

# LIQUID ASSET HOLDINGS OF BUSINESS GROUPS: EVIDENCE FROM AN EMERGING MARKET \*

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## Abstract

We study the determinants of the liquid asset holdings of group affiliated firms in a panel of Chilean public companies. After controlling for many of the effects found in previous literature, we find that affiliated firms hold significantly less liquid assets than non-affiliated firms, supporting the hypothesis that business groups reduce financial constraints. Consistent with the negative propensity to save prediction, we also find that the cash flow sensitivity of cash is negative for affiliated firms. These results are robust to different definitions of group affiliation. However, we also find evidence of large holdings of liquid financial instruments in the consolidated balance sheets of the holding companies used by groups to invest in their affiliated firms, particularly stock portfolios classified as short-term investments.

*JEL classification:* G32, G34, G35

*Keywords:* business groups, cash holdings, internal capital markets, emerging markets.

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\*We would like to thank Borja Larrain and José Tessada for comments and suggestions. Walker gratefully acknowledges the financial support of CONICYT through the Anillo Project SOC-04.

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## **Abstract**

We study the determinants of the liquid asset holdings of group affiliated firms in a panel of Chilean public companies. After controlling for many of the effects found in previous literature, we find that affiliated firms hold significantly less liquid assets than non-affiliated firms, supporting the hypothesis that business groups reduce financial constraints. Consistent with the negative propensity to save prediction, we also find that the cash flow sensitivity of cash is negative for affiliated firms. These results are robust to different definitions of group affiliation. However, we also find evidence of large holdings of liquid financial instruments in the consolidated balance sheets of the holding companies used by groups to invest in their affiliated firms, particularly stock portfolios classified as short-term investments.

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# 1 Introduction

Most corporations around the world have controlling shareholders, who usually control several companies together, forming business groups. These business groups represent a large portion of the world's wealth, and often their ultimate control is exercised by few families in each market. In this context, the conflict of interest arises between controlling and minority shareholders, instead of managers and owners. The literature has studied benefits and costs of this corporate structure, but very few articles specifically examine group affiliation as a determinant of corporate cash holdings<sup>1</sup>.

In this paper we study business group affiliation as a determinant of firm cash holdings on a panel of Chilean public firms during the period 1991–2008. In perfect capital markets, investment in near-cash assets should be close to zero. In a world with frictions, financially constrained firms need to hold liquid assets, either to finance investment plans or to absorb unanticipated shocks. Firms affiliated to business groups should be less financially constrained than non-affiliated firms for two reasons. First, affiliated firms benefit from the internal capital markets of the group, which may work more efficiently than external capital markets in allocating limited financial resources (Gertner, Scharfstein, and Stein, 1994; Stein, 1997). Second, business groups are likely to have less volatile cash flows at the consolidated level, which reduces expected bankruptcy costs and allows access to better credit conditions. Stein (2003) calls this the *more money effect*. Therefore, firms affiliated to business groups, being less financially constrained, should hold less cash than non-affiliated firms, and this should also be true at the consolidated group level.

We first explore whether group affiliation reduces firm-level holdings of liquid assets. We find that group affiliated firms hold, on average, 1.26% less cash as a fraction of total assets than non-affiliated firms. Furthermore, group affiliation tends to compensate cash holding sensitivities to certain variables, such as leverage and growth opportunities.

We also study differences between affiliated and non-affiliated firms in the cash adjustment process (cash flow sensitivity of cash). Riddick and Whited (2009) argue that, after controlling for Tobin's  $Q$ , saving in cash and cash flows are negatively related because firms lower their cash reserves to invest after receiving positive cash-flow shocks,

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<sup>1</sup>See Colquitt, Sommer, and Godwin, 1999; Deloof, 2001; Locorotondo, Dewaelheyns, and Van Hulle, 2014.

and vice versa. Since unconstrained (affiliated) firms should be better able to normalize cash flow shocks in subsequent periods, we test whether affiliated firms show a negative relation between changes in cash holdings and lagged cash flows. Consistent with the prediction of Riddick and Whited (2009), we find this negative effect for group-affiliated firms. One additional unit in cash flow (normalized by assets) is related to a drop of 0.069 units of cash holdings (normalized by assets) in the next period.

Finally, we analyze the cash-equivalent investments that appear in the consolidated balance sheets of Holding Companies (HCs), which also are publicly traded firms. We find that these investments are relatively large. By decomposing the cash-equivalent asset holdings, we find that, while HCs do not hold significantly more near-cash assets than non-group firms, they do hold significantly more financial assets (mainly stocks). HCs hold 1.7% more cash-equivalent securities (as a fraction of total assets) than non-affiliated companies.

We thus contribute in two areas of the corporate finance literature. First, we contribute to the literature studying the benefits and costs of business group structures. Academics believe that one of the main benefits of business groups is their ability to overcome market frictions (Khanna and Yafeh, 2005). For instance, Gopalan, Nanda, and Seru (2007) find that cash transfers among affiliated firms in India are used to support weaker firms, reducing their likelihood of default. Jia, Shi, and Wang (2013) directly examine intra group transactions in Chinese business groups, finding increases in loan transactions from affiliated firms to controlling shareholders in times when the later face more severe financial constraints.

On the other hand, business groups may impose potential expropriation costs on minority shareholders, which is known as tunneling (Johnson, La Porta, Lopez-de-Silanes, and Shleifer, 2000). Bertrand, Mehta, and Mullainathan (2002) show that Indian groups tunnel resources from firms in which the controlling shareholder has low cash-flow rights toward firms in which he has high cash-flow rights. Recent research suggests, however, that the financing advantages of business groups generally outweigh agency problems (Masulis, Pham, and Zein, 2011). Buchuk, Larrain, Muñoz, and Urzúa (2014) study intra group loan balances of Chilean business groups. Their findings suggest that stricter regulation of intra-group transactions (like in the Chilean market) reduce the risk of expropriation.

Our evidence on the cash holdings of group affiliated firms is consistent with the

idea that these firms are less financially constrained compared to non affiliated firms, since they hold less liquid assets, but this may come at the expense of larger liquid asset holdings at the group level.

Second, we contribute to the literature studying the determinants of firm cash holdings<sup>2</sup>. Few papers relate cash holdings to the corporate structure. Locorotondo et al. (2014) examine cash policies of Belgian private firms affiliated to business groups. They find that business group affiliates hold significantly smaller amounts of cash as compared to non-affiliated firms. Our study differs from theirs in that, instead of considering only private firms, we consider business groups involving listed companies, for which the (horizontal) agency problem between controlling and minority shareholders is likely to be present. In addition, we compare the cash adjustment process between affiliated and non-affiliated firms. Furthermore, to the best of our knowledge, our study is the first to specifically study the cash management at the aggregate group level, by looking at business group holding companies.

Related to our paper, Duchin (2010) studies the cash holdings of multi-division conglomerates in the US. His key finding is that the multi-division firms hold significantly less cash than stand alone firms. Lower cross-divisional correlations in investment opportunities and higher correlations between investment opportunities and cash flows are associated with lower cash holdings. The effects are stronger in financially constrained firms and in well-governed firms, reflecting efficient fund transfers from low to high-productivity divisions. Subramaniam, Tang, Yue, and Zhou (2011) examine differences in cash holdings of diversified versus focused firms, reaching similar conclusions. However, business groups are not the same as developed market multi-division firms. Generally, divisions are not listed companies whereas many group-affiliated firms are, possibly involving horizontal conflicts of interest. Our results for group-affiliated firms are consistent with Duchin (2010) and Subramaniam et al. (2011) but our findings at the consolidated group-level are not.

The rest of the paper is organized as follows: section 2 presents our data and methodology; section 3 shows the results and section 4 concludes the paper.

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<sup>2</sup>See Kim, Mauer, and Sherman (1998), Opler, Pinkowitz, Stulz, and Williamson (1999) and Bates, Kahle, and Stulz (2009)

## 2 Data sources and definitions

We consider an unbalanced panel of 145 Chilean firms with annual data for the period 1991–2008. Financial statements are taken from the *Superintendencia de Valores y Seguros* (SVS, the local Securities and Exchange Commission) and stock prices from *Economatica* data base. The sample includes delisted firms, and initially, excludes financial firms, clubs and holding companies. This sample selection criteria results in 1,951 firm-year observations<sup>3</sup>. The variable construction and definitions are summarized in Table 1.

In Chile, many firms belong to business groups. Unlike the case of Japan or Germany, for example, and as a consequence of the 80s debt crisis, the law forbids banks to be at the core of business groups (Lefort and Walker, 2000a). Therefore, in our case, internal capital markets really are internal to firms in business groups. Liquidity management at the business group level, involving related party transactions, can be affected by the agency problem between controlling and minority shareholders. However, in Chile, related party transactions are strictly regulated and subject to a high degree of transparency and scrutiny. So, although possible, expropriation to the minority shareholders is less likely. Thus, we may be left with the benefits of efficient liquidity management at the group level, which is possible with the internal capital markets.

To study the effect of business group affiliation on cash management, first we define a *Group dummy* variable for group affiliation as defined by the SVS<sup>4</sup>. In Panel A of Table 2 we show the fraction of firms per year belonging to business groups. This fraction goes between 70.27% in 1991 and 64.91% in 2008.

Table 3 shows summary statistics for the dependent variable *Casheq* and other firm variables<sup>5</sup>, including also cross correlations, and means and medians for affiliated and

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<sup>3</sup>It is very difficult to extend the sample beyond 2008, because the sequential adoption of the International Financial Reporting Standards (IFRS) by different firms has implied major and frequently non-homogeneous changes in accounting criteria. For example, assets may or may not be registered using a “fair value” criteria, which usually implies a sudden change in value after the adoption of IFRS.

<sup>4</sup>The SVS keeps track of all business groups in Chile. As explained in Lefort and Walker (2000b), regulatory changes around 1997 led the SVS to identify a significant increase in the number of groups and group-related firms. In order to obtain a group membership variable which is consistent over time, we identify group membership in 1998 and reconstruct backwards the group affiliation. When we keep the original SVS definition of groups, our results are not affected.

<sup>5</sup>Since we detected outliers, we decided to winsorize the extreme 5% observations of the sample. All the reported statistics correspond to the winsorized values.

non-affiliated firms according to the *Group dummy*. As expected, we observe that, on average, group-affiliated firms hold significantly less cash than non-affiliated firms (4.9% versus 6.5%). Also, group-affiliated firms have significantly lower cash flow volatility and net working capital, and significantly higher Tobin’s  $Q$ , payout ratio and size (book value of assets).

Taking advantage of the Chilean legislation, which requires firms to disclose all related party transactions and accounts, we can directly examine the behavior of the internal capital markets. Affiliated firms have significantly less related party account receivables (*RPAR*) and more related party account payables (*RPAP*). In Figure 1 we compare the evolution of the mean sum of short and long term related party accounts, for group affiliated firms and non affiliated firms. We observe that total related party debt is larger for group-affiliated firms during most of the sample period (Figure 1(b)). The upward trend in related party accounts is consistent with an increase in the relative importance of the “Stamp Tax” levied on the face value of debt taken from banks or capital markets in Chile. We believe this is because lending among firms within the business group can be organized in ways that avoid paying this tax.

Given the differences between means and medians of *Casheq* (despite winsorization) observed in table 3, we have right-skewed distributions for cash holdings. Firms hold, on average, 5.4% in near-cash instruments. These levels are about 2% lower than the numbers reported in Almeida, Campello, and Weisbach (2004) for non-financially restricted firms. They are significantly lower still than the recent values found for US firms in Bates et al. (2009)<sup>6</sup>. We do observe an average downward trend in the sample’s means and medians (see Figures 2, (a) and (b)), especially for group-affiliated firms.

Since non-affiliated firms also report significant levels of related party accounts, the *Group dummy* variable may fail to capture the existence of internal capital markets for all firms. This is because many firms in our sample classified as non-affiliated still are the sole owners of one or many subsidiaries, resembling the multi-division conglomerates in US. Therefore, we construct alternative measures to capture the effect of the internal capital markets of business groups on cash management.

Using the level of related party accounts, each year we classify firms into terciles. We create dummy variables which take the value of one when the sum of Short term RPAP

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<sup>6</sup>Without eliminating the outliers, the average is about 8%, which is similar to Bates et al. (2009) for firms not financially restricted.

and Long term RPAP falls in a given tercile of the sample for a given year. We call them *High IKM*, *Mid IKM* and *Low IKM*. Panel B of Table 2 shows the coincidence of firms classified in each tercile with the *Group dummy* variable. Compared with the general average of 63.4% of group affiliation, we observe that a significantly higher percentage of firms classified as *High IKM* and *Mid IKM* are affiliated to business groups.

As an alternative measure, since access to internal capital markets is not likely to be transitory, we also build a dummy variable that takes the value of one if the firm was ever classified as *High IKM* in the past. We call it *Past High IKM*.

