

**Cash holdings of small and medium sized private family firms: exploratory
evidence on the effect of generational evolution**

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Abstract

We present empirical evidence on the cash holdings determinants in the under-researched context of private family firms. Results suggest that family firms diverging from the single-owner-managed firm hold higher cash levels which originates in higher shareholder-manager agency costs e.g. free riding of family insiders on the controlling owner's equity using the firm's free cash flows. Moreover, descendant-managed firms hold higher cash levels compared to founder-managed firms due to higher debt agency costs. The descendant's potentially limited capacities and opportunistic behaviour may negatively affect the firm's ability to repay bank loans, decreasing loan availability and increasing the need for cash holdings.

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1. Introduction

Private family firms can be considered as the most common form of business organization in the world. Family-owned or controlled businesses account for over 80% of all firms and 12% of GDP in the United States (Lee, 2006; Shanker and Astrachan, 1996). Even though there is considerable theoretical and empirical work on the capital structure of public firms and SME's (e.g. López-Gracia and Sánchez-Andújar, 2007; Hall et al., 2004; Mishra and McConaughy, 1999; Chaganti et al., 1995; Hutchinson, 1995; Titman and Wessels, 1988) there is a lack of studies focusing on, in general, the asset structure of private family firms, addressing the effects of *private* family control/ownership.

The level of cash holdings is one of the elements of the asset structure that is under-researched. In a perfect capital market, cash holdings would be irrelevant. However, according to Fazzari et al. (1988), the assumption of perfect capital markets is certainly not relevant for small and medium-sized private family firms due to the existence of information asymmetries. Information asymmetry is prevalent if a firm knows the expected risk and return of their project, while the bank only knows the average expected return and risk of an average project in the economy. The presence of asymmetric information may give rise to credit rationing due to adverse selection and moral hazard problems (Stiglitz and Weiss, 1981). Small and medium sized firms are especially vulnerable to information asymmetries since they are not followed by analysts and lack any audited financial statements (Berger and Udell, 1998). Moreover, they are not always willing to release any information to financial

institutions since it is a time-consuming, costly occupation. Consequently, they may cope with difficulties in obtaining external debt finance (Storey, 1994).

In addition, the family character may exacerbate the shareholder-debtholder agency problem since controlling owners of private family firms are more vulnerable for self-control problems due to the isolation from the disciplining effect of the external capital market. Family managers would rely on non-pecuniary benefits such as limiting executive management positions only to family members (Anderson and Reeb, 2003), managerial entrenchment (Gomez-Mejia et al., 2001) and 'free riding' by using the firm's resources for personal benefits and privileges of family members (Schulze et al., 2003a). So, family firms would incur a higher probability of risk shifting behaviour, hold up and adverse selection in the labour market, increasing the agency costs of debt (Lubatkin et al., 2005; Schulze et al., 2001). From the point of view of the bank, these problems inherent to private family firms could have a negative influence on several financial indicators including repayment capacity, leading to more stringent bank lending conditions such as a higher interest rate or higher collateral requirements. Empirical evidence lending support to these higher agency costs of debt in private family firms is provided by Voordeckers and Steijvers (2006), Steijvers et al. (2008) and Steijvers and Voordeckers (2009).

So, the presence of market imperfections and higher agency costs of debt seems to make cash holdings necessary for private family firms to avoid the high costs of acquiring new debt (transaction cost motive), to meet unanticipated contingencies that may arise, to finance investments if debt financing is unavailable or too costly (precautionary motive) but also to keep control over the firm. Private family firms have a strong desire to keep control (Romano et al., 2000) and to pass the firm onto their heirs. Family firm owners are reluctant to open up equity for non family members.

Empirically, Ozkan and Ozkan (2004) confirm that firms having families as ultimate controllers tend to hold more cash. However, there is a growing consensus that private family firms cannot be viewed as a homogeneous entity (Chrisman et al., 2005, Westhead and Howorth, 2007). Prior studies (e.g. Sonfield and Lussier, 2004; Kellermanns and Eddleston 2006) indicate that the family firm behaviour may change throughout time, as the firm passes from the single owner-managed firm to further generations. This evolution is expected to have an impact on the shareholder-manager and shareholder-debtholder agency conflict and the resulting cash holdings of private family firms.

Traditional agency theory predicts that in private family firms, the shareholder-manager agency conflict is expected to be minimal. Concentrated ownership and owner-management would lead to a minimum or even zero level of agency costs between owners and managers (Jensen and Meckling, 1976; Fama and Jensen, 1983). This zero level of agency costs would be prevalent in single owner-managed firms which are family firms where ownership and management completely coincide.

