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Cash holding in family controlled firms: How ownership structure, corporate governance and European financial crisis affect cash holding?

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HAGO CONSTAR

Que la presente tesis doctoral, que lleva por título *"Cash holding in family controlled firms: How family ownership, corporate governance and European financial crisis affect cash holding?"* y que presenta D. Serhat Yaman para optar al grado de Doctor por la Universidad de Salamanca, ha sido realizada bajo mi dirección en el Departamento de Administración y Economía de la Empresa de la Universidad de Salamanca y que cumple todos los requisitos necesarios para proceder a su defensa pública.

Salamanca a 29 de abril de 2019

Dra. María Belén Lozano García
Universidad de Salamanca

To my parents: Zekiye and Ramiz.

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Chapter I

Introduction

I.1. Cash holding and family firms

In the finance literature, cash holding is one of the most interesting and recently most studied lines. Opler et al. (1999) emphasize two benefits of cash holdings; first, the firm saves transaction costs to raise funds and does not have to liquidate assets to make payments and second, if other sources are not available or costly the firm can use its cash. Also it is possible to name these theories as the trade off theory and financing hierarchy theory, respectively. (Dittmar et al., 2003). However, Bates et al. (2009) in a more recent study, considering these theories, explain four motives to do cash holdings: transaction motive, tax motive, agency motive and precautionary motive.

From the point of the family ownership the literature has studied about the role of the family in corporate governance (Burkart et al., 2003; Bertrand and Schoar, 2006; Arregle et al., 2007), control structures in family firms (Morck and Yeung, 2003; Almeida and Wolfenzon, 2006; Villalonga and Amit, 2009; Cronqvist and Nillson, 2003), corporate performance of family firms (Anderson and Reeb, 2003a; Villalonga and Amit, 2006; Maury, 2006; Andres, 2008; King and Santor, 2008), family firms and strategic corporate decisions (Anderson and Reeb, 2003b; Miller et al., 2010; Anderson et al., 2009; Chen et al., 2010) and also succession in family firms (Hillier and McColgan, 2009; Bennedsen et al., 2007; Lee et al., 2003; Perez-Gonzalez, 2006). Litz, Pearson, and Litchfield (2012) survey find that about the topic of ownership and governance, almost half of family business scholars have either none or limited understanding. Recently, there is a great attention to the family ownership structure, but despite this attention, interestingly, the relation between family ownership and cash holding is one of the least studied issue in the field .

I.2. Cash holding with agency costs, shareholder protection and family firms

Some significant studies argue that agency costs have primary importance for the firms on their cash holding decisions (Dittmar et al., 2003) and on the other hand, there are other studies that argue the importance of the effect of shareholder protection against agency costs (Harford et al., 2009). The country levels shareholder protection literature abundantly shows that the firms in countries with low level of protection hold more cash than the firms in countries with strong level of protection (Kalcheva and Lins, 2007; Pinkowitz et al., 2004). There is still no consensus among investigators about the primary importance of these two effects on cash holding levels.

Family controlled firms, differently than other type of firms, have some peculiarities about agency costs. Related with the type I agency conflicts, in a family-controlled firm, agency problems between shareholders and managers is virtually non-existent, because the family as the major shareholder is also active in management, which aligns the objectives of both to the benefit of the family (Ali et al., 2007; Dyer, 2006; Villalonga and Amit, 2006). However, with respect to this type II agency costs explication, family-controlled firms are not without agency issues. Given their ownership structure, family owners can use different mechanisms to increase their control over the firm (Barontini and Caprio, 2006; Gonenc et al, 2013; Faccio et al., 2001; Faccio and Lang, 2002; Maury, 2006; Yu and Zheng, 2012; Chung, 2014) and can be tempted to extract private benefits from minority shareholders.

When we compare –from family ownership framework– the two previously mentioned factors that affects the firms' cash holding decisions (agency costs and shareholder protection countries), we observe that the family ownership presence has a clear effect on the absence of the type I agency costs but in the type II agency costs and country

level shareholder protection issues, the appearance situations are slightly more complex. On one hand, to separate the countries as with low or high shareholder protection, the Anti-Director Right Index of La Porta et al. (1998) is one of the most common ways in the literature but also it is possible use the countries' legal systems and separate them as civil and common law countries. On the other hand, to gauge the firm's type II agency costs its ownership concentration level (Maury and Pajuste, 2005; Burkart et al., 1997; Villalonga and Amit, 2006) is a good signal but also it is possible to categorize firms as young and old ones (Bertrand et al., 2008; Citrin and Ogden, 2010; Strike, 2012; Lozano et al., 2016) and investigate the effect of type II agency costs.

In this context, family firms give us a chance to investigate some important relations that never have been investigated before in the literature. Specifically, we investigate separately the effects of agency costs and shareholder protection on firms' cash holding decision. Then, we focus more on the discussion between agency costs and shareholder protection: First, our main investigation question is about to find which one is more relevant for a family firm's cash holding decision, type I agency costs or low level shareholder protection. Than we focus on the effectiveness battle between type II agency costs and low level of shareholder protection in family-controlled firms.

I.3. Cash flow sensitivity of cash holding and family firms

Cash flow sensitivity of cash is studied for the first time by Almeida et al. (2004) and their explanation for this relation is that financial constraints are related to firms' propensity to save cash out of cash inflows. The sensitivity is a kind of approximation to find financial constraints levels of firms and does not give significant results for financially non-

constrained firms. However, Riddick and Whited (2009) interpret this relation from another point of view and they suggest that this relation is not only related to the firm's financial constraints level but also with the positive productivity shocks. Riddick and Whited (2009) argue that when positively correlated productivity shocks conditional on high shocks lead to more cash flow (income effect), capital becomes more productive, and the firm may decide to invest in physical assets (substitution effect) and dissaves. The financial constraint level approach defenders find positive cash flow sensitivity of cash levels for financially constrained firms (Almeida et al., 2004; Khurana et al., 2006; Lin, 2007) and contrarily, the opposite approach followers (Riddick and Whited, 2009; Bao et al., 2012) argue the presence of a dominant negative impact of income and substitution effects on this sensitivity relation.

As a result of this discussion, one of our aims is to shed light on this state of the question analyzing a sample of European firms through both of these perspectives. We then focus on whether the family ownership structure has differing sensitivity effect in our sample of European firms for both Almeida et al. (2004) and Riddick and Whited (2009) models.

On one hand, as abundantly evidenced in the finance literature, imperfections such as information asymmetries, agency problems, and transactions costs create financial constraints. These types of financial constraints can be mitigated by family control, which reduces information asymmetries and conflicts of interests between managers and shareholders (i.e., Type I agency costs; Jensen and Meckling, 1976; Jensen, 1986; La Porta, Lopez-de-Silanes, and Shleifer, 1999; Claessens, Djankov, and Lang, 2000; Anderson, Mansi, and Reeb, 2003; Andres, 2008; Lamont, 1997; Del Brio, Perote, and Pindado, 2003; Aivazian, Ge, and Qiu, 2005; Bendickson et al., 2016). Thus, family-controlled firms are less dependent on internal funds when they make optimal savings decisions. On the other

hand, another issue worth noting is that, contrary to popular belief, family control is not only restricted to small and medium sized enterprises. Prior literature, especially before Andres (2011), traditionally considers family firms more financially constrained than non-family firms due to their unique characteristics. However, comparing family firms by size and dividend payout ratio, Andres shows that family firms are not more susceptible to external financial constraints.

Moreover, from the point of view of the income and substitution effects, family firms have extended investment horizons due to the long-term presence of the family, which can positively affect firm value (James, 1999; McVey and Draho, 2005) and lead to more optimal investment levels for these firms (Morgado and Pindado, 2003). Considering the relation between the optimal saving and investment policies proposed by Riddick and Whited, we anticipate a positive relation between family firms' extended investment horizons and optimal saving policies, which can reduce uncertainty for family firms. In addition, related to the capital productivity reaction, the literature shows that family-controlled firms often outperform their non-family counterparts (Anderson and Reeb, 2003; Villalonga and Amit, 2006; Maury, 2006; Barontini and Caprio, 2006).

I.4. Cash holding with Precautionary motive and family firms

Precautionary motive perspective is broadly discussed in the literature: Opler et al. (1999) suggest that firms with better investment opportunities hold more cash based on the precautionary motive. Almeida, Campello, and Weisbach (2004) find that precautionary motive causes to have positive cash flow sensitivity of cash in financially constrained firms while unconstrained firms do not have any effect. Han and Qiu (2007) extend the model of

Almeida et al. (2004) and show that the volatility of cash flow is positively related with cash holdings for firms that are financially constrained. Finally, Acharya, Almeida, and Campello (2007) show that firms accumulate cash instead of reducing debt when the correlation between operating income and investment opportunities is low.

However, the precautionary motive is also closely related to the periods of uncertainty. The 2008 European financial crisis is a debt crisis and produced great uncertainty in all over the world, especially in European market (Stiglitz, 2012; Arslan-Ayaydin et al., 2014; Pinkowitz et al., 2013). This sharp increase of uncertainty would lead to decrease in capital expenditures (Bloom, 2009) and finally this relation would force the firms to have lower optimal level of debt and higher cash holding (Kahle and Stulz, 2013). However, other significant studies defend that precautionary motive importance on cash holding decision does not stay in the same level during the crisis period and this importance may decrease with the effect of other factors such as, GDP growth, growth opportunities or more financial flexibility (Pinkowitz et al., 2013; Graham and Leary 2015; Arslan-Ayaydin et al., 2014; Campello et al., 2011).

In the light of this reasoning, one of the main aspects that we bring to discuss here - which has been intuited but not constrasted in the literature- is that if the crisis could cause a higher accumulation of cash for firms and if this increase could be explained by the changing precautionary motives of the European firms. To do so, we divide the crisis period as short and long and then, we focus on three different firm types which are specially characterized in the literature about their precautionary motive power on firm's cash holding decision. Our selected firms are financially constrained firms, non-dividend paying firms and family-controlled firms. We select these groups of firms because, following the

literature, the cash holding reactions of these type of firms to high or low precaution level are different and there are some special characteristics for this type of firms than for other firms.

Finally, in all our chapters and analyses, we only focus on our European sample for different reasons. First of all, we observe that compared to the U.S. cash holding literature (Han and Quí, 2007; Bates et al., 2009; Duchin, 2010), there are few cash holding studies in Europe despite the big differences between these two zones about cash holding levels (Dittmar et al., 2007; Drobetz and Grüninger, 2007). Then, our European sample has different kind of countries and this means the factors that we use have different levels (such as, country level shareholder protection levels or ownership concentration levels). In addition, as indicated by Stiglitz (2012) the 2008 global economic crisis has fundamentally particular effects in Europe. Our sample contains the crisis years and therefore specifically help us to analyze the effect of these years on firms' cash holding decisions.

I.5 Objectives and formulation of the thesis

Considering earlier literature regarding the effect of agency motive, corporate governance and precautionary motive on firms' cash holding decision, our main objective in this dissertation is to disentangle whether family ownership has a differentiate effect on firms' cash holding decisions in Europe. Contexts vary depending on the effects of the country level shareholder protection, the agency costs, cash flow sensitivity of cash, ownership concentration level and European financial crisis in family and non-family firms.

To achieve our objective, the present document is divided in four chapters. After an introduction, in Chapter II, we analyze the separate and joint effects of the agency costs and shareholder protection on cash holding decision. To do so, we focus on family-controlled firms and we benefit from the peculiarities of the family ownership that gives us an ability to divide agency costs types and analyze them separately. In addition, we use a subsample of the low level of shareholder protection countries that helps us to analyze jointly the factor of shareholder protection with the agency costs on firm's cash holding decisions. The empirical evidence presented in this chapter is based on a European sample that covers 15 countries. Then, in Chapter III, we examine whether family ownership has a different effect on firms' cash flow sensitivity of cash levels. For this analysis, we use an international sample that comprises 16 European countries. We also investigate two different cash flow sensitivity of cash models with all their details and with their different meanings in the cash holding literature. In addition, we also explain, analyze and evaluate the different meanings and influences of these two models over the family ownership structure. In Chapter IV, we investigate the effect of European financial crisis on firm' cash holding decisions in 15 European countries. Specifically, we study the possibility of explaining the cash holding level changes in the short- and long-term crisis periods with the precautionary theory. To do so, we focus on the cash holding changes in three specific firms which are financially constrained, non-dividend paying and family controlled firms. Finally, the last chapter of the study, Chapter V, presents our main conclusions based on the findings obtained throughout the dissertation, which allow us to defend our:

Thesis: *"Cash holding decisions of the firms are determined by agency costs, country level shareholder protection, ownership concentration, financial constraints, precautionary motive (in crisis periods especially), but all of these determinants have different effects in family-controlled firms than in non-family controlled ones".*

I. Introducción

I.1. Acumulación de efectivo (CH) y empresas familiares

En la literatura, la acumulación del efectivo (CH) es uno de los topicos más interesantes y actuales. Opler et al. (1999) enfatiza dos beneficios atribuibles al CH: primero, la empresa ahorra costes de transacción en la búsqueda y recaudación de fondos y además, evita tener que liquidar activos para realizar pagos; y segundo, si no se dispone de otras fuentes de financiación o su coste es elevado, la empresa puede hacer uso de dicho efectivo. Ambos razonamientos vinen enmarcados respectivamente en las teorías del trade-off y de la teoría de la jerarquía financiera. Sin embargo, Bates et al. (2009), en su estudio, argumenta cuatro razones por las que una empresa puede acumular efectivo en la empresa: costes de transacciom, motivos impositivos, costes de agencia y motivación de precaución.

Desde el punto de la propiedad familiar, existen múltiples estudios sobre el rol de la familia en el gobierno corporativo (Burkart et al., 2003; Bertrand y Schoar, 2006; Arregle et al., 2007), la estructura del control en las empresas familiares (Morck y Yeung, 2003; Almeida and Wolfenzon, 2006; Villalonga y Amit, 2009; Cronqvist y Nillson, 2003), el rendimiento de las empresas familiares (Anderson y Reeb, 2003a; Villalonga y Amit, 2006; Maury, 2006; Andres, 2008; King y Santor, 2008), las empresas familiares y sus decisiones estrategicas corporativas (Anderson y Reeb, 2003b; Miller et al., 2010; Anderson et al., 2009; Chen et al., 2010) o la sucesión en las empresas familiares (Hillier y McColgan, 2009; Bennedsen et al., 2007; Lee et al., 2003; Perez-Gonzalez, 2006). Sin embargo, a pesar de los datos anteriores, los resultados de la encuesta de Litz, Pearson, y Litchfield (2012) muestran que el conocimiento de muchos de los investigadores en este campo familiar está aún en una

etapa muy incipiente de su desarrollo. Los estudios recientes muestran su interés en la estructura de la propiedad familiar pero, a pesar de esa atención, la relación entre la propiedad familiar y tenencia del efectivo es uno de los temas menos estudiados en la literatura.

I.2. Cash Holdings (CH), empresas familiares y protección institucional.

