Geographic Location, Excess Control Rights, and Cash Holdings

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Abstract

We assess the extent to which remotely-located firms are likely to discretionarily accumulate cash rather than distribute it to shareholders. We consider that these firms are less subject to shareholder scrutiny and, thus, will have high agency conflicts as the distance will facilitate the extraction of private benefits. Consistent with our predictions, we find a positive relation between the distance to the main metropolitan area and cash holdings, and this impact is more pronounced when the controlling shareholder has high levels of excess control rights (i.e., separation of cash-flow rights and control rights). Our results hold even after accounting for all control variables, including financial constraints, and suggest that geographic remoteness can be conducive to severe agency problems, particularly when there is a large separation of cash-flow rights and control rights.

JEL Classification: G30; G31; G32; G35.

Keywords: Geography; Firm location; Excess control rights; Cash holdings

1. Introduction

Despite ongoing advances in communication technology, firms' geographic location is still shaping corporate behavior. Previous studies show that proximate investors, both individuals and institutions, are more likely to favor nearby firms because of their ability to oversee management when the distance between shareholders and firms is small. For example, many venture capitalists (VCs) limit their investments to the geographic area within a 20-minute drive, as was the case of Facebook, among others, that received its first round of financing (about $12.7 million) from Accel Partners one year after locating four blocks away from the venture firm (Tian, 2011), partly because VCs are more reticent to visit or sit in boards of more geographically distant portfolio firms (Lerner, 1995). Moreover, since the finding of Coval and Moskowitz (1999) that investors prefer local companies, a number of studies document that locality is associated with more liquid stocks (Loughran and Schultz, 2005), advantageous information on acquisition activity (Kang and Kim, 2008), better price formation in securities markets (Pirinsky and Wang, 2006) and lower behavioral biases (Giannini et al., 2013). This evidence suggests that proximity to firms' location can improve the way in which investors and corporate officials can access and a assess company's information, and thereby contribute to the decision-making process.

We focus on the effect of distance on corporate cash holdings. We argue that corporate geographic location affects the ability of outsiders to monitor the controlling shareholder's actions including those on cash holdings. Our conjecture is that cash management policies are less observable in remotely located firms, which give the controlling shareholder opportunities to pursue private benefits by accumulating cash rather than disgorging it in investments or dividends. This view is associated with the notion that insiders are willing to hoard cash exceeding the firm needs, since the unused cash can be easily diverted to personal consumption or spent in investments that negatively affect firm value (Faleye, 2004; Harford, 1999; Harford et al., 2008; Jensen, 1986). We, therefore, test whether, in remotely located firms, cash holdings

constitute a channel through which the controlling shareholder can obtain private benefits, because vigilant oversight against such egregious behavior is difficult to achieve.

We test our hypotheses using a sample of 4,111 observations of French listed firms over the period 1998 to 2007. We measure remoteness by the distance between the location of firms' headquarters and the Paris region to capture the extent of monitoring costs. We expect firms that are located inside the Paris region to have a large number of adjacent investors and lower monitoring costs compared to their remote counterparts. Consistent with our predictions, we find that cash holding increases as firms' distance from the Paris region increases, and that firms located in the Paris region set significantly lower cash holdings than their remotely located counterparts. These results provide evidence that large cash holdings are associated with the impaired ability to monitor managerial actions of remotely located firms. We next examine the extent to which distance influences cash when control rights and cash-flow rights are separated. We find that the positive effect of distance on cash is more pronounced in firms that exhibit large separation of cash-flow rights and control rights. These results are consistent with the notion that firms incur higher agency costs when geographic remoteness is coupled with a large separation of cash-flow rights and control rights.

Our research adds to the corporate governance literature that identifies agency motives as contributing to large holdings of cash (see, e.g., Dittmar et al., 2003; Harford et al., 2008). Agency costs associated with liquid assets are particularly high when control rights are higher than cash-flow rights. Masulis et al. (2009), for instance, acknowledge that greater separation of insiders' voting rights and cash-flow rights results in more expropriation of cash reserves, leading to a decrease in the value of cash holdings. Becker et al. (2011) use the geographical proximity of large shareholders as an instrument for their monitoring power to find that superior monitoring exerted by large shareholders (i.e., nearby blockholders) tends to mitigate agency problems by reducing corporate cash holdings. We expand this trend in the literature by investigating the effect of firm location on cash holdings in an agency theory framework.

Our analysis is conducted under the French system typically characterized by a large separation of cash-flow rights and control rights (Faccio and Lang, 2002). In such an environment, controlling shareholders have power over the firm's resources that exceed their cash-flow rights allowing them to convert these resources, including cash balances, into private benefits. Using geographic remoteness as a proxy for monitoring costs, a likely implication is that excess control rights would exacerbate agency costs associated with the liquid assets of remotely located firms. We show how the separation of the controlling shareholder's cash-flow and control rights affects the relation between geographic location and cash holdings.

An alternative explanation of our result may be that distant firms hoard cash because they face greater financial constraints as they have high information asymmetry due to little transparency and few corporate disclosures (Ali et al., 2007; Attig et al., 2006; Fan and Wong, 2002) and/or they incur high costs of external finance (Arena and Dewally, 2012). We test this conjecture by using payout ratio as a proxy of financial constraints. We find that the effect of distance on cash held by firms with excess control rights is indifferent to the degree of their financial constraints, thus lending additional support for the agency motive for cash holdings. We consider, however, that the use of payout in our case may be problematic because according to La Porta et al. (2000) weak governance firms may pay low dividends if payouts emanate from a legal protection of minority shareholders (outcome model) or high dividends if they are substitute for weak shareholder protection (substitute model).[1] We, therefore, provide a number of robustness tests by using firm size, the adjusted Kaplan and Zingales (1997), *AKZ*, and the adjusted Whited and Wu (2006), *AWW*, indices, as alternative measures of financial constraints. In addition, we account for endogeneity issues, test robustness of our results to alternative sample compositions, and consider different statistical approaches. We find relatively similar results.

[1] For further empirical evidence on the outcome and substitute models, see, for example, Alzahrani and Lasfer (2012), Brockman and Unlu (2009), Faccio et al. (2001), La Porta et al., (2000), Mitton (2004), and Shao et al. (2013). John et al. (2011) suggests that since distance engenders considerable free cash flow, remote firms may pre-commit to higher dividends to decrease agency costs of such free cash flow, in line with Stulz (1990).

While our focus is mainly on the agency explanation of cash, we also account for the predictions of the two other theories, namely the trade-off and the pecking order theories. The trade-off theory emphasizes the transaction cost and precautionary motives for holding cash and suggests that firms, in the absence of agency conflicts, determine their optimal cash policies by balancing the marginal costs and benefits of these liquid assets. For example, Harford et al. (2014) show that firms mitigate their refinancing risk by increasing their cash holdings. On the other hand, the pecking-order theory emphasizes the informational asymmetries between managers and investors and explains the role of cash as a buffer between retained earnings and investment needs. These two theories suggest the impact of the following firm specific variables, among others, on cash reserves which we include in our analysis: capital expenditures, cash flow, dividend, market-to-book ratio, leverage, net working capital, size, and cash flow volatility. Our results are strong even after accounting for these effects.

Our research contributes to prior literature in several ways. Almazan et al. (2010) develop an analytical model in support of the view that geographically clustered firms tend to have more investment opportunities, and require increased cash holdings to undertake more acquisitions. Landier et al. (2009) show that firms' geographic dispersion substantially affects labor and divestiture policies. Kedia et al. (2008) provide evidence that bidders obtain higher returns when they target geographically proximate firms. Loughran (2008) contends that rural firms are less inclined to issue equity than their metropolitan peers due to the presence of distance-related information frictions. These arguments imply that remotely located firms hold more cash because of the running and the start-up costs of attracting capital and the potential capital rationing in case of financial crisis. We consider that these "connection" effects may be complementary or substitutes (or not related) to our argument that distant firms hold more cash because of a decrease in shareholder scrutiny. If the connection and monitoring effects are complementary, then the longer the distance the worse are these problems, the higher the cash holding. However, if our results reflect more the connection effects rather than the

monitoring factors, then distance should matter in widely-held firms. We test for these effects by re-running our tests using a sample that consists of only widely held firms. Our sample decreased from 4,111 to 206 observations. The results show that distance is not significant, suggesting that cash holding is driven more by agency conflicts between dominant and minority shareholders. Overall, we expand previous evidence by focusing on the effects of remoteness on cash holdings, and provide new insight into the way geographic factors alter firm behavior.

We further test for the possibility of hoarding cash by the controlling shareholders for precautionary reasons, especially when they are undiversified and a large part of their wealth is invested in the firm. Cash is, in this case, a buffer against unexpected negative cash flow shocks (i.e., high firm risk). We accounted for this possibility in all our regressions by using *Cash Flow Volatility*, computed as standard deviation of cash flow-to-net assets for the past five years, as a proxy for firm risk. This variable considers the possibility that higher cash flow uncertainty is associated with larger cash holdings, and the empirical results show that it is positive and statistically significant, which supports the rationale that risky firms hoard more cash than other firms do. We also test the possibility that the positive effect of distance on cash holdings of firms with high excess control reflects the possibility that undiversified controlling shareholders use cash as a convenient "buffer" for adverse events. Since controlling shareholders in stand-alone companies are more likely to be undiversified than those who own many firms forming a group, we run our regression on the sample of group-affiliated firms where controlling shareholders are supposed to be more diversified. In addition, we know that a given level of "*Excess Control*" can correspond to different levels of ownership stakes. We consider the cases where the ownership interests of the controlling shareholders in the firm are low (i.e., $10\% < UCF < 20\%$). These cases correspond to situations where the controlling shareholder is likely to be more diversified. We run our

regressions on the sample of firms with UCF between 10% and 20%. Our results remain qualitatively similar.