### 3 Empirical tests

#### 3.1 Cash holdings level

In this section we study the determinants of the liquid asset holdings levels and the effect of business group affiliation. Our base line regression has the form

$$Cash_{it} = \alpha + \beta Group\ dummy_{it} + \gamma Firm\ Level\ Controls_{it} + \mu_j + \varepsilon_{it}, \quad (1)$$

where subscript  $i$  refers to the firm, subscript  $j$  refers to the industry, subscript  $t$  refers to time in years, and  $\mu_j$  are industry fixed effects. The definition of the principal dependent variable, *Cash*, has been frequently used in the literature (Papaioannou, Strock, and Travlos (1992), Kim et al. (1998), HanHan and Qiu (2007) and Bates et al. (2009), among others.)<sup>7</sup>

Our main hypothesis predicts the coefficient  $\beta$  to be negative. We expect group structures to create internal capital markets, alleviating financial constraints. Therefore, the *Group dummy* variable should be negatively related with the level of cash holdings, after controlling for firms specific variables. Regarding the control variables and their relationship with cash holdings, we expect the following:

1. *Cash flow volatility*. We expect cash flow volatility to be positively correlated with precautionary cash holdings. Given the results of Almeida et al. (2004), the

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<sup>7</sup>Opler et al. (1999) use as dependent variable the logarithm of cash to assets, but they notice that results do not change much when they use the actual ratio. According to Bates et al. (2009) the specification that uses cash over total assets has a better fit, coinciding with Haushalter, Klasa, and Maxwell (2007) and Harford, Mansi, and Maxwell (2008).



effect should be stronger for financially restricted firms.

2. *Tobin's Q*. Interpreted as firm-level growth opportunities, the literature finds that liquidity holdings are positively related with it (Opler et al., 1999), especially for financially restricted firms. In contrast with this result, under the light of Fama and French (1993), high  $Q$  firms are *growth* firms, whereas low  $Q$  firms are *value* firms. The former are less sensitive to the business cycle and may, thus, have better access to external capital markets. This implies lower liquidity holdings for high  $Q$  firms.
3. *Cash flow*. Firms with higher cash flows accumulate more cash, all else equal (Bates et al., 2009). Thus, we expect a positive relation between cash flows and the level of cash holdings. Kim et al. (1998) hold a different view, since for them, cash flow generating power is a substitute for cash holdings.
4. *Capital expenditures*. Following Bates et al. (2009), firms with higher capital expenditures (Capex) may hold less cash, since they have more collateral for borrowing money. However, it is also true that firms with recent high capital expenditures may temporarily hold less cash (Almeida et al., 2004).
5. *Payout*. A high payout ratio can reflect a less financially restricted environment, so it should be negatively correlated with cash. In fact, Almeida et al. (2004) use this ratio to separate financially restricted from non-restricted firms. Opler et al. (1999) and Bates et al. (2009) use dummy variables to control for the effect of dividend payments on cash holdings.
6. *Net working capital*. Net working capital (NWC) should be negatively correlated with cash-equivalent holdings, because it would be a measure of liquid asset substitutes (Opler et al., 1999).
7. *Book leverage*. The ratio of debt to book total assets has ambiguous effects on cash holdings. According to Opler et al. (1999), a highly levered firm has high expected financing costs, so it might need to hold higher cash levels. Baskin (1987) argues that when external financing is more expensive, cash should be used to pay debt, implying a negative relationship between cash holdings and leverage.

8. *Size*. Size should be negatively related with cash holdings, since we can expect economies of scale (Vogel and Maddala, 1967). This variable is frequently used in empirical studies (Kim et al. (1998), Opler et al. (1999) and Bates et al. (2009), Han and Qiu (2007), among others) as a determinant of cash levels. A risk argument leads to the same expected sign; smaller firms have more restricted access to capital markets.
9. *Loan rate*. The average annual bank loan interest rate measures the opportunity cost of cash, and thus, we expect a negative association with firm liquidity.
10. *Net issues*. With net issues, the sum of equity and debt issues minus repayments, we control for sudden changes in cash holdings due to one-off effects of security issues.
11. *Industry sector*. Different industries are likely to have different optimal liquidity levels, given differences in operational risk, regulation, and cash flow cycle (Chudson, 1945; Damodaran, 1997).

Panel A of Table 4 presents the results of the baseline regressions for the full sample period. We use the control variables presented above and also several definitions related to business group affiliation and with the existence of internal capital markets. In the different columns we use: (1) no internal capital market proxy; (2) the group affiliation dummy; (3) the log of the number of firms in the group (which is zero in the case of non group firms); (4) a modified Herfindahl index weighted by sales; (5) a diversification dummy; (6) the lagged value of related party accounts payable over total assets (a continuous variable); (7) the Low and High IKM dummy variables described earlier; and (8) a dummy variable that takes the value of one if the firm was ever classified as High IKM in the past.

All the results are consistent with our hypothesis. Our group variables and proxies for internal capital markets are always significantly negative, as expected, except for the log in the number of firms in the group. Group-affiliated firms hold, on average, 1.26% less cash as a fraction of total assets. The signs of the control variables' coefficients are in line with previous research: higher cash flow volatility, higher Tobin's  $Q$ , lower net working capital and lower leverage are associated with higher cash holdings. The other control variables in general have the expected sign, but are not significant.

In Panels B and C we split the sample in two sub-periods: 1991–1998 and 1999–2008. While in the first sub-period only the modified Herfindahl index is significant, in the second sub-period our group variable and the internal capital markets proxies are statistically significant. The coefficient for the group dummy variable is  $-0.6\%$  in the first sub-period and  $-1.69\%$  in the second. We note the monotonicity of the effect of the internal capital markets terciles in the second period: firms classified as High IKM hold significantly less cash, whereas firms classified as Low IKM hold significantly more. Regarding the control variables, we still find cash flow volatility and book leverage to be significant. However, the size of the leverage coefficient is reduced in about one half, for the most recent sub-period. In the first sub-period, when interest rates were high, the loan rate variable is significantly negative. In the second sub-period, net working capital becomes significantly negative and lagged cash flows are marginally significant in some specifications.

In Table 5 we study the interaction of the Group and High IKM dummies with firm variables for the entire sample period and the two subsamples. We find the interaction of the group dummy and lagged leverage, and the group dummy and size to be significant. In general, leverage and size reduce cash holdings, but the effect is less significant in the case of group-affiliated firms. Considering the interactions of High IKM dummy and firm variables, we find a similar effect for leverage, and the interaction with volatility of cash flows has the opposite sign.

Columns 2 and 3 repeat the interactions exercise for the two sub-periods. In the first sub-period, only the interactions between group and net working capital and group and size are marginally significant, and have the opposite sign they have without the interaction. In the case of the High IKM dummy, its interaction with payout, Capex and leverage are (marginally) significant. Payout, Capex and leverage reduce cash holdings, but less so if the firm is categorized as High IKM.

Column 3 shows that for the second sub-period the interactions of the group dummy with Tobin's  $Q$  and leverage are significant. Higher  $Q$  and leverage are associated with higher cash holdings, as expected, but these effects tend to be compensated when firms belong to groups, e.g., more highly levered firms and high  $Q$  firms hold relatively less cash if they also belong to groups. Being classified as High IKM has a similar effect to group membership. The interactions with the High IKM dummy show a similar result for leverage but are not significant for  $Q$ .

The above results are generally consistent with the idea that group affiliation, or related party borrowing, alleviate financial constraints, which require higher cash holdings.

To check robustness, and control for possible serial correlation in the regression residuals, we estimate cross-sectional regressions by collapsing each company’s variables to their time series average. Results are shown in Table 6. We see that the variables that indicate that a company was ever affiliated to a business group, was ever part of a diversified group, was ever classified as High IKM and average Herfindahl index, have all significantly negative effects on average cash holdings. Looking at the subsamples, we find that our group related variables have stronger effects in the second period.

### 3.2 Cash adjustment process

When firms face financial constraints, liquidity management may become a key issue for corporate policy. In a static model, Almeida et al. (2004) find that for constrained firms we should expect a strong positive relation between the same period’s cash flow and changes in cash holdings. On the other hand, unconstrained firms should display no such relation. However, in a dynamic model, Riddick and Whited (2009) predict that, controlling for Tobin’s  $Q$ , saving (the change in cash) and cash flows are negatively correlated. Their argument is that positive productivity shocks cause both cash flow and the marginal product of capital to increase, thus, encouraging firms to reduce some of its savings in cash to invest in relatively more productive capital goods. Conversely, firms accumulate more liquid assets in times when capital productivity is low. Furthermore, since the propensity to save is affected by many variables, it should not reflect financial constraints.

To explore these predictions, we estimate the following equation<sup>8</sup>

$$\Delta Cash_{i,t} = \alpha_0 + \alpha_1 Cash\ flow_{i,t-1} + \alpha_2 Q_{i,t-1} + \alpha_3 Size_{i,t-1} + \alpha_4 Short\ term\ leverage_{i,t-1} + \epsilon_{i,t}, \quad (2)$$

where we use operating profits (plus depreciation and amortizations) to proxy cash

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<sup>8</sup>Notice that instead of using current cash flows, as in Almeida et al. (2004), we use lagged cash flows.

flows<sup>9</sup>. Thus, if the financial constraints prediction is true (Almeida et al., 2004), we would expect  $\alpha_1$  to be positive for constrained firms, while it should have no specific sign for unconstrained firms. On the other hand, according to Riddick and Whited (2009) dynamic theory,  $\alpha_1$  should be negative, and it should not be a measure of financial constraints.

Panel A of Table 7 (columns 1 and 2) presents our estimations of equation (2) for the entire sample period. Consistent with Riddick and Whited (2009), we do observe a marginally significantly negative  $\alpha_1$  for group-affiliated firms. One additional unit in cash flow (normalized by assets) is related to a drop of 0.069 units of cash holdings (normalized by assets) in the next period (column 2). For non-group firms we do not observe a significant coefficient, although for these firms, we do find a significantly negative effect for size. Our interpretation of this evidence is that, for firms unrelated to groups (constrained), past liquidity shocks cannot be neutralized. On the contrary, for affiliated firms (unconstrained) the negative  $\alpha_1$  indicates that positive cash flow shocks are partially normalized in the following period, implying mean-reversion in cash holdings.

To check for robustness, we also split firms by the diversification dummy, which we compute from the modified Herfindahl index reported in Table 1. The results are shown in columns 3 and 4 of Table 7. In this case, the coefficients on cash flow are not significant, but the effect of size for non-affiliated firms remains. Finally, we consider separate regressions for High IKM firms and Low or Mid IKM firms (columns 5 and 6) and for Past High IKM and Non Past High IKM firms (columns 7 and 8). The  $\alpha_1$  coefficients are negative and larger for the High IKM firms, but they are not significant.

In Panels B and C, we check whether the development of local capital markets may have an effect on the financial constraints faced by firms, which would be reflected in  $\alpha_1$ . Thus, we split the sample, as before, in two sub-periods (1991–1998 and 1999–2008). In the first sub-period, we do not find significant values for  $\alpha_1$ , but in all regressions and classifications, size is significantly negative. These results are coherent with the

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<sup>9</sup>This is the cleanest proxy we can use. Indeed, for example, if apart from its core business a firm invests in other firms (which is usual in pyramidal schemes; see Lefort and Walker, 2000b), the earnings of these other firms show up in the net profits but not in the operating profits, which come from the firm’s core business. The latter better represents the cash flows effectively received by the firm. This variable also excludes non-operational and extraordinary items, as well as the results of financing activities.

interpretation that most firms were financially constrained in the first sample period, especially the smaller firms.

When we turn to the second sample period, we find that in all cases  $\alpha_1$  is negative, and that it tends to be significant and larger in absolute terms for group-related firms, for firms that belong to groups with diversified sales and for firms classified as having high internal capital markets. Size is still significant in two out of three cases for non-group firms.

The above evidence is consistent with the interpretation that, on average, group-affiliated firms are less constrained, and that in the second sub-period firms faced less financial constraints, especially group-affiliated ones.

### **3.3 Cash balances of Holding Companies (HCs)**

So far, we have showed that, other things equal, group-affiliated firms on average hold less cash and that they seem to be less financially restricted. The argument is that group affiliation gives access to internal capital markets to otherwise financially constrained firms, allowing them to hold less cash. A question that remains is whether efficient cash management allows groups to hold less cash in the aggregate. For example, if all excess cash balances were not managed at all, but just passed to a different firm which hoards it, we could find the same results reported above, but they would not indicate efficiency gains at the group level. The money is just saved in a different vehicle, which is not considered in our initial sample.

To address this issue, in this section we look at the consolidated balance sheets of group Holding Companies (HCs) and compare their average cash-equivalent balances with those of the consolidated balance sheets of non-group firms. Consolidated balance sheets add together all group asset and liabilities, recognize the minority interest in equity, and cancel out all related party borrowing and lending among the firms within the consolidation perimeter. Notice that if holding companies are just investment vehicles that add together the group-affiliated firms in our sample, then by definition we should find the same results as before. More generally, if there are efficiency gains in group-level cash management, we should expect the HCs' cash balances to be smaller than non-affiliated firms'. However, HCs may also have other assets.