La literatura muestra la relevancia del gobierno corporativo en las decisiones de CH por cuanto que los costes de agencia tienen una importancia primordial en la toma de tales decisiones (Dittmar et al., 2003). De otro lado, también existen algunos trabajos que indican que la protección de los accionistas a nivel nacional ejerce un papel predominante frente a los incentivos gerenciales encaminados a mitigar tales costes de agencia (Harford et al., 2009). La literatura relacionada con la protección de los accionistas muestra especialmente que las empresas en los países con bajo nivel de protección suelen acumular más cash que las empresas en los países con un elevado nivel de protección de los accionistas (Kalcheva y Lins, 2007; Pinkowitz et al., 2004). Aun así, a día de hoy, no hay un consenso entre los investigadores acerca del efecto y la relevancia de los dos efectos a la hora de determinar el nivel óptimo de tenencia del efectivo.

Las empresas familiares, a diferencia de otras empresas, tienen algunas peculiaridades en lo referente a su gobierno corporativo. Así, sabemos que las empresas familiares no presentan apenas –o es muy reducido– el conflicto de agencia tipo I basado en la relación accionista-directivo. Ello se debe a que la familia –como principal accionista– está plenamente identificada con la gestión de la empresa y, por lo tanto, ambos intereses están

alineados en beneficio de la empresa (Ali et al., 2007; Dyer, 2006; Villalonga y Amit, 2006). En cambio, el conflicto de agencia tipo II (entre accionistas mayoritarios y minoritarios) en las empresas familiares se muestra especialmente acusado. Dada su estructura de propiedad, las empresas familiares pueden usar mecanismos diferentes para incrementar su control sobre la empresa (Barontini y Caprio, 2006; Gonenc et al, 2013; Faccio et al., 2001; Faccio y Lang, 2002; Maury, 2006; Yu y Zheng, 2012; Chung, 2014) y pueden más fácilmente estar inclinadas a obtener beneficios privados a costa de los accionistas minoritarios.

Cuando comparamos –en el ámbito de la empresa familiar– los dos efectos antes mencionados que influyen sobre las decisiones de cash holding (la protección institucional de los accionistas y los costes de agencia), observamos que la identidad entre la familia y la propiedad de la empresa no presenta problemas debido a la ausencia de los costes de agencia tipo I. Sin embargo, el tema es más complicado cuando nos planteamos estudiar el efecto del conflicto de agencia tipo II y de la protección de los accionistas. Así, de un lado, debemos analizar por separado el comportamiento de los países con diferente nivel de protección institucional; el Anti-Director's rights Index de La Porta et al. (1998) es una de las medidas más habituales utilizadas en la literatura, si bien también es posible analizar los diversos sistemas legales de los países (common law y civil law). Por otra parte, a la hora de analizar el conflicto II antes mencionado, podemos acudir al análisis de la concentración de la propiedad de las empresas (Maury y Pajuste, 2005; Burkart et al., 1997; Villalonga y Amit, 2006) o incluso analizar el ciclo de vida de las mismas (Bertrand et al., 2008; Citrin y Ogden, 2010; Strike, 2012; Lozano et al., 2016).

En este contexto, podemos observar cómo las empresas familiares nos proporcionan un marco ideal de análisis para investigar algunos aspectos y relaciones no estudiados hasta

el momento en la literatura financiera. En particular, nosotros investigamos el efecto de los costes de agencia y de la protección de los accionistas sobre la decisión de tenencia de CH, primero de forma independiente para, a continuación, enfocarnos en el análisis de su efecto combinado. Nos preguntamos, en definitiva, cual es la influencia de estos efectos y su relevancia a la hora de tomar decisiones de CH.

I.3. La sensibilidad del CH al cash flow (CFSC) de las empresas: analizando el efecto de la propiedad familiar

El estudio de "la sensibilidad del efectivo al cash flow" (CFSC) tiene su origen en Almeida et al. (2004) quienes fundamentan dicha relación en base a la existencia de restricciones financieras, las cuales están íntimamente relacionadas con la tendencia de las empresas a acumular cash. En este sentido, dicha sensibilidad bien puede considerarse como una aproximación para identificar el nivel de restricciones financieras de las empresas. Cinco años más tarde, Riddick y Whited (2009) analizan la CFSC desde un nuevo punto de vista sugiriendo que la sensibilidad no está sólo relacionada con el nivel de restricciones financieras de la empresa sino también con los cambios no esperados (los shocks) en la productividad. Según su teoría, ante un shock positivo en la productividad, el efecto que se produce es un incremento del cash flow de la empresa (efecto ingreso) y en la productividad del capital. En esta situación la empresa puede decidir incrementar sus inversiones en activos (efecto sustitución) en lugar de acumular más efectivo. En este contexto, los estudios del primer enfoque defienden una relación positiva al analizar la CFSC para las empresas financieramente restringidas (Almeida et al., 2004; Khurana et al., 2006; Lin, 2007). En

cambio, otros autores –como Riddick y Whited, 2009 or Bao et al., 2012– defienden la presencia de un impacto dominante y negativo en la CFSC debido a los shocks en la productividad.

Fruto de esta discusión, otro de nuestros objetivos es arrojar luz acerca de este estado de la cuestión analizando una muestra de empresas europeas desde ambas perspectivas. Más aún, a continuación damos un paso más y nos preguntamos si la estructura de la propiedad de carácter familiar puede tener un efecto diferencial que nos permita profundizar en el análisis del debate sobre la CFSC.

Así, por una parte, dado que la literatura ha demostrado que las restricciones financieras tienen su origen en las distintas imperfecciones (como asimetría de la información, problemas de agencia y costes de transacción) y, sabiendo que estas restricciones pueden ser mitigadas por el control que ejerce la familia (con la reducción, por ejemplo, de la asimetría de la información y los conflictos de intereses entre gerentes y accionistas[1]), podemos suponer que las empresas familiares tienen una menor dependencia financiera a la hora de tomar una decisión óptima de CH. Por otra parte, es importante mencionar que no son únicamente las pequeñas o medianas empresas las que presentan un perfil activo de control familiar. De hecho, tradicionalmente –especialmente en los estudios previos a Andrés (2011)– se aceptaba la creencia de que las empresas familiares eran financieramente más restringidas que las no familiares. Sin embargo, cuando Andrés compara las empresas familiares, en función del tamaño y del ratio de pago de dividendos,

[1] Ver, por ejemplo, Jensen and Meckling (1976); Jensen (1986); La Porta, Lopez-de-Silanes, y Shleifer (1999); Claessens, Djankov, y Lang (2000); Anderson, Mansi, y Reeb (2003); Andres (2008); Aivazian, Ge, y Qiu (2005) o Bendickson et al. (2016).

muestra que empresas las familiares no presentan necesariamente más restricciones financieras.

Además, desde el punto de vista de los efectos de los shocks en la productividad, las empresas familiares tienen horizontes de inversión muy amplios que pueden afectar positivamente al valor de la empresa (James, 1999; McVey y Draho, 2005) y que pueden guiar a la empresa hacia niveles óptimas de inversión (Morgado y Pindado, 2003). De esta forma, considerando la relación entre el CH óptima y las políticas de la inversión propuestos por Riddick y Whited, bien podríamos esperar una relación positiva entre el amplio horizonte de inversión de la empresa familiar y las políticas del CH óptimas, que reducirían la incertidumbre para el perfil de las empresas familiares en concreto. Adicionalmente y, relacionado con la productividad del capital, la literatura muestra que las empresas familiares a menudo superan a sus homólogas no familiares en cuanto a la creación de valor se refiere (Anderson y Reeb, 2003; Villalonga y Amit, 2006; Maury, 2006; Barontini y Caprio, 2006).

I.4. El motivo de precaución en el CH y su aplicación a la empresa familiar

El motivo de precaución al acumular CH ha sido ampliamente discutido en la literatura. Oppler et al. (1999) sugieren que las empresas con mejores inversiones acumulan más efectivo precisamente por este motivo. Almeida, Campello, y Weisbach (2004) afirman que el motivo de precaución deriva en una CFSC positiva para las empresas financieramente restringidas mientras que para las empresas financieramente no restringidas no tienen ningún efecto. Han y Qiu (2007) extienden el modelo de Almeida et al. (2004) y muestran que la volatilidad del flujo de caja está relacionada positivamente con tenencia del efectivo para las

empresas financiaremente restringidas. Finalmente, Acharya, Almeida, y Campello (2007) muestran que las empresas acumulan efectivo en lugar de reducir su deuda cuando la correlación entre ingresos operativos y oportunidades de inversión es reducida.

De otro lado, el motivo de precaución está también íntimamente relacionado con los periodos de incertidumbre. La crisis financiera ha producido una gran incertidumbre en todo el mundo, especialmente en Europa (Stiglitz, 2012; Arslan-Ayaydin et al., 2014; Pinkowitz et al., 2013). Este elevado nivel de incertidumbre condujo a una disminución en los gastos de capital (Bloom, 2009) y, finalmente, ello derivó en que las empresas mantuvieran un nivel óptimo de deuda inferior y, por tanto, niveles de CH superiores (Kahle and Stulz, 2013). Otros estudios, sin embargo, defienden que la importancia del motivo de la precaución sobre la decisión del CH no se ha mantenido constante durante el periodo de la crisis argumentando que dicha motivación puede disminuir con el efecto de otros factores como el crecimiento del PIB, las oportunidades del crecimiento o una mayor flexibilidad financiera (Pinkowitz et al., 2013; Graham y Leary 2015; Arslan-Ayaydin et al., 2014; Campello et al., 2011).

A la luz de los anteriores razonamientos, nos planteamos analizar, para el marco europeo, un tema aún no analizado en profundidad en la literatura: si en los años de crisis (especialmente entre 2007-2009) las empresas pueden acumular un mayor nivel de efectivo y, de ser así, si se puede atribuir ese incremento a los motivos de precaución que la literatura parece intuir. Con el objeto de estudiar dicha evolución, analizamos dos periodos de crisis -corto y largo- para, a continuación, centrarnos en algunos perfiles de empresas caracterizados por acumular CH por motivos de precaución. Así, realizaremos nuestros constrastes primero para una muestra de empresas restringidas financieramente, luego para un perfil de empresas que no reparten dividendos y finalmente para un grupo de empresas

con carácter familiar. En los tres casos analizados y, de acuerdo con la literatura existente, el nivel de precaución que desean mantener las empresas es el factor determinante para acumular cash.

Finalmente, en todos los análisis que realizamos, nos enfocamos en una muestra Europea por diferentes razones. En primer lugar, la literatura del CH es muy escasa en Europa. Si comparamos con los trabajos desarrollados en los Estados Unidos (ver Han y Quí, 2007; Bates et al., 2009; Duchin, 2010), existen muy pocos estudios de esta naturaleza en Europa a pesar de que existen grandes diferencias entre los niveles de CH de ambas zonas (Dittmar et al., 2007; Drobetz y Grüninger, 2007). En segundo lugar, la estructura de la muestra europea nos permite analizar países de diferentes perfiles y por tanto analizar diferentes niveles de protección de los accionistas o de la concentración de la propiedad. Por último, como indica Stiglitz (2012), la crisis económica global ha tenido efectos particularmente relevantes en Europa. Este aspecto, unido a que nuestra muestra recoge específicamente los años de crisis, nos facilitará el análisis del comportamiento del CH de las empresas en estos años de crisis.

I.5 Objetivos y formulación de la tesis.

Nuestro objetivo en la presente disertación es determinar si la propiedad familiar tiene un efecto diferencial sobre la decisión de CH en las empresas en Europa. Para ello, hemos de considerar todos los elementos previamente mencionados que ponen en relación las decisiones de CH con diferentes aspectos del gobierno corporativo o de las motivaciones para acumular cash en las empresas. De esta manera, los contextos varían dependiendo del

nivel de protección de los accionistas a nivel nacional, los costes de agencia, la sensibilidad del CH al cash flow, el nivel de concentración de la propiedad o de la crisis financiera de Europa, en las empresas familiares y no familiares.

Para ello hemos dividido la presente tesis doctoral en cuatro capítulos. Tras esta introducción, en el capítulo II analizamos los efectos –de forma conjunta e individual– de los costes de agencia y de la protección de los accionistas sobre la decisión de CH. Para llevar a cabo este cometido, nos enfocamos en las empresas familiares aprovechando las peculiaridades que presenta este tipo de propiedad y los problemas de agencia a los que se enfrenta. Adicionalmente, analizamos su comportamiento en un marco institucional caracterizado por un bajo nivel de protección de los accionistas, lo cual finalmente nos permitirá analizar el papel que ejercen de ambos elementos (institucional y corporativo) sobre la decisión de CH de las empresas. A continuación, en el capítulo III, examinamos si la propiedad de la familia tiene un efecto diferencial sobre el nivel de CFSC de las empresas. Para ello, utilizamos los dos enfoques de sensibilidad del CH previamente comentados. En el capítulo IV, profundizamos en el comportamiento de CH de las empresas en los años de la crisis financiera de Europa. En particular, usando los argumentos que rodean a los motivos de precaución que guían a las empresas, analizamos la existencia de posibles variaciones en el CH de las empresas en dos periodos temporales (corto y largo) de la crisis. Para llevar a cabo este cometido, nos apoyamos en los cambios en la tenencia de efectivo de tres perfiles de empresas específicos: empresas financieramente restringidas, empresas que no pagan dividendos y empresas familiares. Finalmente, el último capítulo de la tesis, el capítulo V, presenta una síntesis de las principales conclusiones obtenidas a lo largo de los capítulos precedentes. Todo ello nos permite defender nuestra:

Tesis: *"La decisión de CH en las empresas está determinada por efectos relacionados con el gobierno corporativo, la protección institucional, la concentración de la propiedad y las motivaciones de precaución -especialmente en periodos de crisis. Todos estos determinantes tienen diferentes efectos en las empresas familiares que en las empresas no familiares",*

Chapter III

The determinants of cash flow sensitivity of cash: family ownership effect

III.1. Introduction

The analysis of the sensitivity of cash flow to certain financial variables is a very current issue in the field of corporate finance. Prior research has examined the sensitivity concept from both the perspective of investments (Fazzari, Hubbard, and Petersen, 1988; Hadlock, 1998; Miguel and Pindado, 2001; Carpenter and Petersen, 2002; Pawlina and Renneboog, 2005; Hovakimian and Hovakimian, 2009) and cash holding (Almeida, Campello, and Weisbach, 2004; Khurana, Martin and Pereira, 2006; Lin, 2007; Bao, Chan, and Zhang, 2012). Almeida et al. (2004) were the first to study firms' cash flow sensitivity of cash (CFSC); they found that the CFSC level is a good signal of a firm's level of financial constraints (FCs). Their model suggests that FCs are related to firms' propensity to save cash out of cash inflows and that external FCs is the only factor in this relation. Subsequently, Riddick and Whited (2009) also examine the idea of CFSC, adding a microeconomic perspective. Their findings suggest that other, additional factors influence the CFSC level in corporations.

