Excess Control Rights, Corporate Governance and Cash Flow Sensitivity of Cash

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Abstract

This study investigates the effects of excess control rights of the ultimate controlling shareholder on the management of corporate cash holdings. The results show that firms are more inclined to build up large cash reserves when the control rights of the ultimate controlling shareholder exceed its cash-flow ownership. Additional analysis suggests that cash flow sensitivity of cash −when corporate insiders have larger excess control rights− originates from severe agency problems that occur in these firms rather than from the financial constraints they face or from a precautionary savings behavior. These findings provide empirical support to the argument that firms experiencing excess control rights accumulate cash to foster the entrenchment of their controlling shareholders and to facilitate their extraction of private benefits using the cash at their free disposal.

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1. Introduction

Recent years have seen a noticeably dramatic increase in corporate cash savings worldwide. A survey by McKinsey Global Institute reports that, in the major economies, increases in cash holdings go up from 10% of GDP in 1980 to 13.3% in 2008.[1] Bates et al. (2009) state that U.S. industrial firms show a striking upward trend in their cash balances causing cash-to-assets ratio to more than double over the period from 1980 to 2006. This phenomenon of piling up cash was not limited to the U.S. and it spreads out to Western European countries, including France. Anecdotal evidence shows that there is a dramatic increase in cash savings over the last decade. CAC40 firms, for instance, are sitting on mountains of cash that topped €146 billion, at the end of the 2010s.[2] The example of Peugeot S.A is striking in this respect with impressive increases in cash balances that more than quadrupled since 1998 reaching a peak of roughly €11 billon ten years later. Despite this phenomenon of pilling-up cash, European firms did not seem to invest much of the saved cash, which had virtually dampened growth in Europe and causing the economic crisis.[3]

The literature related to corporate financial policies, including Jensen and Meckling (1976), Myers (1984), Myers and Majluf (1984), and Jensen (1986) has largely tackled the question of the management of cash and the corresponding costs and benefits. A number of empirical studies, notably Kim et al. (1998) and Opler et al. (1999), examine firms characteristics likely to alter the level of corporate cash holdings. A more recent stream of research on cash policies conducted at both firm and country levels, such as Dittmar et al. (2003), Pinkowitz et al. (2006) and Harford et al. (2008), find compelling evidence that the quality of corporate governance strongly affects the way cash is managed. In the present research, we examine how ownership structure influences the management of cash policies, notably cash savings.

The widespread phenomenon of increase in corporate cash holdings worldwide rightfully raises the question of what makes firms save cash out of cash flows rather than funneling them into investments or payouts to shareholders. Explanations of what drives

[1] McKinsey Global Institute /MGI (2010): « Farewell to cheap capital? The Implications of Long-term Shifts in Global Investment and Saving. »

[2] See, Marina ALCARAZ, "Les entreprises du CAC 40 sont assises sur un confortable « matelas » de cash", *Les Echos*, October 21th, 2010.

[3] See, Stephen FILDER, "Firms' Cash Hoarding Stunts Europe", *The Wall Street Journal*, March 22th, 2012.

cash savings are basically framed around transactions costs and precautionary motives. Thus, building cash balances enables firms to save on transaction costs of external finance and to buffer against unexpected liquidity shortfalls (Keynes (1936)). This view seems, however, to be less and less binding as recent advances in financial technology offer a wide range of financial instruments to hedge against uncertainty in the management of cash (Bates et al., (2009)). An alternative view −based on the agency costs of free cash flow− posits that keeping internal funds inside the firm reflects an opportunistic behavior of insiders implying the diversion of the built-up cash to private consumption (Jensen (1986)).

Interestingly, there is a recent focus on the issue of saving cash out of the generated cash flow rather than the traditional focus on the level of cash holdings. Almeida et al. (2004) argue that firms are more inclined to allocate cash flow to cash reserves when they face financial constraints, such that these firms can finance their investment opportunities. Thus, accumulating cash by retaining cash flow may reflect difficulties for firms to obtain external finance because of the presence of market imperfections such as agency costs, asymmetric information, and transaction and financial distress costs. However, in the absence of financial constraints, firms are indifferent between holding and spending cash. Indeed, cash held by financially unconstrained firms is not costly because no investment opportunities would be lost. Meanwhile, hording cash would not enhance the value of these firms. Based on this analysis, Almeida et al. (2004) suggest that cash flow sensitivity of cash may be a metric for financial constraints of firms. Seen in this light, exploring the issue of saving cash, and thereby the cash flow sensitivity of cash, appears to be a more relevant way for presenting the corporate cash policies from a theoretical perspective.

The present research sheds more light on the cash savings puzzle from an agency perspective. It specially tackles the issue of the effect of corporate control structure on the management of cash policies. Importantly, a stream of governance research initiated by La Porta et al. (1999) documents that corporate control is concentrated in the vast majority of countries, and that controlling shareholders typically have higher control rights than cash-flow rights. Subsequent related empirical work including Claessens et al. (2002), Lins (2003), and Bennedsen and Nielsen (2010) finds evidence of the presence of substantial agency costs associated with the separation of control and cash-flow rights. They explain that controlling shareholders enjoying considerable control exceeding their ownership rights have incentives and opportunities to obtain private benefits at the expense of firm value. Agency costs are

furthermore expected to be higher in firms where cash flow is not spent on investments or on payouts to shareholders, but allocated to cash reserves likely to be at the controlling shareholders' discretion. In the present research, we investigate the effects of the presence of controlling shareholders having control rights in excess of cash-flow rights, i.e., excess control rights, on the propensity of firms to save cash out of cash flows, i.e., cash flow sensitivity of cash

Our study provides a new and meaningful perspective on the management of corporate cash policies of listed firms in France that adopts, as in many continental European countries, a civil-law system where law is poorly enforced (La Porta et al. (1998)). The legal French environment additionally features the widespread use of control-enhancing mechanisms including non-traded double voting shares and traded non-voting shares such as preferred shares and investment certificates allowing large shareholders to have control rights far in excess of their cash-flow interests. Such excess control rights are also engendered by the controlling shareholder having control over an entity through a cascade of several listed or/and unlisted intermediate firms, i.e. pyramiding.[4] Separating control and cash-flow rights is common not only in French firms but also in the vast majority of European countries where firms can additionally issue dual-class shares, as argued Faccio and Lang (2002) and Bennedsen and Nielsen (2010). These legal aspects, taken collectively, make that French firms, like their counterparts in similar European countries, constitute an environment which is propitious for expropriation activities by controlling shareholders. Our conclusions can hence be extended to other Western European firms, which increases the practical relevance of our study.

We argue that the presence of controlling shareholders having excess control rights increases the sensitivity of cash to cash flow. Indeed, the abundance of liquid assets makes it easier for controlling shareholders to obtain private benefits of control without the interference of external monitors especially since cash resources are generally readily available (Myers and Rajan (1998)). In support of this view, Jensen (1986) argues that the presence of unnecessary internal funds within the firm incentivizes insiders to spend these resources in empire building, pet projects, generous perquisites and other ways of resources misallocation in particular when profitable growth opportunities are lacking. In this

[4] About one-third of publicly listed French firms are controlled through pyramiding that induces substantial excess control rights of the controlling shareholder, as shown by Boubaker (2007).

perspective, studies including Pinkowitz et al. (2006), Frésard and Salva (2010) and Drobetz et al. (2010) show that shareholders whose rights are poorly protected respond to large holdings of cash by discounting the value of additional cash balances. A possible implication is that the accumulation of cash by retaining large amount of cash flow i.e., cash flow sensitivity of cash, is viewed as a channel through which dominant shareholders with excess control rights can obtain private benefits. This is what we refer to as the private benefits hypothesis.

We also argue that the presence of other controlling shareholders- beyond the largest one- should enhance monitoring, and thereby reduce the possibility of retaining cash flow instead of disgorging it. Indeed, studies including Gomes and Novaes (2001), Maury and Pajuste (2005) and Laeven and Levine (2008) document evidence that the contestability of control is associated with lower agency costs. They explain that shareholders having substantial financial interest in the firm are more likely to challenge the substantial control of the largest controlling shareholder so as to prevent private rent-seeking. If control contestability enhances corporate governance quality and thus reduces agency costs, the effect of excess control rights on the cash flow sensitivity to cash would be lower for firms in which control is more contestable.

Using a unique data set covering 3,447 firm-year observations of 586 firms spanning the period from 1998 to 2007, we find that cash flow sensitivity of cash increases with the separation of control and cash-flow rights of the ultimate controlling shareholders. Controlling shareholders with substantial excess control rights funnel a large part of cash flow into cash holdings arguably with the underlying intention to subsequently convert them into private benefits, which supports the private benefits hypothesis. We also show that firms with excess control rights are less reluctant to save cash out of cash flow when they incur low agency costs through having high control contestability. In an additional analysis, we report that low agency costs implied by great analyst following and high market product competition are associated with low propensity of firms with excess control rights to save cash. Taken together, our findings show that better corporate governance quality in these firms decreases cash flow sensitivity of cash, as a signal of low expropriation likelihood by controlling shareholders.

We also investigate the possibility that cash flow sensitivity of cash is driven by the presence of high financial constraints in firms with disproportional ownership structures. Corporate governance research documents that firms in which excess control rights are high typically have poor informational environment. In particular, excess control rights are shown to yield low informative earnings (Fan and Wong (2002)), high information asymmetry (Attig et al. (2006)) and limited disclosures (Ali et al. (2007)). Such information frictions make external finance more costly for these firms, which leads to severe financial constraints and an increased need for saving cash (Lin et al. (2011a)). Our findings are not in line with this view since none of proxies of financial constraints is found to significantly affect the sensitivity of cash to cash flow, whereby financial constraints are not binding.

We examine the precautionary savings motive as alternative explanation to the positive effect of excess control rights on the cash flow sensitivity of cash. More specifically, we investigate whether our conclusions are driven by firms having abundant growth opportunities, high hedging needs and greater uncertainty in future cash flows. The results does not lend credence to this alternative explanation and show that the positive relationship between excess control rights and cash flow sensitivity of cash is not dependent on the level of growth opportunities, hedging needs or uncertainty in cash flow. In other words, excess control rights appear to increase the tendency of controlling shareholders to allocate more cash flow into cash holdings regardless of the need to stockpile cash, which reinforces the private benefits hypothesis (Jensen (1986)).

The current research provides a number of valuable contributions to extant literature. First, prior literature on the management of cash policies considers the cash flow sensitivity of cash as a measure of the degree of financial constraints (Almeida et al. (2004); Khurana et al. (2006)). We extend this literature by providing evidence that the extent to which cash is sensitive to cash flow may rather stem from agency consequences of saving cash. Indeed, retaining large cash flow within the firm may be conducive of severe agency problems in the absence of disciplinary pressure from capital providers. Prior work linking corporate governance to cash is, in large part, conducted in the U.S. context. For example, Bates et al. (2009) examine different hypotheses underlying the upward trend in cash held by U.S. corporations and find no evidence that managerial entrenchment −as proxied by GIM index of Gompers et al. (2003)– affects this increase in cash balances. One possible explanation is that the level of shareholder protection in the U.S. is amongst the highest worldwide, which

constrains the discretionary use of firm resources. Different from the U.S., France is considered, by La Porta et al. (1998), as an economy that poorly protects investors and where laws are not well enforced, which may favor agency problems associated with cash savings. In a cross-country study, Kusnadi and Wei (2011) show that firms located in countries with weak investor protection experience higher cash flow sensitivity of cash than firms located in economies with strong investor protection. Different from their study, we conduct a within-country analysis focusing on firm-level characteristics and corporate governance quality.

