performance is present for all types of management. The coefficient estimates are 1.8, 1.9, and 1.5 respectively and they all are statistically significant at the one-percent level. Sraer and Thesmar's results are strikingly consistent with Anderson and Reeb's results with the exception of professionally run firms. Sraer and Thesmar found that professional managers are very similar to the rest of the family group.

Anderson and Reeb as well as Sraer and Thesmar concluded that descendant-managed firms outperform non-family firms. Descendants manage to pay lower wages for similar skill and productivity. To the question of how they can succeed in paying lower wages without recruiting low skill workers and still obtain a high level of labor productivity, Sraer and

Thesmar answered that descendants can commit on long-term employment for descendant-managed firms promise that most workers will keep their jobs even if total sales decrease. Descendant managers, because of their longer horizon, find it easier than professional managers to sustain reputational contracts with their workers for more insurance in exchange of lower wages.

Larger labor productivity explains most of the difference in the ROA between founder-managed firms and non-family firms. Lower wage equivalently explains most of the difference between descendant-managed and non-family firms. The difference in the ROA between professionally-managed firms and non-family firms comes from the fact that professional CEOs manage capital more efficiently. First, on average, they pay lower interest rates on their outstanding debt and second, their external acquisitions tend to be, in the long run, more profitable. Sraer and Thesmar also found out that outside CEOs hire lower-skilled workers. That may explain why labor productivity is much lower in a firm that has an outside CEO than in non-family firms. Outside CEOs might also substitute unskilled labor to capital, to make invested capital more profitable.

Sraer and Thesmar broke down ROA for professional CEOs and descendant CEOs as well as they did for ROA of the founder CEO case. The second line in table 3 compares the descendant CEOs of family firms to non-family firms. In this case the biggest part of the effect is a result from the difference in wage levels. The lower wage component explains 2.7 percentage points of the difference in the ROA between descendant-managed and non-family firms. This proves the fact that descendant-managed firms reap the benefit from paying lower wages. The third line looks at the components of the difference in the ROA between professionally-managed firms and non-family firms. This picture is a little more complex since professional CEOs pay lower wages but the benefit for the investors is more than compensated by a lower productivity rate (-4.7). Professional CEOs compensate low labor productivity by running operations with high capital intensity. In table 3 the difference in the ROA between professionally-managed firms and non-family firms is 2.2. Capital intensity explains 0.015 percentage points of this difference.

Sraer and Thesmar's study suggests that family firms whether run by founder, descendant, or professional CEO may be achieving higher profits than non-family firms. There are three different means for better profitability: (1) founders have larger labor productivity (2)

descendants manage to pay lower wages for similar skill and productivity and (3) professional CEOs manage capital more efficiently. In general Sraer and Thesmar's as well as Anderson and Reeb's analyses indicate that family firms are better performers than non-family firms.

2.3.2 The ages of family firms

A firm's age is another important factor which makes a difference between family firms and also separates them from non-family firms. There has been a lot of conversation about the ages of firms and how it affects their performances. According to Villalonga and Amit (2006) family firms, on average, are younger (63 versus 74) than non-family firms and because of this they exhibit significantly higher growth than non-family firms. These characteristics may raise a concern that the superior performance of family firms is driven by the predominance of other similar high-growth companies that have had success in their early-stages while still under founder management or control. When taking this fact into consideration many prior literatures suggest that founders bring value-adding skills to a firm that result in superior performance when the firms are young. However, when firms continue to age family members put forth less of a contribution towards the firm's productivity and efficiency. Better performance in family firms is attributable primarily to the youngest firms.

Anderson and Reeb (2003) have taken the age problem into account. When they measured a family firms association to firm value they controlled the firm's age in their regression analysis. Anderson and Reeb classified family firms as YOUNG and OLD based on whether the firm is under or over 50 years of age. This can be seen in table 1. The coefficient estimate for a YOUNG FAMILY FIRM is 0.028 for an OLD FAMILY FIRM the number is 0.014. Although, younger firms have a greater impact on ROA, older firms have a positive impact on the firm's performance as well. They both are statistically significant at the one-percent level. As a result both young and old family firms exhibit a significant and positive effect on ROA. This suggests that regardless of a firm's age, on average, family firms are better performers than non-family firms.

50 years is not necessarily the right cut off point to divide firms into young and old categories. The 25th percentile of age for their sample of firms is 45.8 years. That suggests that Anderson and Reeb's categorization captured firms in the first quartile based on age. Because of that

and to avoid arbitration Anderson and Reeb also used cut off points of 35, 40, 45, 55, and 60 years. When using these points they found similar results.

When relying on recent studies I get a slight hint of the fact that family firms could be better accounting performers than non-family firms. From the accounting performance of family firms I will move on to the firm value of family firm. The next section is about the market performance of family firms.

2.4 The relationship between ownership and market performance

In the second part of this chapter I discuss the value of a firm. As in the previous part there is no consensus among all the studies in this part either. There are some studies about the debate on whether family firms are more or less valuable than non-family firms. Holderness and Sheehan (1988) find that among large U.S corporations family firms are less valuable than non-family firms, whereas Anderson and Reeb (2003) came to the opposite result. There are many studies in which the evidence is scarce but also mixed. First I will state Villalonga and Amit's view of how family ownership, control and management affect firm value. It is interesting to take these three aspects into consideration. Then I will present Anderson and Reeb's results of regressing firm value on family ownership. Their regression is the same presented in table 1 but this time the dependent variable is Tobin's q instead of ROA.

2.4.1 The Main effects of family ownership, control, and management on firm value

Villalonga and Amit (2006) stated that to understand when family firms trade at a premium or a discount relative to non-family firms, one must distinguish three fundamental elements in the definition of family firms. These three elements are ownership, control, and management.

> (1) First, according to Villalonga and Amit (2006) one has to find out if *family ownership* creates or destroys value? There are different interpretations of that. Berle and Means (see Villalonga and Amit, 2006) suggest that concentrated ownership should have a positive effect on value because family ownership alleviates the conflicts of interest between owners and managers. Demsetz (see

Villalonga and Amit, 2006) however, argues that ownership concentration is the endogenous outcome of profit-maximizing decisions by current and potential shareholders, so it should have no effect on firm value.

2) Second, Villalonga and Amit (2006) stated that one has to find out if *family control* creates or destroys value? In family firms the classic owner-manager conflict is mitigated due to large shareholders' greater incentives to monitor the manager. This is often referred to as Agency Problem I. However, there is another type of conflict as well. Large shareholders may use their controlling position in firms to extract private benefits at the expense of the small shareholders. This is called Agency Problem II. Villalonga and Amit stated that if the large shareholder is an individual or a family, it has greater incentives for both expropriation and monitoring which are thereby likely to lead Agency Problem II to dominate Agency Problem I. There is no evidence however, to which of these two agency problems is more detrimental to shareholders.

(3) Third, according to Villalonga and Amit (2006) one has to find out if *family management* creates or destroys value? The agency theory would predict a positive effect on the value of family management because family management reduces or even eliminates Agency Problem I. This effect however, may be offset by the costs of family management if hired professionals are better managers than family founders or their heirs. Morck et al. (1988), Adams et al. (2009), and Fahlenbrach (2009) found that founder-CEO firms are more valuable – they trade at a premium – than other firms. On the other hand, Smith and Amoako-Adu (1999) concluded that the stock market reacts negatively to the appointment of family heirs as managers.

Using these three elements Villalonga and Amit tried to find out if there is a positive family effect on firm value and how this effect varies when the CEO position is filled with a founder, a descendant, or someone from the outside. They also wanted to know how and when do Agency Problem I and II exist?

Villalonga and Amit's sample comprised data from 508 firms listed on the Fortune 500 during 1994-2000. They defined family firms the same way as Anderson and Reeb did in which the

founder or a member of his or her family by either blood or marriage is an officer, director, or blockholder, either individually or as a group. They used Tobin's q – the ratio of the firm's market value to the replacement costs of its assets – as their dependent variable. They interpreted it as a measure of the firm's value. Villalonga and Amit found that the mean Tobin's q is 0.23 units higher for family firms than it is for non-family firms.

Villalonga and Amit measured the effects of family ownership, control, and management on value by the multivariate OLS regression. They measured family ownership with a family ownership dummy and family ownership stake. The family ownership stake was a continuous measure that was the percentage of shares of all classes held by the family as a group to measure ownership. In the Tobin's q regression the coefficient estimate for the family firm dummy was 0.26 and for the family ownership stake it was 0.66. They were both positive and the coefficient estimate for the family ownership dummy was statistically significant at the five-percent level and the coefficient estimate on the family ownership stake was statistically significant at the ten-percent level. Family control was measured by a dummy that indicate the presence of a control-enhancing mechanism such as multiple share classes, pyramids, cross-holdings, or voting agreements. The continuous measure for family control was family excess voteholdings. It was the difference between the percentage of all votes outstanding held by the family and the family ownership stake. The coefficients for both control-enhancing mechanisms (-0.21) and excess voteholdings (-0.12) were negative and the first one was statistically significant at the five-percent level and the latter one was statistically significant at the ten-percent level. Finally Villalonga and Amit measured family management using a dummy that indicated the presence of a family CEO. Family management has no significant effect on value. Villalonga and Amit's findings suggested that despite of the costs associated with the family's excess control, the benefits of family ownership prove that minority shareholders are better off than they would have been in a non-family firm.

Villalonga and Amit also examined Agency Problems I and II. They measured the absence of Agency Problem I by assuming the fact that having a family CEO eliminates the conflict between owners and managers. The presence of Agency Problem II was measured by assuming that families, which use the mechanism that enhances their voting power over their equity ownership stake, create a conflict between large (family) and small (non-family)

shareholders. By examining these problems we can devise four types of firms.[8] The most notable result was that the absence of any agency problem is associated with the highest average q (2.66) among the four groups. In other words, family firms whose CEO is a member of the family, and which have no control-enhancing mechanism, enjoy the highest market value.

2.4.2 Active versus passive family control

I previously presented results of how active or passive family control affects the accounting performance of a family firm. How active or passive control affects the market performance of a family firm has been studied as well. Villalonga and Amit (2006) as well as Anderson and Reeb (2003) tested the effects that the founder CEO, descendant CEO, and hire CEO have on the value of a family firm. I briefly present both results due to comparison.

Villalonga and Amit examined the effects that the founders, descendants, hires in the roles of CEO as well as the Chairman have on Tobin's q. They found that founder-CEO firms are the most valuable of all family and non-family firms. Firms with a founder-CEO and Chairman have the highest average Tobin's q which is 3.12. Tobin's q of the firms in which the founder remains as the Chairman but hires an outside CEO is almost as high, 2.81. Founder skills are almost as valuable when bringing them to the firm through a position as CEO or Chairman with a hired CEO in place. Descendant-CEO firms are the least valuable. The firm where the founder remains as the Chairman but a descendant is in the role of CEO has the lowest mean Tobin's q which is 1.61.

Anderson and Reeb's results of the regression with Tobin's q as the dependent variable are in table 4.[9] I attached the results here because table 1 has the same regression but the dependent variable is ROA and it is interesting to see if there are differences in the coefficient estimates. First of all the coefficient estimate for a family firm is positive and significant at the one-percent level. It is 0.142. It suggested that Tobin's q in family firms is 10.00 percent higher

[8] Type 1 family firm: No Agency Problem I, Yes Agency Problem II. Type 2: Yes Agency Problem I, Yes Agency Problem II. Type 3: No Agency Problem I, No Agency Problem II. Type 4: Yes Agency Problem I, No Agency Problem II.

[9] See more accurate definitions and calculations of variables in appendix 1.

than in non-family firms.[10] In table 4 both YOUNG and OLD family firms are associated with a greater Tobin's q. The coefficient estimates are 0.265 and 0.102 respectively. The coefficient estimate for a YOUNG family firm is statistically significant at the one-percent level and the estimate for an OLD family firm is significant at the five-percent level. So young family firms have a greater effect on Tobin's q than old family firms. Finally Anderson and Reeb examined the founder, descendant, and hire CEOs. Consistent with the accounting measures of performance they found that founders are associated with greater firm values. The coefficient estimate for CEO FOUNDER is 0.472 and it is significant at the one-percent level. Hired CEOs also exhibit a significant and positive association with Tobin's q. The coefficient estimate for that is 0.123 and it is also significant at the one-percent level. However, descendant-CEO firms according to Anderson and Reeb are unrelated to market performance. This fact suggested that market participants view descendants similarly to CEOs in non-family firms.

2.5 The wavering definition of a family firm

In section 2.3 I stated how old and new studies did not reach the same conclusion on whether family firms are better performers than non-family firms. To make this puzzle even more confusing Miller et al. (2007) came to both conclusions. They found that family firms may be good performers but when altering the definition of a family business they also came to the conclusion that in family businesses there is no evidence of superior performance.

As I mentioned earlier the definition of a family firm has a great importance to the results of firm performance. Miller et al. came to different conclusions when studying family businesses in the U.S because they used a more exact definition of family firms. Their sample consisted of Fortune 1000 firms from 1996 to 2000 and Tobin's q was used as a dependent variable. They made a distinction between lone founder businesses in which no relatives of a

[10] Anderson and Reeb calculated this as the coefficient estimate of family firms (0.142) divided by the average Tobin's q for the sample (1.415).

Table 4 Market measure of firm performance

	Tobin's q		
	(1)	(2)	(3)
INTERCEPT	3.638 (17.14)	3.421 (15.28)	3.473 (15.79)
FAMILY FIRM	0.142 ** (3.63)		
YOUNG FAMILY FIRM (AGE ≤50 YEARS)		0.265 ** (3.54)	
OLD FAMILY FIRM (AGE > 50 YEARS)		0.102 * (2.56)	
CEO HIRE			0.123 ** (2.82)
CEO FOUNDER			0.472 ** (4.83)
CEO DESCENDANT			0.057 (1.05)
OFFICER/DIRECTORS OWN (LESS FAMILY)	1.666 (1.92)	2.744 * (2.53)	1.737 * (1.98)
UNAFFILIATED BLOCKHOLDERS	-0.345 ** (10.59)	-0.332 ** (10.09)	-0.345 ** (10.66)
OUTSIDE DIRECTORS	0.040 (0.41)	0.074 (0.74)	0.072 (0.73)
CEO EQUITY-BASED PAY	0.209 ** (3.38)	0.230 ** (3.64)	0.231 ** (3.80)
R&D/SALES	4.609 ** (6.99)	4.141 ** (6.10)	4.538 ** (6.91)
LT DEBT/TOTAL ASSETS	-1.032 ** (7.95)	-1.097 ** (8.14)	-1.025 ** (7.97)
RETURN VOLATILITY	-1.896 ** (9.85)	-1.740 ** (8.83)	-1.967 ** (10.14)
LN(TOTAL ASSETS)	-0.093 ** (5.61)	-0.079 ** (4.69)	-0.101 ** (6.24)
LN(FIRM AGE)	-0.200 ** (5.87)	-0.192 ** (5.36)	-0.149 ** (4.36)
ADJUSTED R SQUARE	0.411	0.413	0.416
OBSERVATIONS	2,713	2,713	2,713

Anderson and Reeb's results of regressing firm performance on family ownership. *t*-values are in parentheses.