Riddick and Whited (2009) and Almeida et al. (2004) come to different conclusions because they explain CFSC from different perspectives. Whereas Almeida et al. examine the positive effect of FCs, Riddick and Whited account for the negative impact of income and substitution effect (I&S) on this sensitivity. In other words, whereas Almeida et al. are interested in a macroeconomic effect (i.e., FCs) on firms' CFSC, Riddick and Whited are primarily interested in microeconomic effect (i.e., I&S). Almeida et al., who consider FCs as the only factor affecting firms' sensitivity level, find no significant results for unconstrained firms; consequently, their significant sensitivity values are positive (also see Khurana et al., 2006; Lin, 2007). Conversely, Riddick and Whited find that the effect of I&S on firms' saving decisions is negative due to positively serially correlated productivity shocks (also see Bao et al., 2012). Thus, Riddick and Whited show that all

sensitivity values are negative for all firm types. In sum, whereas Almeida et al. show the relevance of FCs on CFSC, Riddick and Whited focus on the impact of the effect of I&S on firms' CFSC level.

This research adds to this important and growing research field. Specifically, using a European sample, we examine the relation between the family ownership structure and the sensitivity factors from Almeida et al. (2004) and Riddick and Whited (2009). First, following from Almeida et al., we analyze the CFSC reaction of the whole sample. Given that the family ownership structure has specific effects on FCs, we examine the relation between family-controlled firms and CFSC level. We then test the relation between family ownership concentration and sensitivity, as well as the effect of the second largest shareholder in family firms. Second, adopting the focus of Riddick and Whited, we test the whole sample to analyze the reaction of the firms based on CFSC level. We then investigate whether the family ownership structure has differing sensitivity effect in our sample of European firms.

Our sample comprises nine European countries for the period of 2000 to 2009. In line with Almeida et al. (2004), we find that the CFSC level is positive for the full sample and thus confirm that FCs have a positive effect on firms' CFSC level for European firms. However, we do not find a negative effect of I&S for our sample, as reported by Riddick and Whited (2009). This result is likely due to the negative cash flow shocks caused by the financial crisis, which occurs during our sample period.

We then analyze the effect of FCs and I&S on CFSC taking into account the effect of the family ownership structure. The sensitivity results are lower for family-controlled firms, which suggests that family-controlled firms are financially less constrained than non-family firms. Focusing on FCs, we find a higher CFSC level for family firms with a dominant shareholder,

because absolute ownership control creates more agency costs (Villalonga and Amit, 2006). However, CFSC levels are lower for family firms with a secondary shareholder or shareholders with a monitoring motivation, because monitoring improves firms' financial situation (Maury and Pajuste, 2005; Cheng et al., 2017). Finally, we find no significant negative effect of I&S on firms' CFSC level for family firms, probably due to the effects of the financial crisis in our analysis period.

This study contributes to the literature in several ways. First, we add to prior literature by analyzing CFSC for a unique European sample. From a macroeconomic point of view, Almeida et al. (2004) uses the CFSC relation to approximate firms' real positive external FC level for a sample of US firms. As a critical counterpoint, Riddick and Whited (2009), also using US firms, follow a microeconomic approach and find that firms' level of FCs is not the only factor that affects CFSC level; in fact, I&S has a negative effect. We add to this field of inquiry by extending these US-based findings on CFSC to a European context.

Second, we add to prior literature by investigating the relation between the family ownership structure and CFSC's determinant factors—a relation that has yet to be studied in the literature. This analysis is especially relevant to family firms' optimization decisions on their resources and cash holding policies.

Third, given its impact on firms' FC level, we investigate the effect of ownership concentration on family firms' CFSC level—another aspect that has yet to be addressed in the extant literature. We first examine the relation between absolute firm control in family firms and firms' CFSC level, and then we look at the relation between family firms with a secondary shareholder or shareholders without absolute ownership and the firms' CFSC level. This line of

inquiry is important because it focuses on all FC levels while taking into account the ownership structure, which may cause differences in firms' CFSC level.

Finally, to test our methodologies, we use panel data methodology to account for individual heterogeneity. This issue is particularly important when comparing family firms to non-family firms and when analyzing corporate investments and saving decisions. Given that every organizational structure is attached to a particular corporate behavior (Lee, 2004; McVey and Draho, 2005) that can manifest in the saving decision-making process, using panel data methodology allows us to control for individual heterogeneity and to eliminate the risk of obtaining biased results. Furthermore, we address the endogeneity problem that arises in our analysis by using the generalized method of moments (GMM and GMM4). We solve this problem by using instrumental variables. This contribution is noteworthy because failing to control for endogeneity, as in several previous studies, is likely to yield inconsistent estimates (Blundell, Bond, Devereux, and Schiantarelli, 1992; Florackis and Ozkan, 2009).

We divide our literature review and the development of our hypotheses into two parts: We first discuss CFSC and its relations with the family ownership structure from a macro perspective (Almeida et al., 2004), and then we address the same relations from the micro perspective (Riddick and Whited, 2009).[2] Although previous studies focus on the relation between firms and CFSC

[2] For the purpose of simplifying our explanations and hypotheses, we refer to Almeida et al.'s (2004) model as the macro perspective because it supports the idea that the CFSC level is affected by a macro variable, FCs. This variable has the most power in Almeida et al.'s (2004) model. We refer to Riddick and Whited's (2009) model as the micro perspective because, although there are other factors that affect the sensitivity relation, they argue that the micro variable, I&S, is the most powerful. In other words, we label the individual perspectives based on the most powerful factor of each model. Our aim is not to suggest that Riddick and Whited's (2009) model just has the effect of microeconomic factors on CFSC level or to compare the power of these two models.

levels, none consider the differences in the firm ownership structure (Almeida et al., 2004; Khurana et al., 2006; Lin, 2007; Riddick and Whited, 2009; Bao et al., 2012). Therefore, we examine the relation between ownership structure and CFSC level from two theoretical viewpoints to determine whether family firms, based on their unique characteristics, have a mitigating or aggravating effect on CFSC. We also determine whether family-controlled and non-family controlled firms exhibit different types of behaviors relative to the CFSC level.

The remainder of the chapter is structured as follows. Sections 2 and 3, respectively, describe the previous literature and construct our hypotheses in using a macroeconomic approach (Almeida et al., 2004) and a microeconomic approach (Riddick and Whited, 2009). Section 4 provides different models and variables based on our two CFSC perspectives, and Section 5 provides the data and estimation method that we employ in the analysis. Section 6 reports the results and discusses these findings in comparison with previous findings. Section 7 shows the main conclusions of this chapter, with a focus on the effect of the family ownership structure.

III.2. Macro Perspective

In this section, we analyze the CFSC of family firms from a macro perspective (Almeida et al., 2004). This model examines influence of the level of FCs on CFSC relative to the family ownership structure. Prior literature shows that the ownership structure affects firms' FC level, which then directly and differently affects firms' CFSC levels. For example, Andres (2011) finds that family ownership can mitigate firms' FCs. Villalonga and Amit (2006) show that when a firm has a dominant shareholder, its FCs increase and firms without a dominant shareholder but with a secondary shareholder or shareholders have fewer FCs than other firms (Maury and Pajuste, 2005).

We first analyze our whole European sample's CFSC level. Following the macro point of view (Almeida et al., 2004), FCs should positively affect firms' CFSC level. Subsequently, we focus on the relation between the ownership structure and CFSC. First, we determine the relation between family ownership and CFSC level. Second, we investigate the effect on CFSC level of having a dominant shareholder in a family firm. Finally, we determine the effect on CFSC level of family firms without a dominant shareholder but with a secondary shareholder or shareholders.

III.2.1. Sensitivity of the Cash Holding

Almeida et al. (2004) argue that CFSC level is a good signal for firms' level of FC. While noting the importance of the cost of holding cash, they emphasize that financially constrained firms, while having more cash, give up some of their current valuable investments. Financially constrained firms must balance the profitability of current and future investments in determining their optimal cash policy (Soenen, 1979; Cleary, 2006; Kadapakkam, Kumar, and Riddick, 1998). Thus, Almeida et al. argue that FCs have an important and positive effect on firms' CFSC level. In their model, FC is the only factor that affects firms' sensitivity level. Therefore, their results do not hold for financially unconstrained firms because unconstrained firms can fund their positive net present value investments and do not require cash, thus, they incur no costs for cash holdings.

We investigate the validity of Almeida et al.'s (2004) results using a macroeconomic framework for a sample of European firms. This sample differs from previous research and the other institutional frameworks because almost all prior literature on CFSC level uses samples of US firms. Thus, we state our first hypothesis:

H1: *CFSC values for whole sample are positive.*

Figure 1 illustrates the basic effects for the macro perspective. The figure shows that FCs have a positive effect on firms' level of CFSC. CFSC, represented by a vertical arrow, shows the relations between cash flow and cash holding. Given these results, we expect a positive CFSC for the macro perspective.

Figure III.1. The Sensitivity of Cash Holding (Macro Perspective)

Notes: Arrow thickness suggests size of the effect. Macro perspective = Almeida et al. (2004). FC = financial constraints. CF =cash flow. CH = cash holding. + = positive expectation.

III.2.2. Relation between Family Ownership and CFSC

Prior literature, especially before Andres (2011), traditionally considers family firms more financially constrained than non-family firms due to their unique characteristics. For instance, Petersen and Rajan (1992) argue that some family firms have larger information asymmetry levels. In addition, families can be reluctant to raise new equity because an increase in share capital dilutes families' equity stake and gradually undermines their controlling position. However, comparing family firms by size and dividend payout ratio, Andres shows that family firms are not more susceptible to external FCs. This study is highly noteworthy because it directly argues for a relation between firms' ownership structure and internal cash flows.

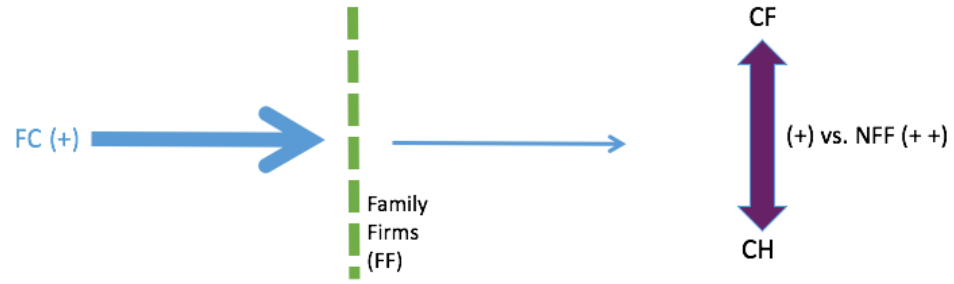
As abundantly evidenced in the finance literature, imperfections such as information asymmetries, agency problems, and transactions costs create FCs. These types of FCs can be

mitigated by family control, which reduces information asymmetries and conflicts of interests between managers and shareholders (i.e., Type I agency costs; Jensen and Meckling, 1976; Jensen, 1986; La Porta, Lopez-de-Silanes, and Shleifer, 1999; Claessens, Djankov, and Lang, 2000; Anderson, Mansi, and Reeb, 2003; Andres, 2008; Lamont, 1997; Del Brio, Perote, and Pindado, 2003; Aivazian, Ge, and Qiu, 2005; Bendickson et al., 2016). Thus, family-controlled firms are less dependent on internal funds when they make optimal savings decisions. As such, we state the following hypothesis from the macro perspective:

H2: *Family firms have lower CFSC than non-family firms.*

Figure 2 shows the filter effects of family ownership structure on FC for the macro perspective: Family ownership has a mitigating effect on firms' FC level. Thus, we expect a lower CFSC level for family firms relative to non-family firms.

Figure III.2. Relation between Family Ownership and CFSC (Macro Perspective)



Notes: Arrow thickness suggests size of the effect. Macro perspective = Almeida et al. (2004). FC = financial constraints. CF =cash flow. CH = cash holding. FF = family firms. NFF = non-family firms. + (+ +) = positive (highly positive) expectation.

III.2.3. Ownership Concentration Effect in Family Firms

Ownership concentration helps to mitigate the management problem (i.e., the free-rider problem) and owner–manager conflicts in firms (Shleifer and Vishny, 1986). However, dominant shareholders also have incentives to expropriate benefits from minority shareholders (Type II

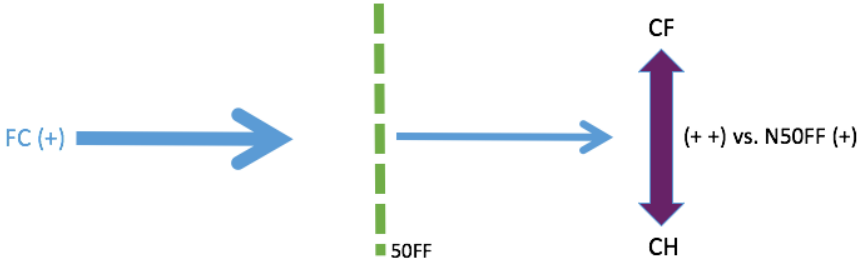
agency problem), which can create conflicts between the controlling family owners and minority shareholders (Shleifer and Vishny, 1986; Villalonga and Amit, 2006; Banerjee and Homroy, 2018). Therefore, high levels of ownership concentration can increase a firm's agency costs (Villalonga and Amit 2006; Renders and Gaeremynck, 2012), which can, in turn, influence FC and thus the CFSC level.

Because the macro perspective focuses on FC to determine firms' CFSC level, a priori, we expect a positive relation. However, we hypothesize that family firms with high ownership concentration have more FCs, due to Type II agency problems, compared to family firms with low ownership concentration. Given this discussion, we state the following hypothesis:

H3. *Family firms with a high concentration of ownership have higher CFCS, compared to family firms with a low concentration of ownership.*

Figure 3 shows the filter effects on FC for family firms based on the ownership concentration level (H3) from the macro perspective. The thickness of the arrows reflects the increased or decreased effect on firms' sensitivity level. Higher ownership concentration in family firms has a positive effect on firms' CFSC level due to the presence of a dominant shareholder. However, family firms without dominant shareholder only retain the effect of family ownership. Therefore, we expect a higher CFSC level for family firms with dominant shareholder.

Figure III.3. Ownership Concentration Effect in Family Firms (Macro Perspective)



Notes: Macro perspective = Almeida et al. (2004). FC = financial constraints. CF = cash flow. CH = cash holding. 50FF (N50FF) = family firms with (without) a dominant shareholder.

III.2.4. Second Shareholder Effect in Family Firms

In family firms without a dominant shareholder, the presence of a secondary shareholder or shareholders can affect the CFSC level. Secondary shareholders can take on three different of behaviors: passivity (i.e., take the same position as minority shareholders), monitor, or collude (Maury and Pajuste, 2005). We consider the monitoring and collusion effects of secondary shareholders on family-controlled firms' CFSC level. We do not consider passive secondary shareholders because they effectively have no active interest in the company's management (Maury and Pajuste, 2005).