The remainder of this paper is organized as follows. Section 2 reviews the literature and develops the research hypotheses. Section 3 describes the data and the methodology. Section 4 presents summary statistics and univariate analysis. Section 5 discusses the results of multivariate analysis. Section 6 reports the results of several robustness checks. In Section 7 we test for endogeneity. Section 8 summarizes the main findings and concludes the paper.

2. Review of the literature and hypotheses tested

2.1. Firms' geographic location and cash holdings

Coval and Moskowitz (1999) argue that investors have strong preferences for nearby firms. They show that U.S. mutual fund portfolios are biased toward neighbor firms and that household investors outperform their distant counterparts given that investors are better off with nearby firms. Hau (2001) argues that proximity to core financial professionals may provide investors with more opportunities for acquiring first-hand and low-cost information so as to optimize their investment portfolios. Wrigley et al. (2003) contend that financial professionals are more prone to develop knowledge spillovers in the vicinity of local business networks that afford them more opportunities for direct and privileged relationships with company officials. In contrast, distant investors are less able to closely inspect corporate management, and, thus, to provide effective monitoring because of decreased visibility of managerial actions at greater distances, and to acquire specific knowledge about firm's operations or a deep understanding of its technical and cultural characteristics (Gaspar and Massa, 2007).

Preferences for more proximate firms may also be driven by familiarity. Huberman (2001) argues that investors are more willing to invest in firms that they can observe directly and follow in local media. Zhu (2002) states that heavy spending on advertising and marketing is prone to increase investors' familiarity with the firm. Consistent with this view, Barber and Odean (2005)

argue that regular corporate news releases and local social networks develop familiarity making firms more attractive to nearby investors. Alternatively, geographic remoteness leads investors to be less familiar with the company matters. Distant investors may therefore incur relatively high oversight costs, which probably undermine their monitoring incentives and abilities.

Previous studies also document the implications of this distance. Petersen and Rajan (2002) contend that banks are less likely to grant credit to distant firms where internal operations are not well observable, since assessment of business risks requires banks to have close formal and informal relationships with their borrowers. Mian (2006) finds that agency costs arising from cultural differences and geographical remoteness frequently prevent foreign banks from lending local firms with low-visibility operations. Grote and Täube (2006) and Bae et al. (2008) show that financial analysts follow more nearby firms since they can easily have regular face-to-face conversations with officials and board members of local firms, which affects the way data integrity and rumors are addressed. Masulis et al. (2012) analyze the effectiveness of boards of directors including foreign members and report that independent directors who usually reside abroad are less inclined to regularly attend board meetings and to capitalize on specific knowledge through on-site visits leading to decreased monitoring performance.

We expand these impacts to the possibility that in remotely located firms, controlling shareholders may hold abnormally large cash reserves which may lead to agency problems, especially when investment opportunities are low. A large number of previous studies examine the effect of corporate governance quality on cash holdings and conclude that managers of poorly governed firms accumulate more cash which is more likely to be spent in investments that negatively affect firm value (e.g., Dittmar et al., 2003; Harford et al., 2008; Kalcheva and Lins, 2007; Kusnadi, 2011). Other studies find strong evidence that poor protection of shareholders rights is associated with a considerable decrease in the value of cash holdings (e.g., Dittmar and Mahrt-Smith, 2007; Drobetz et al., 2010).

We expect the agency costs associated with hoarding cash to be influenced by firms' geographic location, as remoteness of firms' headquarters may decrease the observability of managerial actions and thereby makes monitoring tasks costly. The costs of management monitoring are likely to be lower in the vicinity of corporate decision-makers. In this thread, Baik et al. (2010) allege that local institutional investors are likely to be good monitors because geographic proximity allows them to build long-term relationships with corporate decision-makers. Chen et al. (2010) argue that firms clustering around metropolitan areas are followed by a large number of specialized financial professionals, which increases the visibility of managerial actions and thus decreases the costs of their monitoring. John et al. (2011) show that distance generates considerable agency costs of free cash flow leading firms located away from the ten largest US metropolitan areas to increase their dividend payouts as a way to mitigate such costs. Ayers et al. (2011) document that managers' discretion over financial reporting increases with the geographic remoteness of institutional investors from a firm's headquarters; they conclude that monitoring costs incurred by these investors increase with distance. Similarly, Chhaochharia et al. (2012) find that corporate monitoring is more effective when excreting by local institutional investors than by their non-local counterparts. These arguments motivate our first hypothesis:

H_1: Corporate cash holdings increase with distance from metropolitan areas.

2.2. Excess control rights, firms' geographic location and cash holdings

Distance from metropolitan areas may limit shareholders' ability to provide close and valuable monitoring of managerial actions, including those linked to cash management. The presence of controlling shareholders with more control rights than cash-flow rights ostensibly exacerbates the adverse effects that location has on corporate policies due to the potentially high agency costs of excess control rights. Extensive corporate governance literature provides empirical evidence that larger divergence between cash-flow rights and control rights results in lower firm value (e.g., Claessens et al., 2002; Cronqvist and Nilsson, 2003; Lins, 2003). Morck et

al. (2005) contend that family-controlled firms with higher separation of cash-flow rights and control rights undertake less profitable acquisitions compared to other family firms. Masulis et al. (2009) show that larger divergence between voting rights and the equity ownership of insiders (i.e., officers and directors) is associated with lower value of cash holdings, higher CEO compensation, value-destroying acquisitions and unprofitable capital expenditures. In support of this agency view, Boubakri and Ghouma (2010) find that the cost of borrowing increases with excess control rights. Gompers et al. (2010) claim that insiders of dual-class firms often hold voting rights in excess of cash-flow rights, and that U.S. firms are more likely to adopt dual-class status when private benefits of control are relatively high. Bennedsen and Nielsen (2010) report that the adoption of dual-class structures decreases firm value, particularly when equity interests of the controlling shareholder are not substantial.

Agency problems driven by distance are probably more severe when there is a large separation of cash-flow rights and control rights. In this spirit, Giannetti and Simonov (2006) show that for Swedish listed firms, the presence of excess control rights within a firm decreases the probability that foreign investors hold that stock. Kim et al. (2011) consistently indicate that foreign institutional investors are reluctant to invest in Korean *chaebol* firms where control rights are higher than cash-flow rights. These results suggest that investors are averse to situations characterized by a large separation of cash-flow rights and control rights when they invest abroad, possibly because of the implied agency costs due to geographic location. Adverse implications of a firm's geographic location may be reflected in large cash holdings, such that the controlling shareholder with larger excess control rights can easily extract private rents from cash resources without being subject to close scrutiny of external shareholders. We therefore expect that the positive effect of distance on cash holdings to be amplified in the presence of large separation of cash-flow rights and control rights. In light of these arguments, we propose our second hypothesis:

H_2: The positive location effect on corporate cash holdings is more pronounced in firms where excess control rights of the controlling shareholder are higher.

3. Data and methodology

3.1. Data sources and sample

We start our sample with all French listed firms available in Worldscope database during 1998–2007. Following prior literature, we exclude financial firms (SIC codes 6000–6999), regulated utilities (SIC codes 4900–4999), and widely held firms (i.e., firms with no major shareholder owning more than 10% of total control rights). We discard firms that are headquartered in the French Overseas Departments and Territories because considerable distance between these regions and the Paris region may distort the location analysis and remove those with missing financial or governance data. The screening process results in a total of 710 firms making 4,111 firm–year observations. Data on ownership structure is manually gathered from firms' annual reports whereas financial data and ZIP codes for firms' headquarters are retrieved from the Worldscope database. Data on latitudes and longitudes of the location of the firms' headquarters are collected from Maps of World.[2]

3.2. Baseline model specification

To investigate the relation between geographic location and cash holdings, we supplement the following cash model as developed by Opler et al. (1999) with geographic variables and industry and year fixed effects:

$$Cash = \beta_0 + \beta_1\ Geographic\ variables + \beta_2\ Control\ variables + Industry\ Dummies + Year\ Dummies + \varepsilon, \quad (1)$$

where *Cash* is cash holdings computed as the natural logarithm of the ratio of cash and marketable securities to net assets defined as total assets minus cash and marketable securities. We use the

[2] www.mapsofworld.com.

logarithmic transformation to reduce problems associated with skewness and to mitigate the influence of outlier observations. Appendix 1 provides a description of our variables. All financial variables are winsorized at the 1% and 99% percentile levels to reduce effects of outliers and our regression estimates are based on standard errors adjusted for clustering at the firm level (Peterson, 2009).

To determine the geographical location, we first obtain the four-digit ZIP code of the county in which the firm is headquartered the year it entered Worldscope database.[3] We next estimate its proximity relative to Paris, the French financial center (Guillain and Le Gallo, 2010) using three proxies.[4] First, we define *Distance* as the natural logarithm of one plus distance in kilometers between firm's *i* headquarter and Paris, *P*, using the arc-length formula, as in Coval and Moskowitz (1999):

$$Distance_{iP} = ar\cos(deg) * 2\Pi r/360, \quad (2)$$

$$deg = \cos(lat_i) * \cos(lon_i) * \cos(lat_P) * \cos(lon_P) + \cos(lat_i) * \sin(lon_i) * \cos(lat_P) * \sin(lon_P) + \sin(lat_i) * \sin(lat_P), \quad (3)$$

where *r* is the radius of the earth (6378 km); *lat* is latitude; and *lon* is longitude.