* Significant at the five-percent level. ** Significant at the one-percent level.

Source: Anderson and Reeb, 2003, pp. 1318

founder are involved and true family businesses that do include multiple family members as major owners and managers. As a result they found that lone founder businesses outperformed non-family firms but when removing lone-founder businesses from the family business category, there is no longer evidence of superior performance. The coefficient estimate for combined family firms – both lone founder and true family business – was 0.173 and it was statistically significant at the five-percent level. When removing lone-founder firms the coefficient estimate for family firms was 0.026 and it was not statistically significant anymore. The coefficient estimate for lone founder firms alone was 0.478 and this was significant even at the 0.1-percent level. The out-performance of family firms was a result of how these firms were defined.

Sraer and Thesmar (2007) and Anderson and Reeb (2003) as well as Villalonga and Amit (2006) used a rather loose definition. Sraer and Thesmar reported firm as a family firm when the founder or a member of the founder's family is a blockholder of the company. Anderson and Reeb used the fractional equity ownership of the founding family and (or) the presence of family members on the board of directors to identify family firms. Villalonga and Amit initially defined family firms following Anderson and Reeb's definition. All these definitions are rather loose and I think a firm receives a family firm status quite easily. Sraer and Thesmar imposed an additional condition that the block must represent more than 20 percent of the voting rights. However, they concluded that this additional condition is not very important as they had a few cases where family shareholders held less than 20 percent of the voting rights. Villalonga and Amit also examined how their results change when they imposed additional conditions. They examined nine alternative definitions. The coefficient estimate for family firms in which the family is the largest shareholder and has at least 20 percent of the votes was not statistically significant anymore. As a conclusion we can really believe that a definition of a family firm really matter.

2.6 Discussion on the endogeneity of family ownership and performance

Many family studies potentially suffer from an endogeneity problem. The problem is whether family ownership improves performance or strong performances prompt families to maintain their holdings. For this reason the cross-sectional evidence that I have discussed above cannot be interpreted as evidence of a causal effect of family ownership on performance.

The first conclusion for a problem of that kind is that family status depends on performance. The trouble is whether family ownership improves performance or that strong performances generate families to maintain their holdings. Anderson and Reeb (2003) have stated two arguments for greater performance. The first argument is that families have held their stakes, on average, for 75.9 years and this leads to exceptional foresight for predicting performance. The second argument implies that families, as investors, have special insights in ascertaining future firm performance. Anderson and Reeb used instrumental-variable regression to estimate that family ownership is potentially a function of superior firm performance. Their estimates from instrumental-variable regression are consistent with their prior OLS results, suggesting that family firms are superior performers when compared to non-family firms.

A second reason for the endogeneity problem is the endogenous sample selection. Sraer and Thesmar (2007) stated the following example. Assume that descendant-controlled firms which do badly have a higher tendency to go bankrupt or tend to be sold out to a large investor or private equity investors. In this case, the only descendant-managed firms which would survive would be the ones that do relatively well, which would then lead us to overestimate their performance. They piloted this assumption by looking at the profitability of all types of firms prior to de-listing from 1994 to 1999. Before de-listing, exiting firms have, in general, a level of profitability that is very similar to that of the remaining firms. The only sizeable difference came from descendants. Staying descendant-owned underperform those who go private by three percentage industry adjusted ROA. As a result they suggested that endogenous attrition leads to underestimated, rather than overestimated, performances of descendant-managed firms.

Overall, regardless of the received result, we cannot completely eliminate the possibility that families are more likely to exit firms with poor future performances. We cannot eliminate the whole endogeneity problem either. Family ownership is an endogenous variable and this implies that we cannot know for sure if the greater performances observed in family firms are a reason or consequence. As it is said every action has an equal reaction.

2.7 Discussion on selection bias

Besides endogeneity, selection bias is another important factor that may affect the findings. Miller et al. (2007) have found that the results are highly sensitive to the nature of the sample. One concern is that family or lone founder firms – depending on the definition of a family firm and what the research wants to find out – that become part of such indices may not be representative of all types of firms. Therefore it is important not to over generalize findings based on the analyses of similar firms. A firm that is defined as a family firm when the founder or a member of the founder's family is a blockholder of the firm might be rather different than a firm that is defined as a family firm when the founder owns at least 25 percent of the voting rights.

Researches that I have mentioned earlier have focused on firms in major indices such as Fortune 500 and 1000, the French stock exchange and Standard & Poor's 500 firms. These collections consist mainly of large firms so the results may not hold for smaller firms. The whole sample might suffer selection bias. The research period is also almost the same in three studies that I have mentioned above (Anderson and Reeb, 1992-1999; Sraer and Thesmar, 1994-2000; Villalonga and Amit, 1994-2000). This period of time includes the global economic boom which resulted partly from the powerful drive of telecommunications and this could also skew the results a bit.

3 Liquidity

The third chapter covers liquidity, share liquidity to be exact. Before moving on to the discussion on liquidity measures I will define the costs that revolve around liquidity. After that I present how liquidity affects expected return and asset pricing. I also mention a few words about the relationship between a firm's dividend policy and share liquidity.

In the financial market according to Amihud and Mendelson (2008), a company's debt as well as its equity are said to be liquidity if they can be traded quickly and at a low cost. In recent years market participants have experienced severe liquidity shocks and we have seen huge changes in investors' abilities to trade high-quality assets, such as investment-grade bonds

and bonds issued by U.S. government-sponsored enterprises. This is why we must pay attention to the liquidity of securities.

A relatively large number of research studies have focused on share liquidity, Amihud and Mendelson (1986), Pástor and Stambaugh (2003), Acharya and Pedersen (2005), and Banerjee, Gatchev and Spindt (2005) are a few names to be mentioned. The first and very significant study of liquidity in asset pricing was that of Amihud and Mendelson (1986). They showed that liquidity had a positive effect on asset return. I will discuss these studies in a more detailed fashion later on. Now I turn to liquidity costs.

3.1 Liquidity costs

The subject under discussion concerns liquidity costs that investors encounter when they trade less liquidity securities. Liquidity costs are costs associated with executing a transaction in capital markets. Amihud and Mendelson (2008) divided these liquidity costs into three major components.

> (1) First, *direct trading costs*. These kinds of costs are the most obvious ones. Direct trading costs consist of brokerage commissions, exchange fees, and taxes.
>
> (2) Second, *price-impact costs.* These costs can potentially be quite large. Price-impact costs reflect the price concession that a buyer or seller must make to effect a trade. That means a premium on the price when buying and a discount on the price when selling.
>
> Price-impact costs increase with the degree of information asymmetry between buyers and sellers. If there is a large disparity of information between trading parties there is also a risk that the party initiating the trade will take advantage of its counterparty. When taking this into consideration, the counterparty requires a compensation for doing the trade. Greater asymmetry of information results in a larger price-impact and a higher cost of trading.

Inventory risk is another factor that affects price-impact costs. Inventory risks are risks associated with a holding period. When market-makers buy a stock, they need to hold it in an inventory until buyers appear. During that period, they bear the risk that the price will fall by the time they sell it.

(3) Third, *search and delay costs*. Search and delay costs are the opportunity costs of not trading when traders are searching for better prices than those quoted on the market or when they try to avoid price-impact costs. By avoiding price-impact costs they try to work an order to reduce its price impact. To be brief, the investor can bear the search and delay costs when the trade is not executed immediately.

3.2 Measuring liquidity

Liquidity is a multidimensional phenomenon and an elusive concept. It can be hard to measure liquidity because there is not a single measure that captures the numerous aspects of liquidity. Aitken and Winn (see Aitken and Comerton-Forde, 2003) reported that there are about 68 extant liquidity measures used in literature and that there is no agreement to which is the best measure to use. Liquidity measures can be divided into two broad categories: trade-based and order-based measures (Aitken and Comerton-Forde, 2003).

Trade-based measures are commonly used in previous literature. Trading value, trading volume, number of trades and turnover ratio are included in this category. According to Aitken and Comerton-Forde (2003) these measures are simply used to calculate readily available data and they are widely accepted among market professionals. However, trade-based measures reflect ex post liquidity and this induces the fact that they are perhaps the most problematic measures. They indicate what people have traded in the past but not how they will trade in the future.

Order-based measures, according to Aitken and Comerton-Forde, capture revenues and costs that are associated with immediate trading. Bid-ask spreads represent order-based measures. For small investors this is an effective and accurate method of calculating the liquidity of a stock. For larger investors this measure may underestimate the true costs of trading and

overestimate liquidity. A more complete measure of liquidity must also consider the market impact and opportunity costs of trading, especially for large trades. This requires an analysis of the volume of orders available at each price step. According to the example of Aitken and Comerton-Forde (2003), if an investor wants to purchase 100,000 units of stock and there is only 10,000 units available at the best ask, then the investor must increase his / her price until there is adequate volume in the order book to absorb the complete order. This means that the investor incurs the market impact costs. The market is therefore less liquid than the bid-ask spread would suggest. In some cases it can be impossible to get data for order-based measures, in particular bid and ask prices.

I will present three liquidity measures next. These three are the bid-ask spread, turnover ratio and Amihud liquidity. The latter two are trade-based measures and the former mentioned is an order-based measure.

3.2.1 The bid-ask spread

The bid-ask spread refers to the difference between selling and buying prices on the market. This is the difference in price between the lowest price for which a seller is willing to sell and the highest price that a buyer is willing to pay for an asset. The difference between ask and bid prices may come from e.g. above-mentioned price-impact costs. So if the bid-ask spread is greater than zero then investors may be exposed to asymmetric information and inventory risk. Bid-ask spreads were suggested as a measure of liquidity by Amihud and Mendelson (1986). They stated that the bid-ask spread is a natural measure of illiquidity because it is a sum of buying premium and selling concession. The bid-ask spread, as a percentage of the stock price, has been found to be negatively correlated with liquidity characteristics such as the trading volume, the number of shareholders, and the number of market makers trading stocks.

The bid-ask spread can be expressed by the following formulas:

The quoted spread is a direct measure of market liquidity. The quoted spread is a valid measure, if the considered time period is relatively short, and assets are traded in one currency. Quoted spreads however are not comparable if the time period is long and the real

value of the currency changes e.g. due to inflation, or if the trade is executed in different currencies.

$$\textit{Quoted spread: } QS_{i,t} = P^{a}_{i,t} - P^{b}_{i,t}\,, \tag{3}$$

where $P^{a}_{i,t}$ and $P^{b}_{i,t}$ are ask and bid quotes of asset i at time t.

The relative spread is comparable. In this case liquidity may be compared across stocks with different prices.

$$\textit{Relative spread: } RS_{i,t} = \frac{P^{a}_{i,t} - P^{b}_{i,t}}{P^{m}_{i,t}}, \tag{4}$$

where $P^{m}_{i,t}$ is the mid price for asset i at time *t*.

The effective spread is the difference between the actual selling price and the halfway point between bidding and asking prices quoted at the time of the sale. This value is doubled to capture the whole bid/offer spread. The effective spread calculates how much above the midpoint price someone paid on a buy order and how much below the midpoint price someone received on a sell order. The effective spread measures the actual execution cost paid by the trader.

$$\textit{Effective spread: } ES_{i,t} = 2\times\left|\ln\left(P_{i,t}\right) - \ln\left(P^{m}_{i,t}\right)\right|, \tag{5}$$

where $P_{i,t}$ is the transaction price for asset i at time t and $P^{m}_{i,t}$ is the midpoint of the most recently posted bid and ask quotes for asset i. Equation (3) is borrowed from Goyenko, Holden, and Trzcinka (2009) and they have used the natural logarithm.

Even though the bid-ask spread is a widely used measure of liquidity, it has certain shortcomings. One shortcoming is that it measures the cost of selling small numbers of shares well, but it does not necessarily measure the cost of selling large numbers of shares as good.

According to Brennan and Subrahmanyam (1996) the bid-ask spread is a noisy measure of liquidity because large trades tend to occur outside the spread while small trades tend to occur inside the spread. The other shortcoming comes from availability. The bid-ask spread is based on market microstructure data, which is not available for a long period of time.

3.2.2 The turnover ratio

The turnover ratio uses data on volume and it considers the intuition of a frequently traded asset being liquid. It is the ratio of trading volume to the number of shares outstanding. The turnover ratio is often used to compare liquidity across markets. The turnover ratio is used as a proxy of liquidity quite widely, Chordia, Subrahmanyam and Anshuman (2001) to name one study, used it when they found a significant cross-sectional relation between stock returns and the variability of liquidity. Banerjee, Gatchev and Spindt (2007) also used it when they analyzed the relationship between liquidity and dividend payers over time.

$$Turnover\ ratio\ TR_{i,t} = \frac{ST_{i,t}}{SO_{i,t}}, \tag{6}$$

where $ST_{i,t}$ and $SO_{i,t}$ are share trading volumes and the number of shares outstanding respectively of asset i at time t. This measure tells how many times a stock changes its owner and the higher the turnover ratio the more liquidity a stock has.

As I mentioned earlier the turnover ratio is a trade-based measure. A potential disadvantage of the turnover ratio is that it measures ex post liquidity and this is not necessarily a good indication of what will be traded in the future.

3.2.3 Amihud illiquidity

Recent studies, some of which include Amihud (2002), Acharya and Pederson (2005), Norli, Ostergaard and Schindele (2009), have used Amihud illiquidity as a measure of liquidity – or illiquidity – quite many times. Perhaps one reason for this is that the data can be obtained easily from daily stock data for long periods of time in most stock markets. As I mentioned

data needed for bid-ask spreads is not available in many stock markets, especially for a long period of time.

Amihud (2002) defines the illiquidity of stock *i* as the average ratio of the daily absolute return to the (euro-denominated) trading volume on that day, $\frac{|R_{iyd}|}{VOLE_{iyd}}$. R_{iyd} is the return on stock *i* on day *d* of year *y* and $VOLE_{iyd}$ is the respective daily volume in euro. This ratio gives the absolute (percentage) price change per euro of daily trading volume, or the daily price impact of the order flow.

Each stock *i* the annual average is:

$$Amihud\ illiquidity\ ILLIQ_{iy} = 1/D_{iy} \sum_{t=1}^{D_{iy}} \frac{|R_{iyj}|}{VOLE_{ivyd}}, \qquad (7)$$

where D_{iy} is the number of days for which data is available for stock i in year *y*. The intuition behind this illiquidity measure is as follows; a stock is illiquid if it has a high value of Amihud illiquidity when the stock's prices move a lot in response to little volume.

Amihud (2002) empirically showed that *ILLIQ* is positively and strongly related to microstructure estimates of illiquidity which include measures of price impact and fixed trading costs over a time period. A potential disadvantage of Amihud illiquidity is that it may be difficult to distinguish liquidity from volatility. If volatility does not move closely together with the trading volumes, stocks with high volatility will tend to be classified as illiquid stocks by the Amihud measure.

These measures of liquidity as well as the illiquidity measures presented in this chapter measure different aspects of liquidity. It is doubtful that there could only be one measure to capture all of the elusive aspects of liquidity.