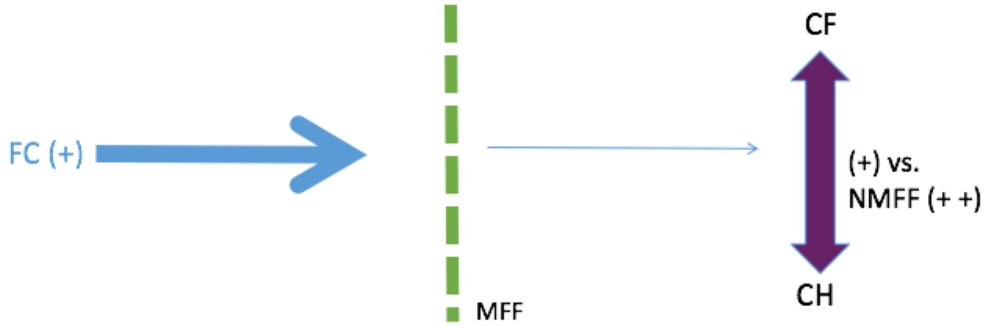
Family firms with a secondary large shareholder or shareholders with a motivation to collude function similarly to family-owned firms with a dominant shareholder. In both cases, the firm faces Type II agency costs between majority and minority shareholders. However, Maury and Pajuste (2005), Mazzi (2011), Dorra Ellouze (2015), and Cheng et al. (2017) report that firms with a secondary large shareholder or shareholders with a monitoring motivation outperform firms with shareholders with the motivation to collude. In this case, the lack of a dominant shareholder eliminates agency costs between majority and minority shareholders and reduces firms' external FCs.

We expect a positive relation between cash flow and cash holding when we adopt the macro perspective. However, given the previous discussion, we hypothesize that family firms with a secondary large shareholder or shareholders with a monitoring effect have less FCs than family firms with a secondary large shareholder or shareholders with a motivation to collude. Therefore, lower FCs translate to lower CFCS levels in family firms with a secondary large shareholder or shareholders with the monitoring effect. As such, we state the following hypothesis.

H4: *In family firms, having a secondary large shareholder or shareholders with a monitoring effect reduces the CFSC level.*

Figure 4 shows the different filter effects on FCs for family firms with a secondary shareholder or shareholders with a monitoring or collusion motivation from the macro perspective. Having a second shareholder or shareholders with a monitoring intention negatively affect their FCs. However, based on our previously stated rationale, family firms with a secondary shareholder or shareholders with the intention to collude only retain the first effect. Therefore, we expect a lower CFSC level for family firms with monitoring secondary shareholder or shareholders.

Figure III.4. Second Shareholder Effect in Family Firms (Macro Perspective)



Notes: Macro perspective = Almeida et al. (2004). FC = financial constraints. CF = cash flow. CH = cash holding. MFF (NMFF) = family firms with a second shareholder or shareholders with a monitoring (colluding) motivation.

III.3. Micro Perspective

Next, we use Riddick and Whited's (2009) perspective to analyze CFSC level's relation to family ownership structure from a microeconomic perspective. In this model, we discuss the effect of three factors on CFSC level: FCs, income uncertainty, and I&S. Riddick and Whited do not refute the positive relation between FCs and CFSC level but rather argue that FCs are not the only macroeconomic factor that should be considered; specifically, they include the effect of income uncertainty. Their model also includes I&S as a microeconomic factor that affects firms' CFSC level: The effect of I&S is negative, and the results from the micro perspective show that I&S has

the most powerful and decisive effect. This effect thus overcomes the positive CFSC level of the macro perspective to produce a negative relation.[3] In addition, the effect may be higher (i.e., more negative) for family firms, due to their superior financial performance relative to non-family firms (Villalonga and Amit, 2006).

Thus, we first analyze the CFSC level for our European sample, considering I&S as the determining factor. We then focus the relation of the family ownership structure to firms' CFSC level. Because of their unique characteristics, family firms have different levels of FC, income uncertainty, and I&S than their non-family counterparts, and these differences directly affect their CFSC levels.

III.3.1. The Sensitivity of the Cash Holding

As previously discussed, Riddick and Whited (2009) show that the CFSC level is negative for all firm types. They argue that the cash holding decision has a cost of carry and, consequently, presents firms with a dynamic trade-off decision: Accept the associated costs or reduce expected future financing. Firms must therefore prepare an optimal saving policy. Riddick and Whited emphasize that this decision depends not only on the cost of external finance but also on the firms' expected future financing needs.

However, Riddick and Whited (2009) argue that when positively serially correlated productivity shocks conditional on high shocks lead to more cash flow (income effect), capital becomes more productive, and the firm may decide to invest in physical assets (substitution effect) and dissaves. As such, they shed light on how firms decide between savings and investment.

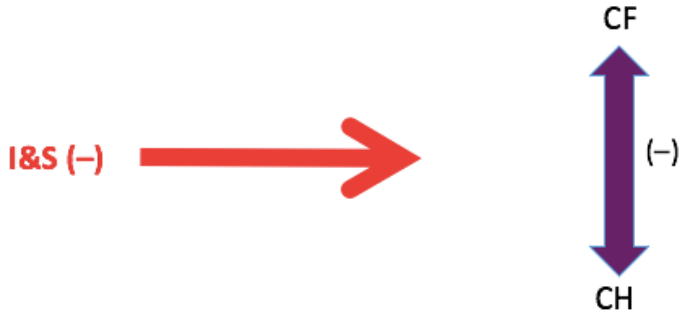
[3] Although Riddick and Whited (2009) also examine firms from Germany and France, the sample size for these firms is very small compared to their US sample data or to our European sample. As a result, we pay particular attention to their US sample results.

Riddick and Whited also discuss the calculation of the value of Tobin's Q in Almeida et al. (2004). Alternatively, they control the value of Tobin's Q and find that the effect of I&S, a microeconomic factor, negatively affects the level of CFSC. Given this discussion, we state the following hypothesis:

H5: *CFSC values for whole sample are negative.*

Figure 5 illustrates the basic effects for the micro perspective. The figure shows the negative effect of I&S on firms' CFSC level. CFSC, represented by a vertical arrow, shows the relations between cash flow and cash holding. Given these results, we expect a negative CFSC level based on the micro perspective.

Figure III.5. The Sensitivity of Cash Holding (Micro Perspective)



Notes: Arrow thickness suggests size of the effect. Micro perspective = Riddick and Whited (2009). I&S = income and substitution effects. CF =cash flow. CH = cash holding. – = negative expectation.

III.3.2. Relation between Family Ownership and CFSC

On the one hand, Riddick and Whited (2009) show that income uncertainty does not affect firms' savings less than FC. As frequently mentioned in the finance literature, family ownership has notable potential benefits, which may help to mitigate the uncertainties and imperfections of capital markets. Pindado, Requejo, and De La Torre (2011) adopt three approaches to explain these benefits: extended investment horizons, family control, and long-term presence. Family firms have

extended investment horizons due to the long-term presence of the family, which can positively affect firm value (James, 1999; McVey and Draho, 2005) and lead to more optimal investment levels for these firms (Morgado and Pindado, 2003). Considering the relation between the optimal saving and investment policies proposed by Riddick and Whited, we anticipate a positive relation between family firms' extended investment horizons and optimal saving policies, which can reduce uncertainty for family firms. Second, family control reduces FCs because family ownership mitigates agency costs between bondholders and shareholders (Anderson et al., 2003; see also Jensen and Meckling, 1976; Bendickson et al., 2016) and family firms have a lower cost of debt financing. Third, by examining whether a positive relation exists between long-term presence of shareholders in family firms and firms' earning quality, we consider lower information asymmetries between current and prospective investors. The long-term presence of a family shareholder and the concern for the family name's reputation leads to higher earnings quality (Wang, 2006), which can reduce uncertainty.

On the other hand, Riddick and Whited (2009) argue that positive productivity shocks affect firms' CFSC level. Several studies (Bao et al., 2012, among others) explain this concept by arguing that if a firm experiences positive serially correlated productivity shocks, conditional on a high shock, the firm's cash flow rises, its capital becomes more productive, and productivity reverts to its mean slowly. In this position, the firm may decide to shift some of its financial asset holdings into physical capital. In other words, it invests and reduces its savings. The amount of this reduction in savings is typically less than the firm's cash flow. This substitution between physical and financial assets has a negative effect on savings to cash flow. Conversely, a firm accumulates more liquid assets when capital productivity is low, and in this case, the firm distributes excess funds to shareholders. Related to this capital productivity reaction, the literature

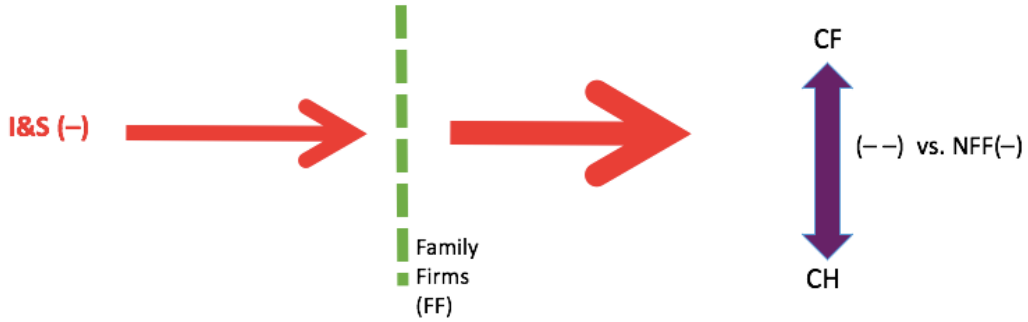
shows that family-controlled firms often outperform their non-family counterparts (Anderson and Reeb, 2003; Villalonga and Amit, 2006; Maury, 2006; Barontini and Caprio, 2006). Therefore, we expect that the better performance of family firms is related these firms' greater financial potential when positive productivity shocks occur.

Given the negative effect of I&S on firms' CFSC level as emphasized by the micro perspective, family ownership has an exacerbating effect on I&S. Thus, our sensitivity expectation is negative for the full sample but less negative for non-family firms, which do not have the filter effect of family ownership. As we previously noted, compare to non-family firms, family firms have higher I&S, causing an increased negative effect on family firms' CFSC level. Thus, the negative effect of higher I&S should more severely affect family firms' CFSC level, relative to non-family firms' CFSC level. Thus, we expect lower CFSC level for family firms than non-family firms. As such, we state our hypothesis:

H6: *Family firms have lower CFSC than non-family firms.*

Figure 6 shows the filter effects of family ownership structure on I&S from the micro perspective. Having a family ownership has an exacerbating effect on firms' I&S level. Thus, for family firms, we expect a lower CFSC level than for non-family firms.

Figure III.6. Relation between Family Ownership and CFSC (Micro Perspective)



Notes: Arrow thickness suggests size of the effect. Micro perspective = Riddick and Whited (2009). I&S = income and substitution effects. CF =cash flow. CH = cash holding. FF = family firms. NFF = non-family firms. – (– –)= negative (highly negative) expectation.

III.4. Models and Variables

To test our hypotheses, we propose a model that examines the sensitivity issue from two theoretical perspectives: macro and micro. Although both perspectives measure the dependent variable as the variation of cash holdings, the macro perspective has more control variables (i.e., firm size, net working capital, short-term debt level, capital expenditure) than the micro perspective. The way in which Tobin's Q is measured also separates these perspectives: According to the macro perspective, Tobin's Q reflects the macroeconomic factors' effect on firms' CFSC level whereas the micro perspective's primary focuses is on the effects of microeconomic factors. Riddick and Whited (2009) argue that Tobin's Q as an explanatory variable has a measuring error. Conversely, Almeida et al. (2004) find that the trade-off (induced by positive productivity shocks) between firms' saving and investment decision has a different effect on Tobin's Q. Specifically, they argue that Tobin's Q is positively correlated with cash flow and thus may affect the signs of the other explanatory variables. Information about future investment opportunities contained in cash flow leads to a positive correlation between Tobin's Q and cash flow. They therefore correct for the bias induced by Tobin's Q measuring error using GMM4 estimation and find a negative CFSC.

Whereas our macro perspective follows from Almeida et al.'s (2004), we also advance Riddick and Whited's (2009) perspective by including several control variables, as suggested by Almeida et al. Thus, for both perspectives, we use a size variable (SIZE) to mitigate the economies of scale in cash savings. Although the two perspectives measure it differently, they explain the signification of Tobin's Q in the same way: The market-to-book ratio (Q) accounts for future investment opportunities because such opportunities can affect a firm's incentive to hold cash. We include capital expenditure (EXP) and acquisition activity (ACQ) because investments and acquisitions reduce a firm's cash holdings. Net noncash working capital (WC) acts as a substitute

for cash. Thus, we use ΔWC to control for the effect of net working capital. Short-term debt at the beginning of the year indicates possible cash outflow during the year, which either draws out cash or increases managers' incentives to save more cash. Therefore, we include the variable short-term debt (STD). In line with the literature, we also include year and country dummy variables for the macro perspective and year and sector dummy variables for the micro perspective.

We first investigate our hypotheses about the validity of the results of the macro and micro perspectives for a sample of European firms. This sample differs from the US sample of previous studies because European firms, in general, hold much more cash than the US firms (Dittmar et al., 2003). Drobetz and Grüninger (2007) find that the median Swiss firm holds almost twice as much cash and cash equivalents as the median US firm. Our basic model is

$$\Delta CH_{it} = \alpha_1 + \alpha_2 CF_{it} + \alpha_3 Q_{it} + \alpha_4 SIZE_{it} + \alpha_5 EXP_{it} + \alpha_6 ACQ_{it} + \alpha_7 \Delta WC_{it} + \alpha_8 STD_{it-1} + \varepsilon_{it},$$

where CH is the ratio of holdings of cash to total asset; ΔCH is cash in year *t* minus cash in year *t*−1 divided by total assets; CF is measured by earnings before extraordinary items and depreciation divided by total assets; Q in the macro (micro) model is the market value of equity divided by the book value of total assets (sum of the market value of equity and total book assets minus the book value of equity divided by total book assets)[4]; SIZE is the natural log of total assets; EXP is capital expenditures divided by total assets; ACQ is an indicator variable that equals 1 if the firm makes an acquisition in that year, and zero otherwise; WC is net noncash working capital (i.e., working capital minus cash) divided by total assets; ΔWC is WC in year *t* minus WC in year *t*–1; *STD is*

[4] As a robustness test, we also calculate the macro perspective's Tobin's Q following Riddick and Whited (2009) and Lozano et al. (2016) and obtain similar results. To save space, we do not report these findings, but they are available on request.

short-term debt divided by total assets; and ε is a random error term. We expect $\alpha_2 > 0$ ($\alpha_2 < 0$) for H1 (H5).

We test H2 and H6 using subsamples of family and nonfamily firms for both the macro and micro perspectives to determine whether family firms have lower CFSC than non-family firms. The motivation of the lower level of CFSC for family firms in H2 is having lower FCs. In H6, a lower level of the sensitivity is caused by the effects of lower level of FCs, lower level of income uncertainty, and especially the effect of higher level of I&S. The model is

$$\Delta CH_{it} = \alpha_1 + (\alpha_2 + \beta_1 F_{it})\, CF_{it} + \alpha_3 F_{it} + \alpha_4 Q_{it} + \alpha_5 SIZE_{it} + \alpha_6 EXP_{it} + \alpha_7 ACQ_{it} + \alpha_8 \Delta WC_{it} + \alpha_9 STD_{it-1} + \varepsilon_{it},$$

where F_{it} is a family dummy variable that equals 1 if the firm is family owned, and zero otherwise. The model also includes the interaction between cash flow and the family dummy. Hence, for non-family firms ($F_{it} = 0$), the effect of cash flow on cash is α_1; for family firms ($F_{it} = 1$), the effect of cash flow on cash is $(\alpha_2 + \beta_1)$. According to our hypotheses, we expect $(\alpha_2 + \beta_1) < \alpha_2$ for both H2 and H6.