Recently, there is a debate going on whether other private family firms, that diverge from the single owner-managed case incur higher or lower agency costs originated in the shareholder-manager agency conflict (e.g. Schulze et al., 2001; Schulze et al., 2003a). These recent studies contested the traditional agency view of minimum agency costs in private family firms and argued that agency costs in private family firms could be even higher than in non-family firms due to possible negative effects of self-control and parental altruism. These firms would be plagued by conflicts that may paralyze decision making and threaten firm survival (Meyer and Zucker, 1989). Managers can engage in free riding by using the firm's cash for projects that do not benefit the non managing family or non family shareholders. They may prefer higher cash balances to pursue personal objectives or benefits of their new nuclear family. As Jensen (1986) suggests, free cash flows may induce

discretionary behaviour by the management at the expense of the non family shareholders or non managing (passive) family shareholders.

Thus, as indicated by Faulkender (2002), agency costs are important determinants of cash holdings. Agency theory suggests that the shareholder-manager agency problem, only prevalent in family firms that diverge from the single owner-managed firm, would result in higher cash holdings in these firms compared to single owner-managed family firms. Examples of non-single owner-managed family firms are family firms inherited by subsequent generations, family firms established or purchased by more than one owner, family firms with a dispersed ownership structure...

Besides a shareholder-manager agency problem, the shareholder-debtholder agency problem prevalent at private family firms may also affect the cash holdings level (Steijvers and Voordeckers, 2009; Anderson et al., 2003). Anderson et al. (2003) find that family firms in the hands of *descendants* cope with higher agency costs of debt compared to founder-owned firms. Founders seem to bring unique, value-adding skills to the firm, while descendants are more likely to detract from firm performance, perhaps because they obtain the CEO position through family ties rather than job qualifications. This interpretation is consistent with the results in Johnson et al. (1985), Morck et al. (1988) and Gomez-Mejia et al. (2001) suggesting that founder managed firms are associated with strong performance and that descendants of the founder are more entrenched in their positions leading to a shareholder-debtholder agency problem. As shown in Steijvers and Voordeckers (2009), this shareholder-debtholder agency problem will be translated in more unfavourable lending conditions. Coping with unfavourable loan conditions, family firms in the hands of descendants are expected to hold higher cash levels to avoid the need for external (expensive or unavailable) debt.

The empirical literature on the determinants of cash holdings has recently received a lot of attention (e.g. Kim et al., 1998; Opler et al., 1999; Pinkowitz and Williamson, 2001; Faulkender, 2002; Ozkan and Ozkan, 2004; Niskanen and Niskanen, 2007; Guney et al., 2007; Garcia-Teruel and Martinez-Solano, 2008; D’Mello et al., 2008). However, most studies are based on listed firms while any of these studies focuses on the determinants of cash holdings of private family firms. As such, this paper contributes to literature in several ways. First, we add to the literature on determinants of cash holdings in the under-researched context of small *private family* firms. We define a small private family firm as a non-listed firm with fewer than 500 employees and more than 50% of the firm owned by a single family. This definition is in line with the majority of family business definitions that require family ownership as one of the main indicators for defining a family firm (Chua et al., 1999). Secondly, we add to the corporate finance and family business literature and further our understanding on the asset structure of private family firms. Thirdly, we take into account the heterogeneity of family firms by considering the effects of generational evolution and the accompanying agency costs.

2. Determinants of corporate cash holdings in small and medium sized private family firms: model specification

Starting from Garcia-Teruel and Martinez-Solano (2008), which is the sole empirical paper focussing on private SME’s, we specify our empirical model to verify the determinants of corporate cash holdings of private *family* SME’s. They distinguish the main characteristics of private SME’s that are considered relevant as determinants of corporate cash holdings. We complement their empirical study with insights from other relevant studies in the domain (e.g. Ozkan and Ozkan, 2004; Opler et al., 1999; Kim et al., 1998). Moreover, we add to the

current literature on cash holdings by taking into account the possible effect of the heterogeneity of family firms, more specifically the generational evolution of the firm. In the appendix, we briefly describe all variables included in the estimated models.

(i) heterogeneity of private family firms and resulting agency costs

The novelty of our empirical model will be originated in the incorporation of the generational stage of the firm where generational evolution may result in ownership dispersion. Many prior studies (e.g. Westhead et al., 2002; Schulze et al., 2003a; Sonfield and Lussier, 2004; Jaffe and Lane, 2004; Kellermanns and Eddleston, 2006; Bammens et al., 2008) focused on disparities between family firms and concluded that several family attributes may change for example across generations. More particularly, we examine whether private family firms that are founded and managed by the current owner who possesses 100% of the shares (i.e. single owner-managed family firm) would incur lower cash holdings compared to family firms that diverge from the single owner-manager case.