Second, the corporate governance literature provides evidence that higher excess control rights lead to lower firm value (Claessens et al. (2002), Cronqvist and Nilsson, (2003)), lower stock liquidity (Attig et al. (2006)), less voluntary disclosure (Lee (2007)), higher demand for financial analyst services (Boubaker and Labégorre (2008)), higher cost of equity (Guedhami and Mishra (2009)), higher cost of corporate borrowing (Boubakri and Ghouma (2010)), higher cost of debt (Lin et al. (2011b)), among other. The vast majority of this literature deals with the agency implications of separating control and cash-flow rights but documents little evidence on the "channels" –the ways in which excess control rights affect corporate financial policies– through which private benefits are extracted. Rare exceptions are the study of Wei and Zhang (2008) who show that controlling shareholders use investment policy to divert internal funds to their own benefit and the work of Liu and Tian (2012) who provide evidence that leverage decisions can also be a channel for tunneling firm resources. The identification of channels for obtaining private benefits is of important concern to firms with high levels of excess control rights. Indeed, these firms are more inclined to rely on internal funds in their investment strategy and thereby to save cash, since they typically feature poor information environment causing external funds to be costly for them (e.g., Lin et al. (2011a); Lin et al. (2011b)). The saved cash can, tough, be easily converted into private benefits that accrue to the controlling shareholders at the expense of minority shareholders. Our research is among the very first to study the cash flow sensitivity of cash in a context of concentrated ownership and pioneers the investigation of how separating control and cash-flow rights affects corporate cash savings.

In summary, we think that our paper provides a clearer insight into implementing corporate cash management policies in a European Western country. Such policies may signal that piling up cash in the presence of dominant controlling shareholders is harmful to

minority shareholders, but a good corporate governance system may have a disciplinary role.

The remainder of the paper is organized as follows. Section 2 motivates and develops the hypotheses. Section 3 describes the empirical methodology and data sources. Section 4 provides descriptive statistics and correlation analysis of the different variables used in the analysis. Section 5 reports the results of the multivariate analysis. Section 6 exposes the results of additional analysis. Section 7 presents the robustness checks. Section 8 summarizes the main findings and concludes the paper.

2. Hypotheses development

This section exposes the literature related to excess control rights and cash flow sensitivity of cash to motivate our research hypotheses.

2.1. Excess control rights and cash flow sensitivity of cash

In a concentrated ownership structure, greater separation of control and cash-flow rights leads to potentially severe agency problems due to conflicts of interests between controlling and minority shareholders. Numerous studies have examined the agency implications of excess control rights. Claessens et al. (2002) and Bennedsen and Nielsen (2010) examine samples of firms from, respectively, East Asian and European countries and show that firm value declines with the degree of separation of control and cash-flow rights. Relatedly, Cronqvist and Nilsson (2003) document that Swedish publicly-listed firms experience lower values in the presence of excess control rights. Using a sample of U.S. dual-class firms, Gompers et al. (2009) similarly show that insider control-ownership divergence negatively affects firm value.

Agency costs in disproportionate ownership structures reflect investors' concern about possible egregious behavior of controlling shareholders with large excess control rights. These controlling shareholders have, indeed, the incentive to opportunistically divert firm resources, including cash reserves at their discretionary disposal, for their own end at the expense of minority shareholders. In this regard, Masulis et al. (2009) argue that insiders in U.S. dual-class firms tend to divert more cash resources to their own benefits as their excess control rights increase. Almeida et al. (2011) analytically demonstrate that controlling shareholders of wholly-owned firms that issue new equity expropriate cash from minority

shareholders after fixing the investment policy. Increased amounts of discretionary internal funds are hence kept inside the firm causing cash to be highly sensitive to cash flows. Focusing on emerging market firms, Harvey et al. (2004) find that debt, contrary to internal funds, curtails overinvestment when the separation of managerial control and cash-flow rights is considerable. They explain that debt mitigates extreme agency problems since firms become subject to the scrutiny of capital markets.

Moreover, agency problems may exacerbate the differential wedge between the cost of internal and external funds (Jensen and Meckling (1976)). More specifically, when control is concentrated, it may be costly to raise external financing since there is considerable room in such instances to abuse minority investors. Guedhami and Mishra (2009) consistently find that the cost of equity is increasing with excess control rights. They argue that the presence of large separation of control and cash-flow rights conveys unfavorable information about firm value, making equity issuance more costly. In this spirit, Lin et al. (2011a) point out that outside investors are more reluctant to invest in dual-class firms when insiders enjoy larger excess control rights giving them incentives to extract more private benefits. In the same line of reasoning, Lin et al. (2011b) show that the cost of debt increases with the wedge between control and cash-flow rights, which they explain as the result of higher monitoring costs and credit risks incurred by banks due to the existence of higher risks of tunneling and self-dealing. As a result, external finance is more costly for firms with excess control rights, leading them to save more cash from cash flow. All the above arguments suggest that cash flow sensitivity of cash seems to increase with excess control rights of the controlling shareholder. This leads to our first hypothesis.

H_1. The cash flow sensitivity of cash increases with excess control rights of the ultimate controlling shareholder.

2.2. *Multiple controlling shareholders, excess control rights and cash flow sensitivity of cash*

A number of studies highlight the commonplace presence of control structures with multiple controlling shareholders in firms throughout the world. For example, Porta et al. (1999) argue that one-quarter of largest publicly-traded firms from 27 countries have more than one controlling owner. Faccio and Lang (2002), document that firms from Western European countries have at least two and three controlling shareholders in 39% and 16% of

cases, respectively, making largest controlling shareholder's control highly contestable in such environments.

From an agency perspective, the presence of more than one controlling shareholder may cause a shift in the balance of corporate control. Indeed, in firms with a single controlling shareholder, the rest of shareholders are reticent to engage themselves in costly monitoring activities because of their small ownership claims. The implied free rider problem may increase the discretionary latitude of the controlling shareholder causing inefficient corporate policies including those regarding the management of cash (Shleifer and Vishny (1997)).

However, the presence of several large shareholders reduces the possibilities of private benefits through monitoring (Gomes and Novaes (2001); Bloch and Hege (2001)). Their substantial financial interests in the firm motivate them to better monitor the largest shareholder in ways that curtails his/her opportunistic behavior. The contestability of control appears to be associated with higher corporate governance quality and reduced agency costs (Maury and Pajuste (2005); Laeven and Levine (2008)). Large shareholders beyond the controlling shareholder may not win control individually because of their small control rights, but they can, collectively, form a controlling coalition that challenges the power of the largest controlling shareholders to extract private rents. Bennedsen and Wolfenzon (2000) argue that the presence of multiple large shareholders is an effective corporate governance mechanism in environments with poor shareholder protection such as France. A similar reasoning is advanced by the theoretical framework developed by Gomes and Novaes (2005).

A growing empirical literature addresses the disciplinary role of control contestability. Studying Finnish firms, Maury and Pajuste (2005) show that firm value increases when votes are evenly distributed among large shareholders. Similarly, Jara-Bertin et al. (2008) find that the contestability of family control positively affects firm value in Europe. Ruiz-Mallorquí and Santana-Martín (2011) show that the agency costs in Spanish firms decrease with the amount of voting rights in the hands of the second- and third-most significant shareholders. Using a sample of East Asia countries, Attig et al. (2009) find that firms with multiple large shareholders have a significant valuation premium compared to those with a single large owner.

Many other studies provide additional insights into the disciplinary role of the contestability of control. Faccio et al. (2001) highlight that control structures with multiple controlling shareholders are effective corporate governance mechanisms with regard of the dividend policy in Western European family firms. Attig et al. (2008) examine the effects of governance quality on the implied cost of capital of firms in East Asian and Western European countries. They find that the presence of multiple large shareholders reduces agency and information problems in a manner that decreases the cost of equity financing. Pindado et al. (2011) argue that contestability of control of family-controlled firms in the Euro zone facilitates access to external capital and promotes investment efficiency.

There is hence evidence that it is more difficult for the largest controlling shareholder to enjoy private benefits of control when control is contestable. To the extent that the increase of cash flow sensitivity of cash in the presence of greater excess control rights reflects the importance of private benefits that accrue to the controlling shareholders, control contestability mitigates firm's agency costs, reducing the effect of excess control rights on cash flow sensitivity of cash.

H2. Control contestability mitigates the effect of excess control rights on cash flow sensitivity of cash.

3. Methodology and data

3.1. Sample selection and data sources

Our sample starts with all French publicly-traded firms available in the Worldscope database over the 1998-2007 period. Consistent with the previous literature, we exclude financial firms (SIC code 6000-6999) and utility firms (SIC code 4900-4999) since their liquidity assets are more likely to be driven by regulatory reasons than agency concerns compared to other industries (e.g., Opler et al. (1999); Bates et al. (2009); Riddick and Whited (2009)). We also eliminate observations with missing financial or ownership data. We additionally exclude firms having no controlling shareholder −widely held firms−, since our analysis concerns only controlled firms. Financial variables are winsorized at the 1% and 99% levels to mitigate the effect of outliers on the results. We are left with a panel of 3,447 observations from 586 unique firms covering the 1998-2007 period.

Financial data are obtained from Worldsope database. Ownership data are hand-collected from corporate annual reports available on the website of the *Autorité des Marchés*

Financiers.[5] Data on analyst coverage are extracted from the Historical Institutional Broker Estimation System (IBES) International database.

3.2. Research design

In this section, we specify the empirical model and describe various variables used in the analysis.

3.2.1. Model specification

Our main objective is to analyze the effect of excess control rights of the controlling shareholder on cash flow sensitivity of cash. For this purpose, we employ a model derived from Almeida et al. (2004) that includes an interaction term between cash flow and excess control rights. It also includes the variable of excess control rights itself since greater separation of control and cash-flow rights gives controlling shareholders incentives to extract private benefits, notably from large discretionary cash reserves. (Jensen (1986); Myers and Rajan (1998)). We thus estimate the following model.

$$\Delta CashHoldings_{i,t} = \beta_0 + \beta_1 CashFlow_{i,t} + \beta_2 CashFlow_{i,t} * ExControl_{i,t} + \beta_3 ExControl_{i,t}$$
$$+ \beta_4 Size_{i,t-1} + \beta_5 M/B_{i,t-1} + \beta_6 \Delta STD_{i,t-1} + \beta_7 CAPEX_{i,t-1} + \beta_8 \Delta NWK_{i,t-1} + \beta_9 ACQ_{i,t-1}$$
$$+ Year\ effects + Industry\ effects + \varepsilon_{i,t,}\ (1)$$

where *CashHoldings* is cash and marketable securities scaled by total assets. *ΔCashHoldings* is the change in the level of *CashHoldings* from year $t - 1$ to year *t*. *CashFlow* is cash flow from operations, calculated as income before extraordinary items plus depreciation and amortization expenses minus cash dividends, all divided by total assets. *Size* is firm size, computed as the natural logarithm of total sales (in thousands of euros). *M/B* is market-to-book ratio, defined as the ratio of market value of equity plus book value of liabilities over book value of total assets. *STD* is short-term debt scaled by total assets. *ΔSTD* is the change in the level of *STD* from year $t-1$ to year *t*. *CAPEX* is capital expenditure. It is the ratio of capital expenditure to total assets. *NWK* is net working capital, computed as current assets minus current liabilities minus cash, all divided by total assets. *ΔNWK* is the change in the level of *NWK* from year $t-1$ to year *t*. *ACQ* is total acquisitions scaled by total assets. *ExControl* is excess control rights of the ultimate controlling shareholder, measured as the

[5] The *Autorité des Marchés Financiers* is the French equivalent of U.S. Securities and Exchange Commission.

ratio (*UCO-UCF*)/*UCO* where *UCO* (*UCF*) is the control (cash-flow) rights of the ultimate controlling shareholder. ε is the error term. i and t are subscripts of firm and time, respectively. We include in the model year and industry dummy variables to control for differences in cash savings over time and between industries. Industries are defined following the classification of Campbell (1996). Except from the variable of interest, *CashFlow*, other explanatory financial variables are all computed at the beginning of the year to mitigate possible endogeneity concerns. Financial variables are winsorized at the 1% and 99% levels to reduce the effects of outliers on the results. Appendix 1 summarizes the definitions of all variables used in the present research.

To estimate our model, we use a pooled OLS regression with industry and year fixed effects. The t-statistics are based on White (1980) heteroskedasticity adjusted robust variance estimates that are further adjusted for within firm cluster correlation (Peterson (2009)). The coefficient β_1 captures the cash flow sensitivity of cash. It reflects the firms' propensity to save cash out of cash flow (Almeida et al. (2004); Acharya et al. (2007)). The coefficient β_2 of the interaction term between *CashFlow* and *ExControl* gauges the extent to which cash is sensitive to cash flow depending on the level of excess control rights. According to our first hypothesis H_1, the coefficient β_2 is positive given that greater separation of control and cash-flow rights presumably favors saving more cash. Consistent with the private benefits hypothesis, the coefficient β_2 is lower when control contestability is high, since saving cash for agency motives should be less pronounced in the presence of multiple controlling shareholders.