Second, we define *Distance Road* as the natural logarithm of one plus road distance in kilometers between the location of a firm's *i* headquarters and Paris region (ZIP Code 75000) as automobile is still the primarily transportation mode in France (Di Mento, 2009).[5] Finally, we construct a dummy variable *Outside_Paris* that takes the value 1 if a firm is headquartered outside the Paris region, and 0 if the firms is in Paris (county code 75) or inner-ring suburbs (92, 93, 94) and outer-ring suburbs (77, 78, 91, 95).

We use a number of control variables. Following Opler et al. (1999), cash holdings can be explained by a number of firm characteristics. Firm size can be negative due to the presence of

[3] Some cases of relocation such as *Bioalliance Pharma*, *Imecom SA* and *Bac Majestic*, are made within the same region. Cases of relocation outside the Paris region are rare and do not affect results.

[4] According to Ernst & Young "European Headquarters: Location decisions" survey, 2009, all 67 French firms on *Forbes* top 2000 list, except for Michelin Group, are headquartered in the Paris region.

[5] Data on road distance are obtained from www.viamichelin.com website.

economies of scale in holding liquid assets (Miller and Orr, 1966), or positive if larger firms bring about more investment opportunities that, in turn, require more cash (Opler et al., 1999). We use market-to-book to account for the need of growth firms to hoard cash, particularly when external finance is costly (Myers and Majluf, 1984). Research and development is expected to have a positive effect on cash holdings as it is a proxy for financial distress costs. Cash flow assesses whether higher cash flow leads to greater cash accumulation. Net working capital is non-cash liquid resources that, as a substitute for cash, should negatively affect the level of cash holdings (Kim et al., 1998). Cash flow volatility accounts for the possibility that higher cash flow uncertainty is associated with larger cash holdings. Leverage controls for the fact that cash is generally affected by debt repayment. Capital expenditure decreases cash holding as it constitutes a preferred source of financing (Harford, 1999). Similarly, dividends will decrease cash.

4. Descriptive statistics and univariate analysis

Table 1 provides descriptive statistics of our variables. The results indicate that the mean (median) distance and road distance between a firm's headquarter and the Paris region are 142.24 (0) and 172.55 (13) km, respectively, and 75% of our sample firms are within 309 kilometers of the Paris region. The average (median) controlling shareholder excess control rights ratio is 21.73% (18.30%), in line with previous French evidence (e.g., Boubaker, 2007). The cash to net assets ratio exhibits an average (median) value of 0.0981 (0.0562), indicating that liquid assets represent a sgnificant proportion of French firms' assets. We also check for correlation across these variables. We find that geographic variables, *Distance, Road Distance, Outside Paris,* and *Distance_Dummy,* are positively correlated with *Cash*, which, in turn is negatively related to *Firm Size, Net Working Capital, Leverage, Capital Expenditure* and *Dividend,* but positively related to *Market-to-book, Cash Flow, R&D* and *Cash Flow Volatility*.[6] The positive

[6] The variance inflation factor shows that multicollinearity is not a concern that would seriously affect our empirical results. The highest variance inflation factor value is 1.69, below the rule-of-thumb critical value of 10 (Gujarati, 2003). The correlation results are in Appendix 3.

correlation between the distance from Paris and cash holding is substantiated by the results from the univariate analysis reported in Table 2, independently of the definition of distance used. These findings are consistent with the notion that remotely located firms provide a favorable environment for piling-up cash. These firms feature, indeed, considerable monitoring costs, a context that increases the controlling shareholder's likelihood to entrench themselves and thus to misuse the built-up cash.

[Insert Table 1 and Table 2 about here]

5. Multivariate analysis

In this section, we first examine the effect of geography on corporate cash holding. We then assess the impact of excess control rights.

5.1. Firms' geographic location and cash holding

Table 3, Panel A, reports the panel data results. The results indicate that, irrespective of the proxy variable used for distance (*Distance, Road Distance, Outside_Paris,* and *Distance_Dummy,* in, respectively, Columns 1, 2, 3, and 4), firms that are headquartered outside Paris appear to hold significantly more cash than their Paris counterparts. Our findings suggest that as firms move away their headquarters from the Paris region, they tend to accumulate significantly more cash in their balance sheet. Economically, firms that are located 309.4 km (75th percentile) far from Paris have, on average, a higher level of cash than firms that are headquartered in Paris, with a difference of €2.9m, holding all other explanatory variables constant at their mean values.[7] We attribute this result to the view that distance is associated with a more costly monitoring, thereby increasing the likelihood that the controlling shareholder maintains large amounts of cash. Alternatively, firms headquartered in the Paris region hold less

[7] Let $CASH_1$ be cash holdings of firms from the 75th percentile. Using the average value of cash holdings of €161.9 m, the 75th percentile value of *Distance* of 309.4 km in Table 1 and the estimation coefficient of Distance of 0.0031 in Table 3, we obtain $\ln(CASH_1 / €161.9m) = 0.0031 * (\ln(1+309.4) - \ln(1+0))$. This implies that $CASH_1 = €164.8m\ (=161.9m * e^{[0.0031 * (\ln(1+309.4) - 0)]})$. Thus moving from the Paris region to 309.40 km away yields €2.9m (=164.8m –161.9m) higher cash holdings.

cash because their actions are more observable, resulting in low agency costs associated with liquid assets.

Overall, our results provide strong support for hypothesis H_1 that greater remoteness from metropolitan areas leads firms to hold more cash, and that firms' geographic location alters the management of its cash holdings. More specifically, physical remoteness from metropolitan areas implies decreased outsiders' ability to gain access to relevant information, and to monitor management, leading firms to accumulate unnecessary cash. Therefore, liquid assets that increase with distance may indicate that the controlling shareholder is engaging in opportunistic behavior with firm resources.

Our results hold even after accounting for all potential control variables, which also indicate that large firms hold less cash, as *Firm Size* is negative and statistically significant in all our specifications. Similarly, *Net working Capital*, *Leverage*, *Capital Expenditure*, and *Dividends* are all negative and significant, as expected. In contrast, risky firms, as measured by their growth potentials, proxied by *Market-to-book*, financial distress, *R&D*, and *Cash Flow Volatility*, and profitable firms, measured by *Cash Flow*, appear to hold large cash positions, in line with previous evidence (e.g., Opler et al., 1999). [8]

In Table 3, Panel B, we test hypothesis H_2 by examining the role that excess control rights play in the relation between geographic location and cash. For this purpose, we supplement our baseline model (Eq. (1)) with an interaction term between the geographic variables and the variable *Excess Control*, a dummy taking the value 1 if excess control rights of the controlling shareholder are above the median, and 0 otherwise. We identify the controlling shareholders as holders of the largest voting stake of the firm. As in La Porta et al. (1999) and Faccio and Lang (2002), we consider that a firm is controlled when at least one of its shareholders holds 10%

[8] We use industry dummies in all regressions to account for the fact that Services and Consumer Durables are the most common sectors, representing 24.15% and 19.63% of all observations, respectively, compared to the Petroleum industry with only 0.78%, but whose firms are all headquartered in the Paris region, followed by the Services and Leisure sectors, and lastly by Food and Tobacco and Capital Goods industries (See, Appendix 2).

or more of the voting rights.[9] The variable *Excess Control Ratio* is computed as the ratio (*UCO–UCF*)/*UCO*, where *UCF* (*UCO*) is cash-flow (control) rights of the controlling shareholder. To measure *UCF* and *UCO*, we trace the ownership chain back to the ultimate controlling shareholder and we compute his/her control and cash-flow rights following the approach used in Claessens et al. (2000) and Faccio and Lang (2002). *UCF* is measured as the sum of the products of ownership stakes along each control chain. *UCO* is the sum of the weakest links of voting rights along each control chain. We then test the following model:

$$Cash = \beta_0 + \beta_1\ Geographic\ variables + \beta_2\ Geographic\ variables * Excess\ Control + \beta_3\ Excess\ Control + \beta_4\ Control\ variables + Industry\ Dummies + Year\ Dummies + \varepsilon, \quad (4)$$

We include *Excess Control* to account for the possibility that agency costs implied by excess control rights affect the way cash is managed. All variables are defined in Appendix 1. We are interested in the coefficient β_2, which estimates the impact that excess control rights have on location's effect on corporate cash holdings. Hypothesis H_2 predicts that excess control rights exacerbate the location effect on cash holdings, as agency problems are expected to be particularly important at high levels of excess control rights. We hence expect β_2 to be positive.

We first examine location's effect on cash using the continuous geographic variables *Distance* (Column 1) and *Road Distance* (Column 2). The results indicate that β_2 is positive and statistically significant for both variables. This suggests that the level of cash increases when remoteness from the Paris region is coupled with greater excess control rights of the controlling shareholder. The economic implication of this finding is that, ceteris paribus, firms with higher levels of excess control rights that are located 309.40 km (75th percentile) away from the Paris region hold, on average, €5.38m more cash than their Paris counterparts.[10] We obtain similar

[9] The use of 20% leads to qualitatively unchanged results.

[10] As in footnote 7 above, let $CASH_1$ be cash holdings of firm from the 75th percentile. Using the average value of cash holdings of €161.9m, the 75th percentile value of *Distance* of 309.4 km (Table 1), the estimation coefficient of *Distance* of 0.0023, and the estimation coefficient of the interaction term *Distance* * *Excess Control* of 0.0034 (Panel B, Table 3), we obtain $ln(CASH_1/€161.9) = 0.0023 * \ln(1+309.4) + 0.0034 * \ln(1+309.4)$. This implies that $CASH_1$ = €167.28m ($=161.9m * e^{[0.0023 * \ln(1+309.4) + 0.0034 * \ln(1+309.4)]}$). Thus, firms with high levels

results when we use geography dummies, *Outside_Paris* (Column 3) and *Distance_Dummy* (Column 4). The location effect on cash is therefore amplified in the presence of a controlling shareholder owning higher control rights than cash-flow rights. The control variables are not reported as they did not change.