Traditionally, the zero agency cost case is defined as a firm owned by a single owner-manager (Jensen and Meckling, 1976; Ang et al., 2000). Schulze et al. (2003a) argue that any deviation from this single owner-managed case would result in agency costs. Discussing the agency consequences when equity is not owned by one single family owner but distributed *among several family shareholders*, they argue that dispersed family ownership in the controlling-owner stage could result in free riding of family insiders on the controlling owner's equity. This problem further increases in the sibling partnership stage where ownership is in hands of several members of a single generation because the nature of altruism makes it much harder to achieve alignment of interests among shareholders. Sibling shareholders will often put the welfare of the own nuclear household before the welfare of the

extended family (Gersick et al., 1997). Consequently, altruism becomes more unbalanced (Karra et al., 2006). This could lead to consumption of private benefits by holding higher cash levels for personal use or for investment in pet projects. In a cousin consortium, ownership is further fractionalized when it is passed on to third and later generations. More outside family members (not employed by the firm) become shareholder (Jaffe and Lane, 2004) and hence, behave more as rational diversified investors (Schulze et al., 2003a). A lower degree of altruism will lessen the likelihood of these agency problems occurring in the cousin consortium stage but will still be higher than in the single owner-manager case.

If, throughout time, the family firm's equity is not only distributed among family members but becomes partially *owned by non family members*, the family firm where the majority of the shares is still owned by the family, is expected to become vulnerable to self-control problems due to the large-block-holding family owner-managers that enjoy almost unchallenged discretion over the use of their assets (Lubatkin et al. 2005). Parental altruism may also negatively affect the ability of the firm's owner manager to exercise self control or create adverse selection problems in the labour market which is the dark side of altruism. The family can also begin to abuse its power by taking resources out of the business (Claessens et al., 2002). Fractional ownership by the family creates agency problems: it gives inside family owners incentive to free ride on outside owners equity and to favor consumption over investment (Schulze et al. 2003a). Private benefits may be extracted at the expense of minority non family shareholders suggesting higher cash holdings. So, single owner-managed firms would hold lower cash compared to firms that become partially owned by non family members.

Consequently, we hypothesize that the single owner-manager family firm will incur lower shareholder-manager agency costs and thus lower cash holdings, compared to family firms that diverge from the single owner-manager firm. We will incorporate a 'single owner-

managed firm' dummy variable with a value '1' if the family firm is fully owned and managed by a single owner; 0 otherwise.

Besides a shareholder-manager agency problem, private family firms would also cope with a shareholder-debtholder agency problem (Steijvers and Voordeckers, 2009; Anderson et al., 2003). In their empirical study, Anderson et al. (2003) find that family firms in the hands of *founder descendants* cope with a higher cost of debt financing compared to founder-owned firms. On the one hand, this evidence implies that founders bring unique, value-adding skills to the firm. They have innovative ideas and set up first generation family firms. They need to possess the special technical or business backgrounds to start a business. The closed relationships minimize information asymmetries and generate trust vis-à-vis financial institutions (Blanco-Mazagatos et al., 2007). On the other hand, descendants are more likely to detract from firm performance, perhaps because they obtain the CEO position through family ties rather than job qualifications. Schulze et al. (2001) argue that agency costs could be high because private ownership lacks disciplining of the market for corporate control and could lead to an adverse selection of labor forces. The founder only disposes of a restricted pool of talent (consisting of possibly untalented relatives) in order to select his successor or to compose a management team (Schulze et al., 2003b). The fractional ownership also reduces motivation of descendants, which increases the incentive to act opportunistically because they bear only part of the cost of such action (Fama and Jensen, 1983). This results in higher agency costs of debt due to the negative effect on loan repayment capacity of the descendant (non-founding) family firm. This interpretation is consistent with the results in Johnson et al. (1985), Morck et al. (1988) and Gomez-Mejia et al. (2001) suggesting that founder-managed firms are associated with strong performance and that non-founding family firms or descendants are more entrenched in their positions leading to a shareholder-debtholder agency

problem. Thus we hypothesize that descendant-managed family firms would avoid these unfavourable loan conditions by holding higher cash levels and avoiding the need for external debt.

We will incorporate a ‘descendant-managed’ dummy variable in our analysis with a value 1 if the firm is inherited by the current family owner who manages the firm and a value 0 if the firm is founder-owned. Founder-owned family firms consist of single owner-managed firms as well as family firms that are purchased or established by one or more of the current owners.