The set of control variables includes a number of proxies for firm characteristics. Firm size (*Size*) is included in the model because large firms are able to realize economies of scale in cash savings, since they are less likely to face financial distress (Almeida et al. (2004)). Also, these firms do not maintain high precautionary cash reserves as they are less likely to face difficulties in raising external finance (Opler et al., (1999); Dittmar et al., (2003)). The market-to book ratio (M/B) is included to the extent that high growth opportunities imply large financial needs, which incentivize firms to save more cash (Opler et al., (1999); Dittmar et al., (2003)). Change in short-term debt (ΔSTD) is added to the model since increases in short-term debt at the beginning of the year may require high cash outflow during the year to provide necessary funds for debt payments, thus implying growth in cash balances (Bao et al. (2012)). Capital expenditure (*CAPEX*) and acquisitions (*ACQ*) variables are used as

controls because investment and acquisition activities at the beginning of the year can generate internal funds during the year allowing firms to save cash. We control for change in net working capital (*ΔNWC*) to capture the propensity of net working capital to substitute for saved cash.

3.2.2. Measures of excess control rights of the ultimate controlling shareholder

Our key variable, *ExControl*, measures the degree of separation of control and cash-flow rights of the controlling shareholder. We identify the controlling shareholder as being the individual or the entity that owns the largest voting stake of the firm, considering a threshold of 10% of votes.[6] If no shareholder holds at least 10% of votes, then the firm is presumed to be widely held at that threshold.[7] To measure control rights and cash-flow rights of the ultimate controlling shareholder, we trace the ownership chain back to the ultimate controlling shareholder following previous literature on disproportional ownership (e.g., Claessens et al. (2000), Faccio and Lang (2002)).

We next compute control rights (*UCO*) and cash-flow rights (*UCF*) of the ultimate controlling shareholder using the same approach as in Faccio and Lang (2002). *UCO* is computed as the sum of the weakest links of voting rights along each control chain. *UCF* is measured as the sum of the products of ownership stakes along each control chain. *ExControl* is computed as the difference between control and cash-flow rights of the ultimate controlling shareholder, all divided by control rights ((*UCO*-*UCF*)/*UCO*).

4. Descriptive statistics

Table 1 displays descriptive statistics of the main variables used in the present research. Results show that a controlling shareholder has a mean (median) of cash-flow rights and control rights of, respectively, 40.48% (39.10%) and 50.94% (52.93%). This may explain the relatively large excess control rights with a mean (median) of 22.25% (18.93%). Importantly, moving from the first to the third quartile induces a substantial increase in excess control rights from 2.97% to 34.62%. These statistics highlight that controlling shareholders of the French listed firms typically enjoy substantial control while owning only small fraction of equity ownership. Table 1 also shows that average cash holdings accounts

[6] See, La Porta et al. (1999) and Faccio and Lang (2002) for more details on the choice of this control threshold.
[7] The use of 20% leads to qualitatively unchanged results.

for 12.80% of total assets. The cash flow generated represents a mean of 6.37% of a firm's assets. The average firm in the sample has a size (total sales) of €2,737 million and a market-to book ratio of 1.065.

Table 2 reports Pearson and Spearman rank correlation coefficients. It shows that all independent variables are significantly highly correlated with the dependent variable *ΔCashholdings*. Cash flow is positively correlated with cash savings, thus providing univariate support for positive cash flow sensitivity of cash held by French firms. Growth opportunities, capital expenditure and acquisitions are shown to be positively correlated with corporate cash savings. Firm size, change in short term debt and change in net working capital have, however, negative correlations with such savings. The variance inflation factors (VIF) scores range from 1.05 to 1.25 with a mean of 1.14, indicating that multicollinearity is not a concern in our analysis.[8]

5. Multivariate analysis

In the present section, we first analyze the relationship between excess control rights and cash flow sensitivity of cash. We next split our sample into groups to test whether such relationship is driven by a *private benefits motive* or by an alternative explanation such as the presence of financial constraints or precautionary cash savings behavior.

5.1.Main findings

5.1.1. Effect of excess control rights on cash flow sensitivity of cash

Table 3 depicts the results of the effect of excess control rights on cash flow sensitivity of cash. We first note that the coefficient β_1 of the variable *CashFlow* is constantly positive across the all specifications of Table 3. Firms appear hence to save more cash when they generate higher cash flow supporting the evidence that firms allocate a large part of their internally generated funds to cash holdings (Acharya et al. (2007); Lin (2007); Pãl and Ferrando (2010)).

The specification in Column 2 includes the variables of interest, i.e., *CashFlow*, *ExControl* and the interaction term between *CashFlow* and *ExControl* as well as lagged firm

[8] Neter et al. (1990) consider that the multicollinearity is not a concern when the VIF does not exceed 10.

size ($Size_{t-1}$). The coefficient β_2 of the interaction term is found to be positive and statistically significant at the 1% level, suggesting that the cash flow sensitivity of cash increases with excess control rights of the ultimate controlling shareholder.

In Column 3, a variable on past growth opportunities (M/B_{t-1}) is introduced in the previous specification, since firms may increase their saving on cash to mobilize necessary funds for their growth opportunities. Results show that the coefficient β_2 remains strongly positive.

Column 4 presents the estimation results of the comprehensive specification (Model (1)). It yields qualitatively unchanged coefficient β_2 which is positive and statistically significant at the 1% level. Such positive effect is also economically significant. Indeed, the coefficient on cash flow is 0.0985 and that on the interaction term between *CashFlow* and *ExControl* is 0.0595. Based on the median value of *ExControl* (0.1893 in Table 1), the sensitivity to cash of an additional euro of cash flow is 0.1097 (= 0.0985+0.0595*0.1893). A one standard deviation increase in excess control rights (0.2221 in Table 1) brings about a marginal cash flow sensitivity of cash of 0.0132 (= 0.0595*0.2221) euro (or 12.03%) higher, meaning that an additional euro of cash flow increases cash savings to 0.1229 (= 0.1097+0.0595*0.2221) euro, *ceteris paribus*. It is worth noting that the adjusted-R squared improves to 16.96% in Column 4. Such level of explanatory power for our model is similar to that in related studies (see e.g., Almeida et al. (2004); Kusnadi and Wei (2011)). All these results support the first hypothesis H_1 suggesting that cash flow sensitivity of cash increases with the excess control rights of the ultimate controlling shareholder.

We next examine the effects of control variables on cash savings as reported in Column 4 of Table 3. Past growth opportunities are shown to positively influence cash savings which indicates that firms respond to increased growth opportunities by saving more cash. Large firms have less cash savings which is consistent with the view that there is economies of scale in liquid assets held by these firms (Opler et al. (1999)).The past net working capital is negatively associated with cash savings as a substitute source of internal finance. As for capital expenditure and acquisitions, they exhibit positive coefficients suggesting that higher investment activities generate more internal funds which, in turn, lead to more savings of cash. Past change in short-term debt is, however, not found to significantly influence such savings.

5.1.2. *Multiple controlling shareholders and the effect of excess control rights on cash flow sensitivity of cash*

We test the effect of excess control rights on cash flow sensitivity of cash in light of the presence of multiple controlling shareholders by splitting the sample according to whether control contestability is low or high. We next compare the coefficient β_2 of the interaction term between *CashFlow* and *ExControl* across the two groups using seemingly unrelated regression estimations. If the hypothesis H_2 is correct, the coefficient β_2 would be significantly lower for the group of high control contestability than for that of low contestability.

The partition variable in the first two columns of Table 4, *MLSD*, is a dummy variable that equals one if the firm has at least two large shareholders, and zero otherwise. Results indicate that the coefficient β_2 is higher in the group of firms with only one controlling shareholder compared to the group of firms with multiple controlling shareholders (0.0841 versus 0.0390). The *F*-test shows a significant difference in the effect of excess control rights on cash flow sensitivity of cash between the two groups. The difference between coefficient estimates is statistically significant at the 1% level. In terms of economic significance, ceteris paribus, a one standard deviation increase in excess control rights is accompanied by 0.0187 (= 0.0841*0.2221) euro increase in cash flow sensitivity of cash for firms having a unique large shareholder versus an increase of only 0.0087 (= 0.0390*0.2221) euro in this sensitivity when firms have multiple large shareholders. This finding suggests that saving cash out of cash flow is more important when high excess control rights are coupled with the absence of control that is likely to be excreted by the other controlling shareholders.

We also partition the sample on the basis of control contestability that we proxy using the ratio of the sum of voting rights held by the second, third and fourth largest controlling shareholders *(VOTE234)*, the ratio of this sum to the voting rights of the largest controlling shareholder *(VRRATIO)*, the sum of squared differences between the voting rights of two successive large shareholders computed using the voting rights of the four largest shareholders *(HERFINDAHL)*, the Shapley value solution for the largest controlling shareholder in a four shareholder voting game where the four largest blockholders are individual players and the rest are considered as an "ocean" *(SHAPLEY 1)*, and a contestability index which is the common factor extracted from the variables *MLSD, VOTE234, VRRATIO* and *HERFINDAHL* using principal component analysis

(CONTESTINDEX). Agency costs are assumed to be higher (lower) when the variables *VOTE234*, *VRRATIO*, and *CONTESTINDEX* are low (high) and when the variables *HERFINDAHL* and *SHAPLEY1* are high (low).

Results from Table 4 consistently show that the coefficient β_2 is significantly higher for the group of firms with low or no control contestability, i.e., low values of *VOTE234*, *VRRATIO,* and *CONTESTINDEX,* and high values of *HERFINDAHL* and *SHAPLEY1*. Our findings indicate that excess control rights strengthen more the sensitivity of cash to cash flow when only one shareholder maintains a lock on control through great separation of control and cash-flow rights. Hence, in the absence of effective monitoring by other large shareholders, the ultimate controlling shareholder with high excess control rights has more latitude to stockpile discretionary cash, suggesting that private benefits of control explain the cash flow sensitivity of cash in our analysis.

5.1.3. Do financial constraints matter in the cash flow sensitivity of cash?

The extant literature documents that corporate cash policies arise as a trade-off between agency costs of cash holdings and benefits of avoiding the cost of external finance (Kim et al. (1998); Opler et al. (1999)). In the absence of severe financial constraints, firms would be less likely to build cash reserves to the extent that they are not highly exposed to liquidity shortfalls (Gilchrist and Himmelberg (1995)). That is, financially unconstrained firms do not need to save cash out of cash flow when internal funds are managed in an optimal way (Denis and Sibilkov (2010)). In this case, increases in cash balances may signal the willingness of controlling shareholders to accumulate discretionary liquid assets, thus corroborating agency analysis of cash flow sensitivity of cash.

However, the presence of financial constraints in concentrated ownership structures may offer a different picture. When firms are financially constrained, controlling shareholders are unlikely to save cash for self-serving motives due to the limited availability of internal funds as well as the difficult access to external financing sources. Accordingly, controlling shareholders with excess control rights are provided with fewer opportunities to divert firm resources to their own benefits. In such instances, large cash flow sensitivity of cash may not be driven by the private benefits of control but rather by the presence of financial constraints. Central to this assumption is that firms with concentrated ownership may incur higher costs of external finance because of their lack of transparency (Attig et al.

(2006); Lin et al. (2011a)). Saving more cash out of cash flow is hence more likely to be attributable to severe financial constraints faced by these firms.

To investigate this possibility, we supplement Model 1 with an interaction term between cash flow and a dummy variable measuring whether or not a firm is financially constrained using four criteria for financial constraints namely payout ratio, firm size, "adjusted" KZ Index and "adjusted" WW index.[9] We classify a firm as being financially constrained in any given year when its payout ratio (or firm size) lies below the median value of payout ratio (or firm size) of the sample or when its "adjusted" KZ index (or "adjusted" WW index) lies below the sample median value. The firm is considered as financially unconstrained otherwise. Appendix 2 describes and discusses the four proxies for financial constraints that we use in the present analysis.