Figure 3 shows total cash equivalent securities as a proportion of total consolidated

assets for non-affiliated firms (Figure 3(a)) and for group HCs (Figure 3(b)). We observe that in the early 90s, on average, HCs held more cash equivalent securities as a proportion of assets than non-affiliated firms, and then again, significantly so after 1998. Considering HCs, there is an upward trend, which peaked at almost 15% in 2005<sup>10</sup>. These results are consistent with Bates et al. (2009) and particularly with Pinkowitz, Stulz, and Williamson (2012), since many of these HCs are multinational. However, in principle this evidence contradicts our initial idea that groups manage cash more efficiently.

To study this issue further, we analyze the composition of the cash-equivalent securities. The bars in Figure 3 pile up the components of *Casheq* (cash and deposits, other short-term assets and financial short-term investments). Visual inspection shows that there are sizeable differences between non-group firms and HCs. Cash, deposits and other short-term assets are similar in HCs and non-group firms, but investment in financial assets is much larger in the former. On average, HCs hold 7% of their total consolidated assets in short-term financial assets (mainly stocks), more than twice as much as non-group firms. This difference is economically important, since towards the end of the sample period, the consolidated assets of HCs are about 3.3 times the total assets of non-affiliated firms.

Panel A of Table 8 shows the result of regressing separately the components of *Casheq* on the control variables. We find that HCs hold 1.7% more financial investments (over assets) compared to non-affiliated companies (column 6). These results support our assertions that on average HCs do not hold more non-financial short-term cash-equivalent assets (actually they hold significantly less), but that they do hold significantly more financial assets. Panels B and C show the result for the subsamples. We observe that the Holding dummy has a significant effect over the components of cash, only for the second period.

Again, to control for possible serial correlation in the regression residuals, we run cross-sectional regressions using the time series average of each variable. Table 9 shows our results. We observe that the HC dummy is significantly negatively related with the cash component of *Casheq* and positively related with the level of financial investments, but the latter is not significant at standard significance levels. In the subsamples, the Holding dummy keeps its sign but loses its significance.

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<sup>10</sup>Notice that these variables have been previously winsorized.

In any case, the question of whether groups manage cash more efficiently in the aggregate is unclear. The answer depends on how we interpret portfolio investments. In the balance sheet they are classified as short-term, so they appear as liquid, but in practice, holding companies always keep a large fraction of total assets invested in financial instruments. In any case, we cannot rule out excess cash-equivalent holdings by groups.

## 4 Conclusions

In this paper, we study the determinants of firm liquid asset holdings and relate them with business group affiliation in a sample of listed Chilean firms for the period 1991–2008.

We look at the level of liquid asset holdings by firms that belong to business groups, which may be less financially constrained. We find that group affiliation is associated with significantly lower cash holdings, both from a statistical and economic perspective, which suggests more efficient liquidity management by groups. The interaction of firm variables with group dummies tends to compensate cash holding sensitivities to certain variables, such as leverage and growth opportunities.

Chilean capital markets have become significantly more developed over time, so we verify if our group related variables have reduced their significance, and if average cash balances have been reduced over time. We do not find evidence of a reduction in the relative importance of group-related variables. On the contrary, in the most recent sample period, group-related firms hold even less cash relative to non-group related firms, but we do find a downward trend in median cash holdings for affiliated and non-affiliated firms.

Considering the cash saving process, we find a negative cash flow sensitivity of cash for group-affiliated firms. We interpret it as unconstrained affiliated firms being able to normalize positive cash flow shocks in subsequent periods, implying mean-reversion in cash holdings.

However, when we analyze the consolidated balance sheets of the holding companies used by groups to invest in their affiliated companies (HCs), the benefits of group affiliation are less clear. Whether groups manage liquidity more efficiently depends on how we interpret their investment in financial assets. This specific question remains



open.

In summary, we find evidence consistent with the hypotheses that firms affiliated to business groups are less financially constrained, allowing them to reduce the costs of having to hold liquid assets, but at the aggregate level, groups keep relatively large investments in financial assets in their holding companies, so we cannot rule out excess cash-equivalent holdings by groups.

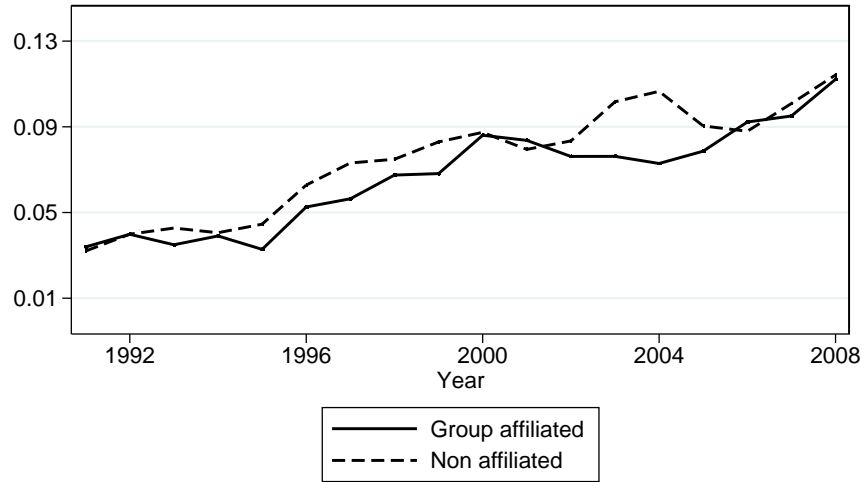
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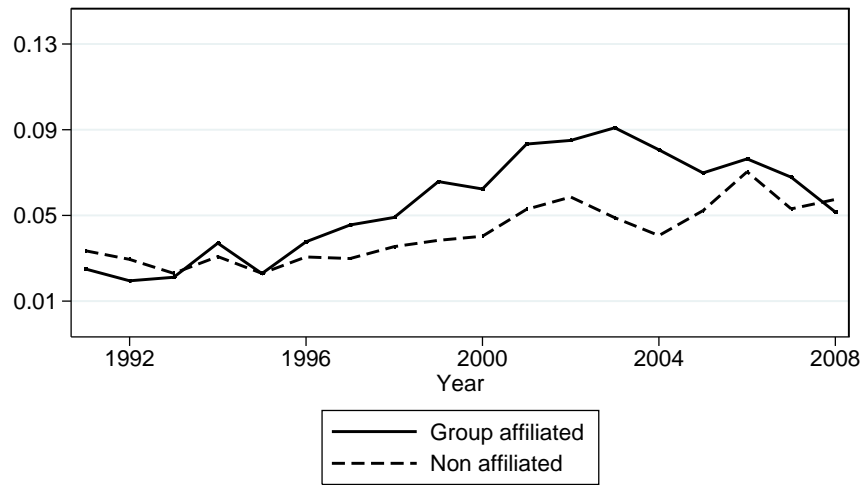
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**Figure 1.** Related party accounts for group affiliated and non affiliated firms.

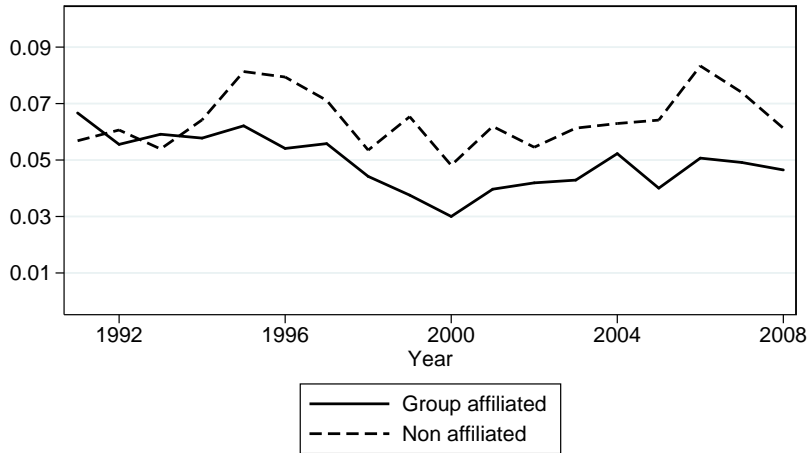


(a) Mean short term RPAR + Long term RPAR

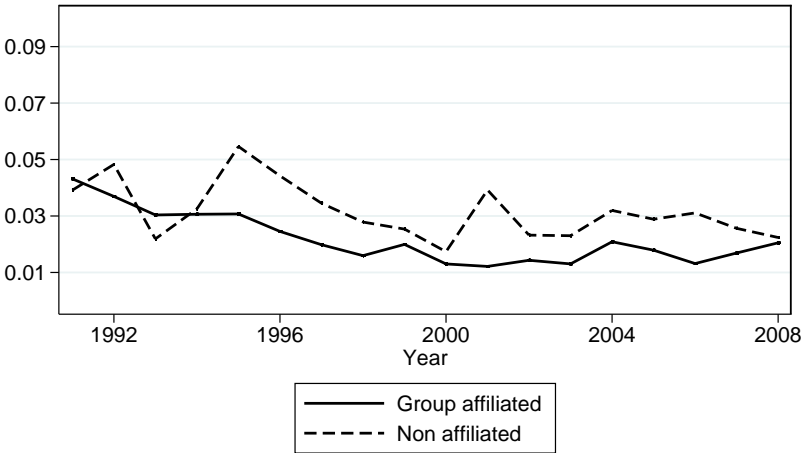


(b) Mean short term RPAP + Long term RPAP

**Figure 2.** Mean and median cash balances for group affiliated and non affiliated firms.

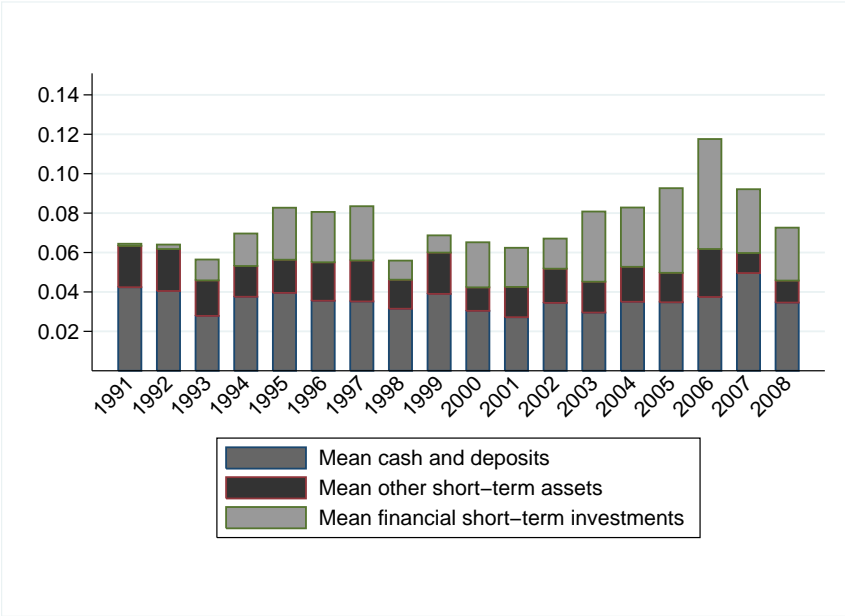


(a) Mean cash balances.

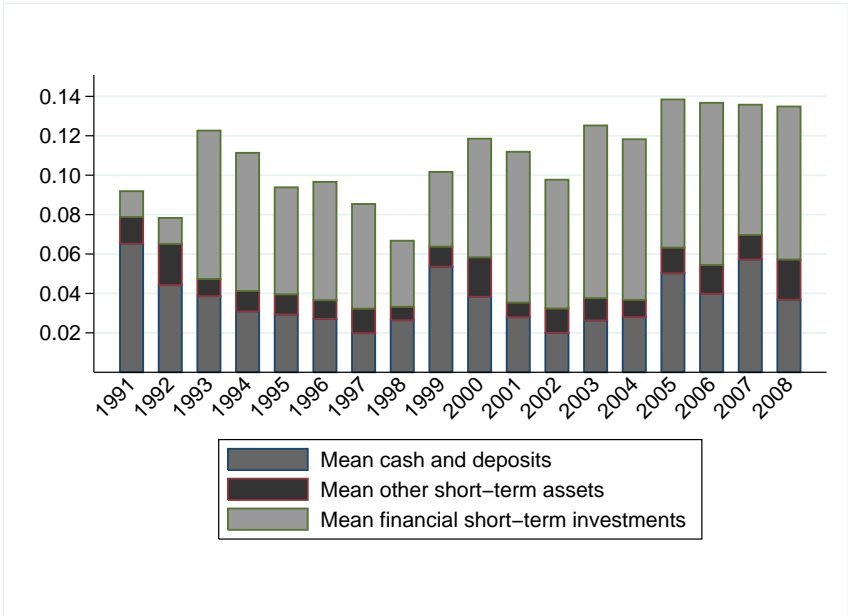


(b) Median cash balances

**Figure 3.** Cash decomposition.



(a) Non-affiliated firms.