3.3 Expected return

I will present various studies which have pondered the relationship between stock liquidity and its expected return. The pioneer study in this area was Amihud and Mendelson's (1986) study about asset pricing and the bid-ask spread. They found that asset returns to holders increased with the spread. If investors value securities, according to their returns net of trading costs, then they should require a higher expected return for higher spread stocks in order to compensate for the highest cost of trading. They also concluded that there is a clientele effect, where stocks with higher spreads are held by investors with longer holding periods. Investors with shorter holding periods will be willing to pay more to acquire low-spread securities than investors with longer holding periods, because the latter can amortize the spread cost over a longer period. In 2002 Amihud also discovered that over time, expected market illiquidity positively affects ex ante stock excess returns. He suggested that expected stock excess returns partly represent an illiquidity premium. In this study he created the Amihud illiquidity measure that I described above.

After Amihud and Mendelson's studies about the relationship between expected returns and liquidity many other researchers have continued their work. Pástor and Stambaugh (2003) stated that expected returns are related cross-sectionally to the sensitivities of stock returns to innovations in aggregate liquidity. They found that the stocks that are more sensitive to aggregate liquidity have substantially higher expected returns, even after they account for exposures to the market return as well as size, value, and momentum factors. They studied the New York Stock Exchange (NYSE) as well as the American Stock Exchange (AMEX) and found out that from 1966 through 1999, the average return on stocks with high sensitivities to liquidity exceeded that for the stocks with low sensitivities by 7.5 percent annually. They concentrated on an aspect of liquidity associated with temporary price fluctuations induced by order flow. [11]

[11] The basic idea with the order flow is that if signed volume is viewed roughly as "order flow" then the lower liquidity is reflected in a greater tendency for the order flow in a given direction on day d to be followed by a price change in the opposite direction on day $d + 1$. Essentially, lower liquidity corresponds to stronger volume-related return reversals, and in this respect Pástor and Stambaugh's liquidity measure follows the same line of reasoning as the model and empirical evidence presented by Campbell, Grossman, and Wang (1993).

Chordia, Subrahmanyam, and Anshuman (2001) found a negative and significant cross-sectional relationship between average stock returns and the level of trading activity. Their data consisted of a sample of common stock of the NYSE and AMEX-listed companies from January 1966 to December 1995. They used trading activity as a proxy for liquidity. They studied the same stock market as Pástor and Stambaugh did and their period of time was almost the same as Pástor and Stambaugh had. Although the liquidity measures differed, their results are consistent with Pástor and Stambaugh's results. To get an understanding of the magnitude of the liquidity effect on the expected return I have attached table 5 in which I present Chordia's et al. results.

Table 5 presents two sets of results, one in which a proxy for liquidity is the dollar trading volume and the other where a proxy for liquidity is the turnover.[12] The results of table 5 state a strong book-to-market, momentum, (RET 2-3, RET 4-6 and RET 7-12 serve as proxies for momentum effects) and liquidity effects on excess returns. If we look more carefully at the effects liquidity has on excess returns, we can easily see that there is a strong relationship between them. The coefficient on DVOL is -0.177 with a *t*-statistic of -3.56 and the coefficient on TURN is -0.188 with a *t*-statistic of -3.74. Both DVOL and TURN are negative and statistically significant at the one-percent level.

Like I mentioned earlier it may be difficult to distinguish liquidity from volatility. The standard deviation is highly correlated with the level of trading volume and it could contaminate the results. Because of that Chordia et al. have added measures of variability in liquidity. They used a dimensionless quantity, the coefficient of variation in trading volume, as a measure of variability. The coefficient of CVVOL in the excess return regression is -0.333 and that is strongly significant with a *t*-statistic of -5.1. The coefficient of CVTURN is -0.367 and this is strongly significant with a *t*-statistic of -6.03 as well.

[12] See more accurate definitions and calculations of variables in appendix 3.

Table 5 Excess returns and liquidity

	Dollar trading volume	Turnover
INTERCEPT	0.719 (2.36)	0.718 (2.36)
SIZE	0.081 (1.42)	0.102 ** (3.18)
BM	0.222 ** (4.50)	0.226 ** (4.57)
PRICE	0.102 (0.94)	0.089 (0.81)
DVOL	-0.177 ** (-3.56)	
TURN		-0.188 ** (-3.74)
YLD	-1.80 (-1.20)	-1.68 (-1.10)
RET 2-3	0.958 ** (3.11)	0.944 ** (3.08)
RET 4-6	0.894 ** (3.39)	0.866 ** (3.29)
RET 7-12	1.12 ** (7.13)	1.10 ** (7.00)
CVVOL	-0.33 ** (-5.10)	
CVTURN		-0.367 ** (-6.03)

Chordia et al. results of regressing excess returns on dollar tradind volume and turnover. *t*-values are in parentheses.

* Significant at the five-percent level. ** Significant at the one-percent level.

Source:Chordia et al. 2001, pp. 16

3.4 Asset pricing with liquidity risk

The next matter I wish to show revolves around Acharya and Pedersen's (2005) findings on how asset prices are affected by liquidity risks and the commonality in liquidity. The previous section stated that the expected return increases with illiquidity, but now I want to discuss this connection more specifically. Why does the expected return increase exactly? The study of Acharya and Pedersen presented a simple theoretical model that helps explain how asset prices are affected by liquidity risk and commonality in liquidity. Their model provides unified theoretical framework that can explain the empirical findings that average liquidity is priced (Amihud and Mendelson, 1986), that return sensitivity to market liquidity is priced (Pástor and Stambaugh, 2003) and that liquidity commoves with returns and predicts future returns (Chordia et al., 2001).

Acharya and Pedersen have derived a liquidity-adjusted version of the capital asset pricing model. To state it briefly one has to find out how an asset's expected (gross) return,

$$r_t^i = \frac{D_t^i + P_t^i}{P_{t-1}^i}, \tag{8}$$

depends on its relative illiquidity costs,

$$c_t^i = \frac{C_t^i}{P_{t-1}^i}, \tag{9}$$

on the market return,

$$r_t^M = \frac{\sum_i S^i (D_t^i + P_t^i)}{\sum_i S^i P_{t-1}^i}, \tag{10}$$

and on the relative market illiquidity,

$$c_t^M = \frac{\sum_i S^i C_t^i}{\sum_i S^i P_{t-1}^i}, \tag{11}$$

where S^i is the total shares of security *i*, C_t^i is illiquidity costs, D_t^i is the dividend of security *i* and P_t^i is a share price.

In the liquidity-adjusted CAPM the expected return of an asset is increasing in its expected illiquidity and its net beta. The net beta can be decomposed into a standard market beta and three betas representing different forms of liquidity risks. Liquidity risks are associated with:

(1) the commonality in liquidity with market liquidity, cov(c^i,c^m); (2) the return sensitivity to market liquidity , cov(r^i, c^m); and, (3) the liquidity sensitivity to market returns, cov(c^i,r^m), where r^i, c^i are the return and illiquidity costs of an asset, and r^m and c^m are the market return and market illiquidity costs respectively.

In the unique linear equilibrium, the conditional expected gross return of asset *i* is

$$E_t(r_{t+1}^i) = r^f + E_t(c_{t+1}^i) + \lambda_t \frac{\mathrm{cov}_t(r_{t+1}^i, r_{t+1}^M)}{\mathrm{var}_t(r_{t+1}^M - c_{t+1}^M)} + \lambda_t \frac{\mathrm{cov}_t(c_{t+1}^i, c_{t+1}^M)}{\mathrm{var}_t(r_{t+1}^M - c_{t+1}^M)} - \lambda_t \frac{\mathrm{cov}_t(r_{t+1}^i, c_{t+1}^M)}{\mathrm{var}_t(r_{t+1}^M - c_{t+1}^M)} - \lambda_t \frac{\mathrm{cov}_t(c_{t+1}^i, r_{t+1}^M)}{\mathrm{var}_t(r_{t+1}^M - c_{t+1}^M)}, \quad (12)$$

where $\lambda_t = E_t(r_{t+1}^M - c_{t+1}^M - r^f)$ *is the risk premium.*

This equation states that the required return is a risk-free real return r^f, plus the expected relative illiquidity cost, $E_t(c_{t+1}^i)$, as Amihud and Mendelson (1986) found theoretically and empirically (discussed above), plus four covariances times the risk premium. In the standard CAPM, the required return increases linearly with the covariance between the asset's return and the market return, $\mathrm{cov}_t(r_{t+1}^i, r_{t+1}^M)$. The liquidity-adjusted CAPM yields three additional effects which could be regarded as the three forms of liquidity risks. According to Acharya and Pedersen (2005) these risks can be interpreted as follows.

(1) *The covariance between the asset's illiquidity and market illiquidity,* $\mathrm{cov}_t(c_{t+1}^i, c_{t+1}^M)$: The first effect is that the expected gross return increases with the covariance between the asset's illiquidity and market illiquidity. This is the consequence of the compensation for holding an asset that becomes illiquid when the market in general becomes illiquid.

(2) *The covariance between the asset's return and market illiquidity,* $\mathrm{cov}_t(r_{t+1}^i, c_{t+1}^M)$: The second effect is that the expected gross return decreases with the covariance between the asset's return and market

illiquidity. This comes from the willingness of investors to accept a lower return on an asset with a high return in times of an illiquid market.

(3) *The covariance between the asset's illiquidity and market return,* $\mathrm{cov}_t(c^i_{t+1}, r^M_{t+1})$: The third effect is that the expected gross return decreases with the covariance between the asset's illiquidity and market return. Now investors are willing to accept a lower expected return on an asset with low illiquidity costs in states of poor market return. When the market declines, the ability to sell easily is especially valuable.

The required return of asset *i* is increasing in the covariance between its illiquidity and market illiquidity, $\mathrm{cov}_t(c^i_{t+1}, c^M_{t+1})$, decreasing in the covariance between the asset's return and market illiquidity, $\mathrm{cov}_t(r^i_{t+1}, c^M_{t+1})$, and decreasing in the covariance between its illiquidity and market returns, $\mathrm{cov}_t(c^i_{t+1}, r^M_{t+1})$. These three covariances provide a characterization of the liquidity risk of a stock.

This section showed how liquidity risks affect asset pricing through the liquidity-adjusted capital asset pricing model. The liquidity-adjusted CAPM provides useful framework for understanding the various channels through which liquidity risks may affect asset pricing. According to equation (12) illiquidity affects the expected return positively. In practice if investors hold illiquid shares they require a higher expected return on them than they would if the shares were more liquid. They wish that share prices would go up so that they could increase their return. Other investors however, also observe the illiquidity of the shares so they won't trade at a premium rate. That is why investors do not expect share prices to go up and why they might pay more attention to the paid share price and their dividend yield. To increase the stock return (see equation 8) they buy stocks at a discount rate and expect the dividend yield to be high. Thus in the end of this chapter I will present how stock market liquidity affects a firm's dividend policy.

3.5 Dividend policy with liquidity risk

Banerjee, Gatchev, and Spindt (2007) investigated the link between firm dividend policy and stock market liquidity. Their study covered NYSE and AMEX firms from 1963 to 2003 and they found evidence that owners of less (more) liquid common stock are more (less) likely to receive cash dividends. First they argued that the investor's demand for stocks paying cash dividends is positively related to the trading friction that investors face when creating homemade dividend. The trading friction refers to liquidity costs and homemade dividend is a form of income that comes from stocks sales. Thus in markets with trading friction or in other words illiquid markets, investors will have a greater demand for cash dividends from the stocks they hold since stocks that pay cash dividends allow investors to satisfy their liquidity needs with little or no trading. This will enable them to avoid trading friction. In a high liquid market however, investors can create homemade dividends cheaply and because of that they won't require cash dividends as much as the owners of illiquid stock. In addition to the investors demand for cash dividends with illiquid stocks, Banerjee, Gatchev, and Spindt further hypothesized that the likelihood of a firm paying cash dividends is positively related to investor demand for dividend payments and therefore inversely related to the market liquidity of the firm's stock.

When Banerjee, Gatchev, and Spindt tested the relationship between a firm's dividend policy and stock liquidity they used the annual share turnover, the annual traded dollar volume in the stock, the proportion of days with zero traded volume, and the illiquidity ratio to proxies for liquidity. They found a strong empirical relationship between the dividend policy of a firm and the liquidity of its common stock. There was a significant negative relationship between share turnovers and the probability of dividend. The results also showed that firms with higher illiquidity ratios are more likely to pay dividends. Similarly, firms with a lower trading volume and firms with a higher proportion of days with no trading are also more likely to pay dividends.

Besides staring at the relationship between the dividend policy and stock liquidity it is also important to address the question of how investor's demand for dividends translates into actual dividend policy. On the other hand, existing literature, e.g. Pástor and Stambaugh which I mentioned earlier, argued that stock market liquidity affects firm value both in cross-section and also through time. According to this literature, stocks with higher liquidity levels

trade at a premium and have lower expected returns relative to stocks with lower liquidity levels and which are traded at a discount. However, firms can reduce investor dependence on the liquidity market by way of paying cash dividends because Banerjee, Gatchev, and Spindt (2007) found that investors when they are valuing firms, view cash dividends and stock market liquidity as substitutes. Firms that initiate dividend payments reduce the sensitivity of their returns to aggregate liquidity. Therefore firms with higher discount rates due to lower liquidity can raise their value by paying cash dividends.

4 The relationship between family firms, share liquidity, and firm value

In the second chapter I discussed family firms. Some researchers, Anderson and Reeb (2003), Amit and Villalonga (2006), and Sraer and Thesman (2007) to name a few, found that family firms outperform non-family firms. However, no consensus was reached among the existing literature, for example Millet et al. (2007) found no evidence of superior performances by family firms and Holderness and Sheehan (1988) found that family firms are less valuable than non-family firms.

In chapter three I discussed liquidity. I presented the measures of liquidity and stated that liquidity is an elusive concept and there is no single measure to capture all its dimensions. One of the most significant points in the third chapter was that there are many studies about the negative relationship between expected returns and stock liquidity. Besides the expected return, illiquid stocks require more cash dividends than a liquid one. In the end I also presented Banerjee, Gatchev, and Spindt's results (2005) of how stock liquidity affects a firm's value through cash dividends. Now it is logical to take firm value into discussion.

The next thing I will do is connect two concepts - a family firm and stock liquidity - to each other and consider how this combination affects firm value. First I will state couple of things about a family firm and their stock liquidity and then I will move on to liquidity and the effect it has on firm value.

4.1 Family firms and liquidity

In chapter two I presented the definition of a family firm. According to this definition a firm is a family firm if a family or a member of the family or relative owns 25 percent of the voting rights. Hence at least a quarter of the firm's shares have to belong to a family - if we assume that one share justifies one voting right – and these shares are not available for trading. Weaker availability of the firm's stocks leads to lower liquidity. Because of that we can assume that a family firm's stocks have lower liquidity than those of a firm which has dispersed ownership.

The liquidity of a family firms' share is quite obvious if we use for example trading volume as a measure of liquidity. If we use Amihud illiquidity, the share is illiquid if its price moves a lot in response to little volume. The share of a non-family firm can also be illiquid if its price moves a lot. In this case the shares of a family firm are, in all likelihood, more illiquid than the ones of a non-family firm because the divisor in the Amihud illiquidity measure is trading volume.