In summary, our findings show that remotely located firms hoard more cash when excess control rights are high, in line with our predictions of hypothesis H_2. Central to this is that separating cash-flow rights and control rights is closely associated with considerable monitoring costs by outsiders, thus providing the controlling shareholder with a greater ability to hoard cash for personal consumption (Jiang et al., 2011). Accordingly, accumulating cash in firms where remoteness from institutional investors and financial professionals is coupled with excess control rights may signal the relevance of agency problems in altering the management of cash. Our results hold even after accounting for the control variables, which we do not report as they are relatively similar to Panel A.

[Insert Table 3 about here]

5.2. Impact of financial constraints on distance and cash holdings

An alternative explanation is that remotely located firms experiencing excess control rights accumulate cash because of their increased difficulties in raising external finance. In this sense, Opler et al. (1999) contend that cash can be held for precautionary motives, so that firms can buffer against unexpected negative cash flow shocks without incurring additional costs from raising external finance. Central to this view is that separation of cash-flow rights and control rights is associated with high information asymmetry due to little transparency and low corporate disclosures (Fan and Wong, 2002; Attig et al., 2006; Ali et al., 2007). In addition, the high cost of getting information on remotely located firms may make external finance costly (Arena and Dewally, 2012). Based on these arguments, it is plausible that firms located away from the Paris area retain more cash because they face greater financial constraints.

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of excess control rights located 309.40 km away from the Paris region have, on average, €5.38m (*=167.28m – 161.9m)* higher cash than their counterparts in Paris.

To test this hypothesis, we first use payout as a proxy for financial constraints. We expect firms with high dividend payouts to have sufficient internal funds at their disposal to honor their contractual obligations and to meet their shareholders' expectations, and are, therefore, less likely to be financially constrained. In contrast, financially constrained firms will 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. The results reported in Table 4 show that the impact of excess control rights and distance on cash holdings is relatively similar across constrained and unconstrained firms.

However, the relationship between governance and dividend is not clear, since firms with weak governance may pay low or high dividends depending on whether they adhere to the outcome or substitution models developed by La Porta et al. (2000). In Table 4, we use alternative measures of financial constraints, namely firm size, adjusted Kaplan and Zingales (1997), *AKZ*, index, and adjusted Whited and Wu (2006), *AWW*, index. Previous empirical studies 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). Alternatively, financial constraints may be a function of a combination of firms' fundamental factors. Kaplan and Zingales (1997) develop an index based on five firm characteristics, namely, cash flow, investment opportunities, leverage, cash dividends and cash holdings.[11] The higher this index, the higher the financial constraints, as when firms, particularly those with good investment opportunities, face difficulties in raising external finance, they exhaust their internal funds and their cash balances, provide small cash dividends, and reach their debt capacities. We adjust this model to reflect the financial constraint status for a broader set of French firms, following the empirical approach of Baker et al. (2003). Similarly, Whited and Wu (2006) index is based on six firm characteristics that reflect rare financial resources, namely, cash flow, dividends, long term debt, firm size, sales growth and industry sales growth. A higher

[11] The KZ index decreases with firm cash flow, dividends, and cash holdings and increases with investment opportunities and leverage.

WW index implies that financial constraints are more severe. We also adapt this index to French firms, *AWW*, as in *AKZ*, above. The details on these proxy variables are in Appendix 1, Panel C.

The results reported in the last six columns of Table 4 are qualitatively similar indicating that, in the presence of high levels of excess control rights, the level of cash held by remote firms is not determined by corporate financial constraints. Overall, our results suggest that remote firms hold abnormally large cash balances regardless of their ability to raise external finance, and provide further evidence that agency motives are behind large cash holdings.

[Insert Table 4 about here]

6. Robustness checks

In this section, we perform a series of sensitivity analysis tests to check the robustness of our results. Notably, we employ alternative measures of the dependent variable and the variables of interest. We also use alternative statistical approaches as well as alternative sample compositions and an alternative model specification. Results are reported in Table 5.

6.1. Robustness to alternative measures of variables

Table 5 reports the results of robustness checks using alternative measurements of the main variables in Eq. (4). The control variables are not reported as they did not change. In Panel A, we first use industry-adjusted cash-to-net assets (Column 1), cash-to-sales (Column 2), and cash-to-assets (Column 3) as alternative proxy measures for cash holdings. Our findings consistently illustrate that the effect of distance on the cash held by firms with high excess control rights is positive and statistically significant, thus supporting hypothesis H_2. The coefficient of $\beta 1$ is also positive and statistically significant, which supports hypothesis H1. Second, we test whether our results hinge on the geographic location metrics by using alternative dummy terms for distance, *Distance100* (Column 4) and *Distance300* (Column 5), which take the value 1 if the firm is, respectively, 100 and 300 km distant from the Paris region. Empirical analysis shows that the coefficient β_2 of the interaction term continues to exhibit a significant positive coefficient, consistent with the notion that firms that are distant from the Paris region hold larger cash when

they experience greater separation of cash-flow rights and control rights. Third, firms that are more distant from their local primary airport are expected to be less accessible, and thus less observable to outsiders leading to potentially higher monitoring costs of managerial actions (John et al., 2011). Thus, we use a variable, *Distance to a major airport*, measured as the natural logarithm of one plus road distance in kilometers to the closest airport with regular connections to Paris (Column 6). We consider that major airports in France are commercial service airports that service, regularly, at least one passenger boarding per day. The results support again the notion that remotely located firms having high excess control rights hold more cash. Lastly, we ensure that our results are robust to the measurement of excess control rights by using a continuous term, *Excess Control Ratio*, computed as the ratio (*UCO–UCF)*/*UCO* (Column 7), and a dummy term, *Excess Control_High*, taking the value 1 if the variable *Excess Control Ratio* is above the median of the sample of firms in which control exceeds ownership, and 0 otherwise (Column 8). The coefficient β_2 is again positive and significant, indicating that cash holding is more affected by distance at high levels of excess control rights.

In Panel B of Table 5, we test for the robustness of our estimation technique. First, we re-estimate Eq. (4) using the random-effect estimation that takes into account the panel nature of the data and allows for time-invariant geographic variables (Column 1). Our finding of a significant and positive association between excess control rights and location's effect on cash remains unchanged. Second, we rerun Eq. (4) using the Fama–MacBeth procedure that estimates cross-sectional regressions separately for each year (Column 2). The coefficient β_2 continues to be positive and statistically significant. We furthermore employ the Fama-MacBeth estimation with Newey-West standard errors (Column 3). This approach accounts for serial correlation using a first-order autoregressive process (Haggard et al., 2008; Jin and Myers, 2006). Our findings remain consistent with the notion that distance positively affects the cash holdings of firms with a large separation of cash-flow rights and control rights. Third, we use a dynamic panel estimation technique, the system Generalized Method of Moments (GMM). We address any endogeneity

concerns by introducing lagged variables taken as instruments (Column 4). Although the magnitude of the interaction term estimate β_2 is different from that found using other statistical methods, this change does not affect our conclusions. Finally, we estimate Eq. (4) using pooled ordinary least squares (OLS) that cluster standard errors by both firm and geographic location, i.e., inside or outside the Paris region (Column 5). The results indicate a positive and statistically significant effect of excess control rights on the cash held by remotely located firms. The control variables are not reported, as they did not change materially.

6.2. Robustness to alternative sample compositions and model specification

In Table 5, Panel C, we report results based on alternative sample compositions and model specification. In Column 1, we follow Coval and Moskowitz (1999) and Malloy (2005) and restrict our analysis to firms located outside the Paris region where 62.88% in our sample firms are headquartered (see Appendix 2). In Column 2, we check that our results are not due to the exclusion of firms with no controlling shareholder (i.e., widely held firms) by including firms in which the largest shareholder owns less than 10% of control rights and assigning a value 0 to the variable *Excess Control Ratio*. In Column 3, we test the effect of geographic location on distance in the sample of widely held firms. The positive effect of distance on cash holdings may not hold for these firms if increased cash in remote firms is driven by the presence of controlling shareholders. Results of Column 3 consistently show that cash holdings of firms with no controlling shareholder are not affected by their geographic location.

In Column 4, we rerun Eq. (4) after excluding observations for which the controlling shareholder owns more than half of the firm's capital stock ownership. In this way we account for the possibility that the controlling shareholder's impetus for obtaining private benefits may subside when this shareholder enjoy substantial financial interest derived from their equity ownership, as the personal wealth of large shareholders is closely tied to firm value, making them less likely to misuse the accumulated cash at their disposal (Claessens et al., 2002). In Column 5, we exclude group-affiliated firms to test for the possibility that cash is driven by internal capital

markets. There is, indeed, evidence that group-affiliated firms have increased opportunities to be propped up by receiving cash assistance from internal capital markets (Bertrand et al., 2002; Cheung et al., 2006). In Columns 6 and 7, we check whether our results still hold for the sample of firms controlled by diversified shareholders, i.e., firms that are affiliated to a group or firms in which the controlling shareholder owns small cash-flow rights ranging between 10% and 20%. Indeed, an alternative explanation of higher cash holdings in remote firms with excess control rights is that the controlling shareholder tends to be more risk averse when having a major part of his/her fortune invested in the firm. In this case, cash is a convenient "buffer" for adverse events only when the controlling shareholder is undiversified. Contrary to this claim, results show that the positive effect of distance on cash remains highly significant when excess control is coupled with affiliation to a group or with low cash-flow rights of the controlling shareholder. This finding reinforces agency-based explanation for cash holdings. Finally, in Column 8, we run sensitivity analyses using a reduced cash model by excluding the variables *Leverage*, *Capital Expenditure* and *Dividend* from Eq. (4) (Opler et al. (1999)). Our results are qualitatively similar.