(b) Holdings Companies (HCs).

**Table 1.** Variable definitions

Variable	Description
<i>Casheq</i>	Cash and cash equivalent assets. (Cash + Deposits + Other short-term assets + Financial short-term investments) / Book value of assets.
<i>CashExFinInv</i>	Cash and cash equivalent assets excluding financial short term investments. (Cash + Deposits + Other short-term assets) / Book value of assets.
<i>FinInv</i>	Financial short term investments / Book value of assets.
<i>Q</i>	Tobin's <i>Q</i> . (Book value of debt + Book value of minority interest + Market value of equity) / Book value of assets.
<i>Cash flow</i>	(Operating profits + Depreciation + Amortization) / Book value of assets.
<i>Cash flow volatility</i>	Standard deviation of each firm's cash flows. Due to lack of data, we estimate a single value of cash flow volatility for each firm for the entire period.
<i>Payout</i>	Dividend payout / Book value of assets. When dividend payout information is not available it is calculated as (Earnings - $\Delta$ (Accumulated retained earnings)).
<i>Capex</i>	(Total fixed assets <sub><i>t</i></sub> - Total fixed assets <sub><i>t-1</i></sub> ) / Book Value of Assets <sub><i>t</i></sub> .
<i>NWC</i>	Net working capital. (Accounts receivable + Inventories - Accounts Payable) / Book value of assets.
<i>Book leverage</i>	Financial debt / Book value of assets.
<i>Short term leverage</i>	Short term financial debt / Book value of assets.
<i>Size</i>	Defined as ln(Book value of assets).
<i>Short term RPAR</i>	Related party short-term account receivables / Book value of assets.
<i>Short term RPAP</i>	Related party short-term account payables / Book value of assets.
<i>Long term RPAR</i>	Related party long-term account receivables / Book value of assets.
<i>Long term RPAP</i>	Related party long-term account payables / Book value of assets.

## Variable definitions (Cont.)

Variable	Description
<i>Loan rate</i>	Average real interest rate for short term loans (90 days to one year). Source: Central Bank of Chile.
<i>Net issues</i>	(Equity issues + Debt issues) / Book value of assets, where Equity issues = $\Delta$ Owner contribution and Debt issues = $\Delta$ Financial Debt.
<i>Industry</i>	One of the seven industry sectors in which the firm operates (Materials, Industry, Discretionary consumption, Basic consumption, Telecommunications and IT, Utilities and Others).
<i>Group dummy</i>	Takes a value of one if the firm belongs to a business group identified by the SVS and zero otherwise.
<i>Log(Number of firms)</i>	The log of the number of firms in the group (which is zero in the case of non group firms).
<i>Herfindahl index</i>	Modified Herfindahl index weighted by sales indicator, which corresponds to $1 - \sum_i w_{iG}^2$ , where $w_{iG}$ is the fraction of total sales in group $G$ to which firm $i$ belongs. If a firm does not belong to a group then $w_{iG} = 1$ , so the modified Herfindahl index is set to zero.
<i>Diversification dummy</i>	Diversification dummy which takes the value of one when Herfindahl index $> 0$ and zero otherwise.
<i>High IKM</i>	Dummy variable which takes the value of one when the sum of Short term RPAP and Long term RPAP falls on the higher tercile of the sample for a given year and zero otherwise.
<i>Mid IKM</i>	Dummy variable which takes the value of one when the sum of Short term RPAP and Long term RPAP falls on the middle tercile of the sample for a given year and zero otherwise.
<i>Low IKM</i>	Dummy variable which takes the value of one when the sum of Short term RPAP and Long term RPAP falls on the lower tercile of the sample for a given year and zero otherwise.
<i>Past High IKM dummy</i>	Dummy variable that takes the value of one if the firm was ever classified as High IKM in the past and zero otherwise.



**Table 2.** Business groups variables

Panel A of this table shows measures of business group affiliation and group diversification. Group firms are firms affiliated to business groups as defined by the SVS. Herfindahl index is a measure of diversification of the business group to which a firm is affiliated. Panel B shows the coincidence of the group variable and measures internal capital markets activity. It shows the percentage of firms belonging to a business group that are classified in each tercile of internal capital markets activity.

*Panel A: Business groups evolution.*

Year	N. Obs.	Group firms (in %)	Herfindahl index
1991	74	70.27	0.34
1992	78	67.95	0.35
1993	96	64.58	0.36
1994	104	62.50	0.37
1995	105	61.90	0.39
1996	110	60.91	0.40
1997	115	60.87	0.39
1998	115	60.00	0.37
1999	116	61.21	0.32
2000	117	61.54	0.31
2001	116	61.21	0.31
2002	112	64.29	0.32
2003	114	64.91	0.31
2004	114	64.04	0.32
2005	116	64.66	0.30
2006	118	64.41	0.29
2007	117	64.96	0.28
2008	114	64.91	0.27
Total	1951	63.40	0.33

*Panel B: Coincidence of group variables.*

	Group firms (in %)
High IKM	67.24
Mid IKM	65.72
Low IKM	55.91

**Table 3.** Summary statistics

Panel A of this table reports the summary statistics of the key variables used in our analysis and compares means and medians for group affiliated firms and non group affiliated firms. It shows tests on the equality of means and nonparametric tests on the equality of medians. Panel B of this table reports the correlation matrix.

*Panel A: Descriptive statistics for main variables.*

	N. Obs.	Mean				Median				test	Min	Max	St. Dev.
		All	Non group	Group	test	All	Non group	Group	test				
Cash	1951	0.054	0.065	0.049	***	0.023	0.030	0.020	***	0.322	0.000	0.071	
Cash flow volatility	1951	0.042	0.047	0.039	***	0.035	0.041	0.031	***	0.109	0.002	0.028	
$Q$	1951	1.372	1.254	1.440	***	1.199	1.049	1.292	***	4.087	0.463	0.664	
Cash flow	1951	0.082	0.084	0.081		0.072	0.077	0.067	**	0.338	-0.052	0.077	
Payout	1938	0.045	0.037	0.049	***	0.026	0.018	0.031	***	0.274	0.000	0.052	
Capex	1923	0.010	0.009	0.011		0.000	0.000	0.000		0.168	-0.289	0.047	
NWC	1951	0.098	0.119	0.085	***	0.056	0.078	0.045	***	0.536	-0.065	0.121	
Leverage	1951	0.162	0.172	0.156	**	0.146	0.167	0.136	**	0.487	0.000	0.140	
Book assets (bn CLP \$)	1951	130.86	54.26	175.08	***	31.54	18.96	45.84	***	2096.21	0.009	277.52	
Net issues	1923	0.024	0.027	0.023		0.000	0.002	0.000	**	0.329	-0.167	0.083	
Short term RPAP	1951	0.042	0.046	0.040	**	0.017	0.019	0.016	**	0.277	0.000	0.061	
Short term RPAP	1951	0.025	0.023	0.027	*	0.009	0.000	0.009		0.168	0.000	0.037	
Long term RPAP	1951	0.024	0.026	0.023		0.000	0.000	0.000	***	0.292	0.000	0.052	
Long term RPAP	1951	0.022	0.016	0.026	***	0.000	0.000	0.000	***	0.322	0.000	0.055	

Panel B: Correlation Matrix for Main Variables

Group	High IKM	Herfindahl index	Cash volatility	Q	Cash flow	Payout	Capex	NWC	Leverage	Size	Net issues	Risk free rate	Short term RPAP	Short term RPAP	Long term RPAP	Long term RPAP		
Group	1																	
High IKM	-0.00	1																
Herfindahl index	-0.61*	0.08*	1															
Cash	-0.09*	-0.08*	0.01	1														
Cash flow volatility	-0.12*	-0.02	0.06*	0.21*	1													
Q	0.11*	0.05*	-0.02	0.12*	0.18*	1												
Cash flow	0.00	-0.10*	0.05*	0.07*	0.25*	0.39*	1											
Payout	0.11*	-0.03	0.00	0.13*	0.15*	0.40*	0.50*	1										
Capex	-0.01	-0.02	0.05*	0.05*	-0.03	0.22*	0.21*	0.13*	1									
NWC	-0.14*	-0.11*	0.08*	-0.06*	0.21*	0.04*	0.35*	0.07*	0.07*	1								
Leverage	-0.05*	-0.04	0.01	-0.23*	-0.03	-0.02	0.03	-0.15*	0.10*	0.05*	1							
Size	0.30*	0.15*	-0.20*	-0.11*	-0.31*	0.01	-0.18*	-0.12*	0.02	-0.33*	0.18*	1						
Net issue	-0.04*	0.03	0.03	-0.02	-0.05*	0.12*	0.03	0.03	0.21*	0.01	-0.07*	0.01	1					
Risk free rate	-0.07*	-0.04*	0.02	0.05*	0.11*	0.09*	0.13*	0.08*	0.19*	0.07*	0.02	-0.16*	0.16*	1				
Short term RPAP	-0.03	0.41*	0.08*	-0.05*	0.01	-0.03	-0.07*	-0.06*	-0.04	-0.02	-0.01	0.17*	-0.00	-0.07*	1			
Short term RPAP	0.07*	0.33*	0.11*	-0.12*	-0.04	-0.03	-0.08*	-0.02	-0.02	0.04	-0.04*	0.05*	-0.04*	-0.07*	0.30*	1		
Long term RPAP	-0.01	0.39*	0.03	-0.02	-0.14*	-0.06*	-0.19*	-0.13*	-0.10*	-0.20*	0.10*	0.26*	0.06*	-0.05*	0.07*	0.06*	1	
Long term RPAP	0.11*	0.32*	0.01	-0.05*	-0.06*	-0.01	-0.06*	0.01	-0.01	-0.14*	0.07*	-0.12*	-0.01	-0.07*	0.20*	0.06*	0.06*	1

**Table 4.** Cash holdings level

This table shows OLS estimations of the equation  $Casheq_{it} = \alpha + \beta Group\ dummy_{it} + \gamma Firm\ Level\ Controls_{it} + \mu_j + \varepsilon_{it}$ . All data from SVS and *Economica* data base. The sample excludes financial firms and holdings. The estimations include industry fixed effects. The associated standard errors (in parentheses) are robust to heteroskedasticity.

*Panel A: All Sample.*

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Group dummy		-0.0126*** (0.0038)						
Log(Number of firms)			-0.0016 (0.0016)					
Herfindahl index				-0.0119** (0.0060)				
Diversification dummy					-0.0084** (0.0033)			
Long term RPAP						-0.1067*** (0.0286)		
High IKM <sub>t-1</sub>							-0.0093*** (0.0035)	
Low IKM <sub>t-1</sub>							0.0086* (0.0045)	
Past High IKM								-0.0104*** (0.0035)
Cash flow volatility	0.5319*** (0.0708)	0.5177*** (0.0703)	0.5283*** (0.0710)	0.5224*** (0.0713)	0.5250*** (0.0708)	0.5345*** (0.0699)	0.5104*** (0.0697)	0.5242*** (0.0710)
Q <sub>t-1</sub>	0.0140*** (0.0033)	0.0153*** (0.0033)	0.0141*** (0.0033)	0.0145*** (0.0033)	0.0147*** (0.0033)	0.0143*** (0.0033)	0.0153*** (0.0033)	0.0141*** (0.0033)
Cash flow <sub>t-1</sub>	0.0490 (0.0341)	0.0394 (0.0343)	0.0480 (0.0341)	0.0449 (0.0340)	0.0403 (0.0344)	0.0480 (0.0338)	0.0442 (0.0338)	0.0396 (0.0338)
Payout <sub>t-1</sub>	-0.0824* (0.0434)	-0.0737* (0.0435)	-0.0813* (0.0435)	-0.0790* (0.0434)	-0.0785* (0.0435)	-0.0921** (0.0435)	-0.0880** (0.0433)	-0.0949** (0.0439)
Capex <sub>t-1</sub>	-0.0670* (0.0361)	-0.0668* (0.0356)	-0.0684* (0.0361)	-0.0702* (0.0362)	-0.0696* (0.0360)	-0.0624* (0.0360)	-0.0690* (0.0366)	-0.0697* (0.0361)
NWC	-0.0632*** (0.0161)	-0.0615*** (0.0159)	-0.0633*** (0.0160)	-0.0622*** (0.0161)	-0.0611*** (0.0160)	-0.0662*** (0.0161)	-0.0574*** (0.0162)	-0.0597*** (0.0160)
Book leverage <sub>t-1</sub>	-0.0915*** (0.0119)	-0.0970*** (0.0119)	-0.0927*** (0.0120)	-0.0909*** (0.0119)	-0.0933*** (0.0119)	-0.1002*** (0.0124)	-0.0956*** (0.0122)	-0.0932*** (0.0120)
Size <sub>t-1</sub>	-0.0015 (0.0012)	-0.0004 (0.0012)	-0.0012 (0.0012)	-0.0012 (0.0013)	-0.0007 (0.0013)	-0.0014 (0.0012)	-0.0009 (0.0012)	-0.0014 (0.0013)
Net issues <sub>t-1</sub>	0.0287 (0.0210)	0.0256 (0.0208)	0.0281 (0.0209)	0.0276 (0.0209)	0.0257 (0.0210)	0.0265 (0.0209)	0.0246 (0.0209)	0.0270 (0.0210)
Loan rate	-0.0034 (0.0646)	0.0020 (0.0645)	-0.0019 (0.0646)	0.0090 (0.0651)	0.0102 (0.0647)	-0.0480 (0.0656)	0.0036 (0.0640)	-0.0288 (0.0652)
Constant	0.0577** (0.0244)	0.0454* (0.0242)	0.0545** (0.0243)	0.0537** (0.0245)	0.0475* (0.0244)	0.0624** (0.0243)	0.0476* (0.0244)	0.0660*** (0.0246)
Observations	1,767	1,767	1,767	1,767	1,767	1,767	1,767	1,767
R-squared	0.1510	0.1572	0.1515	0.1530	0.1542	0.1575	0.1591	0.1551
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