(ii) Asymmetric information

Firms characterized by a high degree of information asymmetry between managers and investors about their value and future growth opportunities cope with high adverse selection costs when applying for external capital. Since the existence of asymmetric information between small private family firms and external financiers makes external financing difficult to obtain, firms having growth opportunities would hold larger amounts of cash to avoid giving up valuable investment opportunities (Ozkan and Ozkan, 2004). Firms with high growth opportunities have a higher potential for risk shifting and underinvestment, making debt more expensive. However, maintaining sufficient cash reserves reduces the need to access the external capital markets. To proxy for growth opportunities, we could not use the book-to-market ratio since no information is available about their market value. Inspired by Garcia-Teruel and Martinez-Solano (2008) and in line with Dittmar (2004) and Pinkowitz and Williamson (2004), we use sales growth measured by the ratio $\text{sales}_t/\text{sales}_{t-1}$.

Larger firms are also expected to cope with a lower degree of asymmetrical information (Berger et al., 2001). In addition, they are less likely to experience financial distress and have more easy access to external finance due to a higher availability of collateral

and lower adverse selection costs (Fazzari and Petersen, 1993; Rajan and Zingales, 1995; Kaplan and Zingales, 1997). Moreover, Mulligan (1997) demonstrates that there are economies of scale associated with the cash levels required to confront the firm's normal transactions. Accordingly, we expect a negative relationship between cash holdings and firm size. To measure size, we use the natural logarithm of assets.

(iii) Liquidity constraints and substitutes for cash

Leverage plays an important role in shaping the firm's cash policies. Firms can use borrowing as a substitute for cash because leverage could act as a proxy for the ability to issue debt (John, 1993). Empirical evidence (Ozkan and Ozkan, 2004; Ferreira and Vilela, 2004; Opler et al. 1999) shows that increases in financial leverage are accompanied by lower cash levels, probably due to the cost increase of cash holdings as financial leverage increases. However, Guney et al. (2007) indicate that the relationship between leverage and cash holdings can be non-monotonic. The marginal effect of an increase in leverage on cash holdings may depend on the current level of leverage. At higher levels of leverage, it may become difficult to obtain additional bank loans. As these firms are more likely to experience financing constraints when applying for external debt, these firms may eventually hold higher cash reserves. Consequently, these firms would hold higher cash levels as a precautionary motive. So, the relationship between cash holdings and leverage is initially expected to be negative due to a substitution effect but eventually turns positive due to the precautionary effect. Thus, as indicated by Guney et al. (2007), we estimate a quadratic model including leverage and the squared leverage. Leverage is measured by total debt divided by total assets.

Another substitution effect is due to other liquid assets firms may have besides cash. We would expect that firms with more non-cash liquid assets would reduce their cash levels

(Guney et al., 2007; Ozkan and Ozkan, 2004). The proxy we use is net working capital minus cash to total assets.

The probability of financial distress can also have an impact on corporate cash holdings. Kim et al. (1998) expect that firms with a higher likelihood of financial distress have lower levels of liquidity due to difficulties to meet their payments. They can not afford to hold cash. We measure the probability of distress by incorporating 5 dummy variables representing the Dun & Bradstreet credit rating score. 'Rating 1' represents the lowest risk firms while 'rating 5' represents the highest risk firms.

(iv) Relationship with financial institutions

The relationship lending literature suggests that agency problems and information asymmetries between banks and borrowing firms can be at least partially solved through close bank-borrower relationships increasing the availability of external financing (Petersen and Rajan, 1994). This literature further concludes that small businesses in particular could benefit from a closer and more informed relationship with their banks. A number of approaches have been used to examine the nature of these relationships, but the most common are relationship length and the number of bank relationships used (Petersen and Rajan, 1994, 1995; Berger and Udell, 1995; Angelini et al., 1998; Degryse and Van Cayseele, 2000; Ongena and Smith, 2001). In general, the results of previous studies suggest that the effects of establishing bank-firm relationships on solving information problems are nonlinear. Some studies suggest that that small businesses could benefit from a closer and more informed relationship with their banks (e.g., Berger and Udell, 1995, Binks and Ennew, 1997; Harhoff and Körting, 1998). The capacities and the character of the entrepreneur become obvious as the relationship continues. Also the timely repayment of acquired loans contributes to the reliability of the firm. As time expires, the entrepreneur builds up a good reputation and the moral hazard

problem will diminish (Diamond 1989). Others find that contract terms seem to deteriorate with the length of the bank-borrower relationship (e.g., Degryse and Van Cayseele, 2000; Niskanen and Niskanen, 2004). Changing banks becomes difficult for the small firms since revealing its qualities in a credible way to another bank may take a lot of effort. Thus, the firm becomes ‘locked in’ in the relationship with the bank. This market power can be used in a negative way vis-à-vis the small firm (Greenbaum et al., 1989; Sharpe, 1990; Rajan, 1992), for example by asking above-market rates (‘ex post rent extraction’) or a higher degree of protection by means of collateral or commitments (Voordeckers and Steijvers, 2006). Overall, it seems that firms benefit from close lending relationship at early stages of the relationship and that the banks start to extract excessive rents once the relationship matures. Consequently, we expect that if the relationship matures, family firms will hold higher cash reserves to avoid the extraction of excessive rents by banks.