[Insert Table 5 about here]

7. Endogeneity tests

Table 6 reports the results of the various specifications we use to deal with the potential endogeneity of the geographic location of firms' headquarters. In Column 1, we consider that the choice of headquarter location can be dictated by the nature of certain industries, such as mining and agriculture (El Ghoul et al., 2012; John et al., 2011), making distance to metropolitan areas to be independent of agency problems arising from geographic remoteness. We, therefore, re-run Eq. (4) using only the primary sectors identified as agricultural (SIC codes 0100–0999) and mining (SIC codes 1000–1499, excluding SIC codes 1300–1399). In Column 2, we account for the possibility that firm size determines the geographic location of firms' headquarters since large firms tend to be located in the core regions and that relocations are more frequent in small-sized

firms (e.g., John et al., 2011). The results obtained for the sample of large firms (i.e., total assets in excess of €100 million) are in line with those for the whole sample.

Since important technology changes over time are likely to improve management visibility and reduce monitoring costs, thus mitigating the effect of distance on cash, we test whether our results are stronger in earlier sample period (pre-1998), by running Eq. (4) using only firms that are listed on the French market before 1998. Our results in Column 3 confirm that the location's effect on cash is considerable, as β_2 increases to 0.015, suggesting that agency costs due to excess control rights are higher when distance is accompanied by fewer possibilities to oversee management. In Column 4, we extend the sample period back to 1990 to capture the time effects that technological developments have on distance barriers by interacting *Distance* and *Excess Control* with the variable *Pre-1998*, a dummy that takes the value 1 if a firm existed before the beginning of our sample period, and 0 otherwise. Our results yield the same positive and significant location effect on cash.

Eq. (4) includes the variable *Market-to-book*, which may imply an endogeneity problem since the level of cash can, in turn, determine investment opportunities. To deal with this issue, we follow Dittmar and Mahrt-Smith (2007) and employ an instrumental variable approach by using the three-year lagged sales growth, *Three Year Sales Growth*, as an instrument for the variable *Market-to-book*. Column 5 shows that the first-stage estimation consistently yields a strong positive effect of the instrument on the market-to-book ratio. Column 6 reports the second-stage results which indicate that investment opportunities have a significant positive effect on cash holdings and that the coefficient β_2 remains strongly positive as previously found.

While remotely located firms with excess control rights imply large cash holdings, cash-rich firms may, in turn, choose to locate their headquarters close to the Paris region as financial and business centers, so as to have more opportunities to invest their cash reserves in profitable projects. To address this endogeneity concern, we follow El Ghoul et al. (2012) and instrument distance by the two-digit industry average of distance, *Ind Adjusted Distance*, which presumably

affects firms' location without depending on the level of cash in Column 7. Estimating Eq. (1) illustrates that the variable *Ind Adjusted Distance* has a strongly positive association with the variable *Distance*, indicating that the choice of the instrument is judicious. Our results of the two-stage least-squares estimation of Eq. (4), reported in Column 8, are in line with the previous findings, documenting that the geographic location of firms with substantial excess control rights has a highly significant positive effect on cash holdings.

[Insert Table 6 about here]

8. Conclusion

We test the hypothesis that monitoring the management is potentially less effective for firms that are located in remote areas because of the lower observability of managerial actions. We focus on the effects of distance on corporate cash holdings as a primary corporate policy. Using a sample of 4,111 observations of publicly listed French firms over a period extending from 1998 to 2007, we find that the controlling shareholder can accumulate cash as a way to increase opportunities to obtain private benefits by converting more cash into private benefits when their firms are headquartered outside the Paris region leading to severe agency problems. We also find that the positive effect of distance on cash is amplified when combined with a large separation of cash-flow rights and control rights. Our results provide evidence that remotely located firms keep markedly larger cash holdings when the controlling shareholder is more entrenched. Our results hold even after accounting for a number of control variables, for cash constraints and a battery of robustness checks to test for alternative proxy variables and statistical specifications.

Our results provide evidence that geographic remoteness plays a key role in altering corporate cash policies. Remote firms are more inclined to accumulate cash because of the lower observability of their managerial actions that makes their monitoring costly, especially in the presence of a large separation of cash-flow rights and control rights of the controlling shareholder. While our evidence is limited to the French case, further research will highlight the extent to which cash management in remotely located firms constitutes a channel for extracting private

benefits by the controlling shareholder when its interests that are at odds with those of other shareholders is not country dependent.

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Appendix 1- Variables' description

Variable	Definition
Panel A. Main variables	
Cash	Cash holdings computed as the natural logarithm of the ratio of cash and marketable securities to net assets, where net assets are total assets minus cash and marketable securities.
Distance	Natural logarithm of one plus distance in kilometers to the Paris region.
Road Distance	Natural logarithm of one plus road distance in kilometers to the Paris region.
Outside_Paris	Dummy variable equals 1 if the firm is located outside the Paris region, and 0 otherwise.
Distance_Dummy	Dummy variable equals 1 if *Distance* is above its median value for the sample of firms that are outside the Paris region, and 0 otherwise.
Excess Control Ratio	Excess control rights of the controlling shareholder, computed as the ratio (*UCO–UCF*)/*UCO*, where *UCF* (*UCO*) is cash-flow (control) rights of the controlling shareholder.
Excess Control	Dummy variable that takes the value 1 if the variable *Excess Control Ratio* is above sample median, and 0 otherwise.
Firm Size	Natural logarithm of total sales (in thousands of euros).
Market-to-book	Market-to-book ratio, measured as the book value of assets, less the book value of equity, plus the market value of equity, divided by assets.
R&D	Ratio of research and development expenses to net assets.
Cash Flow	Operating income less interest and taxes, divided by net assets.
Net Working Capital	Current assets less current liabilities and cash, divided by net assets.
Cash Flow Volatility	Standard deviation of cash flow-to-net assets for the past five years.
Leverage	Ratio of total debt to total assets.
Capital Expenditure	Ratio of capital expenditure to net assets.
Dividend	Ratio of cash dividend to total assets.
Panel B. Robustness check variables	
Industry adjusted cash-to-net assets ratio	Industry adjusted ratio of cash and marketable securities to net assets based on Campbell's (1996) classification, where net assets are total assets minus cash and marketable securities.
Cash-to sales	Ratio of cash and marketable securities to sales.
Cash-to-assets	Ratio of cash and marketable securities to total assets.
Distance100	Dummy variable equals 1 if the firm is headquartered outside of a 100 km to the Paris region, and 0 otherwise.
Distance300	Dummy variable equals 1 if the firm is headquartered outside of a 300 km to the Paris region, and 0 otherwise.

Distance to a major airport	Natural logarithm of one plus road distance in kilometers to the closest airport with regular connections to Paris.
Ind Adjusted Distance	An instrument for the variable *Distance*. It is the two-digit industry average of *Distance*, in the year the firm enters the Worldscope dataset.
Excess Control_High	Dummy variable equals 1 if the variable *Excess Control Ratio* is above sample median for firms where control exceeds ownership, and 0 otherwise.
Pre-1998	Dummy variable equals 1 if a firm existed before the start of our sample period, and 0 otherwise.
Three Year Sales Growth	Three year lagged sales growth.

Panel C. Financial constraints variables

Dividend Payout Ratio	Ratio of dividends to earnings.
Firm Size	The natural logarithm of total assets (in thousands of euros).
AKZ index	The adjusted Kaplan and Zingales (1997) index obtained by adjusting the coefficients estimates to reflect the financial constraint status for a broader set of French firms, following the empirical approach of Baker et al. (2003), by 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, as follows: *AKZ* ("adjusted" KZ index) = $-1.115 \cdot$ *KZ-Cash Flow* $+ 0.147 \cdot$ *Q* $+ 2.333 \cdot$ *KZ-Leverage* $- 9.676 \cdot$ *KZ-Dividends* $- 7.381 \cdot$ *KZ-Cash*, where *KZ-Cash Flow* is operating income plus depreciation divided by beginning-of-period PPE (Property, Plant and Equipment). *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-Cash* are cash and marketable securities divided by beginning-of-period PPE.
AWW index	The adjusted Whited and Wu (2006) index. Since the original WW index is developed from COMPUSTAT quarterly data for U.S. firms, we adjust it using the same approach adopted for the *AKZ* index, and obtain the following model: *AWW index* ("adjusted" WW index) = $-0.067 \cdot$ *WW-Cash Flow* $- 0.073 \cdot$ *Divdummy* $+ 0.140 \cdot$ *WW-Leverage* $- 0.016 \cdot$ *WW-Size* $- 0.191 \cdot$ *Sales Growth* $+0.007 \cdot$ *Industry Sales Growth*, where *WW-Cash Flow* is operating income plus depreciation divided by beginning-of-period total assets. *Dividummy* is a dummy variable that takes the value 1 if the firm pays dividends and 0 otherwise. *WW-Leverage* is the ratio of long-term debt over total assets. *WW-Size* is the natural logarithm of total assets in 2007 euros, adjusted for inflation using the French consumer price index series. *Sales Growth* is annual percentage change in sales in 2007 euros, adjusted for inflation using the French consumer price index (CPI) series. *Industry Sales Growth* is two-digit SIC industry average of *Sales Growth*, where industry is defined according to Campbell's (1996) industry classification.