*Panel B: 1991–1998.*

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Group dummy		-0.0060 (0.0062)						
Log(Number of firms)			0.0010 (0.0025)					
Herfindahl index				-0.0226** (0.0097)				
Diversification dummy					-0.0010 (0.0058)			
Long term RPAP						-0.0685 (0.1208)		
High IKM <sub>t-1</sub>							-0.0059 (0.0059)	
Low IKM <sub>t-1</sub>							-0.0015 (0.0076)	
Past High IKM								-0.0016 (0.0054)
Cash flow volatility	0.3597*** (0.1192)	0.3420*** (0.1209)	0.3659*** (0.1219)	0.3380*** (0.1206)	0.3571*** (0.1212)	0.3611*** (0.1192)	0.3582*** (0.1210)	0.3565*** (0.1189)
Q <sub>t-1</sub>	0.0060 (0.0044)	0.0068 (0.0045)	0.0058 (0.0044)	0.0077* (0.0044)	0.0061 (0.0045)	0.0062 (0.0044)	0.0061 (0.0045)	0.0061 (0.0044)
Cash flow <sub>t-1</sub>	0.0807 (0.0496)	0.0741 (0.0504)	0.0807 (0.0496)	0.0704 (0.0495)	0.0797 (0.0502)	0.0785 (0.0495)	0.0777 (0.0494)	0.0805 (0.0495)
Payout <sub>t-1</sub>	-0.1012 (0.0628)	-0.0956 (0.0641)	-0.1008 (0.0627)	-0.0991 (0.0631)	-0.1011 (0.0629)	-0.1065 (0.0648)	-0.1050 (0.0639)	-0.1037 (0.0639)
Capex <sub>t-1</sub>	-0.1036 (0.0638)	-0.1008 (0.0639)	-0.1039 (0.0639)	-0.1042 (0.0634)	-0.1031 (0.0639)	-0.1026 (0.0638)	-0.1021 (0.0640)	-0.1041 (0.0638)
NWC	-0.0293 (0.0240)	-0.0289 (0.0238)	-0.0287 (0.0241)	-0.0299 (0.0237)	-0.0291 (0.0240)	-0.0296 (0.0240)	-0.0288 (0.0239)	-0.0296 (0.0241)
Book leverage <sub>t-1</sub>	-0.1232*** (0.0206)	-0.1247*** (0.0204)	-0.1229*** (0.0206)	-0.1208*** (0.0205)	-0.1232*** (0.0206)	-0.1249*** (0.0209)	-0.1243*** (0.0209)	-0.1231*** (0.0206)
Size <sub>t-1</sub>	0.0004 (0.0020)	0.0007 (0.0020)	0.0002 (0.0020)	0.0011 (0.0020)	0.0005 (0.0021)	0.0004 (0.0020)	0.0003 (0.0020)	0.0004 (0.0020)
Net issues <sub>t-1</sub>	0.0556 (0.0345)	0.0543 (0.0344)	0.0559 (0.0346)	0.0539 (0.0339)	0.0553 (0.0347)	0.0550 (0.0345)	0.0549 (0.0345)	0.0554 (0.0345)
Loan rate	-0.4525** (0.1971)	-0.4511** (0.1974)	-0.4573** (0.1974)	-0.4545** (0.1975)	-0.4523** (0.1972)	-0.4387** (0.1992)	-0.4522** (0.1965)	-0.4485** (0.1982)
Constant	0.0894** (0.0430)	0.0877** (0.0429)	0.0916** (0.0430)	0.0815* (0.0429)	0.0884** (0.0432)	0.0888** (0.0431)	0.0940** (0.0433)	0.0904** (0.0430)
Observations	661	661	661	661	661	661	661	661
R-squared	0.1406	0.1420	0.1408	0.1476	0.1406	0.1410	0.1419	0.1407
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

*Panel C: 1999–2008.*

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Group dummy		-0.0169*** (0.0048)						
Log(Number of firms)			-0.0029 (0.0021)					
Herfindahl index				-0.0052 (0.0077)				
Diversification dummy					-0.0129*** (0.0040)			
Long term RPAP						-0.1037*** (0.0315)		
High IKM <sub>t-1</sub>							-0.0111** (0.0043)	
Low IKM <sub>t-1</sub>							0.0150*** (0.0056)	
Past High IKM								-0.0146*** (0.0050)
Cash flow volatility	0.6254*** (0.0859)	0.6261*** (0.0855)	0.6241*** (0.0860)	0.6222*** (0.0866)	0.6268*** (0.0864)	0.6251*** (0.0843)	0.6010*** (0.0838)	0.6218*** (0.0865)
Q <sub>t-1</sub>	0.0183*** (0.0056)	0.0195*** (0.0055)	0.0185*** (0.0056)	0.0184*** (0.0056)	0.0188*** (0.0055)	0.0195*** (0.0055)	0.0208*** (0.0055)	0.0184*** (0.0055)
Cash flow <sub>t-1</sub>	0.0545 (0.0460)	0.0492 (0.0453)	0.0520 (0.0459)	0.0537 (0.0459)	0.0430 (0.0459)	0.0560 (0.0452)	0.0533 (0.0452)	0.0308 (0.0459)
Payout <sub>t-1</sub>	-0.0660 (0.0591)	-0.0589 (0.0579)	-0.0616 (0.0589)	-0.0636 (0.0593)	-0.0562 (0.0587)	-0.0806 (0.0585)	-0.0737 (0.0572)	-0.0789 (0.0591)
Capex <sub>t-1</sub>	-0.0270 (0.0437)	-0.0331 (0.0422)	-0.0319 (0.0436)	-0.0298 (0.0442)	-0.0405 (0.0435)	-0.0225 (0.0432)	-0.0317 (0.0444)	-0.0309 (0.0435)
NWC	-0.0977*** (0.0216)	-0.0951*** (0.0217)	-0.0968*** (0.0218)	-0.0970*** (0.0217)	-0.0943*** (0.0215)	-0.1038*** (0.0217)	-0.0881*** (0.0220)	-0.0849*** (0.0223)
Book leverage <sub>t-1</sub>	-0.0667*** (0.0152)	-0.0767*** (0.0154)	-0.0699*** (0.0154)	-0.0666*** (0.0152)	-0.0710*** (0.0152)	-0.0798*** (0.0162)	-0.0745*** (0.0157)	-0.0715*** (0.0155)
Size <sub>t-1</sub>	-0.0029* (0.0016)	-0.0009 (0.0016)	-0.0023 (0.0016)	-0.0027* (0.0016)	-0.0015 (0.0016)	-0.0028* (0.0016)	-0.0017 (0.0016)	-0.0025 (0.0016)
Net issues <sub>t-1</sub>	0.0106 (0.0274)	0.0066 (0.0272)	0.0096 (0.0273)	0.0101 (0.0274)	0.0062 (0.0274)	0.0080 (0.0273)	0.0034 (0.0272)	0.0091 (0.0273)
Loan rate	-0.1763 (0.1310)	-0.1678 (0.1298)	-0.1739 (0.1310)	-0.1748 (0.1312)	-0.1626 (0.1308)	-0.1993 (0.1308)	-0.1531 (0.1313)	-0.1971 (0.1290)
Constant	0.0781** (0.0311)	0.0537* (0.0311)	0.0710** (0.0313)	0.0763** (0.0314)	0.0601* (0.0313)	0.0825*** (0.0309)	0.0562* (0.0316)	0.0861*** (0.0313)
Observations	1,106	1,106	1,106	1,106	1,106	1,106	1,106	1,106
R-squared	0.1784	0.1893	0.1801	0.1788	0.1861	0.1872	0.1960	0.1853
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

**Table 5. Interactions**

This table shows OLS estimations of the equation  $Casheq_{it} = \alpha + \beta Group_{it} + \gamma Firm\ level\ controls_{it} + \delta(Group_{it} \times Firm\ level\ controls_{it}) + \mu_j + \varepsilon_{it}$ . All data from SVS and *Economica* data base. The sample excludes financial firms and holdings. The estimations include industry fixed effects. The associated standard errors (in parentheses) are robust to heteroskedasticity.