Table 5 reports the results from estimating cash flow sensitivity of cash including the effects of financial constraints ($CashFlow_t$*$FinConst_t$). These effects are found to be positive but not statistically significant for any of the measurements for financial constraints suggesting that, contrary to the claims of Almeida et al. (2004) and Kusnadi and Wei (2011), firms do not appear to save more cash out of cash flow when they are more financially constrained. The coefficient β_2 of the interaction term between *CashFlow* and *ExControl* remains, however, strongly positive. In other words, greater cash flow sensitivity of cash does not seem to arise from difficulties in raising external funds implying that financial constraints are unlikely to affect such sensitivity. The motive behind the growth in cash balances is therefore more consistent with the private benefits hypothesis, since the built-up cash balances provide controlling shareholders with more opportunities to divert liquid resources to their own advantage.

[9] Two additional criteria are also frequently used to distinguish financially constrained firms from others, namely bond ratings and commercial paper ratings. Notably, firms that never had their public debt or their issued commercial papers rated are usually considered as being financially constrained. Otherwise, they are assumed to be financially unconstrained (Fazzari et al. (1998)). In the current study, we do not use these two criteria given the non-availability of these data for French firms.

6. Additional evidence

6.1. External monitoring and the effect of excess control rights on cash flow sensitivity of cash

6.1.1. Analyst coverage as a proxy for external monitoring

Analysts play a key role in improving the informational environment of firms they follow (Merton (1987)). They can, indeed, capitalize on their expertise as intermediaries to issue regular earnings forecasts and recommendations. Analyst coverage may therefore constitute a disciplinary mechanism forcing the controlling shareholders to manage firms in the best interest of other shareholders. In this regard, Boubaker and Labégorre (2008) report that analyst coverage is higher for firms that are more exposed to expropriation through a larger separation of control and cash-flow rights.

In this line of reasoning, greater analyst following may come along with reduced propensity to hold idle cash balances, thus resulting in lower cash flow sensitivity of cash. It is hence expected that the effect of excess control rights on such sensitivity to be lower in firms that are widely followed by analysts.

To study this relationship, we divide the sample into two groups of "*High*" and "*Low*" analyst coverage (i.e, number of analysts above and below the median, respectively) and compare the coefficient β_2 of the interaction term between *CashFlow* and *ExControl* across the two groups. Results from the two first columns of Table 6 show that this coefficient is 0.0226 in firms enjoying high analyst coverage while it rises to 0.0626 in those with low analyst coverage. The difference between the two coefficients is highly statistically significant. Economically, a one standard deviation increase in excess control rights leads to only a 0.005 (= 0.0226*0.2221) euro increase in cash flow sensitivity of cash in firms having high analyst coverage while this increase is 0.0139 (= 0.0626 *0.2221) euro in firms with low analyst coverage.

We also split our sample into a group of firms that are not followed by any analyst (*Analyst _Dummy*=0) and a group of firms that are followed by at least one analyst (*Analyst_Dummy*=1). The comparison of the coefficient β_2 across the two groups indicates that the absence of analyst coverage is associated with significantly higher cash flow sensitivity of cash at high levels of excess control rights. This result suggests that firms with important

excess control rights save more cash out of cash flow in the absence of external monitoring through analyst coverage.

Cash savings appear hence to rise considerably in firms that are not, or not widely, followed by analysts -and thereby experiencing weak external monitoring- which gives controlling shareholders with excess control rights more opportunities to extract private rents from cash resources. This finding is consistent with the notion that high cash flow sensitivity of cash arises from the potentially important agency costs of liquid assets held by firms having a large separation of control and cash-flow rights.

6.1.2. Product market competition as a proxy for external monitoring

A strong market position constitutes a typical entry barrier that allows powerful firms maintaining high profit margins over a long period (Lev (1983); Baginski et al. (1999)). In such instances, lack of competitive pressure may leave controlling shareholders with considerable discretion over firm resources entailing sizable agency costs (Giroud and Mueller (2010)). Such costs may, however, be mitigated in high-competition product markets where insiders have incentives to act in ways that increase firm efficiency (Graham et al. (1983); Schmidt (1997); Grullon and Michaely (2007)). Given that product market competition appears to reduce agency problems, we reason that controlling shareholders' propensity to pursue private benefits through cash accumulation decreases with market competition but increases with product market power. A possible implication is that controlling shareholders save more cash out of cash flow when they do not face fierce competition. It can hence be argued that low competition and high market power would increase the effect of excess control rights on the sensitivity of cash flow to cash. To test this conjecture, we categorize firms into below- and above-median competition and market power groups. Product market competition, *Market Competition,* is proxied by the Herfindahl–Hirschman index as in Curry and George (1983) and Li (2010). It is computed as the sum of the squared market shares based on sales relative to total industry sales, where industry is defined according to Campbell's (1996) industry classification. Product market power, *Market Power*, is measured using the Lerner index, measured as sales minus cost of goods sold minus sales, general and administrative expenses, all divided by sales. A higher value of Herfindahl–Hirschman index indicates lower product market competition while a higher value of Lerner index indicates higher product market power.

We first examine results from the estimation of our model across the groups of "High" and "Low" competition. We find that the coefficient β_2 of the interaction term is higher for firms operating in low competition industries compared to their counterparts operating in high competition industries (a coefficient of 0.0848 versus 0.0362). The *F*-test for difference yields a significant difference in the coefficient β_2 between the two groups suggesting that firms with greater excess control rights save substantially more cash from cash flow when they do not face strong competition. We next turn to results reported in the two last columns of Table 6 showing that the coefficient β_2 is significantly higher in the group of "High" market power than in that of "Low" market power (a coefficient of 0.0689 versus 0.0348). This suggests that saving cash is markedly more pronounced in firms where high levels of excess control rights are accompanied by a strong market position.

These findings indicate that firms tend to have important cash savings when these firms are under low market competition pressure, and hence, less subject to monitoring by external markets, such that obtaining private benefits from liquid assets is more likely.

Collectively, the results in Tables 4 and 5 show that cash is more sensitive to cash flow in firms where greater excess control rights are coupled with more likelihood for wealth expropriation by controlling shareholders due to low control contestability, low analyst coverage, low product market competition and high product market power. All in all, the effect of excess control rights on cash flow sensitivity of cash appears to be larger in the absence of monitoring forces, which is broadly in line with the agency motive.

6.2. Alternative explanations

This section rules out other alternative explanations for the effect of excess control rights on the sensitivity of cash to cash flow in concentrated ownership firms. Indeed, the propensity of these firms to save more cash may be caused by the need to finance profitable growth opportunities, by hedging needs or due to cash flow uncertainty. We thus divide our sample firms, each time into two groups, depending on the importance of their growth opportunities, hedging needs and cash flow uncertainty, respectively. We then examine the effect of excess control rights on cash flow sensitivity of cash across these groups.

6.2.1. *Private benefits hypothesis versus growth opportunities hypothesis*

Consistent with the pecking order theory, firms primarily use cash resources to finance future investment opportunities (Myers and Majluf (1984)). Therefore, high growth prospects may give firms incentives to retain a larger amount of cash resources inside the firm, increasing the sensitivity of cash to cash flow. Firms with lower growth opportunities are, however, expected to carry less cash since they do not expect to have important financing needs in the future. That is, saving cash in the absence of growth prospects may reflect the controlling shareholders' tendency to build discretionary liquid assets.

To test the validity of such argument, we estimate our model specification for the groups of firms with "*Low*" and "*High*" growth opportunities. The corresponding results are reported in Table 7. We consider two proxies for growth opportunities, market-to-book ratio and sales growth. Using the market-to-book ratio, we find that the coefficient β_2 in "*Low*" growth opportunities group (0.0558) is slightly different from that in "*High*" growth opportunities group (0.0442). The difference between the coefficients is found to be statistically insignificant. The use of sales growth as a second proxy for growth opportunities qualitatively yields similar results. These results suggest that growth opportunities do not influence the relation between excess control rights and cash flow sensitivity of cash, reinforcing the private benefits hypothesis.

6.2.2. *Private benefits hypothesis versus hedging needs hypothesis*

Important investment opportunities can happen at times when internal funds are scarce. Firms can hedge against such cash flow shortage by maintaining large cash balances especially when their debt capacity is exhausted (Haushalter et al. (2007)). In this respect, Acharya et al. (2007) point out that hedging needs are typically accompanied by growth in cash balances resulting in greater cash flow sensitivity of cash. A likely explanation for cash flow sensitivity of cash may thus be ascribed to increased hedging needs.

To assess the likelihood of this explanation, we assign firms into one of two groups namely "*Low*" and "*High*" hedging needs depending on whether their hedging needs, i.e., correlation between cash flow and investment opportunities, are above or below the sample median, respectively. The coefficient β_2 would be higher for "*High*" hedging needs group than for "*Low*" hedging needs group if hedging needs are binding. If hedging needs are not

the reason for the positive relation between excess control rights and cash flow sensitivity of cash, we expect no difference in the coefficient β_2 across the two groups.

Regression results for both groups are reported in Table 7. We find that the coefficient β_2 of the interaction term for the "*Low*" hedging needs group (0.0652), albeit statistically not significant, is very close to that for the "*High*" hedging needs group (0.0698). Hence, hedging needs do not seem to shape the effect of excess control rights on cash saving. The results are thus inconsistent with the argument that the relationship between excess control rights and cash flow sensitivity of cash does arise from corporate hedging needs, which further supports the private benefits hypothesis.

6.2.3. Private benefits hypothesis versus cash flow uncertainty hypothesis

The cash flow sensitivity of cash may indicate that firms face high cash flow uncertainty. Riddick and Whited (2009) contend that high volatility in cash flow increases firms' propensity to have precautionary cash reserves because external finance is costlier for firms with more unstable financial resources. If this is the case, we expect the link between cash flow sensitivity of cash and excess control rights in firms experiencing greater cash flow uncertainty to be stronger.

To test this proposition, we re-estimate our model for two groups of firms classified according to the degree of their cash flow uncertainty, as proxied by standard deviation of the variable *CashFlow*, computed as industry average of prior 5 year standard deviation of cash flow-to-assets, where industry is defined according to Campbell's (1996) industry classification. Results reported in Table 7 show that the coefficient of the interaction term between *CashFlow* and *ExControl* is virtually the same for firms with "*Low*" and "*High*" cash flow uncertainty (a coefficient β_2 of 0.0576 versus 0.0585). These findings indicate that the effect of excess control rights on cash flow sensitivity of cash is not affected by cash flow uncertainty, thus supporting that firms with greater excess control rights are unlikely to save cash out of cash flow to buffer against future liquidity shocks. Basically, this result suggests that cash flow uncertainty is not the primary driver behind the greater cash flow sensitivity of cash at higher level of excess control rights. High cash flow sensitivity of cash may be then signal the propensity of controlling shareholders with excess control rights to build cash balances allowing them to obtain private benefits.

In sum, greater separation of control and cash-flow rights results in higher cash flow sensitivity of cash regardless of the level of growth opportunities, hedging needs and cash flow uncertainty. Thus, cash is likely to be more sensitive to cash flow in firms with high excess control rights even in the absence of precautionary savings motives. Overall, these findings strengthen the hypothesis that the positive effect of excess control rights on cash flow sensitivity of cash is caused by agency costs embedded in liquid assets consistently with the private benefits hypothesis.

7. Robustness checks

The present section performs several sensitivity tests of the effect of excess control rights on cash flow sensitivity of cash. Results are reported in Table 8. First, we use alternative proxies for excess control rights to ensure that our findings do not depend on the used measure. Following previous studies, including Masulis et al. (2009) and Bennedsen and Nielsen (2010), we compute excess control rights as the difference between control rights and cash-flow rights of the ultimate controlling shareholder (*UCO-UCF*) (Column 1 of Table 8) and use a dummy variable *DumExControl* that equals one if *ExControl* is above the median value, and zero otherwise (Column 2 of Table 8). Empirical results indicate that the effect of excess control rights on cash flow sensitivity of cash remains qualitatively unchanged with the coefficient β_2 in Columns 1 and 2 positive and statistically significant. Results also show that the estimated coefficients of control variables have the same sign and virtually similar magnitude.