Appendix 2- Sample characteristics

This table provides the distribution of firms by industry using Campbell's (1996) classification and by geographic location to the Paris region based on the dummy variable *Outside_Paris* that takes the value 1 if the firm is located outside the Paris region, and 0 otherwise. *N* is the number of firm–year observations.

Industry	Two-digit SIC codes	*Outside_Paris* 1			0			*N*	% Total
		N	% Total	% Within category	*N*	% Total	% Within category		
Petroleum	13, 29	0	0.000	0.000	32	0.780	100.00	32	0.780
Consumer durables	25, 30, 36, 37, 50, 55, 57	364	8.850	45.105	443	10.78	54.895	807	19.63
Basic industry	10, 12, 14, 24, 26, 28, 33	130	3.160	30.660	294	7.150	69.340	424	10.31
Food and tobacco	1, 2, 9, 20, 21, 54	165	4.010	58.511	117	2.850	41.489	282	6.860
Construction	15, 16, 17, 32, 52	89	2.160	44.949	109	2.650	55.051	198	4.820
Capital goods	34, 35, 38	249	6.060	57.506	184	4.480	42.494	433	10.53
Transportation	40, 41, 42, 44, 45, 47	34	0.830	30.631	77	1.870	69.369	111	2.700
Utilities	46, 48	26	0.630	20.968	98	2.380	79.032	124	3.020
Textiles and trade	22, 23, 31, 51, 53, 56, 59	201	4.890	43.982	256	6.230	56.018	457	11.12
Services	72, 73, 75, 76, 80, 82, 87, 89	230	5.590	23.162	763	18.56	76.838	993	24.15
Leisure	27, 58, 70, 78, 79	38	0.920	15.200	212	5.160	84.800	250	6.080
Total		1,526	37.12	37.120	2,585	62.88	62.880	4,111	100.0

Appendix 3 – Correlations

This table reports the results of pairwise correlations among the variables used. All variables in the table are defined in Appendix 1. [a],[b] and [c] denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Variable	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*
1.Cash	1														
2.Distance	0.0439[a]	1													
3.Road Distance	0.0448[a]	0.9949[a]	1												
4.Outside_Paris	0.0507[a]	0.8299[a]	0.8133[a]	1											
5.Distance_Dummy	0.0501[a]	0.7714[a]	0.7650[a]	0.6078[a]	1										
6.Excess Control	0.0552[a]	–0.0363[b]	–0.0406[a]	–0.0040	–0.0485[a]	1									
7.Firm Size	–0.0788[a]	–0.2367[a]	–0.2336[a]	–0.1532[a]	–0.194[a]	–0.0635[a]	1								
8.Market-to-book	0.7201[a]	–0.0101	–0.0090	–0.0023	–0.0505 [a]	0.0506[a]	–0.0962[a]	1							
9.R&D	0.4447[a]	0.0135	0.0123	0.0327[b]	0.0073	0.0296[c]	–0.0237	0.3356[a]	1						
10.Cash Flow	0.0908[a]	0.0606[a]	0.0605[a]	0.0268[c]	0.0177	–0.0324[b]	0.2705[a]	0.0649[a]	0.0013	1					
11.Net Working Capital	–0.1161[a]	0.1851[a]	0.1882[a]	–0.0944[a]	0.1587 [a]	–0.0297[c]	–0.2047[a]	–0.1094[a]	0.0636[a]	0.1459[a]	1				
12.Cash Flow Volatility	0.2939[a]	–0.0770[a]	–0.0771[a]	–0.0384[b]	–0.0996 [a]	0.0196	–0.0878[a]	0.2420[a]	0.1479[a]	0.0022	–0.0680[a]	1			
13.Leverage	–0.2231[a]	–0.0110	–0.0088	–0.0322[b]	0.0373[b]	–0.0002	0.1743[a]	–0.1457[a]	–0.1021[a]	–0.0778[a]	–0.3041[a]	–0.0281[c]	1		
14.Capital Expenditure	–0.0730[a]	0.0009	0.0045	–0.0189	0.0096	0.0113	–0.0856[a]	0.1027[a]	0.0195	0.1224[a]	–0.1006[a]	–0.0052	0.1743[a]	1	
15.Dividend	–0.0944[a]	0.0816[a]	0.0822[a]	0.0296[c]	0.0283[c]	0.0175	0.0508[a]	0.1835[a]	–0.0014	0.2894[a]	0.1854[a]	–0.0057	–0.1925[a]	0.0257[c]	1

Table 1- Descriptive statistics

This table provides descriptive statistics of variables. *Cash ratio* is the ratio of cash and marketable securities to net assets, where net assets are total assets minus cash and marketable securities. *Distance* is distance in kilometers to the Paris region. *Road Distance* is road distance in kilometers to the Paris region. *Distance to a major airport* is road distance in kilometers to the closest airport with regular connections to Paris. *Excess Control Ratio* is excess control rights of the controlling shareholder, computed as the ratio *(UCO–UCF)* / *UCO*, where *UCF* (*UCO*) is cash-flow (control) rights of the controlling shareholder. All other variables in the table are defined in Appendix 1.

Variable	Mean	Median	Standard deviation	25th percentile	75th percentile	1st percentile	99th percentile
Cash ratio	0.0981	0.0562	0.0961	0.0306	0.1043	0.0004	0.2075
Cash (in millions of euros)	161.898	8.546	641.024	2.510	45.262	0.021	3,158.000
Distance (in kilometers)	142.24	0.0000	201.60	0.0000	309.40	0.0000	674.40
Road Distance (in kilometers)	172.55	13.000	245.34	0.0000	384.00	0.0000	904.00
Distance to a major airport (in kilometers)	39.5034	0.0000	56.0903	0.0000	76.000	0.0000	191.00
Excess Control Ratio	0.2173	0.1830	0.2216	0.0269	0.3374	0.0000	0.9980
Firm Size	12.206	11.916	2.1971	10.745	13.499	3.4533	15.044
Market-to-book	1.4802	1.1605	1.1255	1.0605	1.5665	0.6553	2.2405
R&D	0.0101	0.0000	0.0384	0.0000	0.0023	0.0000	0.0224
Cash Flow	0.0428	0.0498	0.0999	0.0415	0.0922	–0.5727	0.1284
Net Working Capital	0.1038	0.0596	0.2193	0.0000	0.2260	–0.8557	0.3828
Cash Flow Volatility	0.0301	0.0228	0.0236	0.0144	0.0420	0.0025	0.0691
Leverage	0.2270	0.2158	0.1642	0.1000	0.3330	0.0000	0.4473
Capital Expenditure	0.0439	0.0313	0.0503	0.0091	0.0613	0.0000	0.0998
Dividend	0.0099	0.0049	0.0155	0.0000	0.0133	0.0000	0.0233

Table 2- Univariate tests for differences in cash holdings

This table reports the results of pairwise comparison of means (medians) of cash ratio in the groups of firms inside and outside the Paris region using *t*-tests of means (Mann–Whitney rank sum tests). All variables in the table are defined in Appendix 1. The *p*-value of the *t*-test and medians tests of equality is reported in parentheses. [a] ,[b] and [c] denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Variable	Means	*p*-value for difference	Medians	*p*-value for difference
Outside Paris =0	0.0842	(0.000)[a]	0.0521	(0.000)[a]
Outside Paris =1	0.1054		0.0595	
Distance_Dummy =0	0.0893	(0.000)[a]	0.0534	(0.000)[a]
Distance_Dummy =1	0.1107		0.0628	
Road Distance_Dummy =0	0.0880	(0.000)[a]	0.0560	(0.002)[a]
Road Distance_Dummy =1	0.1168		0.0630	

Table 3 - Effects of firms' geographic location on cash holdings

This table reports the results of the pooled OLS estimation of the effects of firms' geographic location on cash holdings (Panel A) and the effects of excess control rights on the relation between cash and geographic location (Panel B). The dependent variable, *Cash*, is the natural logarithm of cash and marketable securities to net assets, which is total assets minus cash and marketable securities. All other variables are defined in Appendix 1. Year dummies and industry dummies following Campbell's (1996) classification are included in all regressions. The sample includes 4,111 observations. The *t*-statistics are reported in parentheses below the estimated coefficients. The standard errors are adjusted for heteroskedasticity (White, 1980) and clustered at the firm level (Peterson, 2009). [a], [b] and [c] denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Variable	(1)	(2)	(3)	(4)
Panel A. Individual effects				
Distance	0.0031			
	(3.49)[a]			
Road Distance		0.0032		
		(3.54)[a]		
Outside_Paris			0.0126	
			(2.94)[a]	
Distance_Dummy				0.0151
				(3.08)[a]
Firm Size	–0.0028	–0.0028	–0.0034	–0.0029
	(–2.76)[a]	(–2.76)[a]	(–3.24)[a]	(–2.86)[a]
Market-to-book	0.0775	0.0774	0.0776	0.0774
	(13.09)[a]	(13.10)[a]	(12.95)[a]	(13.09)[a]
R&D	0.8353	0.8354	0.8346	0.8414
	(4.23)[a]	(4.22)[a]	(4.23)[a]	(4.22)[a]
Cash Flow	0.0467	0.0467	0.0471	0.0469
	(8.57)[a]	(8.58)[a]	(8.42)[a]	(8.62)[a]
Net Working Capital	–0.0926	–0.0928	–0.0904	–0.0937
	(–5.29)[a]	(–5.30)[a]	(–5.16)[a]	(–5.33)[a]
Cash Flow Volatility	0.6778	0.6785	0.6683	0.6806
	(6.65)[a]	(6.67)[a]	(6.50)[a]	(6.70)[a]
Leverage	–0.1404	–0.1405	–0.1375	–0.1404
	(–9.38)[a]	(–9.39)[a]	(–9.35)[a]	(–9.41)[a]
Capital Expenditure	–0.0036	–0.0036	–0.0034	–0.0037
	(–2.99)[a]	(–3.00)[a]	(–2.95)[a]	(–3.13)[a]
Dividend	–0.5377	–0.5382	–0.5122	–0.5341
	(–3.35)[a]	(–3.34)[a]	(–3.16)[a]	(–3.29)[a]
Intercept	0.0324	0.0316	0.0503	0.0373
	(1.09)	(1.04)	(1.72)[c]	(1.24)
Year dummies	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Adjusted R-squared	64.61 %	64.61 %	64.49 %	64.55%
Panel B. Interaction effects				
Distance	0.0023			
	(2.66)[a]			
Distance∗ Excess Control	0.0034			
	(3.11)[a]			
Road Distance		0.0021		
		(2.59)[a]		
Road Distance∗ Excess Control		0.0036		
		(2.95)[a]		
Outside_Paris			0.0118	
			(2.73)[a]	
Outside_Paris∗ Excess Control			0.0118	
			(2.64)[a]	