VARIABLES	(1) All Sample	(2) 1991-1998	(3) 1999-2008	VARIABLES	(1) All Sample	(2) 1991-1998	(3) 1999-2008	VARIABLES	(1) All Sample	(2) 1991-1998	(3) 1999-2008
Group dummy	-0.1615*** (0.0526)	-0.2024** (0.0986)	-0.0932 (0.0669)	High IKM <sub>t-1</sub>	-0.0775 (0.0531)	-0.1037 (0.0908)	-0.0186 (0.0725)	Past High IKM	-0.0197 (0.0518)	-0.0390 (0.0883)	0.0353 (0.0719)
Group × Cash flow volatility <sub>t-1</sub>	0.1492 (0.1512)	-0.2016 (0.2737)	0.3312* (0.1799)	(High IKM × Cash flow volatility) <sub>t-1</sub>	-0.0583 (0.1419)	0.1412 (0.2842)	-0.1229 (0.1670)	Past High IKM × Cash flow volatility <sub>t-1</sub>	0.2030 (0.1336)	0.0790 (0.2473)	0.3768** (0.1669)
Group × Q <sub>t-1</sub>	-0.0078 (0.0077)	-0.0007 (0.0117)	-0.0246** (0.0109)	(High IKM × Q) <sub>t-1</sub>	0.0000 (0.0063)	-0.0016 (0.0091)	-0.0080 (0.0104)	Past High IKM × Q <sub>t-1</sub>	-0.0009 (0.0071)	0.0034 (0.0090)	-0.0316** (0.0134)
Group × Cash flow <sub>t-1</sub>	0.0312 (0.0698)	0.1087 (0.1030)	-0.0431 (0.0939)	(High IKM × Cash flow) <sub>t-1</sub>	-0.0419 (0.0630)	-0.1204 (0.0943)	-0.0184 (0.0875)	Past High IKM × Cash flow <sub>t-1</sub>	-0.1378** (0.0692)	-0.1500 (0.0928)	-0.1744* (0.1065)
Group × Payout <sub>t-1</sub>	-0.0296 (0.0965)	0.0228 (0.1344)	0.0064 (0.1292)	(High IKM × Payout) <sub>t-1</sub>	0.0681 (0.0853)	0.2547** (0.1483)	-0.0147 (0.1086)	Past High IKM × Payout <sub>t-1</sub>	0.0676 (0.0848)	0.1369 (0.1237)	0.1173 (0.1333)
Group × Capex <sub>t-1</sub>	0.0650 (0.0762)	0.0314 (0.1272)	0.1357 (0.0966)	(High IKM × Capex) <sub>t-1</sub>	0.1100 (0.0754)	0.2403* (0.1225)	0.0723 (0.0972)	Past High IKM × Capex <sub>t-1</sub>	0.0983 (0.0827)	0.2200* (0.1324)	-0.0142 (0.1042)
Group × NWC <sub>t-1</sub>	-0.0612* (0.0331)	-0.0812* (0.0464)	-0.0324 (0.0451)	(High IKM × NWC) <sub>t-1</sub>	0.0033 (0.0322)	0.0034 (0.0472)	-0.0144 (0.0722)	Past High IKM × NWC <sub>t-1</sub>	-0.0441 (0.0323)	-0.0630 (0.0447)	0.0440 (0.0550)
Group × Book leverage <sub>t-1</sub>	0.0650** (0.0258)	0.0130 (0.0418)	0.1024*** (0.0351)	(High IKM × Book leverage) <sub>t-1</sub>	0.1278*** (0.0247)	0.1435*** (0.0441)	0.1123*** (0.0312)	Past High IKM × Book leverage <sub>t-1</sub>	0.1260*** (0.0238)	0.0994** (0.0398)	0.1418*** (0.0327)
Group × Size <sub>t-1</sub>	0.0080*** (0.0028)	0.0115*** (0.0048)	0.0063* (0.0035)	(High IKM × Size) <sub>t-1</sub>	0.0024 (0.0027)	0.0072* (0.0044)	0.0012 (0.0037)	Past High IKM × Size <sub>t-1</sub>	-0.0014 (0.0026)	0.0043 (0.0040)	-0.0011 (0.0038)
Group × Net issues <sub>t-1</sub>	0.0027 (0.0437)	-0.0337 (0.0680)	0.0311 (0.0583)	(High IKM × Net issues) <sub>t-1</sub>	-0.0457 (0.0421)	-0.1088* (0.0659)	-0.0163 (0.0587)	Past High IKM × Net issues <sub>t-1</sub>	-0.0587 (0.0468)	-0.0965 (0.0693)	-0.0160 (0.0721)
Group × Loan rate <sub>t-1</sub>	0.1222 (0.1344)	0.0955 (0.4084)	-0.5353* (0.2847)	(High IKM × Loan rate) <sub>t-1</sub>	0.1059 (0.1339)	-0.5706 (0.4072)	-0.3450 (0.2738)	Past High IKM × Loan rate <sub>t-1</sub>	0.2613* (0.1443)	-0.5105 (0.4090)	-0.4221 (0.3199)
Cash flow volatility	0.3859*** (0.1170)	0.4575*** (0.2044)	0.3664*** (0.1401)	Cash flow volatility	0.5658*** (0.0826)	0.1373 (0.1027)	0.6614*** (0.1027)	Cash flow volatility	0.4355*** (0.0993)	0.3241** (0.1465)	0.3817*** (0.1317)
Q <sub>t-1</sub>	0.0205*** (0.0069)	0.0088 (0.0106)	0.0343*** (0.0096)	Q <sub>t-1</sub>	0.0138*** (0.0041)	0.0064 (0.0057)	0.0203*** (0.0067)	Q <sub>t-1</sub>	0.0127** (0.0058)	0.0021 (0.0066)	0.0407*** (0.0121)
Cash flow <sub>t-1</sub>	0.0479 (0.0550)	0.0218 (0.0849)	0.1086* (0.0647)	Cash flow <sub>t-1</sub>	0.0582 (0.0403)	0.1096* (0.0597)	0.0588 (0.0534)	Cash flow <sub>t-1</sub>	0.1190** (0.0588)	0.1739** (0.0704)	0.1525* (0.0890)
Payout <sub>t-1</sub>	-0.0476 (0.0828)	-0.0972 (0.1127)	-0.0481 (0.1112)	Payout <sub>t-1</sub>	-0.1134** (0.0516)	-0.1676** (0.0731)	-0.0750 (0.0698)	Payout <sub>t-1</sub>	-0.1430** (0.0670)	-0.1729** (0.0791)	-0.1925 (0.1184)
Capex <sub>t-1</sub>	-0.0952 (0.0638)	-0.0998 (0.0972)	-0.1072 (0.0864)	Capex <sub>t-1</sub>	-0.0905** (0.0447)	-0.1902** (0.0513)	-0.0258 (0.0613)	Capex <sub>t-1</sub>	-0.1289* (0.0720)	-0.2457** (0.1080)	-0.0060 (0.0938)
NWC	-0.0337 (0.0271)	0.0026 (0.0409)	-0.0749** (0.0337)	NWC	-0.0633*** (0.0180)	-0.0302 (0.0274)	-0.0945*** (0.0242)	NWC	-0.0243 (0.0280)	0.0131 (0.0354)	-0.1314*** (0.0501)
Book leverage <sub>t-1</sub>	-0.1388*** (0.0225)	-0.1312*** (0.0364)	-0.1380*** (0.0306)	Book leverage <sub>t-1</sub>	-0.1318*** (0.0143)	-0.1633*** (0.0238)	-0.1076*** (0.0185)	Book leverage <sub>t-1</sub>	-0.1744*** (0.0193)	-0.1812*** (0.0279)	-0.1635*** (0.0271)
Size <sub>t-1</sub>	-0.0059** (0.0023)	-0.0064 (0.0044)	-0.0059** (0.0028)	Size <sub>t-1</sub>	-0.0020 (0.0015)	-0.0016 (0.0025)	-0.0028 (0.0020)	Size <sub>t-1</sub>	-0.0004 (0.0022)	-0.0017 (0.0028)	-0.0025 (0.0033)
Net issues <sub>t-1</sub>	0.0218 (0.0363)	0.0750 (0.0553)	-0.0136 (0.0501)	Net issues <sub>t-1</sub>	0.0398 (0.0264)	0.0944** (0.0454)	0.0081 (0.0331)	Net issues <sub>t-1</sub>	0.0697* (0.0398)	0.1154** (0.0524)	0.0177 (0.0654)
Loan rate	-0.0593 (0.1090)	-0.5071 (0.3226)	0.1772 (0.2445)	Loan rate	-0.0431 (0.0790)	-0.2408 (0.2550)	-0.0837 (0.1616)	Loan rate	-0.2039* (0.1204)	-0.1040 (0.3117)	0.1721 (0.2837)
Constant	0.2094*** (0.0452)	0.1897** (0.0888)	0.1823*** (0.0544)	Constant	0.0794*** (0.0298)	0.1122** (0.0545)	0.0800** (0.0384)	Constant	0.0727* (0.0433)	0.1012 (0.0689)	0.0585 (0.0627)
Observations	1,767	661	1,106	Observations	1,767	661	1,106	Observations	1,767	661	1,106
R-squared	0.1727	0.1643	0.2162	R-squared	0.1714	0.1676	0.2036	R-squared	0.1741	0.1628	0.2209
Industry FE	Yes	Yes	Yes	Industry FE	Yes	Yes	Yes	Industry FE	Yes	Yes	Yes

**Table 6.** Cross-section regressions

This table shows OLS estimations of the equation  $Casheq_i = \alpha + \beta Group_i + \gamma Firm\ level\ controls_i + \mu_j + \varepsilon_i$ , where  $Casheq$  and the firm level controls are time series averages.  $Past\ group$  is a dummy variable that takes the value of one if the firm was ever affiliated to a business group and zero otherwise.  $Past\ diversification$  is a dummy variable that takes the value of one if the firm was ever affiliated to a diversified business group and zero otherwise.  $Past\ High\ IKM$  is a dummy variable that takes the value of one if the firm was ever considered High IKM and zero otherwise. All data from SVS and *Economistica* data base. The sample excludes financial firms and holdings. The estimations include industry fixed effects. The associated standard errors (in parentheses) are robust to heteroskedasticity.

*Panel A: All sample.*

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Past group dummy		-0.0274*** (0.0100)					
Mean Log(Number of firms)			-0.0077 (0.0051)				
Mean Herfindahl index				-0.0479*** (0.0166)			
Past diversification dummy					-0.0346*** (0.0093)		
Mean long term RPAP						-0.2550* (0.1483)	
Past High IKM							-0.0322*** (0.0119)
Cash flow volatility	0.2388 (0.1775)	0.2241 (0.1697)	0.2315 (0.1759)	0.2192 (0.1742)	0.2068 (0.1638)	0.2478 (0.1755)	0.2990* (0.1670)
Mean $Q$	0.0518*** (0.0171)	0.0554*** (0.0157)	0.0532*** (0.0168)	0.0551*** (0.0164)	0.0553*** (0.0146)	0.0547*** (0.0169)	0.0478*** (0.0148)
Mean cash flow	0.2187 (0.1583)	0.1887 (0.1475)	0.2068 (0.1566)	0.1877 (0.1501)	0.1526 (0.1489)	0.2413 (0.1577)	0.1470 (0.1488)
Mean payout	-0.6003** (0.2429)	-0.5806** (0.2285)	-0.5825** (0.2371)	-0.5651** (0.2303)	-0.5451** (0.2281)	-0.6757*** (0.2419)	-0.6241*** (0.2263)
Mean Capex	-0.4899* (0.2590)	-0.3755 (0.2443)	-0.4499* (0.2562)	-0.4733* (0.2541)	-0.4059* (0.2397)	-0.5197** (0.2562)	-0.4719* (0.2736)
Mean NWC	-0.0733 (0.0500)	-0.0740 (0.0502)	-0.0733 (0.0496)	-0.0665 (0.0493)	-0.0578 (0.0494)	-0.0837 (0.0528)	-0.0503 (0.0503)
Mean leverage	-0.1936*** (0.0518)	-0.2132*** (0.0499)	-0.2027*** (0.0512)	-0.1930*** (0.0502)	-0.2207*** (0.0499)	-0.2174*** (0.0574)	-0.2033*** (0.0484)
Mean size	-0.0006 (0.0034)	0.0025 (0.0034)	0.0007 (0.0033)	0.0007 (0.0033)	0.0024 (0.0032)	-0.0001 (0.0035)	-0.0002 (0.0034)
Mean net issues	-0.0826 (0.1904)	-0.1294 (0.1902)	-0.1178 (0.1950)	-0.0856 (0.1834)	-0.1225 (0.1815)	-0.0651 (0.1918)	-0.0720 (0.1825)
Constant	0.0431 (0.0584)	0.0080 (0.0575)	0.0298 (0.0575)	0.0268 (0.0581)	0.0137 (0.0557)	0.0410 (0.0602)	0.0698 (0.0590)
Observations	138	138	138	138	138	138	138
R-squared	0.3689	0.4017	0.3809	0.4054	0.4362	0.3880	0.4139
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes



*Panel B: 1991–1998.*

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Past group dummy		-0.0170 (0.0122)					
Mean Log(Number of firms)			-0.0029 (0.0057)				
Mean Herfindahl index				-0.0435** (0.0184)			
Past Diversification					-0.0168 (0.0114)		
Mean long term RPAP						-0.2868 (0.3664)	
Past High IKM							-0.0152 (0.0121)
Cash flow volatility	0.4433** (0.2089)	0.4051* (0.2100)	0.4347** (0.2120)	0.4289** (0.2104)	0.4168* (0.2123)	0.4473** (0.2103)	0.4287** (0.2069)
Mean $Q$	0.0147 (0.0127)	0.0188 (0.0131)	0.0158 (0.0132)	0.0212 (0.0130)	0.0190 (0.0131)	0.0184 (0.0141)	0.0180 (0.0131)
Mean cash flow	0.1629 (0.1459)	0.1214 (0.1532)	0.1559 (0.1493)	0.1139 (0.1493)	0.1256 (0.1513)	0.1529 (0.1447)	0.1319 (0.1395)
Mean payout	-0.2783 (0.2013)	-0.2333 (0.2058)	-0.2721 (0.2016)	-0.2609 (0.1993)	-0.2549 (0.2039)	-0.3558 (0.2401)	-0.3259 (0.2214)
Mean Capex	-0.2380 (0.2849)	-0.2088 (0.2866)	-0.2309 (0.2858)	-0.2235 (0.2800)	-0.2236 (0.2831)	-0.2070 (0.2843)	-0.2088 (0.2770)
Mean NWC	-0.0534 (0.0575)	-0.0468 (0.0559)	-0.0528 (0.0572)	-0.0446 (0.0561)	-0.0478 (0.0567)	-0.0565 (0.0602)	-0.0429 (0.0576)
Mean leverage	-0.1655*** (0.0485)	-0.1672*** (0.0477)	-0.1656*** (0.0485)	-0.1558*** (0.0485)	-0.1643*** (0.0480)	-0.1777*** (0.0533)	-0.1702*** (0.0492)
Mean size	0.0026 (0.0043)	0.0037 (0.0043)	0.0030 (0.0042)	0.0037 (0.0043)	0.0038 (0.0043)	0.0026 (0.0044)	0.0024 (0.0044)
Mean net issues	0.1851 (0.1842)	0.1767 (0.1859)	0.1802 (0.1858)	0.1679 (0.1823)	0.1818 (0.1815)	0.1754 (0.1852)	0.1639 (0.1808)
Constant	0.0044 (0.0805)	-0.0084 (0.0813)	-0.0010 (0.0789)	-0.0128 (0.0815)	-0.0105 (0.0812)	0.0092 (0.0803)	0.0187 (0.0818)
Observations	115	115	115	115	115	115	115
R-squared	0.2036	0.2196	0.2053	0.2340	0.2213	0.2112	0.2173
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