H3 focuses on the relation between family firms' ownership concentration and CFSC. Here, we analyze the effect of FCs. Using the macro perspective, we expect the positive effect of FCs to change in intensity based on firms' ownership concentration level.

First, we examine the effects of having a dominant shareholder (H3). The model is

$$\Delta CH_{it} = \alpha_1 + (\alpha_2 + \delta_1 50F_{it} + \omega_1 N50F_{it})\, CF_{it} + \alpha_3 F_{it} + \alpha_4 Q_{it} + \alpha_5 SIZE_{it} + \alpha_6 EXP_{it} + \alpha_7 ACQ_{it} + \alpha_8 \Delta WC_{it} + \alpha_9 STD_{it-1} + \varepsilon_{it},$$

where $50F_{it}$ ($N50F_{it}$) is a dummy variable for family firms that equals 1 if the main shareholder holds at least (less than) 51% of the firm's shares (Maury and Pajuste, 2005), and zero otherwise. If the family firm has a shareholder with clear control, the effect of cash flow on corporate cash holding is $(\alpha_2 + \delta_1)$. If a dominant shareholder is absent, this value is $(\alpha_2 + \omega_1)$ and measures the influence of cash flows on corporate cash policy for non-family firms. In line with H3, we expect $(\alpha_2 + \delta_1) > (\alpha_2 + \omega_1)$.

In H4, we investigate the effects of a second largest shareholder or shareholders with monitoring tendency on CFSC level in family firms. The subject of our analysis is again FCs. According to the macro perspective, we expect a lower CFSC level for family firms with a second largest shareholder or shareholders with monitoring tendency. The model is

$$\Delta CH_{it} = \alpha_1 + (\alpha_2 + \gamma_1 MF_{it} + \theta_1 NMF_{it})\, CF_{it} + \alpha_3 F_{it} + \alpha_4 Q_{it} + \alpha_5 SIZE_{it} + \alpha_6 EXP_{it} + \alpha_7 ACQ_{it} + \alpha_8 \Delta WC_{it} + \alpha_9 STD_{it-1} + \varepsilon_{it}$$

where MF_{it} (NMF_{it}), equals 1 for family firms with a secondary shareholder or shareholders with an intention to monitor (collude), and zero otherwise. As previously discussed, we base our definition of these dummies on firms' ownership structure. When shareholders have an interest in the company, a trade-off exists between their motivation to collude and their motivation to monitor (Maury and Pajuste, 2005; Cheng et al., 2017). Thus, we use two conditions to define collusion (NMF_{it}): (a) a largest shareholder with a share proportion between 10% and 50% and (b) first and second shareholders with a sum of share proportions equal to or greater than 50%. Firms are identified as having a monitoring secondary shareholder or shareholders (MF_{it}) if they do not meet the second definition for collusion. $(\alpha_2 + \gamma_1)$ measures the influence of cash flow on cash holdings for family firms with a secondary large shareholder or shareholders with a monitoring tendency,

and $(\alpha_2 + \theta_1)$ determines the relation between cash flow and cash holdings for family firms with a secondary large shareholder or shareholders but with a collusion tendency. α_2 determines which type of relation exists between cash flow and the cash policy for non-family companies. In line with H4, we expect $(\alpha_2 + \gamma_1) < (\alpha_2 + \theta_1)$.

III.5. Data and Estimation Method

We use two data sources to test our hypotheses. First, we collect financial and stock data from the Worldscope database. Second, we extract the ownership structure information necessary to define family control from AMADEUS, a database produced by Bureau van Dijk. We use a sample of publicly traded companies from nine European countries: Austria, Belgium, Finland, France, Germany, Ireland, Italy, Portugal, and Spain. We omit the United Kingdom from the sample because firms with family control are least prevalent in this country (Faccio and Lang, 2002; Pindado et al., 2011). We also exclude financial companies (SIC codes 6000–6999) and regulated public utilities (SIC codes 4812, 4813, 4900–4999, 2830–2833) because government regulation potentially affects the firm equity ownership structure. We also eliminate firm-year observations with missing values for our variables of interest, observations where the value of the variable has measurement problems, and observations that are clearly outliers. Finally, we eliminate firms with less than five consecutive years of data because the estimation method used (GMM) requires at least five consecutive years of data to account for the individual unobservable heterogeneity and the endogeneity problems. The time period for our analysis is from 2000 to 2009. As a result, we obtain an unbalanced panel of 670 companies with 5,723 observations.

Prior literature provides no commonly acknowledged definition of family firm that allows the construction of a shared framework that integrates the different disciplinary approaches

(Chrisman, Chua, and Sharma, 2005; Cronqvist and Nilsson, 2003). Therefore, we follow Franks, Mayer, Volpin, and Wagner (2011), who define a firm as a family controlled if an individual is the largest shareholder; if a family member, including the largest shareholder, serves on the board of directors; or if the sum of the family group ownership is equal to or greater than 25%.[5]

Table 1 provides the distribution of the sample by country, considering the family effect and the distribution of the family sample by ownership concentration type, depending on the percentage held by the primary and secondary shareholders. Panel A presents the number and percentage of firms and observations based on countries. Panel B presents the values of distribution of the same sample, differentiating between constrained and unconstrained family and non-family firms. To define FC, we follow Almeida et al. (2004) and Bao et al. (2012) and use Whited and Wu's (2006) index; see Appendix B for details about the Whited and Wu index. About 42.91% of the observations included in the sample are under family control. For the full sample, 17% are defined as financially constrained. Panel C provides information on family firms' ownership concentration based on country. In all, 54.76% of the sample observations have a dominant shareholder. Non-family firms have 36.63% more observations than family firms that favor monitoring. This difference is likely explained by families' unwillingness to share control of the firm with anyone outside the family.

[5] As a robustness test, we use a 20% threshold and obtain similar results (Faccio and Lang, 2002). To save space, we do not report the results, which are available on request.

Table III.1: Distribution of the Sample by Country and Ownership Structure

This table provides the distribution of sample by country and ownership structure. The sample firms include non-financial firms from 2000 to 2009. Panel A provides the distribution of full sample by country. Panel B shows the distribution of the sample considering the constraint effect by ownership concentration. A firm is considered as family controlled if the largest shareholder is an individual and a member of his or her family is present in the board of directors, including him or her, or if the sum of the family group ownership is 25% or more. We use the Whited and Wu (2006) Index to determine whether firms are constrained (see Appendix B for details about Whited and Wu index). Panel C shows the distribution of the family firm sample by ownership concentration. The shareholder is a dominant if he or she has at least 51% of firm's shares. We group family firms by two rules: first, firms in which shareholders who have at least 20% of all shares, and, second, firms in which the largest shareholder has between 10% and 50% of all shares. If the sum of these shareholders' stake is equal to or more than 50% of all shares, the shareholders' motivation is defined as collusion. Otherwise, a monitoring relation exists between these shareholders.

Panel A: Distribution of the full sample by country

Country	Nº Firms	% Firms	Nº Obs.	% Obs.
Austria	18	2,69	143	2,50
Belgium	35	5,22	298	5,21
Finland	58	8,66	532	9,30
France	249	37,16	3232	40,75
Germany	160	23,88	1337	23,36
Ireland	17	2,54	133	2,32
Italy	78	11,64	465	8,13
Portugal	13	1,94	105	1,83
Spain	42	6,27	378	6,60
TOTAL	670	100,00	5723	100,00

Panel B: Distribution of the sample considering the constraint effect by ownership structure

	Family Firms				Non-family Firms			
Type of Firm	**Constrained**		**Not Constrained**		**Constrained**		**Not Constrained**	
Country	**Nº Obs.**	**% Obs.**	**Nº Obs.**	**% Obs.**	**Nº Obs.**	**% Obs.**	**Nº Obs.**	**% Obs.**
Austria	2	0.38	17	0.88	14	3.13	110	3.90
Belgium	7	1.33	29	1.50	36	8.05	226	8.02
Finland	29	5.51	145	7.51	26	5.82	332	11.78
France	326	61.98	974	50.44	165	36.91	867	30.76
Germany	114	21.67	401	20.77	160	35.79	662	23.48
Ireland	8	1.52	28	1.45	13	2.91	84	2.98
Italy	12	2.28	191	9.89	20	4.47	242	8.58
Portugal	0	0.00	17	0.88	4	0.89	84	2.98
Spain	28	5.32	129	6.68	9	2.01	212	7.52
TOTAL	526	100.00	1931	100.00	447	100.00	2819	100.00

Panel C: Distribution of the family firm sample by ownership concentration: Dominant Shareholder and Second Shareholder or shareholders with Monitoring Tendency

Concentration type	Dominant Shareholder				Monitoring Tendency			
	Family Firms		Non-family Firms		Family Firms		Non-Family Firms	
Country	**Nº Obs.**	**%Obs.**	**Nº Obs.**	**%Obs.**	**Nº Obs.**	**%Obs.**	**Nº Obs.**	**%Obs.**
Austria	14	1.05	88	4.88	4	0.48	34	3.04
Belgium	19	1.43	167	9.26	9	1.09	82	7.33
Finland	31	2.33	88	4.88	112	13.51	198	17.69
France	783	58.83	657	36.44	370	44.63	283	25.29
Germany	332	24.94	540	29.95	145	17.49	202	18.05
Ireland	6	0.45	13	0.72	24	2.90	59	5.27
Italy	108	8.11	154	8.54	64	7.77	82	7.33
Portugal	9	0.68	40	2.22	2	0.24	42	3.75
Spain	29	2.18	56	3.11	99	11.64	137	12.24
TOTAL	1331	100.00	1803	100.00	829	100.00	1119	100.00

We employ panel data methodology in our models using the econometric program STATA for the different estimations. We select this methodology to avoid obtaining biased estimates due to unobservable heterogeneity and the potential endogeneity of the variables. Regarding the first problem, every company has certain characteristics such as strategy and corporate culture that remain constant over time but are unobservable to the researcher (Chi, 2005) and may affect the relation between firms' cash flow and cash policy. We control for the individual heterogeneity by modeling it as a firm-specific effect, η_i, which is then eliminated by taking the first differences of the variables. Consequently, the error term in our models, ε_{it}, is split into four different components. The first component is the individual or firm-specific effect, η_i. The second component, d_i, measures the time-specific effect with the corresponding time dummy variables so that we can control for the effect of macroeconomic variables on investment. The third component, c_i, consists of country dummy variables that control for country-specific effects. Finally, v_{it}, is the random disturbance.

For the macro perspective (Almeida et al., 2004), we use the GMM estimator because it embeds all other instrumental variable methods as special cases (Ogaki, 1993, Munjal et al., 2018). In addition, the GMM is particularly suitable for our study given the dynamic nature of the cash holding policy. Prior studies show that in the context of dynamic models several estimation techniques lead to biased estimates (Pindado et al., 2011). Consequently, to avoid the endogeneity problem, we use all the right-hand side variables in the models lagged from t–1 to t–4 (t–2 to t–5 for the lag of short-term debt) as instruments for the equations in differences and only one instrument for the equations in levels, as suggested by Blundell and Bond (1998), when deriving the system estimator.

For the micro perspective (Riddick and Whited, 2009), we use an instrumental variable method to control for the possible endogeneity problem, and follow the GMM4 of Erickson and Whited (2000) and Erickson and Whited (2012) using the "xtewreg" command of STATA.[6] Following their suggestions, we demeaned our data before using their methodology. In addition, we use time and industry dummies.

After we have estimated the model from the macro perspective, we conduct several specification tests. First, we run the Hansen contrast, which tests the lack of correlation between the instruments and the random disturbance. Second, we run the m_2 test, derived by Arellano and Bond (1991), which tests the lack of second order serial correlation of the first differenced residuals. Finally, we run three Wald tests to check for the joint significance of reported coefficients, temporal variables, and country variables. For the results from micro perspective, we use τ square as an index of measurement quality for Q that varies between zero and 1.

[6] As a robustness test, we run ordinary least squares models for all hypotheses. Our results are similar. To save space, we do not report the results, but they are available on request.

III.6. Results

Table 2 shows the main summary statistics including observation, mean, standard deviation, minimum and maximum of the variables for our models, and the correlations between them. Panel A provides the summary statistics. In this panel, the number of observations for variable (ΔCH_{it}) is different from the rest. This variable loses observations because the variable ΔCH has a variation effect between the years *t* and *t*–1. Panel B reports the correlation matrix. Our explanatory variables are not highly correlated, which means our model does not suffer from multicollinearity problems.

Table III.2: Summary Statistics for the Full Sample

This table provides summary statistics for the full sample. The sample firms include nonfinancial firms during 2000 to 2009. Panel A provides summary statistics, Panel B provides the correlation values between variables, Panel C differentiate between family and non-family business, and Panel D accounting for different family firm categories. The variable ΔCH is the difference in cash between the years *t* and year *t*−1 divided by total assets, CH the ratio of holding of cash to total assets, CF is earnings before extraordinary items and depreciation (EBEID) divided by total assets, Q is the sum of the market value of equity and total book assets minus the book value of equity divided by book assets divided by total book assets, SIZE is the natural log of assets, EXP is capital expenditures divided by total assets, WC net noncash working capital (working capital minus cash) divided by total assets, STD short-term debt divided by total asset. ***, **, and * indicate significance levels of 0.01, 0.05, and 0.10, respectively.

Panel A: Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ΔCH	4973	–0.006	0.057	–0.505	0.521
CH	5723	0.073	0.080	0.000	0.743
CF	5723	0.061	0.097	–1.594	2.122
Q	5723	1.424	0.857	0.401	10.483
SIZE	5723	6.376	2.038	1.098	12.826
WC	5723	0.088	0.172	–0.506	0.789
EXP	5723	0.054	0.052	0.000	0.610
STD	5723	0.117	0.119	0.000	0.607

Panel B: Correlation matrix

	ΔCH	*CH*	*CF*	*Q*	*SIZE*	*NWC*	*EXP*	*STD*
ΔCH	1.000							
CH	0.405***	1.000						
CF	0.150***	–0.028**	1.000					
Q	0.077***	0.180***	0.217***	1.000				
SIZE	0.000	–0.202***	0.109***	–0.057	1.000			
WC	–0.087***	–0.050***	0.105***	–0.001	–0.296***	1.000		

EXP	–0.027***	–0.103***	0.181***	–0,056	0.054***	–0.143***	1.000	
STD	–0.059***	–0.213***	–0.355***	–0.345	0.002	–0.271***	0.025*	1.000

Panel C: Family firms versus non-family firms

Variable	**All**	**Family**	**Non-family**	***t*-stat** (2)–(3)
No. Obs.	5723	2457	3266	
ΔCH	0.006	0.008	0.005	–2.151**
CH	0.073	0.081	0.067	–6.466***
CF	0.061	0.063	0.060	–0.935
Q	1.424	1.490	1.373	–5.004***
SIZE	6.376	5.750	6.847	21.191***
WC	0.088	0.104	0.076	–6.007***
EXP	0.054	0.051	0.056	3.821***
STD	0.117	0.120	0.114	–1.600

Panel D: Accounting for different family firm categories

Variable	**50FD**	**N50FD**	**Non-family**	***t*-stat** (1)-(2)	***t*-stat** (1)-(3)	***t*-stat** (2)-(3)
	(1)	(2)	(3)	(4)	(5)	(6)
No. Obs.	1331	1126	3266			
ΔCH	0.009	0.007	0.005	–0.593	–1.251	–2.098**
CH	0.082	0.079	0.067	–0.946*	–5.438***	–4.566***
CF	0.066	0.058	0.060	–1.826*	–1.915*	0.475*
Q	1.504	1.474	1.373	–0.791	–4.469***	–3.266***
SIZE	5.691	5.818	6.847	1.679*	18.498***	15.685***
WC	0.113	0.094	0.076	–2.515***	–6.220***	–3.041***
EXP	0.050	0.051	0.056	–0.366	3.380***	2.679***
STD	0.121	0.118	0.114	–0.692	–1.623*	–0.793

Panels C and D of Table 2 report the means tests for all variables. Panel C differentiates between family and non-family firms, and Panel D splits the sample of family firms in two groups depending on the existence of a dominant shareholder in the family; 50FD represents family firms with dominant shareholder, and N50FD represents all other family firms. The *t*-statistics in column 4 of Panel C show that family firms are differ from their non-family counterparts in several aspects. For instance, consistent with Rouyer (2016), family-controlled firms are smaller and prefer cash

holdings more than non-family firms in our sample. Also, as indicated by the results of Tobin's *q*, they have more investment opportunities than their non-family counterparts.