Distance_Dummy				0.0264
				(5.40)[a]
Distance_Dummy∗ Excess Control				0.0174
				(2.70)[a]
Excess Control	0.0569	0.0631	0.0297	0.0560
	(3.15)[a]	(3.32)[a]	(1.68)[c]	(3.04)[a]
Adjusted R-squared	64.84%	66.44%	68.00%	65.57%

Table 4- Financial constraints, excess control rights and the effects of firms' geographic location on cash holdings

This table reports the results of the pooled OLS estimation of the effects of excess control rights on the relation between firms' geographic location and cash holdings in the groups of financially constrained (Constrained) and unconstrained (Unconstrained) firms sorted according to Dividend Payout Ratio, Firm Size, AKZ index and AWW index (see the details on these proxy variables in Appendix 1, Panel C). Dependent variable, *Cash*, is cash holdings computed as the natural logarithm of the ratio of cash and marketable securities to net assets, where net assets are total assets minus cash and marketable securities. All other variables are defined in Appendix 1. Year dummies and industry dummies following Campbell's (1996) classification are included in all regressions. The *t*-statistics are reported in parentheses below the estimated coefficients. The standard errors are adjusted for heteroskedasticity (White, 1980) and clustered at the firm level (Peterson, 2009). [a],[b] and [c] denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Variable	Dividend Payout Ratio		Firm Size		AKZ index		AWW index	
	Unconstrained	Constrained	Unconstrained	Constrained	Unconstrained	Constrained	Unconstrained	Constrained
Distance	0.0017	0.0034	0.0032	0.0021	0.0041	0.0023	0.0036	0.0022
	(1.66)[c]	(2.23)[b]	(2.37)[b]	(1.99)[b]	(2.53)[b]	(2.69)[a]	(3.05)[a]	(1.98)[b]
Distance ∗ Excess Control	0.0034	0.0041	0.0040	0.0037	0.0036	0.0026	0.0039	0.0032
	(2.88)[b]	(2.29)[b]	(2.46)[b]	(2.96)[a]	(2.07)[b]	(2.60)[b]	(2.41)[b]	(2.72)[a]
Excess Control	0.0459	0.1076	0.1010	0.0568	0.1128	0.0344	0.0568	0.0710
	(2.19)[b]	(3.70)[a]	(3.11)[a]	(2.72)[a]	(3.07)[a]	(2.04)[b]	(2.47)[b]	(3.03)[a]
Firm Size	–0.0041	–0.0039	0.0009	–0024	–0.0075	0.0003	–0.0023	–0.0029
	(–2.75)[a]	(–1.99)[b]	(0.32)	(–1.75)[c]	(–3.62)[a]	(0.40)	(–1.81)[c]	(–2.28)[b]
Market-to-book	0.0747	0.0790	0.0848	0.0597	0.0790	0.0676	0.0740	0.0780
	(8.34)[a]	(11.98)[a]	(11.24)[a]	(7.83)[a]	(8.19)[a]	(10.46)[a]	(11.26)[a]	(6.78)[a]
R&D	0.8885	0.8070	0.9391	0.6522	0.9043	0.5786	1.0409	0.6482
	(2.78)[a]	(3.16)[a]	(3.39)[a]	(3.77)[a]	(3.87)[a]	(2.79)[a]	(4.07)[a]	(2.86)[a]
Cash Flow	0.0459	0.0278	0.0457	0.0360	0.0543	0.0312	0.0430	0.0460
	(5.46)[a]	(1.87)[c]	(7.29)[a]	(6.91)[a]	(8.38)[a]	(6.13)[a]	(6.33)[a]	(6.51)[a]
Net Working Capital	–0.0887	–0.1072	–0.0834	-0.1143	–0.1549	–0.0670	–0.0916	–0.0957
	(–3.49)[a]	(–4.46)[a]	(–3.73)[a]	(–3.99)[a]	(–5.21)[a]	(–3.39)[a]	(–3.81)[a]	(–4.04)[a]
Cash Flow Volatility	0.6126	0.6470	0.6186	0.5845	0.8438	0.2408	0.7186	0.6695
	(4.56)[a]	(4.83)[a]	(3.99)[a]	(4.72)[a]	(5.72)[a]	(1.96)[c]	(4.64)[a]	(5.03)[a]
Leverage	–0.1318	–0.1544	–0.1714	–0.1313	–0.2316	–0.0633	–0.1247	–0.1710
	(–5.78)[a]	(–7.59)[a]	(–6.89)[a]	(–6.33)[a]	(–2.73)[a]	(–4.24)[a]	(–5.94)[a]	(–7.62)[a]
Capital Expenditure	–0.0046	–0.0044	–0.0114	–0.0037	–0.0044	–0.0129	–0.0076	–0.0042
	(–0.69)	(–4.36)[a]	(–1.65)[c]	(–3.47)[a]	(–4.98)[a]	(–1.60)	(–1.11)	(–4.05)[a]
Dividend	–0.6946	0.3243	–0.5141	–0.4995	–0.7347	–0.4669	–0.6333	–0.2805
	(–3.43)[a]	(0.19)	(–2.72)[a]	(–1.86)[c]	(–3.31)[a]	(–2.82)[a]	(–3.10)[a]	(–1.27)
Intercept	–0.0707	0.0240	–0.0733	0.0971	0.1246	0.0241	0.0265	0.0723
	(–2.17) [b]	(0.48)	(–2.45)[b]	(2.54)[b]	(2.98)[a]	(0.36)	(0.83)	(1.54)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
p-*value* for difference	0.69		0.83		0.31		0.65	
Number of observations	2,055	2,056	2,055	2,056	2,055	2,056	2,055	2,056
Adjusted R-squared	64.24%	66.34%	69.95%	58.57%	66.18%	60.19%	74.49%	50.65%

Table 5- Robustness checks

This table reports the results of robustness checks. In Panel A, we use alternative measures of the dependent variables (Columns 1-3) and alternative measures of independent variables (Columns 4-8). Dependent variable is cash holdings. In Column 1, it is computed as the natural logarithm of industry adjusted ratio of cash and marketable securities to net assets based on Campbell's (1996) classification, where net assets are total assets minus cash and marketable securities. In Columns 2 and 3, it is computed as the natural logarithm of cash-to-sales ratio and the natural logarithm of cash-to-assets ratio, respectively. In Columns 4-8, it is the natural logarithm of the ratio of cash and marketable securities to net assets. In Panel B, we test for robustness of our results to alternative statistical methods. We use alternative statistical approaches: random-effect estimation (Column 1); Fama-MacBeth Estimation (Column 2); Fama-MacBeth Estimation with Newey-West standard errors (Column 3); system GMM (Column 4); and double clustering at the firm and location levels (Column 5). In Panel C, we use alternative sample compositions: excluding Paris region firms (Column 1); including widely held firms (Column 2); considering only widely held firms (Column 3); excluding firms with *UCF* higher than 50% (Column 4); excluding group-affiliated firms (Column 5); considering only group-affiliated firms (Column 6); and using the sample of firms with *UCF* ranging between 10% and 20% (Column 7). We also use reduced cash model as alternative model specification excluding *Leverage*, *Capital Expenditure* and *Dividend* (Column 8). All other variables are defined in Appendix 1. Year dummies and industry dummies following Campbell's (1996) classification are included in many specifications. The *t*-statistics are reported in parentheses below the estimated coefficients. The standard errors are adjusted for heteroskedasticity (White, 1980) and clustered at the firm level (Peterson, 2009) in regressions of Panel A and Panel C. [a], [b] and [c] denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A. Robustness to alternative variables' measures

	Alternative dependent variables			Alternative independent variables				
Variable	*Industry adjusted cash-to-net assets ratio*	*Cash-to-sales ratio*	*Cash-to-assets ratio*	*Distance measure = Distance100*	*Distance measure = Distance300*	*Distance measure = Distance to a major airport*	*Excess Control measure =Excess Control Ratio*	*Excess Control measure = Excess Control_High*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Distance	0.0019	0.0359	0.0269				0.0012	0.0041
	(2.00)[b]	(2.71)[a]	(1.97)[b]				(3.42)[a]	(3.18)[a]
Distance∗ Excess Control	0.0030	0.0137	0.0506					
	(2.68)[a]	(8.62)[a]	(4.13)[a]					
Excess Control	0.0647	0.1239	0.3772	0.0535	0.0557	0.0641		
	(3.26)[a]	(0.44)	(1.65)[c]	(2.99)[a]	(3.14)[a]	(3.55)[a]		
Distance measure				0.0113	0.0106	0.0029		
				(2.35)[b]	(2.15)[b]	(2.37)[b]		
Distance measure ∗Excess Control				0.0197	0.0206	0.0036		
				(2.87)[a]	(2.61)[a]	(3.50)[a]		
Distance ∗ Excess Control measure							0.0014	0.0031
							(2.62)[a]	(1.97)[b]
Excess Control measure							0.0059	0.0026
							(1.46)	(0.45)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Adjusted R-squared	52.35%	48.21%	32.77%	64.76 %	64.87 %	66.83%	49.61%	64.69%