4.2 Liquidity and firm value

The theory of corporate finance has mostly been based on the idea that a company's market value is determined mainly by just two variables. These variables are 1) a company's expected after-tax operating cash flows or earnings and 2) the risks associated with producing them. The measures of these risks reflect the volatility of operating cash flow and they exist in most asset pricing models. However, there is another important factor affecting a firm's value. Amihud and Mendelson (2008) have noted that the liquidity of a company's own securities affect the firm's value outstandingly. Researchers consistently came to the same conclusion; the lower the liquidity of a stock – after controlling for risk and other relevant characteristics – the higher its expected return. This also means that the price of illiquid stocks might be lower. In their study in 1986 Amihud amd Mendelson estimated the effects of liquidity on actual average stock returns which were then viewed as a proxy for expected returns. If we do the same and look at equation (8) we can easily see that a lower value of P_{t-1}^{i} increases the actual return or expected return. The higher a stock's expected return, the lower its price is for any given level of expected cash flow or earnings. This means that illiquid stocks are traded at

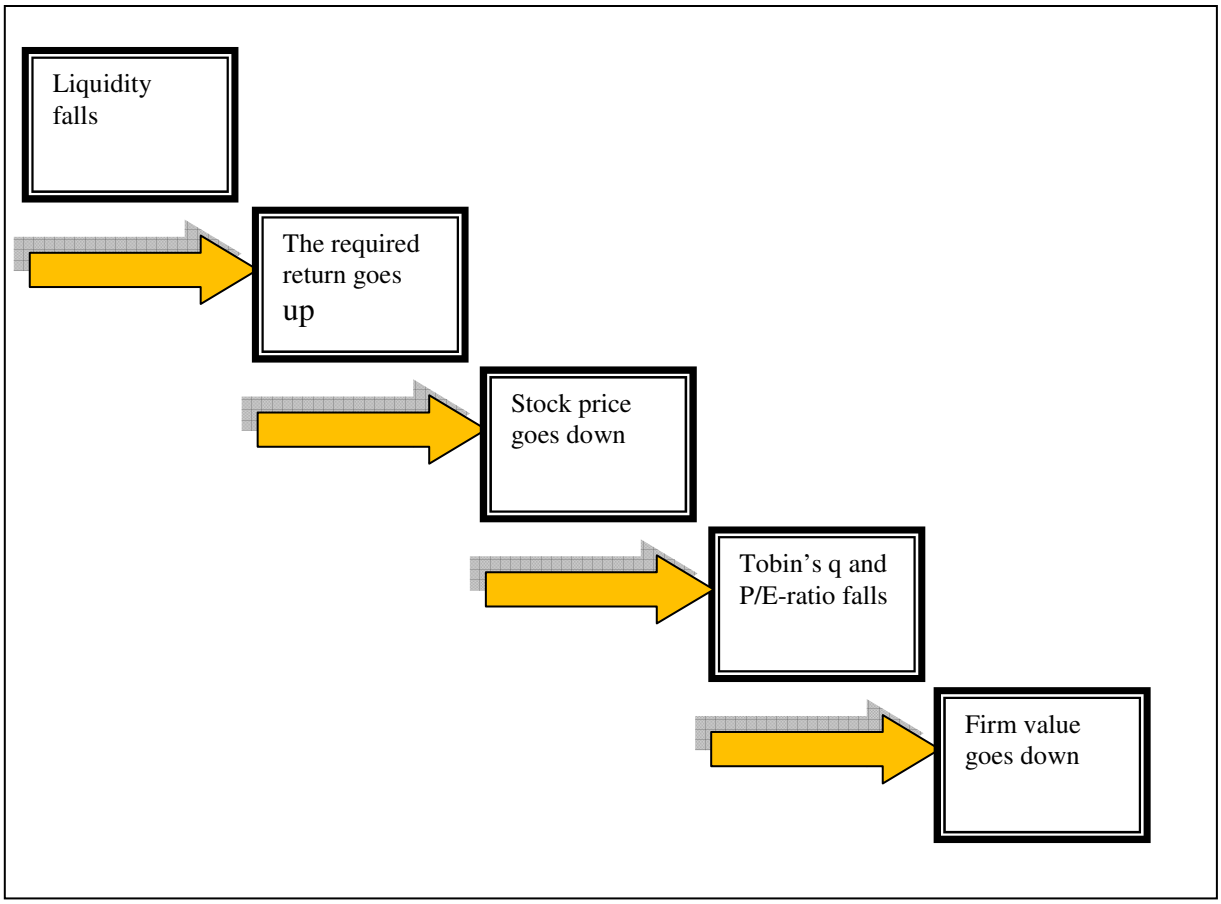
a discount rate. If we use Tobin's q or the P/E-ratio to measure firm value they will decrease when the stock price declines. In both of these measures share price is in the divisible term. The consequences of lower liquidity are described in the figure 1.

Loderer and Roth (2005) investigated the price discount for limited liquidity. On the contrary to previous studies that have examined the relationship between returns and liquidity they looked directly at current stock discounts. They analyzed data from the Swiss exchange and the NASDAQ during 1995-2001. After controlling the earnings growth, risk, and firm size, they found a statistically and economically significant relationship between price and liquidity in both markets. They measured a stock's liquidity with the relative bid-ask spread. The same conclusion follows when they used trading volume as an alternative liquidity proxy. Fang, Noe, and Tice (2009) also stated that liquidity affects a firm's value positively. Their study showed that liquidity affects firm performance positively when performance is measured with a firm's Tobin's q ratio.

4.3 The value of a family firm

According to the two previous sections family firms should be less valuable than non-family firms, for family firms' stocks have lower liquidity and lower liquidity indices a decrease in firm value, holding other characteristics equal of course. Fang, Noe, and Tice's (2009) study implied a positive relation between stock liquidity and market-price based measures such as Tobin's q. Under these circumstances family firms should have a lower Tobin's q than non-family firms. However, in chapter two according to previous studies I stated that family firms' have a higher Tobin's q than non-family firms. Is a Finnish family firm a better market performer than a non-family firm or does weak liquidity affect a family firm's value to the point that family firms are worse performers than non-family firms after all. That is the subject of my next chapter.

Figure 1 The consequences of the decrease of share liquidity



5 Empirical analysis: evidence of Finnish family firms and share liquidity

The rest of my master's thesis is about my empirical analysis of Finnish listed companies. There are three important concepts – firm value, a family firm, and share liquidity – the first one is a dependent variable, and the latter two are independent variables in my regression analyses. In section 5.2 I find out how concentrated ownership affects firm value and after that in section 5.3 I heighten my investigation and take stock liquidity into account.

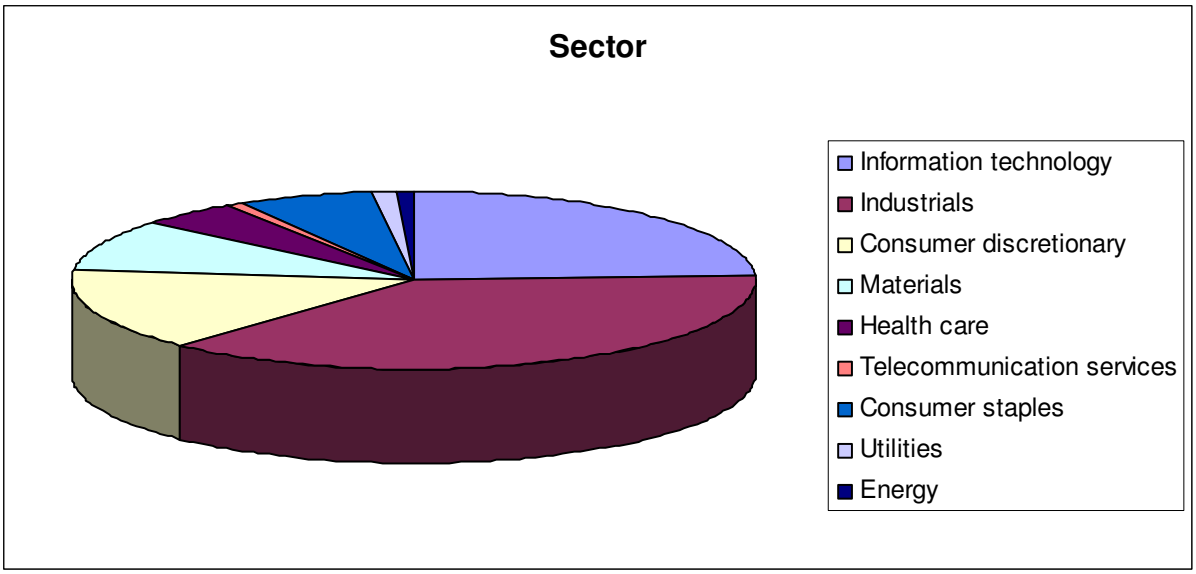
5.1 Data description

For my investigation, I use firms that are listed on the Helsinki Stock Exchange at the moment (February 2010). Financial firms, however, are discarded due to problems calculating Tobin's q and a lack of comparability concerning other control variables. My dataset is a

panel of Finnish listed firms over the period of 1997-2008 which is little bit longer than Sraer and Thesmar's (1994-2000) and Anderson and Reeb's (1994-1999) research periods. The construction of this data set used three different sources. First, I hand-collected information on firm ownership and ages using the firms' annual reports and Web sites. Second, I retrieved the annual firm accounts from Thomson Financial Worldscope. Finally, I used Helsinki Stock Exchange's websites to retrieve daily stock prices and find out the volume of stock in each firm.

Figure 2 presents nine different sectors to which the firms on the Helsinki Stock Exchange have separated. NASDAQ OMX Nordic divides firms into ten different sectors but because I excluded the financial sector from my study only nine sectors are under consideration. The Industrials sector is the largest one. 38 percent of my sample firms are within the Industrials sector. Information technology is second to the industrial sector with a 24 percentage value. The other sectors involved are Consumer discretionary (15%), Materials (9%), Consumer staples (6%), Health care (5%), Telecommunication services (1%), Utilities (1%), and Energy (1%).

Figure 2 Sector description



Source: Panel of Finnish listed firms over 1994-2008

5.1.1 Family firms on the Finnish stock market

I state my definition of a family firm in chapter two. I use the Finnish Family Firms Association's definition which defines a firm as a family firm if a family, a member of the family, or relative owns at least 25 percent of the firm's voting rights. I hand-collected information on firm ownership to investigate firms' major shareholders using their annual reports.[13] I also use the Finnish Family Firms Association's web site as help. During the period of 1997 to 2008 I found that out of 108 listed firms on the Helsinki Stock Exchange 27 are family firms, 74 are non-family firms and seven firms changed their status from family firms to non-family firms or vice versa. In table 6 we can see that 27% of all firms present in the sample are family firms.[14] This is a smaller number compared to what previous studies found. Anderson and Reeb (2003) found 35% to be family-controlled firms and Sraer and Thesmar (2007) found 70% of all firms in their sample to be family firms, although they used a different definition of family ownership. My definition of a family firm is slightly stricter than their definitions are. Line two of table 6 highlights the relatively small size of family firms since in weighted terms, non-family firms account for almost 85 percent of all firms.

Table 6 Presence of family firms

	Family firm	Non-family firm	
Fraction (non weighted)	0.267	0.733	1
Fraction (asset weighted)	0.156	0.844	1
Firms	27	74	101

Source: Panel of Finnish listed firms over 1997-2008

Table 7 shows us the systematic differences between family firms and non-family firms.[15] I calculate the annual averages of the different characteristics of family and non-family firms. I also take sales, ROE, ROA, and sales growth into account which are not included in my regression analyses. On average family firms are younger than non-family firms. When looking at accounting profitability, family firms do better than non-family firms. However, on

[13] See division in appendix 4.

[14] The table excluded seven firms which changed their status from family to non-family or vice versa.

[15] The table excluded seven firms which changed their status from family to non-family or vice versa.

average non-family firms grow faster than family firms. The difference is not remarkable but it is not in the favour of family firms like it is in previous studies (Sraer and Thesmar, 2007).The dividend yield for a family firm is larger than for a non-family firm. That fact is consistent with previous studies. As I mentioned in chapter three, firms with higher discount rates due to lower liquidity can raise their values by paying cash dividends, and Amihud illiquidity which is my liquidity measure in the second regression analysis is larger for family firms than it is for non-family firms. In other words a non-family firm's share is more liquid than a family firm's share. Both value measures – Tobin's q and P/E-ratio – are smaller for family firms than they are for non-family firms.

Table 7 Characteristics of family firms

	All firms	Family firm	Non-family firm
Age	73.13	68.77	74.73
Sales (000,000€)	1359.99	412.43	1705.73
Total Assets (000,000€)	1227.95	289.83	1570.23
ROE	-0.67	10.14	-4.62
ROA	5.79	7.8	5.05
Sales growth (%)	22.77	17.11	24.84
Debt / Assets (%)	24.05	23.73	24.16
Total liabilities (000,000€)	702.25	240.75	870.64
Dividend yield (%)	3.65	4.24	3.44
Tobin's q	2.22	1.36	2.54
P/e-ratio	56.44	37.97	63.17
Amihud illiquidity (*100)	0.21	0.26	0.19
Firms	101	27	74

Source: Panel of Finnish listed firms over 1997-2008

Table 8 states descriptive information for my sample of firms. It provides means, medians, standard deviations, and maximum and minimum values for all variables in my sample. In terms of market performance, Tobin's q has a mean value of 1.7773 and the mean for Ln(P/E-ratio) is 3.4166. Before I took the natural logarithm of P/E-ratios, the standard deviation of the P/E-ratio in particular was very high since a few firms have a remarkably high P/E-ratio. It stems from very low earnings per share, e.g. EPS was 0.01. So I excluded the P/E-ratios which have a value of more than 2000 and in which the EPS was 0.01 to avoid distortion. After that I took the natural logarithm of the P/E-ratios and consequently I discarded negative

P/E-ratios. This is part of the reason why Tobin's q is my primary value measure but I also check how the results change if I use an alternative value measure. The alternative value measure is P/E-ratio. Minimum Ln(Firm age) is 0. That is consequence of the fact that some firms are founded during the sample period. When they are one year old the natural logarithm of that age is zero.

Table 8 Summary statistics for the full sample

	Ln(Firm age)	Ln(Total assets) (000,000€)	Debt/ assets (%)	Stock return volatility	Dividend yield (%)	Amihud illiquidity (*100)	Tobin's q	Ln(P/E-ratio)
Mean	3.6890	5.0468	23.6724	0.4844	3.7146	0.1836	1.7773	3.4166
Median	3.8067	4.6991	22.2107	0.3754	3.3483	0.1351	1.1279	3.0766
Maximum	6.5511	10.5353	238.723	4.7694	31.6406	6.6949	48.5599	7.5512
Minimum	0.0000	0.1454	0.01	0.1589	0.0000	0.0476	0.1562	-1.5465
Standard Deviation	1.0281	2.0305	19.7804	0.4368	3.3489	0.2702	2.7530	1.3510
Observations	1 262	1 203	1 196	1 296	974	1 292	1 125	832

This table provides summary statistics for the data employed in my analysis. The data set is comprised of 108 firms during 1997-2008 on the Helsinki Stock Exchange. Firm size is *Ln(total assets)* which is measured as the natural logarithm of the book value of total assets. I proxy *Firm age* using the natural logarithm of the number of years since firms report the year they are found on their websites. The leverage is *Debt/assets* that is measured as the book value of total debt divided by the book value of total assets. Firm risk is *Stock return volatility* and it is defined as the annual standard deviation of a firm's daily stock returns. *Dividend yield* is the dividend per share divided by the calendar year closing price. Share liquidity is measured with *Amihud illiquidity*. *Amihud illiquidity* is calculated as follows: the sum of the natural logarithm of daily absolute return to the natural logarithm of (euro-denominated) trading volume divided by the number of days for which data is available. Firm value is *Tobin's q* and *Ln(P/E-ratio)*. *Tobin's q* is the ratio of the firm's market value to book value and is calculated as follows: ((common share outstanding*calendar year closing price)+liabilities book value)) divided by (equity book value+liabilities book value). *Ln(P/E-ratio)* is calculated as follows: average on daily share prices divided by earning per share.