To include the effect of the bank-borrower relationships, we include two relationship lending variables in our models. Our first relationship lending variable is the number of lending banks that the firm uses. Previous literature suggests that an increase in the number of lending banks reduces the closeness and value of the bank-borrower relationship and thus may affect the availability of external finance. We include the natural logarithm of one plus the number of banks used. Alternatively, we also categorize this variable by including three dummy variables: ‘one bank’ that equals 1 if the family firm works with one bank; 0 otherwise; ‘two banks’ that equals 1 if the family firm works with two banks; 0 otherwise and ‘more banks’ that equals 1 if the family firm works with more than two banks; 0 otherwise. Our second relationship lending variable is the length of the relationship that the firm has with its main bank. We include the natural logarithm of the relationship length in months with its main bank. In order to control for possible non linear effects of relationship length on the

availability of external finance and consequently cash holdings, we also include the squared term of the relationship length.

Finally, the Herfindahl index can be categorized under this heading. The Herfindahl index is a measure of the bank deposit concentration. It is equal to the sum of squared market shares of bank deposits where the market shares are expressed as percentages. It is an indicator of the amount of competition among banks. If the index exceeds 1800, the US Department of Justice considers a market to be highly concentrated. In a highly concentrated market, relationships will be more profound due to a lower risk of bank shopping. This may increase the availability of external finance and lower cash holdings. As a proxy, we use a Herfindahl dummy variable with a value '1' if the Herfindahl index exceeds 1800; 0 otherwise.

(v) Control variables

Finally, we also control for industry and organizational form. We include eight dummy variables to account for industry differences. Each dummy variable accounts for a range of 10 two digit Standard Industrial Classification (SIC) codes. We also include four dummy variables to capture possible differences due to liability differences between firms organized as proprietorships, partnerships, S corporations and C corporations.

3. Methodology: database and descriptives

Our analysis is based on the database of the 1998 U.S. 'National Survey of Small Business Finance' (NSSBF). This survey, conducted five-yearly by the Federal Reserve Board of Governors and the U.S. Small Business Administration, collects information on small businesses (fewer than 500 employees) and is a representative sample of non-farm, non-

financial SME's in the US economy. The NSSBF database provides us with the necessary information on the family firm, financial, relationship and generational characteristics. In the NSSBF database, a private family firm is defined as a non publicly traded firm in which more than 50% of the firm is owned by a single family. After the removal of outliers and missing values, we ended up with a final sample of 2,600 private family firms.

Table 1a presents the descriptive statistics for the main variables of our analysis.

INSERT TABLE 1a

It reveals that the average family firm has a cash to assets ratio of 22.8% while the median cash to assets ratio is 10.7%. The average family firm of our sample has 1,296,000\$ asset base and is 15 years old, has a relationship of 100 months with its main bank and works with 2.4 banks.

INSERT TABLE 1b

Table 1b shows that 50.6% of the family firms in our sample are single owner-managed firms while 5.7% of the sample consists of descendant-managed firms. Looking at the Dun & Bradstreet credit score rank, the sample consists of 8.2% high risk firms and 6.9% low risk firms; 36.2% of the family firms comprised in the sample are average risk firms. A slight majority of family firms (52.2%) is situated in a highly concentrated bank market with few banks. Table 2 reports the correlation matrix.

INSERT TABLE 2

4. Regression results

In table 3, the results for our robust ordinary least squares regressions are presented by focussing on the question whether cash holdings in private family firms are determined by the same factors found in other studies based on non-family firms. Moreover, we contribute to the current literature by looking at the effect of generational evolution on cash holdings. In each of the regressions, we also control for organisational form and industry (results not reported).

INSERT TABLE 3

As expected, table 3 shows that *single owner-managed* family firms have lower corporate cash holdings than family firms that diverge from the single owner-manager case. Put differently, family firms diverging from the single owner-managed firm hold higher cash levels which originates in higher shareholder-manager agency costs e.g. free riding of family insiders on the controlling owner's equity. If control and management are (partially) separated, family insiders seem to increase cash holdings to be able to use them to benefit their own nuclear family or invest in pet projects that are not necessary the first best choice.