Panel B. Robustness to alternative statistical methods

	Random-effect estimation	Fama-MacBeth Estimation	Fama-MacBeth Estimation with Newey-West	System GMM	Double clustering
	(1)	(2)	(3)	(4)	(5)
Distance	0.0049	0.0027	0.0027	0.0473	0.0023
	(4.14)[a]	(3.88)[a]	(2.99)[b]	(2.37)[b]	(4.25)[a]
Distance∗	0.0021	0.0028	0.0028	0.0114	0.0034
Excess Control	(2.87)[a]	(4.00)[a]	(3.28)[a]	(2.61)[a]	(7.31)[a]
Excess Control	0.0182	0.0589	0.0589	1.6520	0.0569
	(0.98)	(3.90)[a]	(2.98)[b]	(2.50)[b]	(3.63)[a]
Year dummies	No	No	No	Yes	Yes
Industry dummies	Yes	No	No	Yes	Yes
Number of observations	4,111	Groups=10	Groups=10	AR(1)=0.001 AR(2)=0.546	4,111
Adjusted R-squared	66.12%	64.17%	Avg R-squared 64.17%	Sargan=0.588 Hansen=0.974	64.84%

Panel C. Robustness to alternative sample compositions and model specification

	Alternative sample compositions							Alternative model specification
	Excluding Paris region firms	Including widely held firms	Sample of widely held firms	Excluding firms with UCF>=50%	Excluding group-affiliated firms	Group-affiliated firms	Firms with 10%<UCF<20%	Reduced cash model
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Distance	0.0018	0.0048	0.0061	0.0036	0.0020	0.0019	0.0048	0.0027
	(1.99)[b]	(2.61)[a]	(1.21)	(2.99)[a]	(2.25)[b]	(2.26)[b]	(1.75)[c]	(2.61)[a]
Distance∗	0.0034	0.0045		0.0040	0.0035	0.0037	0.0212	0.0036
Excess Control	(3.03)[a]	(3.72)[a]		(2.65)[a]	(3.15)[a]	(3.66)[a]	(1.99)[b]	(2.80)[a]
Excess Control	0.0547	0.0940		0.0502	0.0552	0.0571	0.3824	0.0593
	(2.94)[a]	(3.57)[a]		(2.53)[b]	(3.02)[a]	(3.01)[a]	(2.53)[b]	(2.97)[a]
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	3,769	4,317	206	2,480	1,438	2,673	529	4,111
Adjusted R-squared	64.85%	65.95%	75.61%	69.32%	65.03%	66.89%	51.68%	61.31%

Table 6- Endogeneity tests

This table reports the results of some endogeneity tests. We use the sample of firms in the primary sectors (i.e., mining and agriculture sectors) (Column 1); the sample of firms with assets above € 100 million (Column 2); the sample of firms that first listed on the French stock market prior to 1998 (Column 3); the 1990-2007 sample (Column 4). We use instrumental variables approach in Columns 5-8. The Dependent variable in Columns 1-4, 6 and 8 is *Cash*. *Pre-1998* is a dummy variable that takes the value 1 if a firm existed before the start of our sample period, and 0 otherwise. Year dummies and industry dummies following Campbell's (1996) classification are included but not reported. All other variables are defined in Appendix 1. In Column 6, Eq. (4) is estimated with *Three Year Sales Growth*, the three-year sales growth, as an instrument for *Market-to-book*. The results of the corresponding first stage regression (*Market-to-book* as dependent variable) are reported in Column 5. In Column 8, Eq. (4) is estimated with *Ind Adjusted Distance* as an instrument for *Distance*, where *Ind Adjusted Distance* is the two-digit SIC industry average of *Distance* in the year the firm enters the Worldscope dataset. The results of the corresponding first stage regression (*Distance* as dependent variable) are reported in Column 7. The *t*-statistics are reported in parentheses below the estimated coefficients. The standard errors are adjusted for heteroskedasticity (White, 1980) and clustered at the firm level (Peterson, 2009). [a],[b] and [c] denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Variable	Primary sectors (1)	Large firms (2)	Pre-1998 (3)	1990-2007 (4)		First stage (5)	2SLS (6)		First stage (7)	2SLS (8)
Distance	0.0019	0.0018	0.0024				0.0023	*Ind Adjusted*	0.4487	0.0156
	(2.03)[b]	(2.04)[b]	(2.65)[a]				(1.72)[c]	*Distance*	(12.63)[a]	(2.61)[a]
Distance ∗	0.0027	0.0039	0.0157				0.0054			0.0040
Excess Control	(2.20)[b]	(3.59)[a]	(3.13)[a]				(2.63)[a]			(2.61)[a]
Distance ∗				0.0015						
Pre-1998				(2.13)[b]						
Distance ∗				0.0116						
Excess Control ∗ pre-1998				(2.96)[a]						
Excess Control	0.0495	0.0324	0.0165	0.0132			0.0887			0.0598
	(2.53)[b]	(1.85)[c]	(0.16)	(0.21)			(3.95)[a]			(3.34)[a]
Firm Size	–0.0018	–0.0033	–0.0644	–0.0739	*Firm Size*	–0.0435	–0.0059	*Firm Size*	–0.3171	0.0007
	(–1.62)	(–2.54)[b]	(–5.05)[a]	(–8.68)[a]		(–2.82)[a]	(–3.42)[a]		(–15.30)[a]	(0.38)
Market-to-book	0.0696	0.0693	0.0449	0.0458	*Three Year*	0.0027	0.0185	*Market-to-*	0.0460	0.0764
	(9.86)[a]	(8.47)[a]	(2.76)[a]	(4.45)[a]	*Sales Growth*	(2.97)[a]	(2.17)[b]	*book*	(2.39)[b]	(12.82)[a]
R&D	0.8441	1.1333	0.9980	0.0347	*R&D*	9.5354	1.3785	*R&D*	0.9684	0.8163
	(2.92)[a]	(4.65)[a]	(2.79)[a]	(1.69)[c]		(4.19)[a]	(2.17)[b]		(0.86)	(4.12)[a]
Cash Flow	0.0439	0.0389	0.4865	0.2261	*Cash Flow*	0.3516	0.0193	*Cash Flow*	0.4615	0.0437
	(9.00)[a]	(4.90)[a]	(2.22)b	(7.83)[a]		(2.08)[b]	(2.00)[b]		(3.21)[a]	(7.61)[a]
Net Working Capital	–0.0722	–0.0883	–0.0164	–0.0169	*Net Working*	–0.8880	–0.1477	*Net Working*	1.3110	–0.1150
	(–3.58)[a]	(–4.41)[a]	(–2.99)[a]	(–5.31)[a]	*Capital*	(–4.65)[a]	(–5.58)[a]	*Capital*	(6.45)[a]	(–5.46)[a]
Cash Flow Volatility	0.9305	0.5898	1.3183	0.3318	*Cash Flow*	6.5895	1.0191	*Cash Flow*	–9.5402	0.8172
	(5.50)[a]	(5.84)[a]	(1.80)[c]	(6.44)[a]	*Volatility*	(2.92)[a]	(3.67)[a]	*Volatility*	(–4.74)[a]	(7.41)[a]
Leverage	–0.1348	–0.1242	–0.2905	–0.3333	*Leverage*	–0.6857	–0.1890	*Leverage*	1.0249	–0.1595
	(–6.71)[a]	(–7.53)[a]	(–2.91)[a]	(–3.91)[a]		(3.52)[a]	(–8.00)[a]		(3.80)[a]	(–9.43)[a]
Capital Expenditure	–0.0029	–0.0109	0.0234	–0.0029	*Capital*	0.0078	0.0052	*Capital*	2.5930	–0.0033
	(–5.44)[a]	(–1.33)	(0.20)	(–0.71)	*Expenditure*	(0.21)	(1.93)[a]	*Expenditure*	(3.16)[a]	(–3.27)[a]

Dividend	–0.2828	–0.3964	–0.0775	–0.0788	*Dividend*	16.434	0.3295	*Dividend*	12.7448	–0.7466
	(–1.39)	(–1.79)[c]	(–1.48)	(–2.36)[b]		(5.82)[a]	(0.93)		(4.50)[a]	(–3.90)[a]
Intercept	0.0052	0.0604	–2.7910	–2.3653	Intercept	0.1525	1.6677	Intercept	4.0678	0.0313
	(0.21)	(1.83)[c]	(–6.07)[a]	(–11.65)[a]		(3.91)[a]	(7.32)[a]		(10.98)[a]	(0.73)
Year dummies	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes
Industry dummies	No	Yes	Yes	Yes		Yes	Yes		No	Yes
Number of observations	113	3,433	2,785	6,812	Number of observations	4,111	4,111	Number of observations	4,111	4,111
Adjusted R-squared	64.37%	64.37%	60.09%	69.99 %	Adjusted R-squared	37.06%	30.93%	Adjusted R-squared	14.67%	64.71%