Source: Panel of Finnish listed firms over 1997-2008

5.2 Family ownership and firm market performance

My main interest in this part is the relationship between a family firm and firm performance. Given that family firms tend to have different ages and sizes than non-family firms, it is necessary to conduct a multivariate analysis. My empirical strategy contains a panel data analysis since the order of the data has a meaning as well as the values. I use fixed effects on years so I get dummies for each year. I use a two-way fixed effects model for each sector as well. I did not use fixed effects on firm-level because by doing so I would not get an appropriate estimate on the family firm dummy. The regression equation that I employ for my multivariate analysis follows the equation adapted by Anderson and Reeb (2003) and Sraer and Thesmar (2007), and it is as follows:

$$\begin{aligned} \textit{Firm performance} = {} & \delta_0 + \delta_1 (\textit{Family Firm}) + \delta_2 (\textit{Control variables}) + \\ & \delta_{3\text{-}10} (\textit{Sector}) + \delta_{97\text{-}08} (\textit{Year dummy variables}) + \varepsilon \end{aligned} \tag{13}$$

where,

Firm performance = Tobin's q (and Ln(P/E-ratio)),

Family Firm = binary variable that equals one when the firm is a family firm and otherwise zero,

Control variables = the natural logarithm of firm age, the natural logarithm of total assets, total debt divided by total assets, and stock return volatility,

Sector = 1.0 for each sector in my sample except industrials sector which is 0-dummy,

Year dummy variables = period fixed dummy variables.

My data spans from 1997 to 2008. I control for heteroskedasticity using White cross-section standard errors.

Table 9 presents results using market performance measures as dependent variables. When focusing on column 1 we can see that family ownership harms firm performance. The

Table 9 Market performance of family firms

	Tobin's q	Ln(P/E-ratio)
	(1)	(2)
INTERCEPT	2.4764 (5.3640)	2.9321 (11.8729)
FAMILY FIRM	-0.5914 ** (-2.6676)	-0.0017 (-0.0184)
CONSUMER DISCRETIONARY	-0.1049 (-0.7581)	0.0488 (0.5626)
CONSUMER STAPLES	-0.3101 ** (-2.8687)	-0.5938 ** (-4.6145)
ENERGY	0.4064 * (2.0918)	-0.2429 (-0.5784)
HEALTH CARE	2.0868 (1.5140)	-2.2200 ** (-4.6109)
INFORMATION TECHNOLOGY	0.9658 ** (2.9388)	-0.0516 (-0.3108)
MATERIALS	0.0233 (0.1390)	-0.2846 * (-2.1637)
TELECOMMUNICATION SERVICES	0.4413 ** (3.2300)	-0.4973 (-1.3348)
UTILITIES	0.0460 (0.1053)	-0.2582 * (-1.9960)
LN(FIRM AGE)	-0.0757 (-1.1867)	0.1842 ** (4.6769)
LN(TOTAL ASSETS) (000,000€)	-0.1245 * (-2.1075)	-0.0195 (-0.8837)
DEBT/ASSETS (%)	-0.0121 (-1.9605)	-0.0008 (-0.4456)
STOCK RETURN VOLATILITY (*100)	0.8044 (1.5100)	0.0191 (0.1210)
ADJUSTED R-SQUARED	0.1281	0.1952

Panel Least Squares regression results of regressing firm market performance on family ownership.

This table reports the results of regressing firm performance on family ownership. The number of observations is 1 104 when Tobin's q is a dependent variable. The number of observations is 826 when the Ln(P/E-ratio) is a dependent variable.

* Significant at the five-percent level. ** Significant at the one-percent level.

coefficient estimate on a family firm is negative and significant at the one-percent level. Family firms are weaker market performers than non-family firms. The difference in Tobin's q is 0.5914 percentage points. This means that when a firm changes its status from a non-family firm to a family firm, holding other variables constant, Tobin's q decreases by 0.5914 units. The coefficient estimate on a family firm is 22 percent of Tobin's q standard deviation which is 2.753. We can say that it is economically significant. The explanatory power – adjusted R-squared – is 0.1281. This means that explanatory variables explain 12.81% of the variability in the dependent variable; Tobin's q. Firm size exhibits a significant and negative association to a firm's value as well. A firm's age, however, is insignificant. In the alternative value measure - P/E-ratio – the column indicates that family firms have no effect on the firm's value. A notable observation concerning P/E-ratio is that a firm's age has a positive and significant effect on P/E-ratio.

5.3 The liquidity of a family firm's share and firm market performance

My focus in this section is to figure out the relationship between share liquidity and firm's market performance. Once again my primary value measure is Tobin's q, but I also look at the changes in the results when using P/E-ratio as a dependent variable. New variables that I introduce here are Amihud illiquidity and dividend yield. I use Amihud illiquidity to measure share illiquidity. I also take the dividend yield into account by following existing literature. The mean Amihud illiquidity is 0.1836 and the mean dividend yield is 3.7146 according to table 8.

The regression equation that I employ for my multivariate analysis follows the equation adapted by Chordia et al. (2001), Loderer and Roth (2005), and the previous equations (13) and it is as follows:

$$\begin{aligned} &\textit{Firm performance} \\ &= \delta_0 + \delta_1(\textit{Family Firm}) + \delta_2(\textit{Amihud illiquidity}) + \delta_3(\textit{Family firm's share illiquidity}) \\ &\quad + \delta_4(\textit{Control variables}) + \delta_{5\text{-}12}(\textit{Sector}) + \delta_{97\text{-}08}(\textit{Year dummy variables}) + \varepsilon \end{aligned} \quad (14)$$

where,

Firm performance = Tobin's q (and Ln(P/E-ratio)),

Family Firm = binary variable that equals one when the firm is a family firm and otherwise zero,

Amihud illiquidity = the natural logarithm of Amihud illiquidity,

Family firm's share illiquidity = Family firm –binary variable multiplied by Amihud illiquidity,

Control variables = the natural logarithm of firm age, the natural logarithm of total assets, total debt divided by total assets, stock return volatility, and dividend yield,

Sector = 1.0 for each sector in my sample except industrials sector which is 0-dummy,

Year dummy variables = period fixed dummy variables.

Table 10 presents results using market performance measures as dependent variables. When focusing on column 1 we can see that the coefficient estimate on Amihud illiquidity is 1.8809. This is positive but not statistically significant with t-statistic of 0.8722. Due to the fact that I examine Amihud illiquidity and the illiquidity of a family firm's share separately; Amihud illiquidity only measures the illiquidity of a non-family firm's share. According to this, the illiquidity of a non-family firm's share does not have a statistically significant effect on firm value. However, when considering a Family firm's share illiquidity variable we can discover an inverse effect. The coefficient estimate on a Family firm's share illiquidity is -4.8329 and it is significant at the one-percent level. The Family firm's share illiquidity variable is an interaction term. It is zero when considering a non-family firm. When considering a family firm it is Amihud illiquidity multiplied by one. This means that if a family firm's share illiquidity increases by one unit, Tobin's q decreases by 0.02952 units, holding the other variables constant. I calculated this as follows: Amihud coefficient estimate minus Family firm's share illiquidity coefficient estimate = 0.018809 - 0.048329.[16] The illiquidity of a family firm's share has a statistically significant effect on a firm's value. The coefficient estimate on a family firm's share illiquidity is 1.07 percent of Tobin's q standard deviation which is 2.7530. The explanatory power – adjusted R-squared – is 0.1793. This means that

[16] In the regression analysis I have multiplied Amihud illiquidity by 100.

Table 10 Market performance of family firm and share liquidity

	Tobin's q	Ln(P/E-ratio)
	(1)	(2)
INTERCEPT	1.7634 (3.5096)	4.2229 (13.6649)
FAMILY FIRM	0.6389 * (2.3120)	0.0298 (0.1995)
AMIHUD ILLIQUIDITY (*100)	1.8809 (0.8722)	-2.6638 ** (-4.1205)
FAMILY FIRM'S SHARE ILLIQUIDITY (*100)	-4.8329 ** (-3.1679)	0.1628 (0.2696)
CONSUMER DISCRETIONARY	-0.0255 (-0.1690)	-0.0062 (-0.0505)
CONSUMER STAPLES	-0.2866 * (-1.9656)	-0.5816 ** (-5.8099)
ENERGY	0.5292 ** (3.2188)	-0.0855 (-0.2003)
HEALTH CARE	1.8251 (1.3377)	-2.4852 ** (-6.8988)
INFORMATION TECHNOLOGY	0.7324 ** (3.0029)	-0.4155 ** (-2.8780)
MATERIALS	0.0710 (0.4329)	-0.3826 * (-2.2796)
TELECOMMUNICATION SERVICES	0.4117 (1.7047)	-0.3792 (-0.9273)
UTILITIES	0.4156 (1.0719)	-0.0359 (-0.2761)
LN(FIRM AGE)	-0.0067 (-0.0900)	0.2045 ** (5.5792)
LN(TOTAL ASSETS) (000,000€)	-0.07328 * (-2.3831)	-0.1087 ** (-4.1173)
DEBT/ASSETS (%)	-0.0159 * (-2.1349)	-0.0039 ** (-2.8483)
STOCK RETURN VOLATILITY (*100)	1.3720 (1.9279)	0.3425 * (2.5671)
DIVIDEND YIELD (%)	-0.0909 ** (-2.8990)	-0.0937 ** (-4.4832)
ADJUSTED R-SQUARED	0.1793	0.2941

Panel Least Squares regression results of regressing firm market performance on family ownership.This table reports the results of regressing firm performance on family ownership. The number of observations is 953 when the Tobin's q is a dependent variable. The number of observations is 928 when the P/E-ratio is a dependent variable.

* Significant at the five-percent level. ** Significant at the one-percent level.

explanatory variables explain 17.93% of the variability in Tobin's q. In the alternative value measure – Ln(P/E-ratio) – the column indicates that Amihud illiquidity has a negative and statistically significant effect on firm value. However, the illiquidity of a family firm's share does not differ from the illiquidity of a non-family firm's share.

Table 11 provides correlations of my sample variables. As we can see the correlation between the stock return volatility and Amihud illiquidity is quite large. The correlation coefficient is 0.5408. One of the disadvantages of the Amihud illiquidity measure is that it may be difficult to distinguish liquidity from volatility. If volatility is not closely linked to trading volumes, stocks with high volatility will tend to be classified as illiquid stocks by the Amihud measure. For example if the volatility of a stock increases but the trading volume does not, a stock is classified as illiquid.

Table 11 Variables correlations

	Ln(Firm age)	Ln(Total assets)	Debt/ assets	Stock return volatility	Dividend yield	Amihud illiquidity (*100)	Tobin's q	Ln(P/E-ratio)
Ln(Firm age)	1.0000							
Ln(Total assets)	0.2601	1.0000						
Debt/assets	0.1297	0.2033	1.0000					
Stock return volatility	-0.0782	-0.2015	0.0258	1.0000				
Dividend yield	0.1079	0.0315	-0.0385	-0.0786	1.0000			
Amihud illiquidity	-0.1323	-0.4082	0.0571	0.5408	0.0343	1.0000		
Tobin's q	-0.1542	-0.1036	-0.1850	0.2474	-0.2426	0.0262	1.0000	
Ln(P/E-ratio)	0.1147	-0.0748	0.0078	0.0795	-0.1456	-0.0606	-0.0589	1.0000

Source: Panel of Finnish listed firms over 1997-2008

5.4 Discussion

To state it briefly the results from the regression analyses point out that a family firm's value in the market is less than a non-family firm's value and the liquidity of a family firm's share has a negative and significant effect on firm value. I shall discuss these results next in a more detailed manner as well as try to find out their consistency with previous studies.

5.4.1 The interpretation of family firm market performance

The results from the regression indicate that family firms are worse market performers than non-family firms. In other words the value of family firms is significantly less than the value of non-family firms. My results are contrary to recently published literature e.g. Anderson and Reeb (2003), Villalonga and Amit (2006) as well as Sraer and Thesmar (2007). I can also add one more study, which I have not mentioned before, to the list that concluded that family firms are better performers than non-family firms. Maury (2006) studied Western European firms and discovered that family firms are better market performers than non-family firms. I think the differences in the results could stem from the four following facts.

First the definition that I use is stricter than the definitions of the above-mentioned studies. Sraer and Thesmar reported a firm as a family firm when the founder or a member of the founder's family is a blockholder of the firm. Anderson and Reeb used the fractional equity ownership of the founding family and (or) the presence of family members on the board of directors to identify family firms. Villalonga and Amit initially defined family firms following Anderson and Reeb's definition. Maury (2006) also had a looser definition than the one I use. Maury defined a firm as a family firm if the largest shareholder holds at least 10% of the voting rights. Villalonga and Amit examined how their results changed when they used different definitions. The definition closest to mine leads to the fact that there were no statistically significant differences between the performance of family firms and non-family firms. Miller et al. (2007) have also noticed the influence the definition of family firms has to the results.

Second, my research period differs from the above-mentioned studies. When considering the research periods of these three studies - Sraer and Thesmar (1994-2000), Anderson and Reeb (1994-1999) and Villalonga and Amit (1994-2000) we can observe that they are all almost the

same. (Maury studied 1998.) They also take place during the time of the global boom in the late 1990s. The boom resulted partly from the powerful drive of the telecommunications industry and I am quite sure that some of those dot-com firms were included in the family firm category. Family firms were, according to Anderson and Reeb younger than non-family firms. This could possible indicate the fact that dot-com firms were present in their research. The coefficient estimate on firm age was negative and statistically significant. So young firms influenced the market performance in a positive way.

Third, the value measures can be calculated differently. Sraer and Thesmar (2007) did not use Tobin's q in their regression analysis at all. Their dependent variables were return on assets, return on equity, market to book, and dividend to profit. Anderson and Reeb (2003) used Tobin's q and they estimated market values and replacement costs using Yermarck's (1996) algorithm. The divisible term – the market value – is the same as I use but the divisor – the replacement cost – differs from the term that I use. I estimate the replacement cost by adding together the book value of equity and liabilities. Anderson and Reeb estimate, using Yermarck's guideline, the replacement cost of inventories and fixed assets by recursive algorithms that take inflation into account, real depreciation rates, capital expenditures, and the method of inventory valuation used by each company. Other assets were assumed to have amarket value equal to book value.