The most interesting result of Table 2, Panel D, is the heterogeneous relation between the family firm subsamples (see the *t*-statistics in column 4). No statistically significant difference exists for Tobin's *q*, but the results show that family firms with a dominant shareholder have more cash, more cash flow, and are slightly smaller than the family firms without a dominant shareholder. The other *t*-statistics reported in Panel D (columns 5 and 6) compare the two family firm subsamples with non-family firms. Family firms with a dominant shareholder and non-family firms have significantly different characteristics (e.g., cash holding, Tobin's *q*); the relation between family firms without a dominant shareholder and non-family firms is less marked (e.g., cash flow).

III.6.1. Results for the Macro Perspective

Table 3 presents the results from the estimation of the four models as previously defined for the macro perspective. Models 1 to 4 represent H1 to H4, respectively.

Table III.3: Macro Perspective Regression Results

The models are estimated using the GMM estimator. The sample firms include nonfinancial firms during 2000 to 2009. The variable ΔCH is the difference in cash between the years *t* and year *t*−1 divided by total assets, CH the ratio of holding of cash to total assets, CF is earnings before extraordinary items and depreciation (EBEID) divided by total assets, F is a family dummy variable that is one for family firms and zero otherwise, F*CF is the multiple effect with family dummy and CF, 50F*CF is the multiple effect with dominant shareholder family dummy and CF, N50F*CF is the multiple effect with no dominant shareholder family dummy and CF, MF*CF is the multiple effect with second shareholder's monitoring tendency family dummy and CF, NMF*CF is the multiple effect with second shareholder's colluding tendency family dummy and CF, Q is the sum of the market value of equity and market value of debt divided by total assets, SIZE is the natural log of assets, EXP is capital expenditures divided by total assets, ACQ is an indicator variable that equals 1 if the firm makes an acquisition in that year, and zero otherwise, WC is net noncash working capital (working capital minus cash) divided by total assets, ΔWC is WC in year t minus WC in year t–1, L1.STD short-term debt divided by total asset with one year lagged. z_1 is a Wald test of the joint significance of the reported coefficients, asymptotically distributed as χ^2 under the null of no relationship, degrees of freedom in parentheses; z_2 is a Wald test of the joint significance of the time dummies, asymptotically distributed as χ^2 under the null of no relationship, degrees of freedom in parentheses; z_3 is a Wald test of the joint significance of the country dummies, asymptotically distributed as χ^2 under the null of no relationship, degrees of freedom in parentheses; m_i is a serial correlation test of order *i* using residuals in first differences, asymptotically distributed as N(0,1) under the null of no serial correlation; and Hansen is a test of the overidentifying restrictions, asymptotically distributed as X^2 under the null of no correlation between the instruments and the error term; the degrees of freedom are in parenthesis. ***, **, and * indicate significance levels of 0.01, 0.05, and 0.10, respectively.

Dependent = ΔCash Holdings

	Model 1		Model 2		Model 3		Model 4	
	Coef.	*t*-value	Coef.	*t*-value	Coef.	*t*-value	Coef.	*t*-value
Constant	–0.022***	–3,75	–0.044***	–7.24	–0.038***	–6.99	–0.031***	–5.97
CF	0.204***	24.71	0.244***	23.40	0.256***	28.35	0.225***	25.76
F*CF			–0.057***	–3.83				
50F*CF					–0.080***	–5.81		
N50F*CF					–0.083***	–6.33		
MF*CF							–0.057***	–4.59
NMF*CF							–0.047***	–3.44
F			0.006***	6.28	0.009***	6.92	0.005***	6.14
Q	0.006***	6.37	0.005***	5.51	0.005***	6.36	0.004***	5.44
SIZE	0.003***	3.96	0.003***	4.67	0.002***	3.95	0.002***	2.79
EXP	–0.135***	–7.83	–0.132***	–7.38	–0.129***	–8.17	–0.114***	–7.22
ACQ	–0.007***	–5.48	–0.008***	–6.02	–0.007***	–5.91	–0.006***	–4.61
ΔNCWC	–0.209***	–25.76	–0.206***	–26.40	–0.210***	–29.82	–0.205***	–28.68
L1.STD	0.033***	4.23	0.039***	5.02	0.034***	4.66	0.034***	5.10
N	4,973		4,973		4,973		4,973	
z_1	166.28 (7)		151.71 (9)		177.90 (10)		140.85 (10)	
z_2	18.62 (7)		16.85 (7)		22.33 (7)		21.84 (7)	
z_3	5.49 (8)		8.87 (8)		8.00 (8)		8.84 (8)	
m_1	–7.88		–7.87		–7.90		–7.88	
m_2	1.11		1.12		1.12		1.08	
Hansen	300.25(252)		308.33 (261)		345.37 (298)		340.59 (298)	

Model 1 of Table 3 shows the results of GMM estimation for full our sample. These results support the findings of Almeida et al. (2004). The effect of cash flow on cash holdings (ΔCH) is positive ($\alpha_2 = 0.204$, significant at the 1% level) for our whole sample.[7] In other words, our European sample reacts in a similar manner to cash sensitivity as Almeida et al.'s US sample. These results support H1 because the sign of the relation between cash and cash flow is positive.

Model 2 of Table 3 shows that the effect of cash flow on cash holdings (ΔCH) is positive ($\alpha_2 = 0.244$, significant at the 1% level) for non-family firms. This result is not surprising as we apply a similar technique to that of Almeida et al. (2004), who find a positive relation (for statistically significant variables) between the variables cash flow and cash holding. Consistent with our expectations, a positive relation exists for both family and non-family firms. However, the positive effect of cash flow on cash holdings (ΔCH) is weaker for family firms ($\alpha_2 + \beta_1 = 0.187$, significant at the 1% level) than non-family firms ($\alpha_2 = 0.244$). Therefore, although cash flow continues to have a positive and significant effect in family firms, the effect is lower in comparison to their non-family counterparts. This result supports H2. As predicted, family ownership structure has negative impact on CFSC, and family ownership decreases firms' agency costs (Andres, 2008). In addition, following from Almeida et al., who find that higher CFSC means increased FCs, these results provide evidence that family firms are financially less constrained than non-family firms.

[7] We also test the reactions of the financially constrained and unconstrained firms on CFSC level. Our results partly support Almeida et al. (2004): Financially constrained firms have a higher CFSC level than financially unconstrained firms. We only report the results for the whole sample results to be consistent with H1. However, the results of financially constrained firms are available on request.

H3 examines the influence of having a large shareholder with a high concentration of ownership on CFSC level in family firms. Model 3 of Table 3 shows that the effect of having absolute ownership in family firms on CFSC level ($\alpha_2 + \delta_1 = 0.256 - 0.080 = 0.176$, significant at the 1% level) is higher than the effect of having a shareholder without absolute control ($\alpha_2 + \omega_1 \delta_1 = 0.256 - 0.083 = 0.173$, significant at the 1% level). Although the effects are different, cash flow still continues to have a positive and significant effect for both family and non-family firms. This result supports H3: Having a large shareholder or shareholders with a high ownership concentration in family firms creates more agency costs because dominant shareholders have incentives to expropriate benefits from minority shareholders, which can cause conflicts between the controlling family and minority shareholders (Shleifer and Vishny, 1986; Dittmar et al., 2003; Villalonga and Amit, 2006).

Model 4 of Table 3 shows the results for H4, which addresses the influence of a monitoring or collusion motivation by a secondary stockholder or stockholders on the CFSC level of family firms. The monitoring effect of secondary stockholder or shareholders on CFSC level ($\alpha_2 + \gamma_1 = 0.225 - 0.057 = 0.168$, significant at the 1% level) is weaker than the collusion effect for the same group of secondary stockholders ($\alpha_2 + \theta_1 = 0.225 - 0.047 = 0.178$, significant at the 1% level). Similar to the other two hypotheses, the sign of the effects of cash flow on cash holdings (ΔCH) is positive. This result verifies H4. As previously discussed, two explanations can account for this result. Firms with a secondary large shareholder or shareholders with a monitoring motivation, in general, have better firm performance than those with a secondary large shareholder or shareholders with a motivation to collude (Maury and Pajuste, 2005; Mazzi, 2011). Alternatively, large shareholders may

share in the mission with the controlling the family and thus can help the family to stay away from value-destroying projects (Bao et al., 2012).

III.6.2. Results for the Micro Perspective

Table 4 shows the results from the estimation of the two models as previously defined with the methodology of Riddick and Whited (2009). Model 5 shows the result of basic estimation of Riddick and Whited for our European sample. These results do not confirm H5: Contrary to our expectation, the effect of cash flow on cash holdings (ΔCH) is positive ($\alpha_2 = 0.091$, significant at the 1% level) for the whole sample. European firms' sensitivity reaction for the micro perspective is similar to the reaction for the macro perspective. In other words, we do not find negative effects of I&S for the whole sample using the micro perspective.

We consider possible explanations for these results. First, US firms generally have less cash holding than European firms (Dittmar et al., 2003), which may affect firms' I&S and CFSC levels. European firms may hold more cash because they have higher income uncertainty, which may positively affect the CFSC level of our European sample. Second, previous works that report negative CFSC level results (Bao et al., 2011; Riddick and Whited, 2009) use US data up to 2006 and thus do not consider the effect of the 2007–2009 financial crisis. Ayaydin et al. (2014) find that economic and financial crises represent clear exogenous shocks to firms' profitability, cash holding level, and cash flows. Thus, European firms, which, in general, have a propensity to hold more cash than US firms, may have acted with particular caution in the postcrisis years by increasing their cash holdings. As a result, their CFSC level is positive. The overcautiousness and financial crisis explanations are consistent with Riddick and Whited's explanation for the low levels of productivity shocks.

They argue that when the firms face low levels of productivity shocks, they distribute excess funds to shareholders because investing benefits cannot exceed the cost of issuance. Moreover, we find serial negative productivity shocks for the firms during crisis years, which likely caused CFSC to be positive. In Appendix A we divide our sample between precrisis (2000–2006) and crisis (2007–2009) periods and find that firms hold much more cash in the crisis period; our sensitivity results for the precrisis period are statistically nonsignificant. In conclusion, the firms experience negative productivity shocks and react in an overcautiously manner and thus do not distribute cash.

Table III.4: Micro Perspective Regression Results

The models are estimated using the GMM4 estimator. The sample firms include nonfinancial firms during 2000 to 2009. The variable ΔCH is the difference in cash between the years *t* and year *t*−1 divided by total assets, CH the ratio of holding of cash to total assets, CF is earnings before extraordinary items and depreciation (EBEID) divided by total assets, F is a family dummy variable that is one for family firms, and zero otherwise, F*CF is the multiple effect with family dummy and CF, Q is the sum of the market value of equity and total book assets minus the book value of equity divided by book assets divided by total book assets, SIZE is the natural log of assets, EXP is capital expenditures divided by total assets, ACQ is an indicator variable that equals 1 if the firm makes an acquisition in that year, and zero otherwise, WC is net noncash working capital (working capital minus cash) divided by total assets, ΔWC is WC in year t minus WC in year t–1, L1.STD short-term debt divided by total asset with one year lagged. τ square is an index of measurement quality for Q that varies between zero and one; the degrees of freedom are in parenthesis. ***, **, and * indicate significance levels of 0.01, 0.05, and 0.10, respectively.

	Model 5		Model 6	
	Coef.	*t*-value	Coef.	*t*-value
Constant	–0.074***	–3.53	–0.073***	–3.37
CF	0.091***	2.66	0.119***	2.67
F*CF			–0.061	–1.34
F			–0.001	–0.18
Q	0.061***	4.10	0.061***	3.91
SIZE	0.023***	4.05	0.023***	4.03
EXP	–0.185***	–5.77	–0.182***	–5.71
ACQ	–0.007**	–2.43	–0.007**	–2.45
ΔWC	–0.242***	–11.62	–0.242***	–11.64
L1.STD	0.120***	7.70	0.120***	7.61
N	4973		4973	
R Square	0.207		0.208	
τ Square	0.226		0.226	

Model 6 of Table 4 shows the result of the estimation from the micro perspective of the effect of family ownership on firms' CFSC level. The effect of cash flow on cash holdings (ΔCH) is positive ($\alpha_2 = 0.119$, significant at the 1% level) for non-family firms. We apply a similar technique to that of Riddick and Whited (2009), who find a negative relation (for statistically significant variables) between the variables cash flow and cash holding. In contrast, our sample of non-family firms has a positive CFSC level. The results of H5 anticipate this finding, given the cash holding level of the European firms. However, the positive effect of cash flow on cash holdings (ΔCH) is not weaker for family firms ($\beta_1 = -0.061$, statistically non-significant; $\alpha_2 + \beta_1 = 0.119$, statistically non-=significant) than for non-family firms ($\alpha_2 = 0.119$). Thus, according to the micro perspective, family firms are not distinguishable from their non-family counterparts in terms of cash–cash flow sensitivities. In other words, the effect of family ownership on firms' CFSC level is insignificant. Therefore, contrary to our prediction in H6, the CFSC level for family firms is not lower, and the sensitivity level sign for the whole sample is not negative. Our explanation for the positive CFSC level of non-family firms is the same as our explanations for the H5 results: I&S effects are similar between family and non-family firms using the micro perspective because European firms characteristically hold more cash than US firm, and the economic crisis caused them to become overly cautious (Drobetz and Grüninger, 2007). Thus, firms experience negative productivity shocks and react in an overly cautious manner. As a result, the CFSC level is positive.

In sum, our micro perspective results do not provide evidence of a negative effect of I&S probably due to the specific characteristics of our sample. Although the macro perspective results show that family firms have lower CFSC and fewer FCs, the micro

perspective results do not show that family firms have lower income uncertainty and higher I&S than non-family firms. We note that our sample includes the years of the financial crisis, during which time European firms experienced negative productivity shocks, causing them to react overcautiously. Thus, their CFSC levels are not negative.