Moreover, results reveal that *descendant-managed family firms* have higher cash holdings compared to family firms that have not been inherited but established or purchased by the

current owners which are first generation family firms. This finding is in line with Anderson et al. (2003) who show in their empirical study that the involvement of a founding family would result in better borrowing terms of the firm. Founders bring unique, value-adding skills to the firm, while descendants are more likely to detract from firm performance, perhaps because they obtain the CEO position through family ties rather than job qualifications. So, results seem to confirm that the fractional ownership reduces motivation of descendants, which increases the incentive to act opportunistically because they bear only part of the cost of such action (Fama and Jensen, 1983). This may negatively affect the loan repayment capacity of the descendant inducing higher agency costs of debt. So, founding family firms hold lower cash levels due to lower agency costs of debt and consequently, the willingness of banks to provide loans at favourable borrowing terms.

We expected that family firms characterized by higher *informational asymmetries* would hold more cash possibly due to external finance constraints. Even though previous empirical studies based on SME's or large firms do not find any significant effect for firm size, our results do reveal a significant negative effect for firm size: smaller private family firms seem to hold higher cash levels to avoid finance constraints. This result is in line with a previous study by Steijvers and Voordeckers (2009) indicating that private family firms, compared to non family firms, more often have to pledge personal collateral to obtain bank loans. If the family firm owners are unwilling to put their personal assets at stake, they have to look for other financing sources or rely on higher cash holdings. Contrary to the study by Garcia-Teruel and Martinez-Solano (2008) based on SME's as well as several studies concentrating on large firms (Kim et al., 1998; Opler et al., 1999, Ozkan and Ozkan, 2004), growth opportunities do not appear to have a significant effect on cash holdings of private family firms.

With regard to the effect of *substitutes* for cash holdings, we find a significant substitution effect (at 1% significance level) for non cash liquid assets defined as working capital minus cash which is in line with Garcia-Teruel and Martinez-Solano (2008). Firms with more liquid assets tend to reduce their cash levels since these assets can be used as cash substitutes. As expected, the variable ‘leverage’ seems to have a non-linear impact on cash holdings. We first observe a negative relationship at lower levels of leverage and the observed relation becomes significantly positive at high leverage levels. So, leverage first acts as a substitute. However, an increased leverage decreases the availability of additional debt finance which is translated in a positive relationship between leverage and cash holdings at high levels of leverage.

In line with Kim et al. (1998), firms with higher likelihood of financial distress have lower levels of cash holdings due to difficulties to meet their payments. Family firms with a Dun & Bradstreet rating of 1 to 4 have higher cash holdings compared to family firms with a high risk credit rating i.e. Dun & Bradstreet rating 5.

As predicted, establishing a *relationship* with a financial institution initially has a negative impact on cash holdings. The family firm benefits from this close relationship by reducing information asymmetries between firm and bank. Thus, obtaining bank debt becomes more easy and the need to hold cash is reduced. This result is in line with Garcia-Teruel and Martinez-Solano (2008), Ozkan and Ozkan (2004) and Ferreira and Vilela (2004). However, the relationship between cash holdings and the relationship length appears to be non linear. When the bank-family firm relationship has matured, an increase in the relationship length seems to increase the amount of cash family firms hold. It seems that the family firm becomes ‘locked in’ in the relationship with the bank: the bank uses its market power in a negative way inducing ex post rent extraction. Family firms that want to avoid this rent extraction have to find another bank that is willing to lend. However, changing banks becomes difficult because

the small or medium sized private family firm has to signal its qualities in a credible way. Consequently, these family firms appear to be obliged to hold higher cash levels to avoid these problems of rent extraction or finding another bank that is willing to lend. The number of banks the family firm works with or the Herfindahl index do not appear to have a significant impact on cash holdings.

5. Conclusion

Although the empirical literature on the determinants of corporate cash holdings has received a lot of attention recently, any of the prior studies provides empirical evidence on the determinants of cash holdings in the context of small private family firms. However, given the existence of market imperfections (Berger and Udell, 1998), the desire to keep control by avoiding external equity financing (Romano et al., 2000) and higher agency costs of debt (Voordeckers and Steijvers, 2006; Steijvers et al., 2008; Steijvers and Voordeckers, 2009), cash holdings seem to be indispensable for small private family firms.

Empirically, Ozkan and Ozkan (2004) confirm that family firms hold higher cash levels. However, we argue that private family firms can not be considered as a homogeneous entity (Chrisman et al., 2005). Family firm behaviour may change throughout time giving rise to shareholder-manager agency costs and shareholder-debtholder agency costs (Jensen and Meckling, 1976). The existence of agency costs is expected to have an effect on the firm's cash holdings. Results confirm that the shareholder-manager agency problem, only prevalent in non-single owner-managed family firms, results in higher cash holdings. Free cash flows may allow discretionary behaviour by the management at the expense of the non-family or non managing family shareholders (Jensen, 1986). Private family firms managed by one owner who has 100% of the shares have lower corporate cash holdings.