Fourth, Finnish family firms might simply have a lower value in the market. Holderness and Sheehan (1988) discovered that when majority blocks are sold, stock prices on average increase by an abnormal 12%. This verifies the statement that a family firm harms firm value throughout lower share prices. But what could be the reasons that induce the negative effect on firm value? An extensive answer to that question would require a whole new study. I have, however, taken one possible explanation into account. The answer to that is the liquidity of a family firm's share. It is possible that the liquidity of a family firm's share is weaker worldwide than a non-family firm's share, but what is the total effect liquidity has on firm value?

5.4.2 The interpretation of market performance, family firms and share liquidity

I came to the conclusion that the illiquidity of a family firm's share has a negative effect on firm value. The negative effect of share illiquidity on firm value is consistent with previous studies and my expectations as well. These studies discovered the negative relationship between liquidity and the expected return (Amihud and Mendelson, 1986 as well as Pástor and Stambaugh, 2003). The illiquidity of a non-family firm's share, however, does not affect firm value negatively. This is a very interesting fact to find out. The average Amihud illiquidity measure for a family firm is 0.26 and for a non-family firm 0.19 (see table 7). Family firms have, on average, larger share illiquidity but this does not explain why the illiquidity of a non-family firm's share does not affect firm value negatively?

Investors, in general, try to avoid illiquid shares and a family firm's share generally is illiquid. When investors trade with illiquid shares they require a liquidity premium. I don't know if investors categorize a family firm's share as an illiquid-one and a non-family firm's share as liquid but the results could confirm this argument. Why is it that the illiquid shares of a non-family firm do not decrease firm value? To find some possible explanations to this question I have to return to a certain definition of Amihud illiquidity. The Amihud illiquidity measure is the average ratio of the daily absolute return to the trading volume. A stock is illiquid when the stock's prices move a lot in response to little volume. A non-family firm's shares which have large illiquidity generally have a lot of movement in prices. The total volume of a share has in general stayed at a quite stable rate. The share prices of a family firm that has large liquidity generally move a lot but the total volume is significantly less as well. For example, non-family firm X's share illiquidity is 2 when measured by Amihud illiquidity, and family firm Y's share illiquidity is also 2. It could be that firm X's Amihud illiquidity is 4/2 = 2 but for firm Y Amihud illiquidity = 2/1 = 2. A non-family firm's share is illiquid because its prices move a lot and a family firm's share is illiquid because it has a low daily volume. It seems that investors pay more attention on a share's total volume than in price movements. The fact that the Amihud illiquidity measure is highly correlated with volatility could have an effect on the fact that a non-family firm's shares are classified as illiquid. Stocks with high volatility will tend to be classified as illiquid stocks.

5.5 The limitations of the study and leads for future studies

There are some limitations to my study that might skew the results a bit. First, are the value measures that I use the right ones to measure firm value? I use Tobin's q and the P/E-ratio which are commonly used value measures. Many studies about firm market performance used Tobin's q as a value measure and a study about share liquidity used the P/E-ratio as a measure of firm value. Second, there are some constraints in my data. Finally I state a few words about leads for future studies.

5.5.1 Value measures

Many studies have used Tobin's q as the measure to determine firm market performance (Anderson and Reeb, 2003 and Villalonga and Amit, 2006) so the value measure I use is consistent with those studies as well. When I calculate Tobin's q I use an annual share closing price because I use end of the year values for book values of equity and for liabilities as well. The closing price is not an exact value for the price of the whole year but I use it as a proxy. The mean Tobin's q (see table 8) is larger than one which means that over a half of the firms earn excess profits. One disadvantage of Tobin's q is that it can be influenced by a firm's ownership structure. For example, a firm can contribute to the number by raising the amount of common share outstanding. On page 11 I discuss the advantages and disadvantages of Tobin's q more deeply.

Many investors follow firms' P/E-ratios. The P/E-ratio is a simple measure since it is the share price divided by its earnings. According to Cinnamon and Helweg-Larsen (2006) the P/E-ratio is a measure of how long, at the current rate of earnings, a shareholder has to wait for his earnings (whether paid out as dividends or retained) to total the current price of the share. The P/E-ratio is a kind of rough payback per share. Price-to-earning is easily the most discussed and cited valuation measure in the investment world. However, as Hoover (2005) stated, the interpretation of the P/E-ratio is not that simple. Naïve investors cite a lower-than-average P/E-ratio as evidence that a stock is undervalued. Instead, investors should interpret a lower-than-average P/E-ratio as evidence that the market believes the firm's prospects are less attractive than average. We can only interpret a low P/E-ratio as evidence of underpricing if we develop independent evidence that the firm's future prospects are more attractive than the

market believes they are. One source of error occurs when we compare firm's P/E-ratios to each other. For example, firm X reported earnings per share of 0.01€ for the year ending and the same time, the firm's stock was trading at about 30€ per share, giving it a P/E-ratio of about 3 000€. If we were to include the firm in a peer group, the average P/E-ratio for that group would be affected in a dramatic way. According to Kallunki (Talouselämä, 2009) the P/E-ratio is useful when the value of the P/E-ratio is between 5 and 25. This is a problem that I encountered too. In table 7 we can easily see that the averages of both non-family firms and family firms are over 25.

When taking the empirical analyses into consideration I came to the conclusion that Tobin's q is a better value measure than the P/E-ratio. The reasons for this are the overgrown and negative P/E-ratios. The P/E-ratio is a good value measure when describing profitable and steadily grown firms. However my sample also consists of firms that obtain zero-profit or a loss. In addition the P/E-ratio does not tell anything about a firm's liabilities which Tobin's q does. Altogether the P/E-ratio cannot give an equally reliable picture of the situation as Tobin's q can. This is why Tobin's q is my primary value measure.

5.5.2 Other Variables

I had to make some assumptions and estimations to procure the data that I needed. I excluded P/E-ratios that were over 2000 and those where the divisor aka EPS was 0.01 and that is why the P/E-ratio was very high. I excluded four Tobin's q:s that were over 100 as well. Three of these came from the same firm. I also had to estimate the share trading volume in some cases. I did this by multiplying the daily closing price by amount of trades. In the case of multiple share classes I used the data of a share which justifies one voting right per one share. It could also be that there is some other variable that affects a family firm's value that is not included in the regression analyses. Investors' lower appreciation towards family firms could stem from, for example, Agency Problem II. Large shareholders may use their controlling position in firms to extract private benefits at the expense of small shareholders. This could be one reason why family firms are less valuable than non-family firms.

5.5.3 Further studies

In this master's thesis I consider all family firms to be in one group. I did not separate firms depending on whether a founder, a descendant, or a professional manager serves as a CEO. That is why my data, in general, delivered results to the whole group in which a family, a member of the family, or relative owns at least 25 percent of the voting rights. This led me to the question of: Are there differences in results if we distinguish lone founder businesses from true family businesses like Miller et al. did?

This thesis has focused only on one liquidity measure. It would be interesting to find out if the results are the same when using other liquidity measures, for example a measure that measures only volume i.e. trading volume and alternatively a measure that captures price-impact costs i.e. bid-ask spread.

At the end of this thesis I will focus on one particular Finnish family firm and see how the results I got this chapter can be applied to their case. Next chapter is about Lemminkäinen Oyj.

6 Lemminkäinen Oyj

The whole idea of this master's thesis stemmed from a 100-year-old Finnish construction company, Lemminkäinen. Lemminkäinen was established in 1910 under the name of Asfaltti Osakeyhtiö Lemminkäinen in Helsinki by a group of entrepreneurial master builders. At first the company's business was limited to waterproofing and bituminous yard and street works. The business expanded in 1916 when Finland gained its independence from Russia. Lemminkäinen opened its own roofing felt factory and about 10 years after that the company's research and development work focused on asphalt production. After the Second World War, Lemminkäinen gradually achieved leadership of the Finnish asphalt paving market through organic growth and a number of significant acquisitions. Lemminkäinen's strong growth began in the 1970s. In the middle of the 70s Lemminkäinen acquired a majority interest in Oy Alfred Palmberg Ab which became the center of Lemminkäinen's building construction operations. Today it operates in all areas of the construction sector. Lemminkäinen Group's operations have been organised into four business sectors. These four business sectors are building construction, infrastructure construction, technical building

services and building products. Lemminkäinen operates internationally but its main markets are in the Baltic Rim region. (www.lemminkainen.fi)

6.1 Ownership history

When a group of entrepreneurial master builders established Lemminkäinen in 1910 one of the people involved was Oskari Vilamo. Vilamo acquired the majority of the shares between World War I and II. Lemminkäinen truly became Vilamo's life's work. Vilamo had three children who divided Lemminkäinen's shares equally in the distribution of the inheritance in 1950. Oskari Vilamo was then followed by his son Heikki Vilamo (1922-1980) who was chosen to be the Chairman of the Board of Directors. Disputes within the family led to the shifting of share ownership from Oskari Vilamo to Eva Vilamo-Pentti in 1959. That same year Eva Vilamo-Pentti's husband K.H Pentti became the Chairman of the Board of Directors. This is when the Pentti era began at Lemminkäinen. K.H Pentti worked as the Chairman of the Board of Directors until 1966 and again from 1978-1993. (Lemminkäinen-konsernin sidosryhmälehti 3-2008)

Heikki Pentti, the son of K.H Pentti and Eva Vilamo-Pentti, was a third generation owner at Lemminkäinen Oy. In 1983 he was appointed the CEO of the company and during his CEO period, which lasted until 1993, Lemminkäinen became one of the largest Finnish construction companies. In 1994 Heikki Pentti was appointed the Chairman of the Board of Directors succeeding his father and continued in this task until his death in 2008. (www.lemminkainen.fi)

Heikki Pentti was one of the three sons Eva Vilamo-Pentti and K.H.Pentti had. The two other brothers are Erkki J. Pentti and Olavi Pentti. Erkki J. Pentti worked as a member of the Board of Directors from 1975 until he died in 2006. The end of 2008 the three brothers owned over half of Lemminkäinen's shares. Today Lemminkäinen is the second largest construction company right after YIT Oyj. (www.lemminkainen.fi)

6.2 The history of Lemminkäinen's share

Next I will briefly present the history of Lemminkäinen's share. In 1989 Lemminkäinen's share was quoted on the OTC-list that is maintained by the Finnish Association of Securities Dealers. Lemminkäinen's classification was other industries. On June 1, 1995, Lemminkäinen's share was transferred to the official list of the Helsinki Exchange and from January 1, 1997, Lemminkäinen's classification at the Helsinki Exchange was Construction Industry. Consequently Lemminkäinen became a public limited company on March 26, 1998 and the name changed to Lemminkäinen Oyj. On July 1, 2005, the Helsinki Exchange adopted a new Global Industry Classification Standard as another step in the harmonization of the securities market of the Nordic and Baltic countries. Lemminkäinen´s classification became Industrials. (www.lemminkainen.fi)

6.2.1 Price development

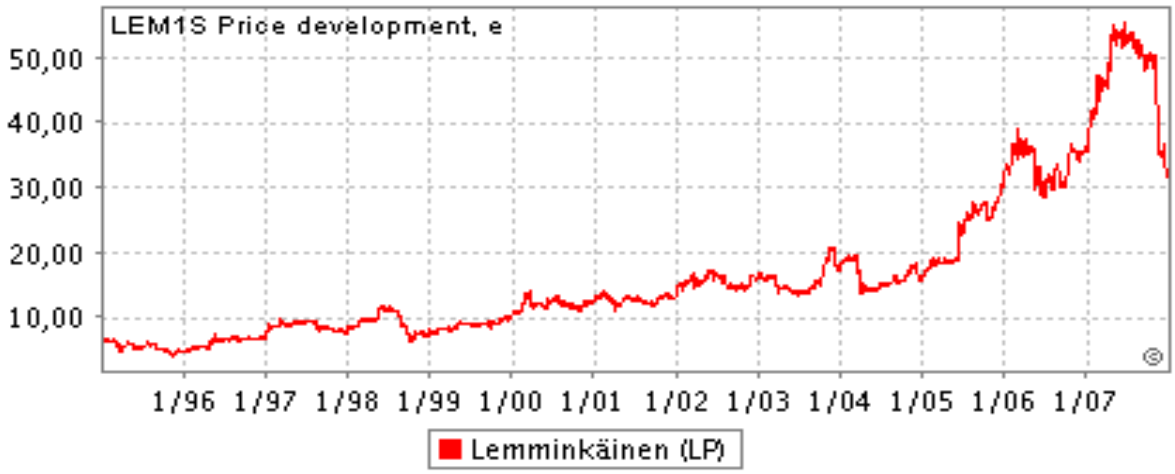
In figure 3 I present Lemminkäinen's share price development. In figure 3(b) and 3(c) price developments are described as relative to the average price development of the Industries sector and the average price development of OMX Helsinki. As it can been seen from figure 3, on average, the price of a Lemminkäinen share has increased throughout. However, there are some decreases that can be seen in the end of 1998, in 2004, and in 2006 which was particularly sharp and it hit the bottom in the middle of 2006.

Lemminkäinen's price development relative to the average price development of the Industries sector can be seen in figure 3(b). Lemminkäinen's price has constantly stayed above the average price of the Industries sector despite the fact that both price developments have advanced in a parallel way. They started to grow in 2004 and reached the top in the middle of 2007. After that the price development turned down.