Second, we check that our results are not due to the exclusion of firms with no controlling shareholder, i.e., widely held firms. To test this possibility, we include observations of firms for which the largest shareholder owns less than 10% of control rights and we repeat the analysis (Column 3 of Table 8). For these firms, we conventionally assign the value zero to the variable *ExControl*. Findings are, again, in line with the previously reported results.

Third, studies including Bertrand et al. (2002) and Almeida and Wolfenzon (2006) document that group-affiliated firms have the possibility [to be completed]. To eliminate the potential effect of internal capital markets on cash savings, we re-run our model estimating cash flow sensitivity of cash on the sample of stand-alone firms (Column 4 of Table 8).

Results indicate, again, that excess control rights have significant positive effects on the cash flow sensitivity of cash.

Fourth, Bao et al. (2012) argues that firms with high cash flow may dissave to pursue investment opportunities because of less costly internal finance relative to external finance. These firms are thus less reluctant to retain cash flow and accumulate cash reserves, thus implying a potentially negative cash flow sensitivity of cash. To avoid bias of such negative sensitivity, we re-estimate our model after excluding firms with negative change in cash holdings (Column 5 of Table 8). Our findings remain virtually the same indicating that the positive effect of excess control rights on saving cash is insensitive to the presence of firms that do not save cash out of cash flow.

Fifth, we reduce our original dataset to a balanced panel in a manner to focus on only firms that are present over the entire 10-year sample period. Such methodological approach allows capturing the behavioral response of firms to possible exogenous shocks and avoids the bias caused by changes in sample composition. The results from this robustness test indicate that the coefficient β_2 continues to load positive and significant at the 1% level showing again that excess control rights significantly affect cash flow sensitivity of cash (Column 6 of Table 8).

Sixth, following the work of Khurana et al. (2006), we control for past cash holdings ($Cashholdings_{t-1}$) and the interaction term between $Cashholdings_{t-1}$ and $CashFlow_t$ (Column 7 of Table 8). The resulting coefficient β_2 is again positive and highly significant at the 1% level. We also find that past cash holdings reduce cash savings and increase the cash flow sensitivity of cash consistent with the results of Khurana et al. (2006) and Kusnadi and Wei (2011).

8. Conclusions

Despite the assumption of Almeida et al. (2004) that cash flow sensitivity of cash captures the degree of financial constraints, subsequent studies document that there are other forces at work in such sensitivity. More specifically, the agency cost perspective of Jensen (1986) suggests that internal funds at the free disposal of insiders provide them with considerable opportunities to extract private benefits, which gives incentive to maintain high cash balances. Thus, allocating cash flow into cash holdings, i.e., cash flow sensitivity of cash

may arise from agency costs embedded in liquid assets. The present research addresses the issue of cash flow sensitivity of cash in a concentrated ownership setting, by examining how ultimate controlling shareholders with excess control rights influence corporate cash savings.

Our empirical analysis draws on the model of cash flow sensitivity of cash proposed in Almeida et al. (2004), modified to integrate the effects of excess control rights. We examine 3,447 firm-year observations from 586 of publicly traded French firms over 1998-2007 period and find that cash flow sensitivity of cash increases with the level of excess control rights. Firms appear hence to turn important amounts of cash flow into cash when controlling shareholders exert substantial control over the firm while holding few cash-flow rights. We propose the agency motive to explain the phenomenon. To reinforce this evidence, we show that the effect of excess control rights on cash flow sensitivity of cash is more pronounced when firms have fewer agency costs, i.e., low control contestability, low cash-flow rights and low product market competitiveness. We also examine whether financial constraints matter for such sensitivity and find that firms with excess control rights do not save cash out of cash flow in response to severe restrictions in obtaining external finance. So, although appealing, the financial constraints hypothesis does not hold for the French corporations with greater excess control rights. Accordingly, cash flow sensitivity of cash in these firms seems to reflect the controlling shareholders' impetus for private benefits, especially when they have large excess control rights.

In further support of the private benefits hypothesis, we show that firms with excess control rights do not increase their cash savings for precautionary motives. Most notably, we find that the effect of excess control rights on cash flow sensitivity of cash does not depend on the level of growth opportunities, hedging needs and cash flow uncertainty. This means that precautionary cash savings are seemingly not the driving force behind cash flow sensitivity of cash in firms with considerable excess control rights.

The results of several robustness checks indicate that our main findings are robust to alternative measurements of excess control rights and different tested samples. All in all, corporate cash saving appear to be a channel for extracting private benefits by controlling shareholders because of considerable agency costs implied by cash resources.

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Appendix 1. Variable definitions and data sources

Variable	Definition	Data sources
Ownership and control		
UCF	Cash-flow rights of the ultimate controlling shareholder.	Authors' calculations based on annual reports
UCO	Control rights of the ultimate controlling shareholder.	As above
ExControl	Excess control rights of the ultimate controlling shareholder, measured as the ratio (*UCO-UCF*)/*UCO*.	As above
DumExControl	Dummy variable that equals one when excess control rights of the controlling shareholder is above the median value; zero otherwise.	As above
MLSD	Dummy that equals 1 if the firm has at least two controlling shareholders and 0 otherwise.	As above
VOTE234	Sum of voting rights of the second, third and fourth largest shareholders.	As above
VRRATIO	Sum of voting rights of the second, third and fourth largest shareholders, divided by the voting rights of the largest controlling shareholder.	As above
HERFINDAHL	Sum of squared differences between the voting rights of the four largest shareholders, that is, $(VR1 - VR2)^2 + (VR2 - VR3)^2 + (VR3 - VR4)^2$, where VR1, VR2, VR3 and VR4 are voting rights of the first, second, third and fourth largest shareholders, respectively.	As above
SHAPLEY 1	Shapley value of the ratio of voting rights held by small shareholders to their voting stakes.	As above
CONTESTINDEX	Contestability index is the common factor extracted from the variables *MLSD, VOTE234, VRRATIO* and *HERFINDAHL* using principal component analysis	As above
Firm characteristics		
CashHoldings	Cash and marketable securities scaled by total assets.	Authors' calculations based on Worldscope data
ΔCashHoldings	Change in the level of *CashHoldings* from year $t-1$ to year t.	As above
CashFlow	Cash flow from operations, calculated as income before extraordinary items plus depreciation and amortization expenses minus cash dividends, all divided by total assets.	As above
Size	Natural logarithm of total sales (in thousands of euros).	As above
M/B	Market-to-book ratio, defined as the ratio of market value of equity plus book value of liabilities over book value of total assets.	As above
STD	Short-term debt scaled by total assets.	As above
ΔSTD	change in the level of *STD* from year $t-1$ to year t.	As above
CAPEX	Ratio of capital expenditure to total assets.	As above
NWK	Net working capital, computed as current assets minus current liabilities minus cash, all divided by total assets.	As above
ΔNWK	Change in the level of *NWK* from year $t-1$ to year t.	As above
ACQ	Total acquisitions scaled by total assets.	As above

Variable	Definition	Data sources
Analyst Coverage	Number of analysts issuing one-year horizon earnings per share estimates	IBES data
Analyst_Dummy	Dummy variable that takes 1 when a firm is followed by at least one analyst, and 0 otherwise.	IBES data
Market Competition	Product market competition proxied by Herfindahl–Hirschman Index, defined as the sum of the squared market shares based on sales relative to total industry sales, where industry is defined according to Campbell's (1996) industry classification.	Authors' calculations based on Worldscope data
Market Power	Market pricing power measured by Lerner index, defined as sales minus cost of goods sold minus sales, general and administrative expenses, all divided by sales	As above
Hedging Needs	Correlation between cash flow (*CashFlow*) and investment opportunities (*Q*).	As above
Cash Flow Uncertainty	Standard deviation of the variable *CashFlow*, computed as industry average of prior 5 year standard deviation of cash flow-to-assets, where industry is defined according to Campbell's (1996) industry classification.	As above
Sales Growth	Annual percentage change in sales.	As above

Appendix 2. Measurements of financial constraints

This appendix describes and discusses the four financial constraints measurements that we use in the present analysis.

1. Dividend payout ratio

Firms with high dividend payouts are expected to have sufficient internal funds at their disposal to honor their contractual obligations and to meet the expectations of their shareholders and are therefore less likely to be financially constrained. On the contrary, firms facing important financial constraints tend to reduce their payouts to provide internal finance for their future investments (e.g., Fazzari et al. (1988)). Thus, firms with greater proportion of cash payout via dividends are presumed to be less financially constrained. This variable is measured as the ratio of dividends to earnings.

2. Firm size

Empirical studies, including Kaplan and Zingales (1997) and Whited and Wu (2006), highlight that, larger firms may face fewer financial constraints because they are ostensibly more mature and transparent for outsiders (e.g., Diamond and Verrecchia (1991); Gilchrist and Himmelberg (1995)). This variable is measured as the logarithm of total assets (in thousands of euros).

3. "Adjusted" KZ index

We use the KZ index, as developed by Kaplan and Zingales (1997), to gauge the degree of financial constraints that firms face. Higher values of the KZ index indicate that firms are more financially constrained. The construction of this index basically relies on a linear combination of five firm characteristics, namely, cash flow, investment opportunities, leverage, cash dividends and cash holdings. In such model, the KZ index loads negatively on cash flow, dividends and cash holdings and positively on investment opportunities and leverage. Thus, when firms face difficulties in raising external finance, they exhaust their internal funds and their cash balances, provide small cash dividends and reach their debt capacities. Moreover, firms need good investment opportunities to be financially constrained.

The development of the KZ index was originally based on a small sample of U.S. low-dividend manufacturing firms. Accordingly, it is then necessary to adapt it to our analysis by adjusting the coefficient estimates of the corresponding basic model so that it can appropriately reflect the financial constraint status for a broader set of French firms. For this purpose, we follow the empirical approach of Backer et al. (2003) to reassign the weights of the original KZ index so that any of the five variables explains one-fifth of the variability of the index while keeping unchanged the signs of the weights of the variables. The obtained "adjusted" KZ index (AKZ) is

$$AKZ = -1.115 * KZ\text{-}CashFlow + 0.147 * Q + 2.333 * KZ\text{-}Leverage - 9.676 * KZ\text{-}Dividends - 7.381 * KZ\text{-}Cashholdings, \quad (2)$$

Where *KZ-Cash flow* is operating income plus depreciation divided by beginning-of-period PPE (Property, Plant and Equipement). *Q* is market value of equity plus book value of assets minus book value of equity all divided by book value of assets. *KZ-Leverage* is the ratio of total debt over total capital, where total capital is total debt plus total stockholders' equity.

KZ-Dividends are cash dividends divided by beginning-of-period PPE. *KZ-Cashholdings* are cash and marketable securities divided by beginning-of-period PPE.

4. "Adjusted" *WW index*

Based on a structural investment model, Whited and Wu (2006) develop an alternative index of financial constraints −WW index− that represents the shadow value of rare financial resources.[10] In essence, the authors show that the degree of financial constraints can be explained by six firm characteristics: cash flow, dividends, long term debt, firm size, sales growth and industry sales growth. A higher WW index implies that financial constraints are more severe. By construction, the WW index is developed from COMPUSTAT quarterly data for U.S. firms making the original index less likely to be appropriate for a French analysis. We therefore adjust this index using the same approach adopted for the AKZ index. The resulting "adjusted" WW index (*AWW*) is

*AWW = - 0.067 * WW-CashFlow - 0.073 * Divdummy + 0.140 * WW-Leverage - 0.016 * WW-Size - 0.191 * Salesgrowth + 0.007 * Ind.Salesgrowth, (3)*

where *WW-CashFlow* is operating income plus depreciation divided by beginning-of-period total assets. *Dividummy* is a dummy variable that equals one if the firm pays dividends and zero otherwise. *WW-Leverage* is the ratio of long-term debt over total assets. *WW-Size* is natural logarithm of total assets in 2007 euros, adjusted for inflation using the French consumer price index series. *Salesgrowth* is annual percentage change in sales in 2007 euros, adjusted for inflation using the French consumer price index (CPI) series. *Ind.Salesgrowth* is industry average of *Salesgrowth,* where industry is defined according to Campbell's (1996) industry classification.

[10] The authors use the Euler investment model that incorporates the shadow cost of external finance.