III.6.3. Implications for European Family Firms

We show the relevance of family ownership on firms' CFSC level using a macro perspective and a micro perspective. In both situations, we analyze whether family ownership a has mitigating effect on firms' CFSC level, as prior literature suggests. We find that family ownership reduces the level of cash–cash flow sensitivity in the Euro zone, probably due to the effects of lower information asymmetry, fewer Type I agency costs, and lower transaction costs. The lower level of CFSC for family firms suggests that they are financially less constrained than non-family firms. Also, family firms have easier access to external finance sources than non-family firms; therefore, good cash management decision-making is more important and more critical for non-family firms than for family firms.

Given that CFSC results have a positive sign, we deduce a positive effect on firms' CFSC level in European firms due to FCs; however, contrary to prior research (Riddick and Whited, 2009), we do not find negative effects for I&S. We also deduce a positive effect due to the negative productivity income shocks firms experience during the financial crisis period. Family firms have less FCs, but we cannot distinguish I&S effects between family and non-family firms. Some reasons can explain these results: The financial crisis causes European firms to become overly cautious and hold more cash, and, consequently, income uncertainty increases abnormally for all European firms. Related to this explanation, we do

not find either positive productivity income shocks or the possibility of substitution. Instead, for the crisis period, serially correlated negative productivity income shocks occur.

Given that the financial crisis exacerbated European firms' propensity to act cautiously and hold more cash, the negative effect of CFSC is not exist for European firms, and thus we do not corroborate Riddick and Whited's (2009) finding of a negative effect of I&S on firms' CFSC level for either family or non-family firms. In addition, the results provide no evidence that the better financial performance of family firms helps increase the effect of I&S relative to non-family firms.

The literature also discusses ownership concentrations and monitoring effects related to family firms. We show that the CFSC level is higher for family firms with a dominant shareholder due to higher agency costs derived from the ownership concentration. Thus, from the viewpoint of cash management decisions, family firms with absolute financial control are more fragile than other family firms when a cash shortfall occurs. However, the monitoring effect of a secondary shareholder or shareholders reduces the CFSC levels for family firms. Given the lower CFSC level, we confirm that the lower agency costs are the result of the absence of a dominant shareholder with enough power to control the firm and the presence of a secondary shareholder or shareholders in a monitoring role; conversely, the largest shareholders can collude to achieve firm control. Consequently, lower agency costs reduce these family firms' financial constraint level and lessen the importance of their cash management decisions relative to those of non-family firms.

III.7. Conclusion

We investigate the effect of several factors that influence firms' CFSC level in a European setting. We base or analysis on two previous models (Almeida et al., 2004; Riddick and Whited, 2009) and add a new perspective related to the ownership structure of firms. We also propose new scenarios that take into account both FCs and I&S.

Our findings provide several insights. First, we confirm for our whole sample the results of Almeida et al. (2004) from the macro perspective but do not confirm the micro approach of Riddick and Whited (2009). For the macro perspective, the CFSC level for the European sample is positive: Financially constrained firms have a higher CFSC level than financially unconstrained firms. This result confirm Almeida et al.'s argument that CFSC can be used to measure FCs. However, contrary to Riddick and Whited, we do not find a negative effect of I&S on CFSC for the whole sample.

Second, given that the family ownership structure has specific effects on FCs, we analyze the relation between family-controlled firms and CFSC level. This study is the first to analyze this relation; all previous studies analyze the CFSC levels without considering firms' ownership structure. Thus, for the macro perspective, we find that family ownership has a mitigating effect on CFSC. Specifically, family firms have a lower CFSC level compared to non-family firms. Consequently, following Almeida et al. (2004), who suggest that more CFSC means higher FCs for firms, we find that family firms are financially less constrained than non-family firms due to their unique characteristics (e.g., lower information asymmetry, fewer agency costs). As we predict, the effect of cash flow on the variation of cash holdings for family and non-family firms is positive.

We then expand our investigation of the effects of a family ownership structure on CFSC level. Specifically, we more closely examine FCs in a framework of family firms by focusing on two relevant elements for this ownership structure: (a) the relation of CFSC to family firms' ownership concentration and (b) the effect of the largest shareholders' motivation to monitor or collude. We find that when family firms have a dominant shareholder with a high level of ownership concentration, the CFSC level is higher than that of family-controlled firms without a dominant shareholder. The negative effects of absolute control on agency costs explain this result. We also investigate the differences for family firms between the monitoring and collusion effects of a secondary large shareholder or shareholders on the firms' CFSC level when the largest shareholder does not have enough power to control the firms' investment decisions. The results show that having a secondary large shareholder or shareholders with a motivation to monitor negatively affects firms' CFSC level because monitoring helps to improve companies' financial situation and reduces agency costs.

We first test our whole sample from the macro perspective. The CFSC results from this model are positive. This finding is interesting because prior research using US data reports a negative relation, probably because, unlike previous studies, our sample period includes the financial crisis. European firms experienced negative productivity income shocks and, consequently, became overly cautious and held more cash. We also analyze the relation between family-controlled firms and CFSC level. We find neither negative CFSC values nor lower CFSC levels for family firms. Consequently, our results do not indicate any advantages for family ownership (i.e., more extended investment horizons and longer term presence).

Finally, we derive some implications for family firms, which are predominant in European economy and play a very active role in firms' CFSC level. We find that some agency cost characteristics, such as less information asymmetry, lower Type I agency costs, and fewer transaction costs, result in less FCs for family firms. We also find that family firms with absolute financial control are more fragile than other family firms when a cash shortfall occurs because family firms with absolute financial control have a higher CFSC level and therefore higher FCs than other family firms. However, unlike family firms with absolute financial control, the monitoring effect of a secondary shareholder or shareholders reduces the CFSC level for family firms. This lower CFSC level suggests that family firms with a monitoring effect of the secondary shareholder or shareholders have less FCs than other family firms.

In all our analyses, we use panel data methodology to control for individual heterogeneity. Thus, we eliminate the risk of biased results and address the endogeneity problem. This issue is particularly important when analyzing corporate investments and saving decisions because every organizational structure may be attached to a particular corporate behavior that can manifest in the saving decision-making process.

In sum, we analyze in depth two CFSC perspectives (Almeida et al., 2004; Riddick and Whited, 2009) and contribute to the literature by clarifying the factors of sensitivity between cash holding and cash flow. Also, for the first time in the literature, we identify the relation between family firms' ownership concentration and CFSC level and provide an analysis of CFSC that shows the main implications of family ownership.

Our findings have important practical applications related, first, to how firms accumulate cash and their CFSC level respective to generated cash flow and, second, to

firms' ownership structure and ownership concentration. Given this study empirically explores for the first time the relation of the ownership structure and ownership concentration with CFSC, further research is needed. This study lays the foundation and creates possibilities for researchers to analyze the relation of cash holdings to other variables of interest for regulators and policymakers from a wider framework that, in addition to the ownership structure, may include corporate governance, voting behavior, and state policies. This study also opens the door to further research on the effects of serially correlated negative productivity shocks on firms CFSC level (e.g., financial crises).

Our results also have several interesting policy implications, including the need to strengthen cash holding policies. The results provide relevant policy decision-making criterions that impact decisions related to financial constraints, which affect firms' propensity to save cash. As such, our findings are relevant to managers across all firm types in their decisions on saving or payout policies and to the investors in their ability to invest in the most appropriate company.

Appendix III.A. Precrisis vs. Crisis Period Regression Analysis

Table A.1. Precrisis vs. Crisis Period Regression Results

The models are estimated using the GMM4 estimator. The sample firms include nonfinancial firms during 2000 to 2009. Pre-crisis period is between 2000-2006 and crisis period is between 2007-2009. The variable ΔCH is the difference in cash between the years *t* and year *t*−1 divided by total assets, CH the ratio of holding of cash to total assets, CF is earnings before extraordinary items and depreciation (EBEID) divided by total assets, Q is the sum of the market value of equity and total book assets minus the book value of equity divided by book assets divided by total book assets, SIZE is the natural log of assets, EXP is capital expenditures divided by total assets, ACQ is an indicator variable that equals 1 if the firm makes an acquisition in that year, and zero otherwise, WC is net noncash working capital (working capital minus cash) divided by total assets, ΔWC is WC in year t minus WC in year t–1, L1.STD short-term debt divided by total asset with one year lagged. τ square is an index of measurement quality for Q that varies between zero and one; the degrees of freedom are in parenthesis. ***, **, and * indicate significance levels of 0.01, 0.05, and 0.10, respectively.

	Dependent = ΔCash Holdings			
	Precrisis Period)		Crisis Period	
	Coef.	*t*-value	Coef.	*t*-value
Constant	–0.074**	–2.55	0.281***	2.33
CF	–0.014	–0.26	0.316***	3.71
Q	0.064***	4.05	–0.154**	–2.01
SIZE	0.023***	2.47	–0.002**	–0.75
EXP	–0.098***	–2.93	–0.016	–0.18
ACQ	–0.006	–1.55	–0.005	–0.90
ΔWC	–0.223***	–9.80	–0.230***	–5.01
L1.STD	0.151***	4.39	–0.166*	–1.51
N	3061		1912	
R Square	0.195		0.193	
τ Square	0.320		0.262	

Appendix III.B. Whited and Wu index

To classify firms as financially constrained or unconstrained, we use Whited and Wu's (2006) index following Bao et al. (2012). Specifically,

$$WWIndex_{i,t} = -0.091CF_{i,t} - 0.062DIVDUMMY_{i,t} + 0.021LTD_{i,t} - 0.044SIZE_{i,t} + 0.102ISG_{i,t} + 0.035SG_{i,t},$$

where $DIVDUMMY_{i,t}$ is a dummy variable that takes the value of 1 if the firm paid dividends in year *t*, and zero otherwise; $ISG_{i,t}$ is the two-digit industry sales growth, measured as

$$ISG_{i,t} = (MISale_t - MISale_{t-1}) / MISale_{t-1}$$

where $MISale_t$ is the mean sale by industry in any given year, scaled by total assets; $SG_{i,t}$ is the firm's sales growth and is measured as

$$SG_{i,t} = (NS_{i,t} - NS_{i,t-1}) \,.\, NS_{i,t-1}$$

and $LTD_{i,t}$ is the long term-debt of the firm and is measured as

$$LTD_{i,t} = BVLTD_{i,t} / TA_{i,t}$$

where $BVLTD_{i,t}$ is the book value of long-term debt.

Then, we create a dummy variable that takes the value of 1 if a firm is in the top quartile of the variable distribution, and zero otherwise.

Chapter V

Final Remarks

V.1. Conclusions, Contributions and Implications

Although cash holding has been the subject of a wealth of research, we provide new empirical evidence for better understanding of its determinants, both for European countries and European firms. Specifically, we provide new insight on how family ownership and different types of family firms affect firm's cash holding decisions.

First of all, our study gives us an opportunity to investigate –separately and jointly- the effects of ownership structure and shareholder protection effects on firms' cash holding decisions. Our results show that, family ownership, high level ownership concentration and country level low shareholder protection affect positively firms' cash holding level decisions. Furthermore, low level of shareholder protection does not have an additional effect neither over type I nor over type II agency costs for family firms' cash holding decision. In particular, in low shareholder protection countries of the Europe, family firms do more cash holding than non-family ones because of the absence of the type I agency costs. In addition, between family firms with dominant shareholder and family firms without dominant shareholder, the firms' cash holding decisions depend on their type II agency costs effect than the effect of the low-level shareholder protection.

As another support to the fundamental discussion of our dissertation between family ownership and cash holding, in the next chapter, we study the determinants of the cash flow sensitivity of cash and deepen this issue using the differentiate effect of family ownership for two different models that admitted by the sensibility literature. Our empirical evidence supports the idea that two cash flow sensitivity of cash perspectives do not have the same results and ownership structure is a good factor to investigate this cash flow sensitivity of

cash from these two perspectives. From the macroeconomic perspective, in Europe, financially constrained firms have higher cash flow sensitivity of cash level than firms that are financially non-constrained. Moreover, again for the macro perspective, we find that family ownership has a mitigating effect on cash flow sensitivity of cash. Specifically, family firms have a lower cash flow sensitivity of cash level compared to non-family firms. There are two additional conclusions from the same macro perspective; first, when family firms have a dominant shareholder with a high level of ownership concentration, the cash flow sensitivity of cash level is higher than that of family-controlled firms without a dominant shareholder. Second, having a secondary large shareholder or shareholders with a motivation to monitor negatively affects firms' cash flow sensitivity of cash level because monitoring helps to improve companies' financial situation and reduces agency costs. Interestingly, from the microeconomic perspective, there is not a negative effect of income and substitution factors on firms' cash flow sensitivity of cash for the whole sample. The sensitivity is positive, probably because, unlike previous studies, our sample period includes the financial crisis. Family ownership from this perspective (through the unexpected financial crisis effect) has neither negative nor lower cash flow sensitivity of cash levels than non-family owned firms.

All of these results of this sensibility chapter help us to contribute to the literature in several ways. First, we add to prior literature by analyzing cash flow sensitivity of cash for a unique European sample. The results of earlier studies are largely from the U.S. samples in this sensitivity relation, so, we add to this field of inquiry by extending these US-based findings on cash flow sensitivity of cash to a European context. Second, we add to prior literature by investigating the relation between the family ownership structure and

determinant factors of cash flow sensitivity of cash—a relation that has yet to be studied in the literature. Finally, given its impact on firms' financial constraints level, we investigate the effect of ownership concentration on family firms' cash flow sensitivity of cash level—another aspect that has yet to be addressed in the extant literature. In this line of the concentration effect, we first examine the relation between absolute firm control in family firms and firms' cash flow sensitivity of cash level, and then we look at the relation between family firms with a secondary shareholder or shareholders without absolute ownership and the firms' cash flow sensitivity of cash level. This line of inquiry is important because it focuses on all financial constraints levels while taking into account the ownership structure, which may cause differences in firms' cash flow sensitivity of cash level.

Given that our dissertation contains European firms, some years of the financial crisis profile, and regarding the effect of the financial crisis on firm's cash holding decisions our results highlight that there is a positive effect of the crisis (short) period on firms' cash holding levels but when we extend three years more this crisis period, the positive effect of the crisis on cash holding decisions turns to negative for the European firms. In addition, we show evidence on specific kinds of firms (financially constrained, non-dividend paying and family-controlled firms) that pay attention to precautionary motive in their behaviour, for different periods of crisis. Particularly, we find a clear relation between cash flow volatility and cash holding which is positive (negative) for the financially constrained firms in the short (long) period. As contributions of this section, first, we do not only add to the cash holding literature, but we also contribute to the literature on the precutionary motivations of the firms and the effects of the crisis on firms in a European framework. Second, given that cash accumulation depends on both differing geographical environments and differing

periods of time, we extend prior research (for both crises and cash holding literatures) by investigating the relation between the European financial crisis and firms' cash holding decision-making for two crisis periods: short and long.