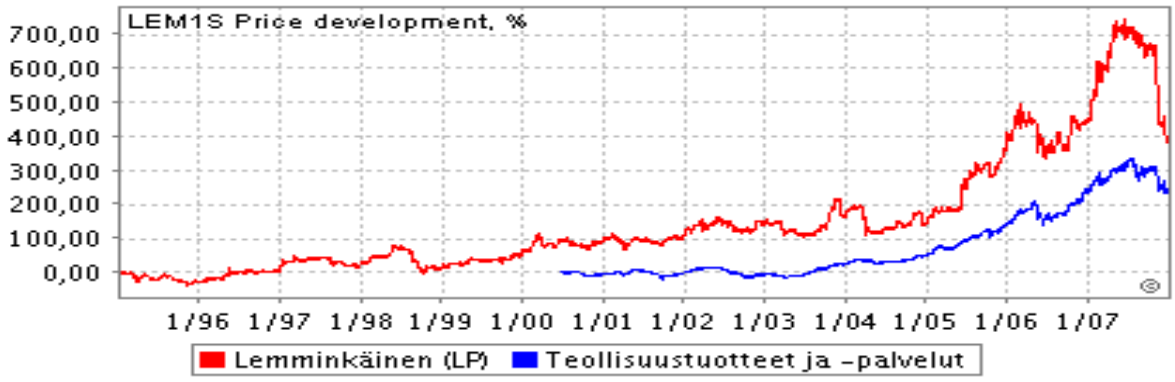
Figure 3(c) shows the price developments of Lemminkäinen and OMX Helsinki. Let's look at the blue line first. The boom in the late 1990s can be easily observed in the graph. A few reasons for the boom were rapid economic growth, globalization, Nokia, the telecommunications cluster and the Dot-com bubble. After reaching the new Millennium the

Figure 3 Lemminkäinen's share price development

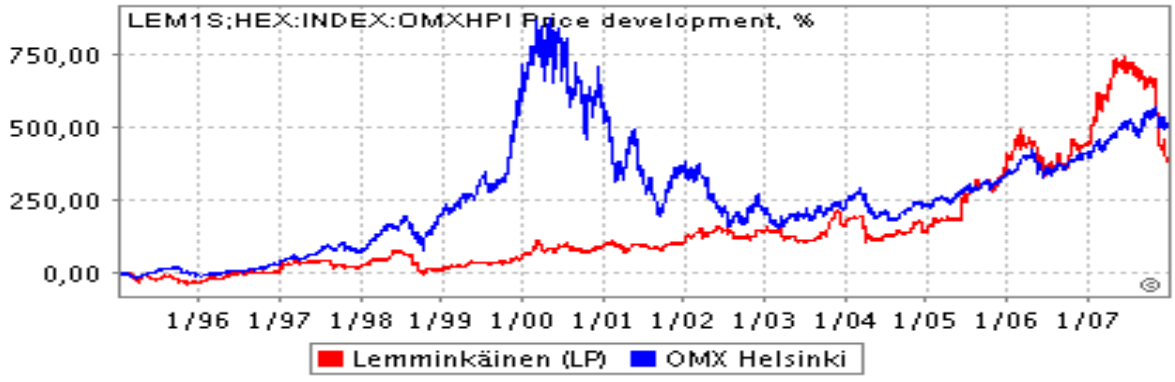
(a) Price development



(b) Price development relative to the average price development of the sector Industries



(c) Price development relative to the average price development of OMX Helsinki



Source: Kauppalehti 2010

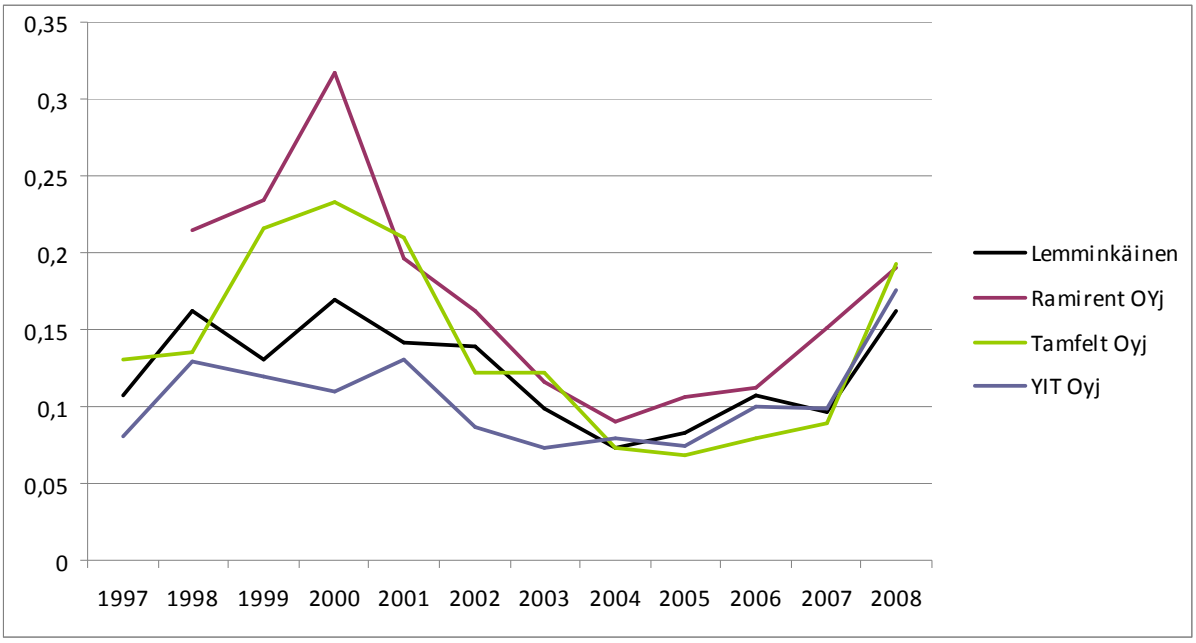
share price started to decline. Next we will look at the red line. We can find that the price of Lemminkäinen's share did not react as heavily as the OMX Helsinki in the 1990s boom nor during the decline which came after that. From 1995 to 2006 Lemminkäinen's share price was below the average share price but after 2006 it rose two times above the average share price. In late 2007 Lemminkäinen's share price sank below the OMX Helsinki curve because of the strong impact the recession had on the construction industry.

6.2.2 Share liquidity

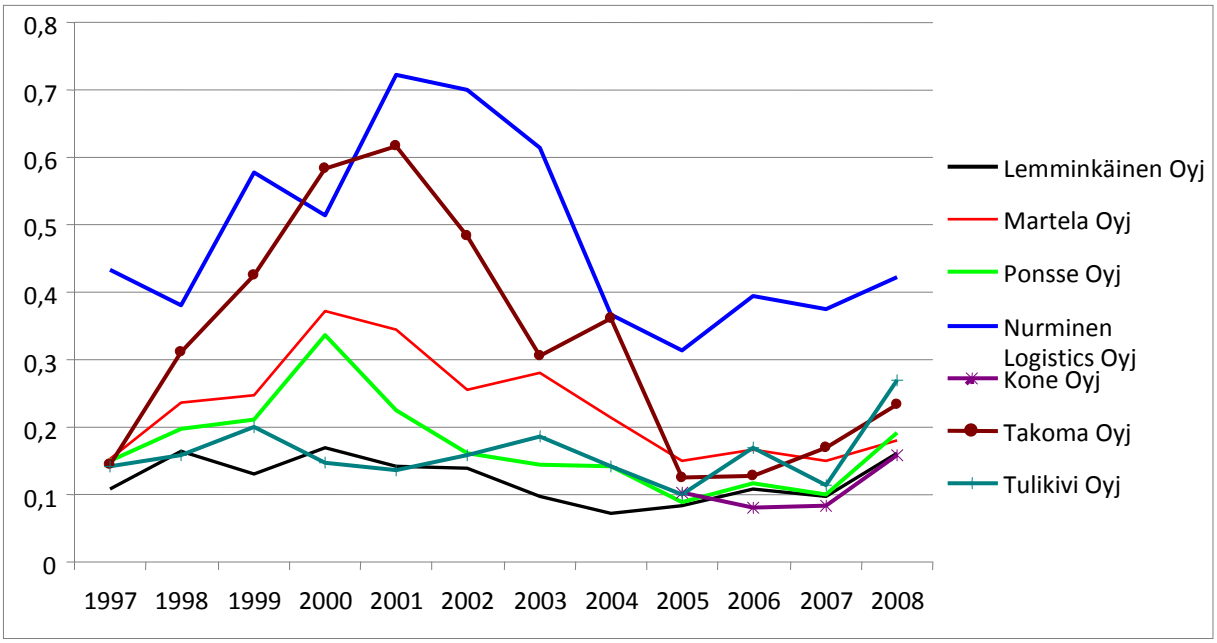
As it can be seen throughout the thesis, family firms have, on average, lower liquidity than non-family firms. If liquidity is measured simply with the turnover ratio then a family firms' share liquidity is quite certainly weaker than the one of a non-family firms'. However, I have used Amihud illiquidity which I think is more valid and more descriptive than the basic turnover ratio to measure liquidity. Amihud illiquidity does not only measure the volume but also the absolute stock return. A stock is illiquid if the stock's prices move a lot in response to little volume. Lemminkäinen's share liquidity is described in Figure 4. For comparison in figure 4(a) I present Ramirent's, Tamfelt's, and YIT's share liquidity as well. Lemminkäinen's, Ramirent's and Tamfelt's shares are quoted on the Helsinki Exchange and each firm belongs to the mid cap and industrials -sector. YIT's share is quoted on the Helsinki Exchange and it belongs to the industrials –sector as well, but YIT is a large cap firm. Ramirent, Tamfelt, and YIT are all non-family firms so when judging by figure 4 Lemminkäinen as a family firm has reasonably good liquidity. Amihud illiquidity measures illiquidity so the lower the graph is the better share liquidity is. In figure 4(b) I present Lemminkäinen's share liquidity compared to a couple of other family firms. The shares of these seven firms are quoted on the Helsinki Stock Exchange and belong to the industrials sector. We can see yet again that Lemminkäinen's share has reasonably good liquidity. From 1997 to 2008 Lemminkäinen's share illiquidity was, on average, 0.13. The number is smaller than the average Amihud illiquidity for all family firms (0.21) but also smaller than the average for all firms (0.19).

Figure 4 Share liquidity measured by Amihud illiquidity

(a) Compared to others industrials non-family firms



(b) Compared to others industrials family firms



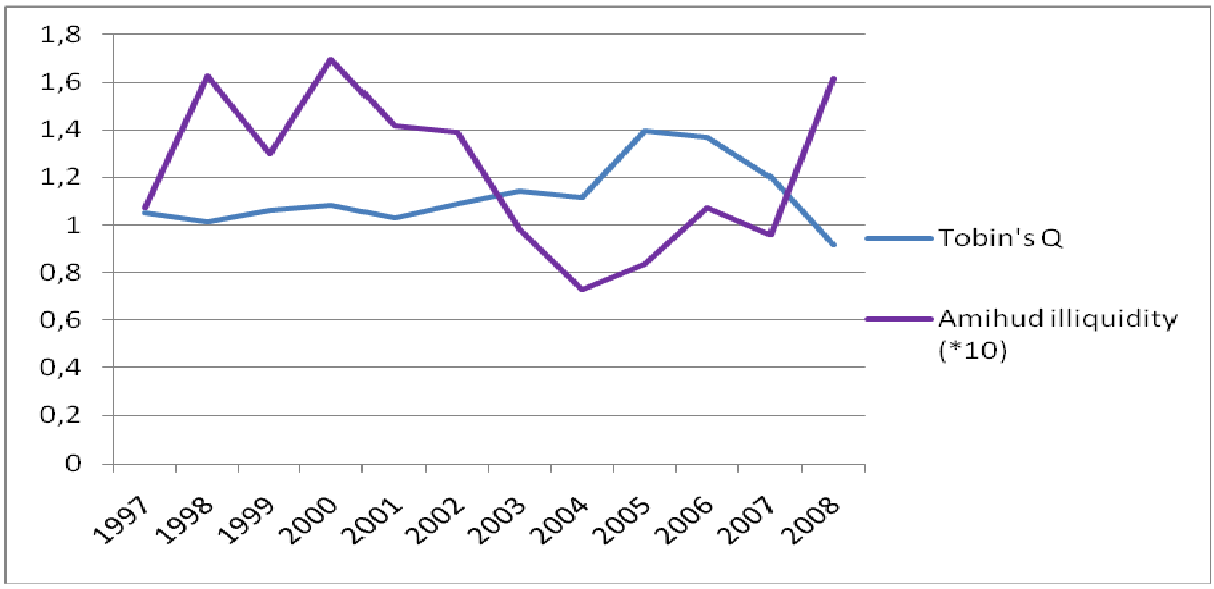
Source: Panel of Finnish listed firms over 1997-2008

6.3 Lemminkäinen's market performance and share liquidity

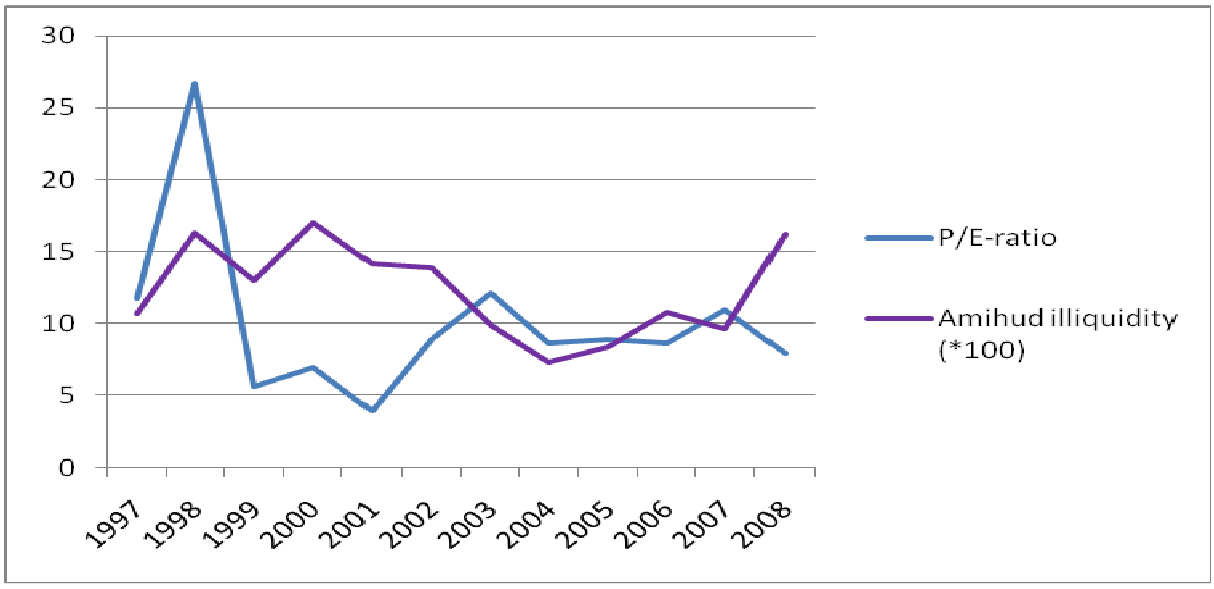
In chapter 5 I use Tobin's q as a firm's value measure. From 1997 to 2008 Lemminkäinen's Tobin's q was on average 1.12. That number is smaller than the average Tobin's q for all firms (2.22), but it is also smaller than the average Tobin's q for family firms (1.36). From the corresponding period the average P/E-ratio for Lemminkäinen was 10.0919. Figure 5 illustrates Lemminkäinen's Tobin's q as well as the P/E-ratio and Amihud illiquidity.

Figure 5 Market performance and share illiquidity

(a) Tobin's q and Amihud illiquidity



(b) P/E-ratio and Amihud illiquidity



Source: Panel of Finnish listed firms over 1997-2008

According to the regression results from the previous chapter, holding other variables constant, firm value should increase when the liquidity of share increases. In figure 5 we can see this effect. In figure 5(a) I have multiplied Amihud illiquidity by 10 so the relationship can be seen more easily. In 2001 Amihud illiquidity started to decline and at the same Tobin's q, on average, increased until 2005. In 2007 share illiquidity and Tobin's q reversed directions. Share illiquidity started to increase and Tobin's q decreased. In figure 5(b) I multiplied Amihud illiquidity by 100. Again we can see the negative relationship between share illiquidity and Lemminkäinen's value. It is not as clear as it was with Tobin's q because couple of times the P/E-ratio and share illiquidity moved in same direction. However, between 2001 and 2002 Lemminkäinen's P/E-ratio rose and at the same time share liquidity improved.

Like I mentioned before Lemminkäinen belongs to the Industrials sector. If we compare the Industrials sector to other sectors and the effect they have on Tobin's q we can conclude that Energy, Information technology, and Telecommunication services have, on average, a better Tobin's q than firms in the Industrials sector. However, firms in the Consumer staples sector have, on average, a lower Tobin's q than firms in the Industrials sector.