*Panel C: 1999–2008.*

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Past group dummy		-0.0289** (0.0135)					
Mean Log(Number of firms)			-0.0057 (0.0058)				
Mean Herfindahl index				-0.0267 (0.0213)			
Past Diversification					-0.0332*** (0.0113)		
Mean long term RPAP						-0.2124** (0.0971)	
Past High IKM							-0.0367*** (0.0115)
Cash flow volatility	0.2994 (0.2193)	0.2873 (0.2178)	0.2984 (0.2206)	0.2873 (0.2277)	0.2814 (0.2162)	0.3170 (0.2145)	0.3086 (0.2033)
Mean $Q$	0.0485*** (0.0184)	0.0498*** (0.0173)	0.0476*** (0.0177)	0.0483*** (0.0180)	0.0489*** (0.0166)	0.0503*** (0.0180)	0.0471*** (0.0171)
Mean cash flow	0.1711 (0.1434)	0.1613 (0.1411)	0.1649 (0.1438)	0.1623 (0.1406)	0.1234 (0.1435)	0.1958 (0.1405)	0.1058 (0.1369)
Mean payout	-0.4687* (0.2388)	-0.4591* (0.2402)	-0.4421* (0.2394)	-0.4491* (0.2331)	-0.4313* (0.2383)	-0.5359** (0.2387)	-0.5085** (0.2244)
Mean Capex	0.0507 (0.2090)	0.0841 (0.1954)	0.0499 (0.2104)	0.0447 (0.2143)	0.0745 (0.1984)	0.0313 (0.2163)	0.1163 (0.2336)
Mean NWC	-0.1430** (0.0554)	-0.1445** (0.0564)	-0.1437** (0.0558)	-0.1407** (0.0563)	-0.1284** (0.0576)	-0.1551*** (0.0550)	-0.1153** (0.0552)
Mean leverage	-0.1332*** (0.0490)	-0.1474*** (0.0481)	-0.1376*** (0.0485)	-0.1316*** (0.0481)	-0.1517*** (0.0479)	-0.1627*** (0.0541)	-0.1288*** (0.0452)
Mean size	-0.0056 (0.0040)	-0.0021 (0.0043)	-0.0045 (0.0041)	-0.0048 (0.0041)	-0.0022 (0.0039)	-0.0051 (0.0040)	-0.0056 (0.0038)
Mean net issues	-0.1288 (0.1775)	-0.1816 (0.1889)	-0.1480 (0.1846)	-0.1352 (0.1774)	-0.1730 (0.1819)	-0.1064 (0.1836)	-0.1525 (0.1861)
Constant	0.1229* (0.0714)	0.0848 (0.0730)	0.1124 (0.0726)	0.1151 (0.0730)	0.0872 (0.0693)	0.1233* (0.0722)	0.1517** (0.0690)
Observations	135	135	135	135	135	135	135
R-squared	0.3202	0.3517	0.3269	0.3307	0.3733	0.3458	0.3871
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

**Table 7.** Cash adjustment process

This table shows OLS estimations of the equation  $\Delta Cash_{it} = \alpha_0 + \alpha_1 Cash_{flow}_{i,t-1} + \alpha_2 Short\ term\ leverage_{i,t-1} + \alpha_3 Size_{i,t-1} + \alpha_4 Q_{i,t-1} + \epsilon_{it}$ . All data from SVS and *Economistica* data base. The sample excludes financial firms and holdings. The estimations include industry fixed effects. The associated standard errors (in parentheses) are robust to heteroskedasticity.

*Panel A: All sample.*

VARIABLES	(1) Non group firms	(2) Group firms	(3) Focused firms	(4) Diversified firms	(5) Low IKM	(6) High IKM	(7) Non Past High IKM	(8) Past High IKM
Cash flow <sub><i>t</i>-1</sub>	-0.0160 (0.0502)	-0.0691** (0.0334)	-0.0318 (0.0408)	-0.0212 (0.0398)	-0.0259 (0.0412)	-0.0561 (0.0534)	-0.0656 (0.0683)	-0.0529 (0.0361)
Short term leverage	-0.0109 (0.0293)	0.0286 (0.0223)	-0.0040 (0.0270)	0.0337 (0.0241)	0.0258 (0.0207)	0.0043 (0.0413)	0.0336 (0.0320)	0.0072 (0.0251)
Size <sub><i>t</i>-1</sub>	-0.0164*** (0.0063)	-0.0068* (0.0035)	-0.0145*** (0.0053)	-0.0068* (0.0039)	-0.0071 (0.0046)	-0.0132*** (0.0065)	-0.0219*** (0.0084)	-0.0065 (0.0045)
<i>Q</i> <sub><i>t</i>-1</sub>	0.0039 (0.0058)	0.0042 (0.0028)	0.0042 (0.0046)	0.0035 (0.0032)	0.0041 (0.0037)	-0.0062 (0.0066)	0.0064 (0.0054)	0.0016 (0.0040)
Constant	0.2719** (0.1065)	0.1186* (0.0630)	0.2431*** (0.0911)	0.1158 (0.0710)	0.1186 (0.0808)	0.2427** (0.1173)	0.3695** (0.1467)	0.1147 (0.0812)
Observations	643	1,152	899	896	1,215	580	549	1,246
R-squared	0.1025	0.0574	0.0855	0.0615	0.0948	0.1231	0.1148	0.0338
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

*Panel B: 1991–1998.*

VARIABLES	(1) Non group firms	(2) Group firms	(3) Focused firms	(4) Diversified firms	(5) Low IKM	(6) High IKM	(7) Non Past High IKM	(8) Past High IKM
Cash flow <sub><i>t</i>-1</sub>	-0.0794 (0.0894)	0.0160 (0.0697)	-0.0713 (0.0741)	0.0934 (0.0835)	-0.0721 (0.0787)	0.0580 (0.1289)	-0.0851 (0.0908)	0.0410 (0.0806)
Short term leverage	-0.0028 (0.0662)	0.0719 (0.0533)	0.0077 (0.0623)	0.0774 (0.0561)	0.0128 (0.0559)	0.0959 (0.1004)	-0.0059 (0.0580)	0.0595 (0.0746)
Size <sub><i>t</i>-1</sub>	-0.0475** (0.0216)	-0.0211** (0.0087)	-0.0417** (0.0163)	-0.0203** (0.0097)	-0.0270** (0.0117)	-0.0491*** (0.0161)	-0.0277* (0.0144)	-0.0291** (0.0122)
<i>Q<sub>t</sub>-1</i>	0.0060 (0.0137)	0.0007 (0.0051)	0.0068 (0.0104)	-0.0005 (0.0058)	0.0072 (0.0077)	-0.0164 (0.0114)	0.0084 (0.0084)	-0.0032 (0.0089)
Constant	0.7914** (0.3645)	0.3605** (0.1539)	0.6925** (0.2751)	0.3441** (0.1728)	0.4571** (0.2030)	0.8541*** (0.2809)	0.4682* (0.2495)	0.4953** (0.2143)
Observations	244	433	323	354	460	217	283	394
R-squared	0.1608	0.0849	0.1560	0.0859	0.1845	0.3045	0.1125	0.1344
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

*Panel C: 1999–2008.*

VARIABLES	(1) Non group firms	(2) Group firms	(3) Focused firms	(4) Diversified firms	(5) Low IKM	(6) High IKM	(7) Non Past High IKM	(8) Past High IKM
Cash flow <sub><i>t</i>-1</sub>	-0.0572 (0.0845)	-0.1455** (0.0608)	-0.0585 (0.0625)	-0.1441** (0.0714)	-0.1144* (0.0672)	-0.1742** (0.0772)	-0.1165 (0.1506)	-0.1161** (0.0494)
Short term leverage	-0.0200 (0.0361)	0.0103 (0.0278)	-0.0257 (0.0358)	0.0110 (0.0265)	0.0099 (0.0255)	-0.0070 (0.0461)	0.0337 (0.0366)	-0.0227 (0.0275)
Size <sub><i>t</i>-1</sub>	-0.0272** (0.0116)	-0.0005 (0.0081)	-0.0258** (0.0105)	0.0042 (0.0093)	-0.0162 (0.0107)	-0.0084 (0.0115)	-0.0641*** (0.0209)	-0.0058 (0.0072)
<i>Q<sub>t</sub>-1</i>	0.0039 (0.0084)	-0.0007 (0.0048)	0.0044 (0.0064)	-0.0021 (0.0056)	0.0028 (0.0059)	0.0013 (0.0102)	0.0175 (0.0110)	-0.0014 (0.0055)
Constant	0.4583** (0.1963)	0.0192 (0.1464)	0.4441** (0.1804)	-0.0638 (0.1686)	0.2877 (0.1862)	0.1591 (0.2042)	1.0986*** (0.3602)	0.1141 (0.1264)
Observations	399	719	576	542	755	363	266	852
R-squared	0.1575	0.1420	0.1488	0.1683	0.1779	0.1409	0.2142	0.0931
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

**Table 8.** Holding Companies

This table shows OLS estimations of the equation  $Casheq_{it} = \alpha + \beta Holding_{it} + \gamma Firm\ level\ controls_{i,t} + \mu_j + \varepsilon_{it}$ . In this case,  $Casheq$  is the sum of its winsorized components,  $CashExFinInv$  and  $FinInv$ . All data from SVS and *Economica* data base. The sample excludes financial firms and includes non-affiliated firms and group Holding Companies (HCs). The associated standard errors (in parentheses) are robust to heteroskedasticity.

*Panel A: All sample.*

VARIABLES	(1) Casheq	(2) Casheq	(3) CashExFinInv	(4) CashExFinInv	(5) FinInv	(6) FinInv
Holding dummy		0.0085 (0.0067)		-0.0085** (0.0039)		0.0170*** (0.0057)
Cash flow volatility	0.2458** (0.1198)	0.2581** (0.1184)	0.2509*** (0.0718)	0.2386*** (0.0715)	-0.0051 (0.1096)	0.0195 (0.1080)
$Q_{t-1}$	0.0115 (0.0084)	0.0118 (0.0085)	0.0034 (0.0036)	0.0031 (0.0036)	0.0081 (0.0080)	0.0087 (0.0080)
Cash flow $_{t-1}$	-0.1313** (0.0595)	-0.1214** (0.0616)	-0.0116 (0.0338)	-0.0215 (0.0339)	-0.1197** (0.0521)	-0.1000* (0.0546)
Payout $_{t-1}$	0.4109*** (0.0941)	0.4010*** (0.0939)	0.1117** (0.0466)	0.1217** (0.0474)	0.2992*** (0.0865)	0.2793*** (0.0851)
Capex $_{t-1}$	-0.0410 (0.0551)	-0.0386 (0.0553)	-0.0230 (0.0407)	-0.0255 (0.0405)	-0.0181 (0.0441)	-0.0131 (0.0443)
NWC	-0.0992*** (0.0232)	-0.0899*** (0.0236)	0.0209 (0.0148)	0.0115 (0.0153)	-0.1201*** (0.0192)	-0.1014*** (0.0191)
Book leverage $_{t-1}$	-0.2353*** (0.0239)	-0.2328*** (0.0236)	-0.0832*** (0.0155)	-0.0857*** (0.0155)	-0.1521*** (0.0199)	-0.1470*** (0.0196)
Size $_{t-1}$	-0.0074*** (0.0021)	-0.0077*** (0.0021)	0.0104*** (0.0014)	0.0107*** (0.0014)	-0.0178*** (0.0019)	-0.0183*** (0.0019)
Net issues $_{t-1}$	0.0122 (0.0324)	0.0108 (0.0326)	-0.0092 (0.0246)	-0.0077 (0.0244)	0.0214 (0.0252)	0.0185 (0.0253)
Loan rate	-0.5474*** (0.1194)	-0.5455*** (0.1195)	-0.0906 (0.0713)	-0.0926 (0.0710)	-0.4569*** (0.1037)	-0.4529*** (0.1034)
Constant	0.2841*** (0.0406)	0.2817*** (0.0404)	-0.1227*** (0.0262)	-0.1203*** (0.0264)	0.4068*** (0.0371)	0.4019*** (0.0367)
Observations	1,119	1,119	1,119	1,119	1,119	1,119
R-squared	0.2666	0.2676	0.0998	0.1031	0.2961	0.3014
Industry FE	No	No	No	No	No	No

*Panel B: 1991–1998.*

VARIABLES	(1) Casheq	(2) Casheq	(3) CashExFinInv	(4) CashExFinInv	(5) FinInv	(6) FinInv
Holding dummy		0.0000 (0.0100)		-0.0063 (0.0068)		0.0063 (0.0069)
Cash flow volatility	-0.2562* (0.1481)	-0.2562* (0.1489)	-0.0073 (0.0938)	-0.0117 (0.0938)	-0.2490* (0.1367)	-0.2445* (0.1378)
$Q_{t-1}$	0.0012 (0.0113)	0.0012 (0.0113)	0.0027 (0.0053)	0.0026 (0.0053)	-0.0015 (0.0090)	-0.0014 (0.0089)
Cash flow $_{t-1}$	0.0617 (0.0907)	0.0617 (0.0931)	0.0280 (0.0467)	0.0192 (0.0473)	0.0337 (0.0707)	0.0425 (0.0714)
Payout $_{t-1}$	0.3654*** (0.1312)	0.3654*** (0.1286)	0.1189* (0.0647)	0.1278* (0.0659)	0.2465** (0.1038)	0.2376** (0.1011)
Capex $_{t-1}$	-0.1306* (0.0731)	-0.1306* (0.0734)	-0.0019 (0.0451)	-0.0028 (0.0453)	-0.1287** (0.0585)	-0.1278** (0.0588)
NWC	-0.0127 (0.0360)	-0.0127 (0.0376)	0.0693*** (0.0233)	0.0622** (0.0256)	-0.0820*** (0.0261)	-0.0749*** (0.0271)
Book leverage $_{t-1}$	-0.2107*** (0.0325)	-0.2107*** (0.0321)	-0.0630*** (0.0205)	-0.0658*** (0.0210)	-0.1477*** (0.0254)	-0.1449*** (0.0251)
Size $_{t-1}$	-0.0149*** (0.0036)	-0.0149*** (0.0036)	0.0070*** (0.0019)	0.0070*** (0.0019)	-0.0218*** (0.0032)	-0.0219*** (0.0032)
Net issues $_{t-1}$	0.0273 (0.0428)	0.0273 (0.0434)	-0.0286 (0.0302)	-0.0265 (0.0305)	0.0559* (0.0331)	0.0538 (0.0339)
Loan rate	-0.0707 (0.2933)	-0.0706 (0.2938)	-0.1670 (0.2092)	-0.1715 (0.2085)	0.0963 (0.1970)	0.1009 (0.1964)
Constant	0.3688*** (0.0711)	0.3688*** (0.0721)	-0.0600 (0.0381)	-0.0548 (0.0390)	0.4287*** (0.0634)	0.4236*** (0.0638)
Observations	402	402	402	402	402	402
R-squared	0.2340	0.2340	0.1073	0.1093	0.3232	0.3243
Industry FE	No	No	No	No	No	No

Panel C: 1999–2008.