Besides a shareholder-manager agency problem, Jensen and Meckling (1976) also discuss a second agency problem, the shareholder-debtholder agency conflict. The debate about this second agency problem is still in its infancy. We argue that this shareholder-debtholder agency problem may also affect the cash holdings level of private family firms. Distinguishing between descendant-managed family firms and founder-owned family firms, our results suggest that descendant-managed family firms have higher cash holdings compared to founder-owned firms. As indicated by Anderson et al. (2003), founders would bring unique value-adding skills to the firm. The closed relationships generate trust vis-à-vis financial institutions (Blanco-Mazagatos et al., 2007) and lower agency costs of debt. Descendant-managed firms may cope with higher agency costs of debt due to the fact that the founder only disposed of a restricted pool of talent in order to select his successor inducing adverse selection costs. Moreover, the fractional ownership may reduce the motivation of descendants and increase the incentive to act opportunistically because they bear only part of the costs of such action. The potentially limited capacity of the descendant and his motive to behave opportunistically negatively affect the firm's ability to repay any loans from financial institutions. It increases the agency costs of debt resulting in unfavourable loan conditions and consequently, the need to hold higher cash levels.

This study has some limitations that provide challenges for future research. The NSSBF 1998 is a large database, representative for the US economy, giving us sufficient power to detect small effects. However, the survey data are cross-sectional which limits our potential to draw causal inferences. Future research should benefit from using longitudinal data.

Our results contribute to a better understanding of the determinants of cash holdings in private family firms. While our study distinguishes between single owner-managed family firms and non-single owner-managed firms on the one hand and founder-managed firm and descendant-managed firms on the other hand, further research is needed to go further into

detail on the effects of ownership dispersion over the generational stages. For example, Villalonga and Amit (2006) point out that whether certain family firms experience higher or lower agency costs may depend on how exactly ownership is combined with family control and management.

Appendix A: Variable definitions

<i>Variables</i>	<i>Definitions</i>
Dependent variable	
Cash/assets	Total amount of cash/total assets
Independent variables	
Single owner-managed	Equals 1 if 100% of the family firm is owned by a single founder-manager; 0 otherwise
Descendant-managed	Equals 1 if the firm has been managed and owned by a descendant; 0 otherwise
Growth opportunities	Total sales of current year divided by total sales of the previous year
Firm size	Natural logarithm of total assets
Leverage	Ratio of total debt outstanding divided by total assets
Leverage ²	Ratio of total debt outstanding divided by total assets squared
Non cash liquid assets	Working capital minus cash divided by total assets
DBscore_1	Equals 1 if the firm has a 'low' risk Dun & Bradstreet credit rating; 0 otherwise
DBscore_2	Equals 1 if the firm has a 'moderate risk' Dun & Bradstreet credit rating; 0 otherwise
DBscore_3	Equals 1 if the firm has an 'average risk' Dun & Bradstreet credit rating; 0 otherwise
DBscore_4	Equals 1 if the firm has a 'significant risk' Dun & Bradstreet credit rating; 0 otherwise
DBscore_5	Equals 1 if the firm has a 'high risk' Dun & Bradstreet credit rating; 0 otherwise
Relationship length	Natural logarithm of the relationship length in months with its main bank
Relationship length ²	Natural logarithm of the relationship length in months with its main bank squared
One bank	Equals 1 if the family firm works with one bank; 0 otherwise
Two banks	Equals 1 if the family firm works with two banks; 0 otherwise
More banks	Equals 1 if the family firm works with more than two banks; 0 otherwise
Ln banks	Natural logarithm of 1 plus the number of banks the firm works with
Herfindahl index	Equals 1 if the Herfindahl index exceeds 1800, 0 otherwise
Control variables	
Proprietorship	Equals 1 if the firm is organized as a proprietorship; 0 otherwise
Partnership	Equals 1 if the firm is organized as a partnership; 0 otherwise
S corporation	Equals 1 if the firm is organized as an S corporation; 0 otherwise
C corporation	Equals 1 if the firm is organized as a C corporation; 0 otherwise
Industry_x	Equals 1 if the firm belongs to industry x (with x varying from 1 to 8 in order to distinguish between 8 industries) ; 0 otherwise