Lemminkäinen's share liquidity, on average, is better than in other listed firms, but Lemminkäinen's Tobin's q is worse than the average Tobin's q of other firms. Under the circumstances Lemminkäinen suffers quite a lot from their family firm status. According to the results from chapter 5, if a family firm's share illiquidity increases by one unit, holding the other variables constant, the family firm's value decreases by 0.02952 units. Instead, if a non-family firm's share illiquidity increases by one unit there is no statistically significant effect on the firm's value. Lemminkäinen's Tobin's q has stayed at a quite stable rate. Its standard deviation is 0.1408. If we compare the coefficient estimate of a family firm's share illiquidity with Lemminkäinen's Tobin's q standard deviation the result is then 20.97% of Tobin's q standard deviation. So a family firm's share illiquidity explains almost 21 % of the fluctuations of Lemminkäinen's Tobin's q around its mean value assuming that the average effect that I found in the model is valid for Lemminkäinen. Lemminkäinen is a well-known family firm and it has surely benefited from a concentrated ownership structure. Someone once said that it is good to have a face for firm. However, as it seems, concentrated ownership has drawbacks as well.

7 Conclusion

The aim of this master's thesis was to investigate the relationship between family firm market performance and share liquidity. The motivation behind this study was my case company Lemminkäinen. There has been discussion for a long period of time on whether family firms are worse or better performers than non-family firms. Recent analyses of public companies indicate that family firms outperform non-family firms. Anderson and Reeb (2003) discovered, when using both accounting performance measures and market performance measures, that family firms are better performers than non-family firms. Sraer and Thesmar confirmed better accounting performances for family firms and Villalonga and Amit's (2006) study confirmed, under certain conditions, that family firms are better market performers. These studies, however, were not saved from criticism. Miller et al. (2007) found that the out-performance of family firms was a result of how these firms were defined.

A new subject that I introduce to the discussion of family firms is share liquidity. Approximately 25 years ago Amihud and Mendelson (1986) discovered the effect share liquidity has on the expected return. The findings of many other researchers have supported Amihud and Mendelson's study. Chordia et al. (2001) discovered a negative and significant relationship between average stock returns and the level of trading activity. Pástor and Stambaugh (2003) discovered that the average return on stocks with high sensitivities to liquidity exceeds that for stocks with low sensitivities. Acharya and Pedersen (2005) derived the liquidity adjusted CAPM model in which an asset's expected return depends on its relative illiquidity cost, on market return, and on relative market illiquidity. Based on these findings and further contemplations we can assume that share liquidity affect share prices as well. Loderer and Roth (2005) authenticated this assumption since they investigated pricing discount for limited liquidity. Consequently the increase in share liquidity should increase firm value when the value is measured by Tobin's q or the P/E-ratio.

In my empirical part I investigated 108 firms that are listed on the Helsinki Stock Exchange from 1997 to 2008. I found that Finnish family firms are worse market performers than non-family firms. The coefficient estimate for family firms is -0.5914 and it is statistically significant at the one-percent level. The coefficient estimate for family firms is 22% of the Tobin's q standard deviation. So we can say that it is economically significant as well. This is

not consistent with recent analysis of public companies. Possible explanations for this could be a different definition of a family firm, a different research period, different value measures, or Finnish family firms might simply have a lower value on the market.

I also found a strong negative relationship between a family firm's share illiquidity and firm value. The coefficient estimate for a family firm's share illiquidity is statistically significant at the one-percent level as well. This result is consistent with previous studies as it is with my expectations as well. However, I did not found a statistically significant effect of a non-family firms' share illiquidity on firm value. As a conclusion of my empirical analysis it is evident that only family firms suffer the effect of share illiquidity on firm value.

When I compared these results with Lemminkäinen's share liquidity and its market value the results proved to be true. Lemminkäinen's share is quite liquid when comparing it to the shares of other firms on the Helsinki Stock Exchange but Lemminkäinen's Tobin's q is, on average, lower than the average Tobin's q of other Helsinki Stock Exchange firms. A family firm's share illiquidity explains almost 21 % of the fluctuations of Lemminkäinen's Tobin's q around its mean value.

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Thomson Financial Worldscope

APPENDIX 1

Table 1 The accounting measure of a firm's performance

The table presents regressing firm performance on family ownership. The dependent variable is the return on assets. The data spanned from 1992 through 1999 and covered 403 firms. The firms are Standard & Poor's 500 firms. T-statistics are in parentheses.

RETURN ON ASSETS – the earnings before interest, tax, depreciation, and amortization (EBITDA) divided by total assets.
FAMILY FIRM – the binary variable that equals one when the founding family is present in the firm.
YOUNG FAMILY – equals one when firm age is less than 50 years and the family is present in the firm.
OLD FAMILY – equals one when firm age is greater than or equal to 50 years and the family is present in the firm.
CEO HIRE – equals one when the CEO is a non-family member in a family firm.
CEO FOUNDER – equals one if the CEO is the founder of the firm.
CEO DESCENDANT – equals one if the CEO is a founders' descendant.
OFFICER/DIRECTOR OWN – the insider ownership less family ownership.
UNAFFILIATED BLOCKHOLDERS – the aggregate fractional holdings of entities holding more than five percent of the firm's shares.
OUTSIDE DIRECTORS – the number of independent directors divided by board size.
CEO EQUITY-BASED PAY – the annual value of option grants divided by total CEO pay.
R&D/SALES – research and development expenses divided by total assets.
LT DEBT/TOTAL ASSETS – the book value of long-term debt divided by total assets.
RETURN VOLATILITY – the standard deviation of monthly stock returns for the previous 60 months.
LN(TOTAL ASSETS) – the natural logarithm of total assets.
LN(FIRM AGE) – the natural logarithm of number of years since firm inception.

APPENDIX 2

Table 2 The accounting performance of family firms

The table presents regressing firm performance on family ownership. The dependent variable is return on assets. The data spanned over the 1994-2000 period French listed firms. Standard errors are in parentheses.

RETURN ON ASSETS – earnings before interest, tax, depreciation, and amortization (EBITDA) divided by book value of total assets.
FAMILY FIRM – equals one when there is a family ownership.
FOUNDER CEO – equals one if the CEO is the founder of the firm.
HEIR CEO – equals one if the CEO is a founders' descendant.
PROFESSIONAL CEO – equals one when the CEO has been hired by the controlling family.
LOG(ASSETS) – the logarithm of the book value to total assets.
LOG(FIRM AGE) – the logarithm of firm age measured in years plus one.
FORMER SOE – equals one if the firm as a former state owned enterprise.
FRACTION EQUITY OF LARGEST BLOCK – the cash-flow right of the largest identified shareholder.
DEBT/ASSETS – the leverage ratio, debt divided by assets.
STOCK RETURN VOLATILITY – the standard deviation of the firm's stock price.
INDUSTRY FE – the regressions control for 13 industries fixed effects.
YEAR FE – the regressions control for years fixed effects.
DESCENDANT=PROFESSIONAL – provides the *p*-value of an equality test between the coefficient "DESCENDANT CEO" and "PROFESSIONAL CEO".

APPENDIX 3

Table 5 Excess returns and liquidity

The table presents two sets of results, one for the dollar trading volume and one for the turnover. The dependent variable in the first and second column is the excess return. The independent variables are the firm characteristics, measures as the deviation from the cross-sectional mean in each period. The variables relate to a monthly average of 1,787 NYSE and AMEX stocks over 360 months from January 1966 through December 1995. All coefficients are multiplied by 100. T-statistics are in parentheses.

SIZE – the natural logarithm of the market value of the equity of the firm as of the end of the second to last month.
BM – the natural logarithm of the ratio of the book value of equity plus deferred taxes to the market value equity, using the end of the previous year market and book values.
PRICE – the natural logarithm of the reciprocal of the share price as reported at the end of the second to last month.
DVOL – the natural logarithm of the dollar volume of trading in the security in the second to last month.
TURN – the natural logarithm of the share turnover measured by the number of shares traded divided by the number of shares outstanding in the second to last month.
YLD – the dividend yield as measured by the sum of all dividends pair over the previous 12 months, divided by the share price at the end of the second to last month.
RET 2-3 – the cumulative return over the two months ending at the beginning of the previous month.
RET 4-6 – the cumulative return over the three months ending three months previously.
RET 7-12 – the cumulative return over the six months ending six months previously.
CVVOL – the natural logarithm of the coefficient of variation of dollar volume calculated over past 36 months beginning in the second to last month.
CVTURN – the natural logarithm of the coefficient of variation of turnover calculated over the past 36 months beginning in the second to last month.

APPENDIX 4

The division of firms into family firms and non-family firms used in the regression model

Affecto Oyj	Information technology	Small cap	non-family		
Ahlström Oyj	Materials	Mid cap		family	
Aldata Solution Oyj	Information technology	Small cap	non-family		
Amer Sport Oyj	Consumer discretionary	Mid cap	non-family		
Aspo Oyj	Industrials	Mid cap	non-family		
Aspocomp Group Oyj	Information technology	Small cap	non-family		
Atria Oyj	Consumer staples	Mid cap	non-family		
Basware Oyj	Information technology	Small cap	non-family		
Biohit Oyj	Health care	Small cap		family	
Biotie Therapies Oyj	Health care	Small cap	non-family		
Cargotec Oyj	Industrials	Large cap		family	
Cencorp Oyj	Information technology	Small cap			both
Componenta Oyj	Industrials	Small cap		family	
Comptel Oyj	Information technology	Mid cap	non-family		
Cramo Oyj	Industrials	Mid cap	non-family		
Digia Oyj	Information technology	Small cap	non-family		
Efore Oyj	Industrials	Small cap			both
Elecster Oyj	Industrials	Small cap	non-family		
Elektrobit Oyj	Information technology	Small cap	non-family		
Elisa Oyj	Telecommunication services	Large cap	non-family		
Etteplan Oyj	Industrials	Small cap			both
Exel Composites Oyj	Materials	Small cap	non-family		
Finnair Oyj	Industrials	Mad cap	non-family		
Finnlines Oyj	Industrials	Mid cap	non-family		
Fiskars Oyj	Consumer discretionary	Large cap	non-family		
Fortum Oyj	Utilities	Large cap	non-family		
F-Secure Oyj	Information technology	Mid cap		family	
GeoSentric Oyj	Information technology	Small cap	non-family		
Glaston Oyj	Industrials	Mid cap	non-family		
HKScan Oyj	Consumer staples	Mid cap	non-family		
Honkarakenne Oyj	Consumer discretionary	Small cap		family	
Huhtamäki Oyj	Materials	Mid cap	non-family		
Ilkka-Yhtymä Oyj	Consumer discretionary	Mid cap	non-family		
Incap Oyj	Industrials	Small cap	non-family		

Ixonos Oyj	Information technology	Small cap	non-family		
Kemira Oyj	Materials	Large cap	non-family		
Keskisuomalainen Oyj	Consumer discretionary	Small cap	non-family		
Kesko Oyj	Consumer staples	Large cap	non-family		
Kesla Oyj	Industrials	Small cap		family	
Kone Oyj	Industrials	Large cap		family	
Konecranes Oyj	Industrials	Large cap	non-family		
Larox Oyj	Industrials	Small cap		family	
Lassila & Tikanoja Oyj	Industrials	Mid cap	non-family		
Lemminkäinen Oyj	Industrials	Mid cap		family	
Lännen Tehtaat Oyj	Consumer staples	Small cap	non-family		
Marimekko Oyj	Consumer discretionary	Small cap	non-family		
Martela Oyj	Industrials	Small cap		family	
Metso Oyj	Industrials	Large cap	non-family		
M-real Oyj	Materials	Mid cap	non-family		
Neste Oil Oyj	Energy	Large cap	non-family		
Nokia Oyj	Information technology	Large cap	non-family		
Nokian Renkaat Oyj	Consumer discretionary	Large cap	non-family		
Nordic Aluminium Oyj	Materials	Small cap	non-family		
Nurminen Logistics Oyj	Industrials	Small cap		family	
Oriola-KD Oyj	Health care	Mid cap	non-family		
Orion Oyj	Health care	Large cap	non-family		
Outokumpu Oyj	Materials	Large cap	non-family		
Outotec Oyj	Industrials	Large cap	non-family		
PKC Group Oyj	Industrials	Small cap	non-family		
Pohjois-Karjalan kirjapaino Oyj	Consumer discretionary	Mid cap		family	
Ponsse Oyj	Industrials	Mid cap		family	
Proha Oyj	Information technology	Small cap	non-family		
Pöyry Oyj	Industrials	Large cap	non-family		
QPR Software Oyj	Information technology	Small cap			both
Raisio Oyj	Consumer staples	Mid cap	non-family		
Ramirent Oyj	Industrials	Mid cap	non-family		
Rapala VMC Oyj	Consumer discretionary	Mid cap	non-family		
Rautaruukki Oyj	Materials	Large cap	non-family		
Raute Oyj	Industrials	Small cap		family	
Revenio Group Oyj	Industrials	Small cap			both
Ruukki Group Oyj	Industrials	Mid cap	non-family		
Salcomp Oyj	Industrials	Small cap	non-family		

Sanoma Oyj	Consumer discretionary	Large cap		family	
Scanfil Oyj	Information technology	Small cap		family	
Solteq Oyj	Information technology	Small cap		family	
SRV Yhtiöt Oyj	Industrials	Mid cap		family	
Stockmann Oyj	Consumer discretionary	Large cap	non-family		
Stonesoft Oyj	Information technology	Small cap	non-family		
Stora Enso Oyj	Materials	Large cap	non-family		
Suominen Yhtymä Oyj	Consumer stpales	Small cap	non-family		
Takoma Oyj	Industrials	Small cap		family	
Talentum Oyj	Consumer discretionary	Small cap	non-family		
Tamfelt Oyj	Industrials	Mid cap	non-family		
Tecnomen Lifetree Oyj	Information technology	Small cap	non-family		
Tekla Oyj	Information technology	Mid cap	non-family		
Teleste Oyj	Information technology	Small cap	non-family		
Tieto Oyj	Information technology	Large cap	non-family		
Tiimari Oyj Abp	Consumer discretionary	Small cap			both
Trainers' House Oyj	Industrials	Small cap		family	
Tulikivi Oyj	Industrials	Small cap		family	
Turkistuottajat Oyj	Industrials	Small cap	non-family		
Turvatiimi Oyj	Industrials	Small cap	non-family		
UPM-Kymmene Oyj	Materials	Large cap	non-family		
Uponor Oyj	Industrials	Large cap	non-family		
Vaahto Group Oyj	Industrials	Small cap		family	
Vacon Oyj	Industrials	Mid cap	non-family		
Vaisala Oyj	Information technology	Mid cap		family	
Westend ICT Oyj	Information technology	Small cap	non-family		
Viking Line Abp	Consumer discretionary	Mid cap	non-family		
Wulff-Yhtiöt Oyj	Consumer discretionary	Small cap		family	
Wärtsilä Oyj Abp	Industrials	Large cap	non-family		
YIT Oyj	Industrials	Large cap	non-family		
Yleiselektroniikka Oyj	Information technology	Small cap		family	