Table 1. Descriptive statistics. This table exhibits descriptive statistics of variables used in the current study. *CashHoldings* is cash and marketable securities scaled by total assets. *ΔCashHoldings* is the change in the level of *CashHoldings* from year $t-1$ to year t. *CashFlow* is cash flow from operations, calculated as income before extraordinary items plus depreciation and amortization expenses minus cash dividends, all divided by total assets. *Size* is firm size, computed as the natural logarithm of total sales (in thousands of euros). *M/B* is market-to-book ratio, defined as the ratio of market value of equity plus book value of liabilities over book value of total assets. *STD* is short-term debt scaled by total assets. *ΔSTD* is the change in the level of *STD* from year $t-1$ to year t. *CAPEX* is capital expenditure, computed as the ratio of capital expenditure to total assets. *NWK* is net working capital, computed as current assets minus current liabilities minus cash, all divided by total assets. *ΔNWK* is the change in the level of *NWK* from year $t-1$ to year t. *ACQ* is total acquisitions scaled by total assets. *UCO* (*UCF*) is the control (cash-flow) rights of the ultimate controlling shareholder. *ExControl* is excess control rights of the ultimate controlling shareholder, measured as the ratio (*UCO-UCF*)/*UCO*. Financial variables are all winsorized at the 1% and 99% levels.

Variable	Mean	Standard Deviation	Minimum	25th Percentile	Median	75th Percentile	Maximum
$Cashholdings_t$	0.1280	0.1093	0.0000	0.0456	0.0953	0.1775	0.3993
$\Delta Cashholdings_t$	-0.0042	0.0766	-0.3995	-0.0290	-0.0011	0.0242	0.1051
$CashFlow_t$	0.0637	0.1012	-0.1088	0.0309	0.0706	0.1123	0.1976
$Size_{t-1}$	12.376	2.1617	3.3469	10.825	12.027	13.591	18.991
M/B_{t-1}	1.5941	1.1818	0.7650	1.0120	1.3010	1.8508	4.0340
ΔSTD_{t-1}	0.0098	0.0500	-0.0863	-0.0109	0.0020	0.0256	0.1360
$CAPEX_{t-1}$	0.0574	0.0525	0.0051	0.0192	0.0417	0.0745	0.2077
ΔNWK_{t-1}	0.0025	0.0592	-0.2240	-0.0502	0.0016	0.0244	0.1929
ACQ_{t-1}	0.0049	0.0252	0.0000	0.0000	0.0000	0.0000	0.0171
UCF (%)	40.480	25.040	0.0000	19.090	39.100	58.810	99.490
UCO (%)	50.940	25.220	0.0000	29.460	52.930	70.100	99.490
$ExControl_t$ (%)	22.250	22.210	0.0000	2.9700	18.930	34.620	99.510

Table 2. Correlations. This table exhibits Pearson correlation tests of variables used in the current study. *CashHoldings* is cash and marketable securities scaled by total assets. *ΔCashHoldings* is the change in the level of *CashHoldings* from year *t − 1* to year *t*. *CashFlow* is cash flow from operations, calculated as income before extraordinary items plus depreciation and amortization expenses minus cash dividends, all divided by total assets. *Size* is firm size, computed as the natural logarithm of total sales (in thousands of euros). *M/B* is market-to-book ratio, defined as the ratio of market value of equity plus book value of liabilities over book value of total assets. *STD* is short-term debt scaled by total assets. *ΔSTD* is the change in the level of *STD* from year *t − 1* to year *t*. *CAPEX* is capital expenditure, computed as the ratio of capital expenditure to total assets. *NWK* is net working capital, computed as current assets minus current liabilities minus cash, all divided by total assets. *ΔNWK* is the change in the level of *NWK* from year *t − 1* to year *t*. *ACQ* is total acquisitions scaled by total assets. *ExControl* is excess control rights of the ultimate controlling shareholder measured as the ratio (*UCO-UCF*)/*UCO* where *UCO* (*UCF*) is control (cash flow) rights of the ultimate controlling shareholder. Financial variables are all winsorized at the 1% and 99% levels. [a], [b] and [c] denote two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively.

Variable	$\Delta Cashholdings_t$	$CashFlow_t$	$ExControl_t$	$Size_t$	M/B_{t-1}	ΔSTD_{t-1}	$CAPEX_{t-1}$	ΔNWK_{t-1}	ACQ_{t-1}
$\Delta Cashholdings_t$	1								
$CashFlow_t$	0.1702[a]	1							
$ExControl_t$	-0.0037	0.0296[c]	1						
$Size_{t-1}$	- 0.0278[c]	0.2499[a]	0.0928[a]	1					
M/B_{t-1}	0.1438[a]	0.0389[b]	0.0349[b]	0.1621[a]	1				
ΔSTD_{t-1}	0.0142	0.0419[b]	0.0161	0.0147	0.0364[b]	1			
$CAPEX_{t-1}$	0.1554[a]	0.1799[a]	-0.0167	0.0026	0.1535[a]	0.2158[a]	1		
ΔNWK_{t-1}	-0.2057[a]	0.143[a]	-0.0255	-0.0074	0.1350[a]	-0.3631[a]	-0.0748[a]	1	
ACQ_{t-1}	0.1509[a]	0.0621[a]	0.0580[a]	0.0030	0.0521[b]	0.1828[a]	-0.1180[a]	-0.1330[a]	1

Table 3. Excess control rights and cash flow sensitivity of cash. This table reports the effects of excess control rights on cash flow sensitivity of cash. Dependent variable, *ΔCashHoldings,* is the change in the level of *CashHoldings* from year *t − 1* to year *t, where CashHoldings* is cash and marketable securities scaled by total assets. *CashFlow* is cash flow from operations, calculated as income before extraordinary items plus depreciation and amortization expenses minus cash dividends, all divided by total assets. *Size* is firm size, computed as the natural logarithm of total sales (in thousands of euros). *M/B* is market-to-book ratio, defined as the ratio of market value of equity plus book value of liabilities over book value of total assets. *STD* is short-term debt scaled by total assets. *ΔSTD* is the change in the level of *STD* from year *t − 1* to year *t*. *CAPEX* is capital expenditure, computed as the ratio of capital expenditure to total assets. *NWK* is net working capital, computed as current assets minus current liabilities minus cash, all divided by total assets. *ΔNWK* is the change in the level of *NWK* from year *t − 1* to year *t*. *ACQ* is total acquisitions scaled by total assets. *ExControl* is excess control rights of the ultimate controlling shareholder measured as the ratio (*UCO-UCF*)/*UCO* where *UCO* (*UCF*) is control (cash flow) rights of the ultimate controlling shareholder. Financial variables are all winsorized at the 1% and 99% levels. Industry dummies following Campbell's (1996) classification as well as year dummies are included in all regressions but not reported. The t-statistics are reported in parentheses. The estimated standard errors are adjusted for heteroskedasticity (White (1980)) and firm clustering (Peterson (2009)). [a], [b] and [c] denote two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively.

Variable	(1)	(2)	(3)	(4)
$CashFlow_t$	0.1012	0.1000	0.0840	0.0985
	(5.81)[a]	(5.09)[a]	(4.95)[a]	(5.59)[a]
$CashFlow_t$*$ExControl_t$		**0.0653**	**0.0537**	**0.0595**
		(2.70)[a]	**(2.88)[a]**	**(5.94)[a]**
$ExControl_t$		-0.0076	-0.0032	-0.0057
		(-1.64)	(-0.84)	(-1.48)
$Size_{t-1}$		-0.0027	-0.0010	-0.0015
		(-5.05)[a]	(-2.42)[b]	(-3.39)[a]
M/B_{t-1}			0.0090	0.0090
			(6.07)[a]	(6.11)[a]
ΔSTD_{t-1}				-0.0195
				(-0.88)
$CAPEX_{t-1}$				0.0013
				(5.01)[a]
ΔNWK_{t-1}				-0.1016
				(-5.82)[a]
ACQ_{t-1}				0.0401
				(3.15)[a]
Intercept	0.0175	0.0575	0.0106	0.0187
	(1.09)	(3.28)	(0.77)	(1.42)
Year dummies	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Number of observations	3,447	3,447	3,447	3,447
Adjusted-R^2	0.0507	0.0666	0.1024	0.1696

Table 4. Multiple controlling shareholders and the effect of excess control rights on cash flow sensitivity of cash. This table reports the effects of multiple controlling shareholders on the relationship between excess control rights on cash flow sensitivity of cash. Dependent variable, *ΔCashHoldings,* is the change in the level of *CashHoldings* from year *t − 1* to year *t,* where *CashHoldings* is cash and marketable securities scaled by total assets. *CashFlow* is cash flow from operations, calculated as income before extraordinary items plus depreciation and amortization expenses minus cash dividends, all divided by total assets. *Size* is firm size, computed as the natural logarithm of total sales (in thousands of euros). *M/B* is market-to-book ratio, defined as the ratio of market value of equity plus book value of liabilities over book value of total assets. *STD* is short-term debt scaled by total assets. *ΔSTD* is the change in the level of *STD* from year *t − 1* to year *t*. *CAPEX* is capital expenditure, computed as the ratio of capital expenditure to total assets. *NWK* is net working capital, computed as current assets minus current liabilities minus cash, all divided by total assets. *ΔNWK* is the change in the level of *NWK* from year *t − 1* to year *t*. *ACQ* is total acquisitions scaled by total assets. *ExControl* is excess control rights of the ultimate controlling shareholder measured as the ratio (*UCO-UCF*)/*UCO* where *UCO* (*UCF*) is control (cash flow) rights of the ultimate controlling shareholder. Control contestability of the largest controlling shareholder is measured using the variables: *MLSD* is a dummy that equals 1 if the firm has at least two controlling shareholders and 0 otherwise; *VOTE234* is the sum of voting rights of the second, third and fourth largest shareholders; *VRRATIO* is the sum of voting rights of the second, third and fourth largest shareholders, divided by the voting rights of the largest controlling shareholder; *HERFINDAHL* is the sum of squared differences between the voting rights of the four largest shareholders, that is, $(VR1 - VR2)^2 + (VR2 - VR3)^2 + (VR3 - VR4)^2$, where *VR1, VR2, VR3* and *VR4* are voting rights of the first, second, third and fourth largest shareholders, respectively; *SHAPLEY 1* is the Shapley value of the ratio of voting rights held by small shareholders to their voting stakes; *CONTESTINDEX* is contestability index is the common factor extracted from the variables *MLSD, VOTE234, VRRATIO and HERFINDAHL* using principal component analysis. A firm is assigned in the "*Low*" ("*High*") group when the studied variable is below (above) the median value. Financial variables are all winsorized at the 1% and 99% levels. Industry dummies following Campbell's (1996) classification as well as year dummies are included in all regressions but not reported. The t-statistics are reported in parentheses. The estimated standard errors are adjusted for heteroskedasticity (White (1980)) and firm clustering (Peterson (2009)). [a], [b] and [c] denote two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively.