In relation with the methodological contributions, it is possible to say that a large amount of the cash holding literature use cross section data. In our case, all empirical results have been obtained using the panel data methodology, which is an important advancement and contribution to the cash holding and family ownership literature. This methodology enables us to control for unobservable heterogeneity, which is a problem that affects most economics and finance models. In particular, the use of this estimation method allows us to alleviate the risk of obtaining biased results. By using a panel data estimator, we can control for several effects related with managers' preferences that cannot be observed by the researcher. Some of the individual factors that we can account for are the following: managers' personality traits, managers' incentives and motivations that derive from their compensation schemes and their stock ownership in the company, managers' expectations and points of view, and managers' need to preserve their socioemotional wealth, which depends on a firm's ownership structure. Simultaneously, the panel data methodology, and more specifically the use of the generalized method of moments (GMM) allows us to control for the possible endogeneity of the explanatory variables.

Another noteworthy contribution is to extend the European countries experiment of previous studies. We include in the analyses firms located in contexts that differ from each other in their cash holding decisions and family ownership structure types, as well as in their ownership concentration and financial constrained levels. The European coverage of our samples confers an important advantage on our research; namely, differently from an US

sample, we have an opportunity to study the 2008 financial crisis' effects on cash holding in Europe and the same sample helps us to study with the countries that have different levels of shareholder protection.

Our empirical evidence also has important implications for policy-makers given their responsibility for deciding on firm's cash holding policy, which is related with other financial decisions of the firm such as investment policy, dividend policy, precautionary policy for the possible shortages in the future and so on. To family-controlled firms, when they decide their optimum cash level, our results suggest to focus on more their agency problems instead of the possible influence of low-level shareholder protection. In addition, our results for the firms in general, shows a positive pressure to hold more cash by low shareholder protection but this pressure does not work out on the managers of family-controlled firms.

Our results also provide relevant policy decision-making criterions that impact decisions related to financial constraints, which affect firms' propensity to save cash. As such, our findings are relevant to managers across all firm types in their decisions on saving or payout policies and to the investors in their ability to invest in the most appropriate company. Moreover, our empirical evidence, showing the relation between financial crisis and precaution motive, helps to the firms to make better decision on cash holdings policy especially in periods of shortage of external funds, such as financial crisis periods.

Naturally, our thesis is not free from the limitations. From our perspective, the available data has been an important handicap for our studies: the data of our first analyze arrives until 2009 and although we have extended it for our following analyses until 2012,

we would like to update more our data and have more current results. From a conceptual point of view, in the section IV, we had some difficulties on defining and calculating "the precautionary motive" factor, it is because in the finance literature there is no consensus on this definition. Similarly to this problem, in the end, we need to highlight the difficulty of the definition of "the family ownership". From our perspective, using our available sample, we define the family ownership focusing on one of the several aproximations that the finance literature gives us. Therefore, our aim for the future studies is to expand both this definitition concepts and the time period of our analyses.

In summary, we can conclude that family ownership has a differentiating effect on firms' cash holding decisions in Europe. However, the effects of these ownership structures on cash holding is moderated by agency costs, corporate governance, ownership concentration and also European financial crisis. Although shareholder protection is important on firms' cash holding decisions, for family-controlled firms, agency costs are primarily decisive on firm's cash holding decisions. In addition, family ownership plays a moderating role in both types of cash flow sensitivity of cash perspectives that the cash holding literature elaborates. Moreover, 2008 European financial crisis also influences the impact of the different precautionary levels (specially for short and long crisis periods) on firm's cash holding policies.

To summarize, in light of the empirical evidence provided throughout this document, we can formulate the **thesis** proved in this research as follows: *"Cash holding decisions of the firms are determined by agency costs, country level shareholder protection, ownership concentration, financial constraints, precautionary motive (in crisis periods especially), but*

all of these determinants have different effects in family controlled firms than in non-family controlled ones".

V.1. Conclusiones

A pesar de que existen varias líneas y enfoques de investigación en relación con la acumulación de cash (CH) en las empresas, nuestra tesis ha ido dirigida fundamentalmente a proporcionar nueva evidencia empírica de cara a entender mejor las motivaciones y los determinantes de acumular efectivo en los países y empresas europeos. Más en concreto, hemos intentado proporcionar una nueva visión acerca de cómo la propiedad familiar y los diferentes tipos de empresas familiares afectan a la decisión del CH de la empresa.

Así, en primer lugar, hemos analizado –de forma individual y conjunta– los efectos que la estructura de propiedad y la protección de los accionistas producen sobre la decisión de CH en las empresas. Nuestros resultados muestran que la propiedad de la familia, el alto nivel de la concentración de la propiedad y un escaso nivel de protección de los accionistas afectan de forma positiva a la acumulación de efectivo. De forma particular, en los países europeos con bajo nivel de protección, las empresas familiares acumulan más efectivo que las empresas no familiares, dada la ausencia de costes de agencia entre directivos y accionistas. Cuando profundizamos en la concentración de la propiedad en manos del primer accionista, obtenemos que la decisión de acumular cash difiere entre las empresas familiares que poseen un claro accionista dominante y las empresas familiares sin tal dominio; además, dicha decisión depende en mayor medida de los costes de agencia entre accionistas mayoritarios y minoritarios que de la de protección institucional.

Un segundo aspecto en el que hemos profundizado en este ámbito –propiedad familiar y el CH– ha sido en identificar los factores determinantes de la sensibilidad del CH al cash flow (CFSC). De nuevo las características y peculiaridades de las empresas familiares nos ayudan a ello. Conocidos los dos –muy relevantes– modelos que nos ofrece la literatura al

respecto del estudio de la sensibilidad (Almeida et al., 2004 y Riddick y Whited, 2009), nuestra evidencia empírica nos permite concluir que los resultados desde ambas perspectivas difieren notablemente. Desde una perspectiva macroeconómica, en Europa, las empresas restringidas financieramente acumulan más CH que las empresas no restringidas y, además, la propiedad familiar tiene un efecto mitigante sobre la sensibilidad. Específicamente, las empresas familiares presentan un menor nivel de CFSC que las empresas no familiares. Cuando profundizamos en la estructura de propiedad, encontramos también que cuando las empresas familiares tienen una elevada concentración de propiedad, su sensibilidad es superior que cuando no sucede así. Además, cuando analizamos el comportamiento de otros accionistas significativos (segundo accionista o accionistas), concluimos que la motivación de ejercer un control activo deriva en un efecto negativo sobre la CFSC de la empresa familiar ya que dicho control reduce los costes de agencia y ayuda a las empresas a mejorar su situación financiera. Sin embargo, desde una perspectiva microeconómica, analizando toda la muestra, no encontramos un efecto negativo de los efectos ingreso y la sustitución, como factores que influyen directamente en la sensibilidad, sobre el nivel de CFSC de las empresas. La sensibilidad en este caso presenta un efecto directo probablemente porque, a diferencia de los estudios precedentes en este campo, nuestra muestra abarca un periodo de inestabilidad financiera. La propiedad familiar desde este enfoque microeconómico y, a través del inesperado efecto de la crisis, no tiene un efecto inferior sobre el nivel de sensibilidad que presentan las empresas que no tienen propiedad familiar.

Los resultados obtenidos en este campo de la sensibilidad nos han permitido, de una parte, añadir nueva evidencia empírica a la literatura previa de la CFSC en un marco geográfico apenas analizado debido a que la mayoría de los estudios previos se han

desarrollado en los Estados Unidos. De otro lado, nuestros avances en este campo añaden también valor a la literatura precedente al profundizar –por primera vez– en la relación entre la estructura de la propiedad familiar y los factores determinantes de la CFSC. En relación con la concentración de la propiedad, tras haber analizado la relación entre el papel de un accionista dominante en una empresa familiar y la CFSC de la empresa, damos un paso más e investigamos la relación entre el segundo accionista y la CFSC de la empresa familiar**.** Esta línea de investigación tiene especial relevancia a la hora de analizar las restricciones financieras de las empresas dado que la concentración de la propiedad tiene un efecto directo sobre ellas y, en este caso, la sensibilidad del efectivo sobre el cash flow nos facilita el estudio de dicha relación.

Como se ha podido observar, nuestra muestra de empresas familiares se enmarca en un periodo temporal de crisis financiera. Este ha sido precisamente nuestro último interés y objeto de estudio en este trabajo. Cuando analizamos el comportamiento del CH de las empresas diferenciando entre los años previos a la crisis y los años propios de la misma, observamos que en el periodo de crisis denominado short (años 2007-2009) el CH de las empresas sufre un incremento respecto a los años previos; en cambio, cuando estudiamos un horizonte temporal más amplio de crisis (años 2007-2012) ese efecto incremental se vuelve a negativo para las empresas Europeas.

A la luz de estos resultados y, dada la relevancia del motivo de precaución en periodos de instabilidad financiera, nos preguntamos si a lo largo de los años de la crisis puede haber habido algún cambio en las motivaciones de las empresas a la hora de acumular cash. Así, cuando analizamos qué sucede con algunos tipos específicos de empresas en los que se ha demostrado empíricamente que el motivo de precaución es el principal determinante en sus

comportamientos y decisiones (como las empresas financieramente restringidas, las empresas que no pagan dividendos y las empresas familiares) observamos, para los diferentes años de estudio de la crisis, que el motivo que subyace para acumular cash en las empresas es el de precaución. En esta línea de análisis, nuestra investigación contribuye no sólo a seguir profundizando en la literatura del CH y en la de los efectos de la crisis sobre el comportamiento de las empresas, sino también a analizar las motivaciones que guían a las empresas europeas en estos periodos de crisis, en especial el motivo de precaución. Analizar el comportamiento del efectivo de las empresas en dos periodos diferentes de la crisis (corto y largo) constituye una novedad para la literatura del CH y también para la literatura relacionada con las crisis financieras.

En cuanto a los aspectos metodológicos, señalar que la mayoría de la literatura del CH emplea en sus estudios datos de sección cruzada. En nuestro caso, en cambio, todos los resultados empíricos se han obtenido usando la metodología de datos panel, lo cual constituye un avance importante y una contribución para la literatura del CH y de la propiedad familiar. Esa metodología nos permite controlar la heterogeneidad inobservable, que es un problema que afecta muchos modelos económicos y financieros. Por ejemplo y, para nuestro caso, podemos controlar los diversos efectos relacionados con aspectos tales como las preferencias de los directivos, que no se pueden observar por el investigador. Algunos factores individuales que podemos incluir en esta categoría son los rasgos personales de la gerencia, los incentivos y las motivaciones directivas que van desde sus esquemas de compensación y su propiedad en las acciones en la empresa, sus expectativas y puntos de vistas, hasta las necesidades de preservar la riqueza socioemocional en la empresa, lo cual en muchas ocasiones depende de la estructura de la propiedad.

Simultáneamente, la metodología de datos de panel y, más específicamente el uso del Generalized Method of Moments (GMM), nos ha permitido controlar la posible endogeneidad de las variables explicativas.

El hecho de extender nuestras investigaciones al marco europeo también nos ha permitido ampliar el conocimiento que existía previamente sobre los anteriores tópicos. Obsérvese que, nuestros análisis están enmarcados en un contexto muy dispar al ámbito anglosajón, tanto en lo que se refiere a las decisiones corporativas de CH como a la estructura de la propiedad (concentración, composición, etc.). Del mismo modo, hemos podido profundizar en la diversidad en cuanto al nivel de protección que presentan los diferentes países en este entorno. Asimismo, las ventajas derivadas de analizar una muestra europea se extienden también a la oportunidad de estudiar las políticas CH seguidas por las empresas durante los años de la crisis financiera del 2008.

De manera general, la evidencia empírica obtenida tiene implicaciones muy relevantes para los agentes responsables de tomar decisiones relacionadas con las políticas de financieras, de inversión o dividendos en las empresas. Sin duda, existe una relación muy directa entre estas decisiones empresariales y las decisiones de acumulación de efectivo en la empresa o las políticas de prevención ante una futura escasez de fondos. En concreto y, para el caso de las empresas familiares, cuando se plantea la obtención de un nivel óptimo de cash, nuestros resultados sugieren que sus decisiones deben enfocarse más hacia los problemas de agencia a los que se enfrentan que a los posibles efectos que ejerza un determinado marco institucional. Además, nuestros resultados, en general, muestran una elevada tendencia a acumular más efectivo en entornos donde la protección de los accionistas

es escasa; en cambio, dicha tendencia no se hace sentir en las decisiones que al respecto toman las empresas familiares.

Nuestros resultados también ofrecen a las empresas algunos criterios relevantes a la hora de tomar sus decisiones de CH, los cuales a su vez están relacionadas con sus restricciones financieras y con la propensión de ahorrar. De este modo, nuestros resultados ofrecen pautas de actuación tanto a los directivos de las empresas –para tomar decisiones en sus políticas del ahorro o de pago- como a los inversores –a la hora de valorar la empresa más apropiada para realizar su inversión-. Por otra parte, nuestra evidencia empírica, mostrando la relación entre la crisis financiera y la motivación de precaución, ayuda a las empresas a tomar mejores decisiones en sus políticas del CH, especialmente en los periodos de escasez de fondos externos como los periodos de crisis financieras.

Todo lo anterior, naturalmente, no es óbice para que nuestra tesis doctoral esté exenta de limitaciones. Desde nuestra perspectiva, los datos disponibles han sido un importante handicap ya que nuestro primer análisis sólo abarca hasta el año 2009 y, aunque los otros dos trabajos recogen un periodo que llega hasta 2012, cierto es que nos gustaría actualizar los datos y disponer de resultados más actuales. Desde un punto de vista conceptual, en el capítulo IV, nos encontramos con dificultades a la hora de definir la medida de un concepto tan abstracto como es "el motivo de precaución", principalmente debido a la falta de consenso en la literatura respecto a este punto. Por ultimo, no debemos olvidar la dificultad que existe en cuanto a la definición de la empresa familiar por lo que, desde nuestra perspectiva, la muestra de las empresas familiares constituye tan solo una de las diversas aproximaciones que existen para su estudio. Nuestros futuros estudios irán encaminados a ampliar tanto este concepto como el periodo temporal de análisis.

En resumen, podemos concluir que la propiedad familiar tiene un claro efecto diferenciador en cuanto a las decisiones de CH que toman las empresas en Europa. Además, dichos efectos de la propiedad familiar están moderados por los costes de agencia, el gobierno corporativo, la concentración de la propiedad e incluso por los años de la crisis. A pesar de que la protección de los accionistas es importante, para las empresas familiares, los costes de agencia se erigen como los principales factores en cuanto a las decisiones de CH de las empresas. Adicionalmente, la propiedad familiar juega un papel moderador sobre el CH en cuanto al análisis de los dos enfoques de sensibilidad estudiados. Finalmente podemos decir que la crisis financiera de Europa del 2008 ha impactado claramente sobre las decisiones que han tomado las empresas acerca de sus diferentes niveles de precaución sobre las políticas de acumulación de cash.

En conclusión y, a través de la evidencia empírica obtenida, podemos formular nuestra Tesis del presente trabajo de investigación de la siguiente manera: *"La decisión de tenencia del efectivo de las empresas viene determinada por los costes de agencia, la protección institucional de los accionistas, la concentración de la propiedad y las motivaciones de precaución (especialmente en periodos de crisis). Todos esos determinantes presentan diferencias significativas en empresas familiares que en empresas no familiares".*

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