Table 1a - Descriptive statistics

<i>Variable</i>	<i>Mean</i>	<i>Median</i>	<i>Std.dev.</i>	<i>Min</i>	<i>Max.</i>
Cash/assets	0.228	0.107	0.280	0	1
Debt/assets	0.961	0.400	2.710	0	42.95
Sales/sales t-1	1.277	1.059	1.084	0	13.19
Non cash liquid assets	0.032	0.126	1.309	-33.45	1.8
Relationship length in months	100.6	60	99.74	1	780
Total assets (in 000)	1,296	92	5,139	0.1	99,912
Number of banks	2.4	2	1.67	1	19
Firm age	15.29	13	11.62	2	97

Table 1b – Percent distributions in the sample

<i>Variables</i>	<i>%</i>
Single owner-managed	50.6 %
Descendant-managed	5.7%
One bank	36.1%
Two banks	27.8%
More than two banks	36.1%
D&B score=1	6.9 %
D&B score=2	28.9%
D&B score=3	36.2%
D&B score=4	19.8%
D&B score=5	8.2%
Herfindahl index=1	52.2%

Table 2 – Correlation matrix

	cash/assets	Lnassets	Growth opportunities	non cash liquid assets	leverage	relationship length	number of banks
cash/assets	1						
lnassets	-0.4512 ***	1					
growth opportunities	0.0244	-0.051 ***	1				
non cash liquid assets	-0.1086 ***	0.1268 ***	0.0173	1			
leverage	0.0836 ***	-0.1438 ***	0.0223	-0.5316 ***	1		
relationship length	-0.0270	0.0996 ***	-0.0963 ***	0.029	-0.046 **	1	
number of banks	-0.2136 ***	0.4801 ***	-0.0246	-0.0032	0.0878 ***	-0.0218	1

*, **, *** significant at the 10%, 5% and 1% level respectively (two-tailed test)

Table 3 - Robust OLS regression on the determinants of cash holdings (n=2,600)

Dep. variable:	(1)	(2)	(3)	(4)
cash/assets				
<i>Generational evolution</i>				
Single owner-managed	-0.0278 (0.011)**	-0.0221 (0.011)**	-0.0276 (0.011)**	-0.0219 (0.011)*
Descendant-managed		0.0558 (0.021)***		0.0556 (0.021)***
<i>Information asymmetry</i>				
Growth opportunities	0.0009 (0.004)	0.0004(0.005)	0.0011 (0.004)	0.0006 (0.004)
Firm size	-0.0619 (0.003)***	-0.0622 (0.003)***	-0.0625 (0.003)***	-0.0628 (0.003)***
<i>Liquidity constraints & substitutes</i>				
Leverage	-0.0112 (0.005)**	-0.0112 (0.005)**	-0.0116 (0.006)**	-0.0117 (0.005)**
Leverage ²	0.0004 (0.001)*	0.0004 (0.0002)*	0.0004 (0.0002)*	0.0003 (0.0002)*
Non cash liquid assets	-0.0129 (0.004)***	-0.0130 (0.005)***	-0.0130 (0.005)***	-0.0131 (0.004)***
DBscore_1 ^a	0.1296 (0.022)***	0.1248 (0.022)***	0.1302 (0.022)***	0.1253 (0.022)***
DBscore_2	0.0816 (0.017)***	0.0815 (0.017)***	0.0820 (0.016)***	0.0819 (0.016)***
DBscore_3	0.0546 (0.016)***	0.0549 (0.017)***	0.0553 (0.017)***	0.0556 (0.017)***
DBscore_4	0.0394 (0.0175)**	0.0391 (0.017)**	0.0398 (0.018)**	0.0395 (0.017)**
<i>Bank-firm relationships</i>				
Relationship length	-0.0592 (0.028)**	-0.0585 (0.027)**	-0.0590 (0.028)**	-0.0582 (0.027)**
Relationship length ²	0.0080 (0.003)**	0.0079 (0.003)**	0.0080 (0.003)**	0.0079 (0.003)**
One bank ^b	0.0049 (0.013)	0.0053 (0.013)		
Two banks ^b	-0.0072 (0.011)	-0.0071 (0.011)		
Ln (banks)			0.0014 (0.009)	0.0011 (0.009)
Herfindahl index	-0.0049 (0.009)	-0.0052 (0.010)	-0.0049 (0.010)	-0.0051 (0.010)
R ²	0.2429	0.2446	0.2426	0.2443
F value	24.92***	24.14***	25.67***	24.83***

^a Dbscore_5 (highest risk firms) as comparison category; ^b 'More banks' (equals 1 if the firm works with more than two banks) as comparison category. *, **, *** significant at the 10%, 5% and 1% level respectively (two-tailed test). Robust asymptotic standard errors reported in parentheses.

We controlled for the industry by including 8 industry dummy variables based on the two digit SIC code and the organisational form by distinguishing between proprietorships, partnerships, S corporations and C corporations.

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