	MLSD		VOTE234		VRRATIO		HERFINDAHL		SHAPLEY 1		CONTESTINDEX	
Variable	0	1	Low	High	Low	High	Low	High	Low	High	Low	High
$CashFlow_t$	0.1163	0.0740	0.1183	0.0775	0.1216	0.0805	0.0814	0.1205	0.1146	0.1027	0.1283	0.0664
	(4.25)[a]	(3.81)[a]	(4.20)[a]	(3.14)[a]	(4.55)[a]	(4.16)[a]	(3.76)[a]	(5.41)[a]	(4.59)[a]	(4.51)[a]	(4.78)[a]	(2.76)[a]
$CashFlow_t$ *ExControl$_t$	**0.0841**	**0.0390**	**0.1238**	**0.0379**	**0.0928**	**0.0402**	**0.0452**	**0.0904**	**0.0097**	**0.0496**	**0.1570**	**0.0324**
	(2.03)[b]	**(2.81)[a]**	**(2.04)[b]**	**(2.93)[a]**	**(2.14)[b]**	**(3.06)[a]**	**(3.78)[a]**	**(2.27)[b]**	**(0.24)**	**(5.32)[a]**	**(2.62)[a]**	**(2.22)[b]**
$ExControl_t$	-0.0025	-0.0153	-0.0045	-0.0126	-0.0022	-0.0115	-0.0091	0.0008	-0.0066	-0.0030	-0.0070	-0.0127
	(-0.49)	(-1.61)	(-0.62)	(-2.18)[b]	(-0.37)	(-1.72)[c]	(-1.93)[c]	(0.10)	(-1.05)	(-0.58)	(-0.99)	(-1.74)[c]
$Size_{t-1}$	-0.0010	-0.0026	-0.0012	-0.0015	-0.0011	-0.0019	-0.0022	-0.0008	-0.0021	-0.0014	-0.0012	-0.0016
	(-2.13)[b]	(-2.61)[b]	(-2.13)[b]	(-2.08)[b]	(-1.84)[c]	(-2.70)[a]	(-3.41)[a]	(-1.25)	(-3.18)[a]	(-1.92)[c]	(-1.98)[b]	(-2.37)[b]
M/B_{t-1}	0.0058	0.0130	0.0055	0.0125	0.0047	0.0120	0.0101	0.0057	0.0095	0.0079	0.0051	0.0127
	(3.79)[a]	(5.42)[a]	(3.11)[a]	(5.75)[a]	(2.64)[a]	(5.52)[a]	(5.48)[a]	(3.03)[a]	(4.80)[a]	(3.69)[a]	(2.89)[a]	(5.79)[a]
ΔSTD_{t-1}	-0.0013	-0.0431	-0.0037	-0.0274	-0.0049	-0.0381	-0.0305	-0.0128	-0.0142	-0.0349	0.0033	-0.0373
	(-0.05)	(-1.10)	(-0.13)	(-0.84)	(-0.17)	(-1.22)	(-0.94)	(-0.84)	(-0.40)	(-1.22)	(0.12)	(-1.17)

$CAPEX_{t-1}$	0.0136	0.0060	0.0025	0.0034	0.0312	0.0007	0.0009	0.0321	0.0003	0.0247	0.0031	0.0038
	(1.36)	(1.99)[b]	(2.40)[b]	(1.23)	(6.02)[a]	(2.54)[b]	(3.75)[a]	(7.12)[a]	(0.48)	(3.07)[a]	(2.99)[a]	(1.33)
ΔNWK_{t-1}	-0.0893	-0.1169	-0.0896	-0.1136	-0.0853	-0.1151	-0.1179	-0.0759	-0.0946	-0.1053	-0.0919	-0.1151
	(-4.52)[a]	(-3.42)[a]	(-3.94)[a]	(-4.29)[a]	(-3.92)[a]	(-4.37)[a]	(-5.03)[a]	(-3.69)[a]	(-3.51)[a]	(-4.75)[a]	(-4.27)[a]	(-4.35)[a]
ACQ_{t-1}	0.0509	0.016	0.0522	0.0071	0.0532	0.0096	0.0272	0.1055	0.0118	0.0552	0.0505	0.0072
	(5.07)[a]	(0.03)	(4.92)[a]	(0.18)	(5.20)[a]	(0.24)	(1.93)[c]	(2.65)[a]	(0.36)	(3.52)[a]	(4.91)[a]	(0.18)
Intercept	0.0153	0.0346	0.0070	0.0737	0.0051	0.0593	0.0277	-0.0120	0.0432	0.0028	0.0098	0.0539
	(0.99)	(1.92)	(0.64)	(1.32)	(0.54)	(1.37)	(1.66)[c]	(-0.47)	(1.59)	(0.24)	(0.87)	(1.27)
p-*value* for difference in the β_2	0.00		0.00		0.00		0.00		0.00		0.00	
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	2,264	1,183	1,723	1,724	1,724	1,723	1,723	1,724	1,724	1,724	1,724	1,723
Adjusted-R^2	0.1530	0.2243	0.1516	0.2090	0.1739	0.1967	0.1864	0.1812	0.1375	0.2131	0.1595	0.2040

Table 5. Excess control rights, financial constraints and cash flow sensitivity of cash. This table reports the effects of excess control rights and financial constraints on cash flow sensitivity of cash. Dependent variable, *ΔCashHoldings,* is the change in the level of *CashHoldings* from year *t − 1* to year *t, where CashHoldings* is cash and marketable securities scaled by total assets. *CashFlow* is cash flow from operations, calculated as income before extraordinary items plus depreciation and amortization expenses minus cash dividends, all divided by total assets. *Size* is firm size, computed as the natural logarithm of total sales (in thousands of euros). *M/B* is market-to-book ratio, defined as the ratio of market value of equity plus book value of liabilities over book value of total assets. *STD* is short-term debt scaled by total assets. *ΔSTD* is the change in the level of *STD* from year *t − 1* to year *t*. *CAPEX* is capital expenditure, computed as the ratio of capital expenditure to total assets. *NWK* is net working capital, computed as current assets minus current liabilities minus cash, all divided by total assets. *ΔNWK* is the change in the level of *NWK* from year *t − 1* to year *t*. *ACQ* is total acquisitions scaled by total assets. *FinConst* is a dummy that equals 1 if the firm is classified as being financially constrained using four criteria: *Dividend payout ratio, Size, AKZ index* and *AWW index* (see Appendix 2 for detailed description of these variables) and 0 otherwise. *ExControl* is excess control rights of the ultimate controlling shareholder measured as the ratio (*UCO-UCF*)/*UCO* where *UCO* (*UCF*) is control (cash flow) rights of the ultimate controlling shareholder. Financial variables are all winsorized at the 1% and 99% levels. Industry dummies following Campbell's (1996) classification as well as year dummies are included in all regressions but not reported. The t-statistics are reported in parentheses. The estimated standard errors are adjusted for heteroskedasticity (White (1980)) and firm clustering (Peterson (2009)). [a], [b] and [c] denote two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively.

Variable	Dividend payout ratio	Size	AKZ index	AWW index
$CashFlow_t$	0.1124	0.1095	0.1064	0.1135
	(5.94)[a]	(4.66)[a]	(5.00)[a]	(5.64)[a]
$\mathbf{CashFlow_t*ExControl_t}$	**0.0577**	**0.0604**	**0.0592**	**0.0585**
	(5.74)[a]	**(6.22)[a]**	**(5.92)[a]**	**(5.84)[a]**
$ExControl_t$	-0.0054	-0.0057	-0.0055	-0.0056
	(-1.44)	(-1.51)	(-1.43)	(-1.45)
$Size_{t-1}$	-0.0015	-0.0012	-0.0014	-0.0016
	(-3.28)[a]	(-2.74)[a]	(-3.10)[a]	(-3.50)[a]
M/B_{t-1}	0.0094	0.0092	0.0091	0.0089
	(6.48)[a]	(6.07)[a]	(6.21)[a]	(5.98)[a]
ΔSTD_{t-1}	-0.0205	-0.0195	-0.0183	-0.0199
	(-0.93)	(-0.88)	(-0.82)	(-0.91)
$CAPEX_{t-1}$	0.0012	0.0013	0.0013	0.0013
	(4.73)[a]	(5.27)[a]	(4.98)[a]	(4.98)[a]
ΔNWK_{t-1}	-0.1030	-0.1023	-0.1017	-0.1017
	(-5.92)[a]	(-5.79)[a]	(-5.81)[a]	(-5.81)[a]
ACQ_{t-1}	0.0385	0.0391	0.0397	0.0396
	(3.03)[a]	(3.02)[a]	(3.14)[a]	(3.09)[a]
$\mathbf{CashFlow_t*FinConst_t}$	0.0393	0.0324	0.0134	0.0130
	(1.35)	(1.12)	(0.61)	(1.30)
Intercept	0.0192	0.0155	0.0169	0.0189
	(1.49)	(1.17)	(1.24)	(1.44)
Year dummies	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Number of observations	3,447	3,447	3,447	3,447
Adjusted-R^2	0.1709	0.1705	0.1698	0.1706

Table 6. Additional evidence: External monitoring and the effect of excess control rights and cash flow sensitivity of cash. This table reports the effects of excess control rights on cash flow sensitivity of cash depending on the level of cash- flow rights of the ultimate controlling shareholder and the degree of product market competition. Dependent variable, *ΔCashHoldings,* is the change in the level of *CashHoldings* from year *t − 1* to year *t,* where *CashHoldings* is cash and marketable securities scaled by total assets. *CashFlow* is cash flow from operations, calculated as income before extraordinary items plus depreciation and amortization expenses minus cash dividends, all divided by total assets. *Size* is firm size, computed as the natural logarithm of total sales (in thousands of euros). *M/B* is market-to-book ratio, defined as the ratio of market value of equity plus book value of liabilities over book value of total assets. *STD* is short-term debt scaled by total assets. *ΔSTD* is the change in the level of *STD* from year *t − 1* to year *t*. *CAPEX* is capital expenditure, computed as the ratio of capital expenditure to total assets. *NWK* is net working capital, computed as current assets minus current liabilities minus cash, all divided by total assets. *ΔNWK* is the change in the level of *NWK* from year *t − 1* to year *t*. *ACQ* is total acquisitions scaled by total assets. *ExControl* is excess control rights of the ultimate controlling shareholder measured as the ratio (*UCO*-*UCF*)/*UCO* where *UCO* (*UCF*) is control (cash flow) rights of the ultimate controlling shareholder. *Analyst Coverage* is the number of IBES analysts issuing one-year horizon earnings per share estimates; A firm is assigned in the "*Low*" ("*High*") group when the variable *Analyst Coverage is* below (above) the median value. *Analyst_Dummy* is a dummy variable that takes 1 when a firm is followed by at least one analyst, and 0 otherwise. *Market Competition* is product market competition proxied by Herfindahl–Hirschman Index (HHI), defined as the sum of the squared market shares based on sales relative to total industry sales, where industry is defined according to Campbell's (1996) industry classification; A firm is assigned in the "*Low*" ("*High*") group when the variable *Market Competition* is above (below) the median value. *Market Power* is product market pricing power measured by Lerner index, defined as sales minus cost of goods sold minus sales, general and administrative expenses, all divided by sales; A firm is assigned in the "*Low*" ("*High*") group when the variable *Market Power* is below (above) the median value. Financial variables are all winsorized at the 1% and 99% levels. Industry dummies following Campbell's (1996) classification as well as year dummies are included in all regressions but not reported. The t-statistics are reported in parentheses. The estimated standard errors are adjusted for heteroskedasticity (White (1980)) and firm clustering (Peterson (2009)). [a], [b] and [c] denote two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively.

Variable	Analyst Coverage		Analyst Dummy		Market Competition		Market Power	
	Low	High	0	1	Low	High	Low	High
$CashFlow_t$	0.1245	0.0977	0.1177	0.1025	0.1149	0.1227	0.1006	0.1027
	(5.32)[a]	(4.67)[a]	(4.81)[a]	(5.35)[a]	(5.87)[a]	(3.13)[a]	(3.22)[a]	(5.02)[a]
$CashFlow_t$ *ExControl$_t$	**0.0626**	**0.0226**	**0.0534**	**0.0207**	**0.0848**	**0.0362**	**0.0348**	**0.0689**
	(4.98)[a]	**(1.81)[c]**	**(5.26)[a]**	**(1.67)[c]**	**(2.77)[a]**	**(3.54)[a]**	**(3.42)[a]**	**(5.11)[a]**
$ExControl_t$	-0.0002	-0.0090	-0.0036	-0.0059	0.0007	-0.0021	0.0001	-0.0051
	(-0.04)	(-0.10)	(-0.59)	(-0.76)	(0.14)	(-0.28)	(0.02)	(-1.16)
$Size_{t-1}$	-0.0016	-0.0021	-0.0018	-0.0029	-0.0009	-0.0031	-0.0016	-0.0013
	(-2.00)[b]	(-2.27)[b]	(-2.62)[a]	(-2.61)[a]	(-1.70)[c]	(-3.36)[a]	(-2.17)[b]	(-2.87)[a]
M/B_{t-1}	0.0132	0.0116	0.0108	0.0114	0.0112	0.0075	0.0102	0.0062
	(5.20)[a]	(5.73)[a]	(4.90)[a]	(5.24)[a]	(5.18)[a]	(3.61)[a]	(4.09)[a]	(4.31)[a]
ΔSTD_{t-1}	-0.0466	-0.0318	-0.0420	-0.0205	-0.0393	-0.0102	-0.0209	-0.0141
	(-1.67)	(-1.12)	(-1.48)	(-0.73)	(-1.50)	(-0.28)	(-0.70)	(-0.55)
$CAPEX_{t-1}$	0.0286	0.0002	0.0010	0.0001	0.0014	0.0277	0.0288	0.0015
	(1.00)[a]	(0.79)	(5.04)[a]	(0.67)	(2.72)[a]	(4.49)[a]	(6.11)[a]	(5.77)[a]
ΔNWK_{t-1}	-0.1109	-0.0720	-0.1114	-0.0780	-0.1086	-0.0986	-0.1050	-0.0855
	(-4.90)[a]	(-3.83)[a]	(-4.57)[a]	(-4.29)[a]	(-5.08)[a]	(-3.48)[a]	(-3.76)[a]	(-4.38)[a]
ACQ_{t-1}	0.0348	0.0415	0.0419	0.0416	0.0133	0.0451	0.0396	0.0557
	(2.20)[b]	(2.79)[a]	(2.65)[a]	(2.75)[a]	(0.60)	(2.99)[a]	(2.61)[a]	(3.81)[a]
Intercept	0.0143	0.0318	0.0019	0.0416	0.0001	0.0488	0.0295	0.0232
	(0.63)	(1.32)	(0.11)	(1.91)[c]	(0.01)	(1.51)	(1.32)	(1.28)
p-*value* for difference in β_2	0.01		0.02		0.00		0.01	
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	2,821	626	2,195	1,252	1,723	1,724	1,723	1,724
Adjusted-R^2	0.2392	0.1812	0.2155	0.1745	0.1406	0.2068	0.2465	0.1819