VARIABLES	(1) Casheq	(2) Casheq	(3) CashExFinInv	(4) CashExFinInv	(5) FinInv	(6) FinInv
Holding dummy		0.0142* (0.0085)		-0.0089* (0.0048)		0.0231*** (0.0075)
Cash flow volatility	0.4130*** (0.1570)	0.4380*** (0.1540)	0.3560*** (0.0951)	0.3403*** (0.0945)	0.0570 (0.1465)	0.0977 (0.1437)
$Q_{t-1}$	0.0207 (0.0130)	0.0216 (0.0131)	0.0048 (0.0054)	0.0042 (0.0055)	0.0159 (0.0127)	0.0173 (0.0128)
Cash flow $_{t-1}$	-0.1970*** (0.0734)	-0.1800** (0.0765)	-0.0174 (0.0462)	-0.0281 (0.0464)	-0.1796*** (0.0666)	-0.1519** (0.0699)
Payout $_{t-1}$	0.4167*** (0.1224)	0.4001*** (0.1223)	0.1033* (0.0610)	0.1137* (0.0623)	0.3134*** (0.1155)	0.2863** (0.1136)
Capex $_{t-1}$	-0.0359 (0.0742)	-0.0315 (0.0747)	-0.0549 (0.0602)	-0.0576 (0.0600)	0.0190 (0.0621)	0.0261 (0.0626)
NWC	-0.1646*** (0.0297)	-0.1492*** (0.0296)	-0.0146 (0.0189)	-0.0243 (0.0189)	-0.1500*** (0.0262)	-0.1250*** (0.0252)
Book leverage $_{t-1}$	-0.2603*** (0.0328)	-0.2570*** (0.0323)	-0.1005*** (0.0216)	-0.1026*** (0.0216)	-0.1598*** (0.0279)	-0.1544*** (0.0274)
Size $_{t-1}$	-0.0036 (0.0025)	-0.0042 (0.0026)	0.0122*** (0.0018)	0.0126*** (0.0018)	-0.0158*** (0.0023)	-0.0168*** (0.0023)
Net issues $_{t-1}$	0.0474 (0.0462)	0.0480 (0.0466)	0.0259 (0.0367)	0.0255 (0.0363)	0.0215 (0.0364)	0.0225 (0.0363)
Loan rate	-0.3857 (0.2507)	-0.3634 (0.2506)	0.1119 (0.1678)	0.0979 (0.1667)	-0.4976** (0.2036)	-0.4613** (0.2010)
Constant	0.2119*** (0.0498)	0.2091*** (0.0493)	-0.1614*** (0.0341)	-0.1596*** (0.0343)	0.3733*** (0.0461)	0.3687*** (0.0454)
Observations	717	717	717	717	717	717
R-squared	0.3061	0.3086	0.1237	0.1270	0.3016	0.3101
Industry FE	No	No	No	No	No	No

**Table 9.** Cross-section regressions (Holding Companies)

This table shows OLS estimations of the equation  $Casheq_i = \alpha + \beta Holding_i + \gamma Firm\ level\ controls_i + \mu_j + \varepsilon_i$ , where *Casheq* and *Firm level controls* are time series averages. In this case, *Casheq* is the sum of its winsorized components, *CashExFinInv* and *FinInv*. *Past Holding* is a dummy variable that takes the value of one if the firm was ever a Holding Company and zero otherwise. All data from SVS and *Economistica* data base. The sample excludes financial firms and includes non-affiliated firms and group Holding Companies (HCs). The associated standard errors (in parentheses) are robust to heteroskedasticity.

*Panel A: All sample.*

VARIABLES	(1) Casheq	(2) Casheq	(3) CashExFinInv	(4) CashExFinInv	(5) FinInv	(6) FinInv
Past Holding		-0.0061 (0.0142)		-0.0153* (0.0088)		0.0092 (0.0132)
Cash flow volatility	-0.2013 (0.2447)	-0.2113 (0.2424)	0.3278** (0.1319)	0.3024** (0.1303)	-0.5291* (0.2745)	-0.5138* (0.2710)
Mean <i>Q</i>	0.0463 (0.0346)	0.0448 (0.0348)	0.0060 (0.0122)	0.0022 (0.0117)	0.0403 (0.0421)	0.0426 (0.0421)
Mean cash flow	-0.2702 (0.2039)	-0.2715 (0.2048)	-0.0949 (0.0922)	-0.0983 (0.0909)	-0.1753 (0.2241)	-0.1732 (0.2263)
Mean payout	0.7019** (0.2900)	0.7291** (0.2950)	0.1417 (0.1378)	0.2104 (0.1437)	0.5602 (0.3658)	0.5188 (0.3741)
Mean Capex	-0.1490 (0.2696)	-0.1759 (0.2677)	0.0620 (0.2000)	-0.0057 (0.1882)	-0.2111 (0.3124)	-0.1702 (0.3063)
Mean NWC	-0.0342 (0.0504)	-0.0399 (0.0482)	0.0368 (0.0325)	0.0225 (0.0314)	-0.0711 (0.0514)	-0.0624 (0.0477)
Mean leverage	-0.3377*** (0.0807)	-0.3407*** (0.0811)	-0.1191*** (0.0358)	-0.1266*** (0.0359)	-0.2186** (0.0841)	-0.2141** (0.0843)
Mean size	-0.0054 (0.0049)	-0.0051 (0.0050)	0.0117*** (0.0028)	0.0123*** (0.0028)	-0.0170*** (0.0052)	-0.0174*** (0.0054)
Mean net issues	0.0137 (0.2427)	0.0244 (0.2427)	-0.2069 (0.1729)	-0.1800 (0.1694)	0.2206 (0.2574)	0.2043 (0.2511)
Constant	0.2067** (0.0826)	0.2071** (0.0830)	-0.1424*** (0.0489)	-0.1412*** (0.0492)	0.3491*** (0.0890)	0.3484*** (0.0891)
Observations	103	103	103	103	103	103
R-squared	0.5483	0.5490	0.2891	0.3139	0.4706	0.4724
Industry FE	No	No	No	No	No	No



*Panel B: 1991–1998.*

VARIABLES	(1) Casheq	(2) Casheq	(3) CashExFinInv	(4) CashExFinInv	(5) FinInv	(6) FinInv
Past Holding		-0.0158 (0.0175)		-0.0211 (0.0148)		0.0053 (0.0127)
Cash flow volatility	-0.3009 (0.3140)	-0.3402 (0.3131)	0.2842 (0.2543)	0.2319 (0.2475)	-0.5851*** (0.2194)	-0.5721** (0.2235)
Mean $Q$	-0.0111 (0.0374)	-0.0115 (0.0378)	0.0096 (0.0191)	0.0090 (0.0187)	-0.0207 (0.0265)	-0.0206 (0.0265)
Mean cash flow	0.0240 (0.2661)	0.0039 (0.2748)	-0.0681 (0.1451)	-0.0949 (0.1454)	0.0921 (0.1919)	0.0988 (0.1986)
Mean payout	0.8821** (0.3975)	0.9501** (0.3886)	0.0700 (0.2140)	0.1605 (0.2126)	0.8121** (0.3135)	0.7896** (0.3168)
Mean Capex	0.2570 (0.2259)	0.1794 (0.2509)	0.4066** (0.1730)	0.3031 (0.1978)	-0.1495 (0.1733)	-0.1238 (0.1720)
Mean NWC	0.0335 (0.0710)	0.0231 (0.0719)	0.0532 (0.0439)	0.0394 (0.0467)	-0.0197 (0.0550)	-0.0163 (0.0532)
Mean leverage	-0.2869*** (0.0653)	-0.2917*** (0.0655)	-0.1093** (0.0435)	-0.1158*** (0.0425)	-0.1776*** (0.0563)	-0.1760*** (0.0570)
Mean size	-0.0121** (0.0059)	-0.0115* (0.0058)	0.0073* (0.0041)	0.0081* (0.0042)	-0.0194*** (0.0052)	-0.0196*** (0.0052)
Mean net issues	-0.0517 (0.1788)	0.0053 (0.2007)	-0.2880* (0.1453)	-0.2121 (0.1569)	0.2363* (0.1342)	0.2174 (0.1385)
Constant	0.3192*** (0.1059)	0.3187*** (0.1071)	-0.0811 (0.0709)	-0.0818 (0.0747)	0.4003*** (0.0971)	0.4005*** (0.0982)
Observations	75	75	75	75	75	75
R-squared	0.4649	0.4700	0.2392	0.2682	0.5424	0.5432
Industry FE	No	No	No	No	No	No

*Panel C: 1999–2008.*

VARIABLES	(1) Casheq	(2) Casheq	(3) CashExFinInv	(4) CashExFinInv	(5) FinInv	(6) FinInv
Past Holding		0.0116 (0.0163)		-0.0110 (0.0092)		0.0226 (0.0166)
Cash flow volatility	0.2740 (0.3047)	0.2900 (0.3041)	0.3781*** (0.1278)	0.3629*** (0.1303)	-0.1042 (0.3543)	-0.0729 (0.3529)
Mean $Q$	0.0427 (0.0317)	0.0452 (0.0320)	-0.0053 (0.0119)	-0.0076 (0.0116)	0.0480 (0.0368)	0.0528 (0.0367)
Mean cash flow	-0.3780** (0.1532)	-0.3680** (0.1576)	-0.0770 (0.0799)	-0.0864 (0.0820)	-0.3009* (0.1639)	-0.2816* (0.1686)
Mean payout	0.5280* (0.2996)	0.4928 (0.3029)	0.1939 (0.1302)	0.2270* (0.1273)	0.3342 (0.3765)	0.2658 (0.3801)
Mean Capex	0.3083* (0.1852)	0.3181* (0.1832)	0.0359 (0.0918)	0.0266 (0.0927)	0.2724 (0.2064)	0.2916 (0.2006)
Mean NWC	-0.0753 (0.0540)	-0.0671 (0.0508)	0.0157 (0.0254)	0.0080 (0.0239)	-0.0911* (0.0520)	-0.0751 (0.0469)
Mean leverage	-0.3355*** (0.0856)	-0.3332*** (0.0851)	-0.1314*** (0.0393)	-0.1335*** (0.0406)	-0.2041** (0.0919)	-0.1997** (0.0913)
Mean size	-0.0029 (0.0054)	-0.0034 (0.0055)	0.0125*** (0.0028)	0.0129*** (0.0028)	-0.0154*** (0.0059)	-0.0163*** (0.0060)
Mean net issues	-0.1483 (0.1893)	-0.1369 (0.1896)	-0.1498 (0.1597)	-0.1605 (0.1637)	0.0015 (0.1843)	0.0235 (0.1861)
Constant	0.1783* (0.0904)	0.1769* (0.0899)	-0.1459*** (0.0499)	-0.1446*** (0.0502)	0.3242*** (0.0996)	0.3215*** (0.0985)
Observations	101	101	101	101	101	101
R-squared	0.5464	0.5488	0.2996	0.3109	0.4352	0.4458
Industry FE	No	No	No	No	No	No