Table 7. Excess control rights and cash flow sensitivity of cash: private benefits hypothesis versus alternative hypotheses. This table reports the effects of excess control rights of the ultimate controlling shareholder on cash flow sensitivity of cash in the groups of firms divided according to their *M/B ratio*, *Sales Growth Size*, *Hedging Needs* and *Cash Flow Uncertainty*. The definition of these variables is provided in Appendix 1. A firm is assigned in the "*Low*" ("*High*") group when the studied variable is below (above) the median value. Dependent variable, *ΔCashHoldings*, is the change in the level of *CashHoldings* from year $t-1$ to year t, where *CashHoldings* is cash and marketable securities scaled by total assets. *CashFlow* is cash flow from operations, calculated as income before extraordinary items plus depreciation and amortization expenses minus cash dividends, all divided by total assets. *Size* is firm size, computed as the natural logarithm of total sales (in thousands of euros). *M/B* is market-to-book ratio, defined as the ratio of market value of equity plus book value of liabilities over book value of total assets. *STD* is short-term debt scaled by total assets. *ΔSTD* is the change in the level of *STD* from year $t-1$ to year t. *CAPEX* is capital expenditure, computed as the ratio of capital expenditure to total assets. *NWK* is net working capital, computed as current assets minus current liabilities minus cash, all divided by total assets. *ΔNWK* is the change in the level of *NWK* from year $t-1$ to year t. *ACQ* is total acquisitions scaled by total assets. *ExControl* is excess control rights of the ultimate controlling shareholder measured as the ratio (*UCO-UCF*)/*UCO* where *UCO* (*UCF*) is control (cash flow) rights of the ultimate controlling shareholder. Financial variables are all winsorized at the 1% and 99% levels. Industry dummies following Campbell's (1996) classification as well as year dummies are included in all regressions but not reported. The t-statistics are reported in parentheses. The estimated standard errors are adjusted for heteroskedasticity (White (1980)) and firm clustering (Peterson (2009)). [a], [b] and [c] denote two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively.

	M/B ratio		Sales Growth		Hedging Needs		Cash Flow Uncertainty	
Variable	Low	High	Low	High	Low	High	Low	High
$CashFlow_t$	0.0979	0.1304	0.0714	0.0903	0.1206	0.0780	0.0797	0.1072
	(5.18)[a]	(5.43)[a]	(2.25)[b]	(3.51)[a]	(3.74)[a]	(3.93)[a]	(3.11)[a]	(3.67)[a]
$CashFlow_t$ *$ExControl_t$	**0.0558**	**0.0442**	**0.0751**	**0.0570**	**0.0652**	**0.0698**	**0.0576**	**0.0585**
	(5.18)[a]	**(4.14)[a]**	**(1.92)[c]**	**(5.39)[a]**	**(1.20)**	**(5.12)[a]**	**(1.27)**	**(3.03)[a]**
$ExControl_t$	-0.0059	-0.0007	0.0027	-0.0052	-0.0157	0.0019	-0.0039	-0.0002
	(-1.28)	(-0.19)	(0.30)	(-0.94)	(-1.62)	(0.45)	(-0.60)	(-0.03)
$Size_{t-1}$	-0.0024	0.0003	-0.0000	-0.0020	-0.0035	0.0001	-0.0002	-0.0026
	(-3.95)[a]	(0.69)	(-0.11)	(-3.30)[a]	(-4.38)[a]	(0.35)	(-0.57)	(-3.02)[a]
M/B_{t-1}	0.0072	0.0062	0.0094	0.0084	0.0092	0.0087	0.0074	0.0090
	(4.72)[a]	(1.85)[c]	(1.85)[c]	(4.93)[a]	(4.58)[a]	(3.36)[a]	(3.97)[a]	(3.35)[a]
ΔSTD_{t-1}	-0.0010	-0.0548	-0.0403	-0.0070	-0.0426	-0.0052	0.0326	-0.0491
	(-0.03)	(-1.79)	(-1.18)	(-0.25)	(-1.20)	(-0.21)	(1.01)	(-1.62)
$CAPEX_{t-1}$	0.0012	0.0283	-0.0014	0.0011	-0.0028	0.0448	0.0011	0.0113
	(5.29)[a]	(3.79)[a]	(-1.59)	(4.46)[a]	(-0.09)	(4.15)[a]	(1.54)	(1.21)
ΔNWK_{t-1}	-0.0792	-0.1623	-0.1135	-0.0784	-0.1118	-0.0958	-0.0418	-0.1062
	(-4.08)[a]	(-5.90)[a]	(-5.07)[a]	(-3.33)[a]	(-3.94)[a]	(-4.35)[a]	(-1.79)[c]	(-4.22)[a]
ACQ_{t-1}	0.0652	0.0420	0.0447	0.0413	0.0180	0.0015	0.0006	0.0455
	(3.15)[a]	(3.91)[a]	(3.07)[a]	(1.41)	(0.37)	(4.15)[a]	(0.02)	(2.90)[a]
Intercept	0.0344	-0.0130	0.0332	0.0333	0.0314	0.0290	0.0550	0.0429
	(1.96)[c]	(-1.44)	(1.97)[c]	(1.63)	(2.27)[b]	(0.81)	(0.82)	(2.43)[b]
p-*value* for difference in β_2	0.46		0.64		0.80		0.93	
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	1,723	1,724	1,723	1,724	1,723	1,724	1,723	1,724
Adjusted-R^2	0.1492	0.2537	0.2305	0.1580	0.1720	0.1854	0.1368	0.1984

Table 8. Excess control rights and cash flow sensitivity of cash (Robustness). This table reports sensitivity analysis of the effects of excess control rights on cash flow sensitivity of cash. Dependent variable, *ΔCashHoldings,* is the change in the level of *CashHoldings* from year *t − 1* to year *t,* where *CashHoldings* is cash and marketable securities scaled by total assets. *CashFlow* is cash flow from operations, calculated as income before extraordinary items plus depreciation and amortization expenses minus cash dividends, all divided by total assets. *Size* is firm size, computed as the natural logarithm of total sales (in thousands of euros). *M/B* is market-to-book ratio, defined as the ratio of market value of equity plus book value of liabilities over book value of total assets. *STD* is short-term debt scaled by total assets. *ΔSTD* is the change in the level of *STD* from year *t − 1* to year *t*. *CAPEX* is capital expenditure, computed as the ratio of capital expenditure to total assets. *NWK* is net working capital, computed as current assets minus current liabilities minus cash, all divided by total assets. *ΔNWK* is the change in the level of *NWK* from year *t − 1* to year *t*. *ACQ* is total acquisitions scaled by total assets. In Column 1, the measure of excess control rights of the ultimate controlling shareholder is the difference UCO-UCF, where *UCO* (*UCF*) is control (cash flow) rights of the ultimate controlling shareholder. In Column 2, we use a dummy variable, *DumExControl*, that equals one when *ExControl* is above the median value; zero otherwise, where *ExControl* is excess control rights of the ultimate controlling shareholder measured as the ratio (*UCO-UCF*)/*UCO.* In Columns 3, 4 and 5, regressions include the variable *ExControl*. Financial variables are all winsorized at the 1% and 99% levels. Industry dummies following Campbell's (1996) classification as well as year dummies are included in all regressions but not reported. The t-statistics are reported in parentheses. The estimated standard errors are adjusted for heteroskedasticity (White (1980)) and firm clustering (Peterson (2009)). [a], [b] and [c] denote two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively.

Variable	Excess control measure = *UCO-UCF*	Excess control measure = *DumExControl*	Including widely held firms	Excluding group-affiliated firms	Positive cash savings	Balanced panel	Alternative model specification
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$CashFlow_t$	0.0968	0.0989	0.0989	0.0955	0.0711	0.1025	0.0593
	(4.44)[a]	(5.50)[a]	(5.80)[a]	(4.94)[a]	(2.89)[a]	(3.80)[a]	(2.64)[a]
$CashFlow_t$*Excess control measure	**0.1882**	**0.0683**	**0.0594**	**0.0675**	**0.0382**	**0.0952**	**0.0471**
	(1.88)[c]	**(4.20)[a]**	**(5.96)[a]**	**(5.93)[a]**	**(3.20)[a]**	**(5.32)[a]**	**(2.61)[a]**
Excess control measure	-0.0250	-0.0080	-0.0072	0.0063	-0.0054	-0.0048	-0.0024
	(-2.14)[b]	(-2.08)[b]	(-1.95)[c]	(0.13)	(-0.86)	(-1.24)	(-0.55)
$Size_{t-1}$	-0.0018	-0.0015	-0.0015	-0.0012	-0.0050	-0.0012	-0.0017
	(-3.89)[b]	(-3.45)[a]	(-3.46)[a]	(-1.86)[c]	(-6.61)[a]	(-2.27)[b]	(-3.58)[a]
M/B_{t-1}	0.0038	0.0093	0.0094	0.0085	0.0099	0.0051	0.0102
	(2.94)[a]	(6.25)[a]	(6.60)[a]	(4.66)[a]	(5.91)[a]	(3.52)[a]	(7.13)[a]
ΔSTD_{t-1}	0.0030	-0.0194	-0.0187	0.0182	0.0201	-0.0016	
	(0.14)	(-0.84)	(-0.83)	(0.76)	(0.76)	(-0.06)	
$CAPEX_{t-1}$	0.0649	0.0015	0.0014	0.0015	0.0002	0.0026	
	(1.91)[c]	(4.42)[a]	(4.93)[a]	(4.86)[a]	(1.91)[c]	(7.00)[a]	
ΔNWK_{t-1}	-0.0998	-0.1092	-0.1069	-0.0994	-0.0574	-0.1037	
	(-5.48)[a]	(-5.93)[a]	(-6.13)[a]	(-5.24)[a]	(-2.96)[a]	(-4.30)[a]	
ACQ_{t-1}	0.0575	0.0411	0.0413	0.0419	0.0390	0.0595	
	(4.32)[a]	(3.08)[a]	(3.11)[a]	(3.03)[a]	(4.21)[a]	(4.42)[a]	
$Casholdings_{t-1}$							-0.1588
							(-3.44)[a]
$Casholdings_{t-1}$* $CashFlow_t$							0.0478
							(1.96)[c]
Intercept	0.0240	0.0138	0.0135	0.0127	0.0966	0.0214	0.0268
	(2.24)[b]	(1.21)	(1.19)	(1.15)	(4.61)[a]	(1.41)	(1.65)[c]
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	3,447	3,447	3,618	2,036	1,650	1,210	3,447
Adjusted-R^2	0.1440	0.1711	0.1714	0.1764	0.2447	0.1674	0.1438