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# **Ownership structure and acquirers performance:**

## **Family vs. Non-family firms**

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### **Abstract**

This paper investigates the impact of family control on French acquirers' performance. We consider a sample of 239 acquisitions undertaken by French listed companies between January 1997 and December 2006. Comparing both, short-term and long-term performance, we find that family-controlled firms outperform non-family firms. We find that the relationship depends on the control level. The higher operating performance of family firms is statistically significant for an intermediate level of control. Around the announcement date, family firms with a high level of control outperform non-family firms. Using the calendar time approach, we find that long-term stock performance of family firms is positive and statistically significant. Robustness tests show that our findings seem to not be driven by the endogeneity problem. Finally, we find that family wedge, due to the use of the pyramidal structure and the double voting rules, has no statistical significant effect.

**Keywords:** Acquisitions, family firms, agency theory, stock performance, operating performance

**JEL classification:** G32, G34

## **1. Introduction**

Family-controlled firms are one of the most developed forms of concentrated ownership around the world. La Porta et al. (1999), Claessens et al. (2000), and Faccio and Lang (2002) show that the image of a publicly traded company with dispersed ownership structure, classic owner-manager conflicts, and a free-rider problem is not an appropriate image for most countries. These authors indicate that concentrated ownership is typical for Western Europe and for Asia. However, Holderness (2009) finds that the ownership of U.S. firms is similar to the ownership of firms of other countries. Villalonga and Amit (2009) highlight the high level of family controlled firms in the U.S.

Faccio and Lang (2002) find that only 14% of French firms are widely held and that 64.82% are controlled by a single family. Sraer and Thesmar (2007) also show a high presence of family firms in the French stock market. They find that two thirds of firms are family controlled. However, in the U.S. market only 40% of firms are considered as family firms (Villalonga and Amit, 2009). According to Bach (2010), more than one out of five employees working in significant French companies are under the management of a relative of the founder. Most of research studies consider U.S. family firms that operate in a developed financial market environment characterized by a strong investor protection. By contrast, French family firms, less frequently studied, operate in legal and institutional environments characterized by a weak investor protection and giving greater importance to banks than to the stock market (Franks et al, 2012). The French market is also characterized by a high level of wedge due to the pyramidal structure and the double voting rule. It represents a favorable context to study family firms.

Several studies analyze the impact of family ownership on firm value. Anderson and Reeb (2003) and Barontini and Caprio (2006) find that family firms outperform non-family firms. Andres (2008) highlights the importance of distinguishing between different types of blockholders when analyzing firm value (financial, managerial, family, employees, government) because of their different goals and policies.

This paper analyzes the impact of family control on firm performance following an acquisition. Mergers and acquisitions represent an interesting framework to analyze investment policy. The research on this subject has listed several motivations that explain the occurrence of mergers and acquisitions. Examples include synergies (Healy et al., 1992), empire building (Jensen, 1986), and protection of private benefits (Gorton et al., 2009). The ownership structure plays an important role in defining the operation motivations, since blockholders influence the acquisition decision and are able to prevent any non-value enhancing proposals made by managers. Numerous studies analyze the impact of blockholders on acquisition performance without giving importance to owner type (Yen and André, 2007); however, a few recent studies focus on family ownership and find not entirely conclusive results. Ben-Amar and André (2006) and Basu et al. (2009) find that family firms outperform non-family firms, in Canada and the U.S, respectively. Bauguess and Stegemoller (2008) find a negative relation between family ownership and U.S acquirers' performance. Caprio et al. (2011) study Continental European companies and do not find evidence that family-controlled firms destroy wealth when they acquire other companies.

Our analysis contributes to the literature by shedding light on this lack of studies on family acquirers and France may be a good framework since there are many family controlled firms. All papers cited above are interested in the performance around the announcement date. Solely Shim and Okamuro (2011) investigate the impact of family control on long-term performance of the acquirers.

To the best of our knowledge, this is the first paper that analyses simultaneously the short-term, long-term and accounting performance of French acquirer family firms. Our paper contributes to the acquisitions literature by using three different measures of family firm's performance. Cosh et al. (2006) and Carline et al. (2009) check the impact of ownership structure on announcement date performance, long-term stock performance and operating performance, however, they focused on board ownership. We also examine the nonlinearity between performances and voting rights. In our opinion, this is the first paper that analyzes the role of family control on French acquirers' performance, even though the French market is considered as a concentrated stock ownership market with high level of listed family firms.

Using a sample of French acquisitions in the period 1997-2006, we show that family firms outperform non-family firms. Around the announcement date, family firms realize higher abnormal returns than non-family firms. After taking acquirer and acquisition characteristics into account, a multivariate analysis confirms this finding. Using the three-year return on assets following the acquisition as a measure of performance, we also find that family firms are more efficient. We show that the relation between family control and operating performance is nonlinear. Regarding the long-term stock performance, the calendar time approach indicates better performance of family firms compared to non-family firms. We find that the family wedge is not significantly related to the performance. Finally, we perform some robustness checks that indicate that our findings do not seem to be affected by the endogeneity problem, neither by family firm definition.

The remainder of the paper is organized as follows. In section 2 we present the related literature on family ownership. Section 3 describes our sample selection process, our variables, and methodologies used to measure acquirer performance. The results are presented in section 4. Section 5 deals with robustness of the results. Section 6 concludes the paper.

## **2. Literature review**

In this section we provide an overview of the existing literature on family firms' characteristics and value.

### **2.1. Family-controlled firms**

Family firms are common among large, publicly traded firms and an effective organizational form. Families usually invest most of their private wealth in the company and their investments are not well diversified. Consequently, they have strong economic incentives to monitor managers and decrease agency costs. They are considered as a unique group of active, long-term owners, holding sustainable equity positions in their firms. The objective of most families is the intergenerational transfer of managerial control (Stein, 1988, 1989). Agency problems between managers and large shareholders can be reduced or even eliminated in family firms, because family members are often present on the board or insure the management. In consequence, the incentive alignment effect dominates in family firms and managers follow efficient policies.

Franks et al. (2012) show that different legal and institutional environments make family control more value efficient in Europe. Authors conclude that in Continental European insider-dominated systems, family ownership is a powerful and persistent arrangement. Burkart et al. (2003) formalize the argument that family control may be a substitute for weak formal investor protection. In these "insider countries", characterized by low legal protection of investors and the greater importance of banks compared to that of the stock market, Franks et al. (2012) suggest that family firms profit from "developed relationship banking" that provides access to external financing. Anderson et al. (2003) find that founding family ownership is related to a lower cost of debt financing. Authors conclude that founding family firms have incentive structures that result in fewer agency conflicts between equity and debt

claimants. Avoiding debt financing thanks to its corporate governance role is less frequent in family firms, specifically in those managed by a family member. Pindado et al. (2011) confirm that European family firms do not appear to be subject to external financing constraints and that they can raise considerable amounts of debt.

Compared to non-family firms, family firms tend to adopt conservative management policies. Caprio et al. (2011) find that family listed firms can engage in significantly less frequent acquisitions than non-family firms without negatively affecting their growth. Family firms are less likely to make acquisitions especially when the stake held by the family is not large enough to assure the persistence of the control. These findings are in line with those of Franks et al. (2012) that find that family firms should be concentrated in industries with a lower volume of mergers and acquisitions activity as selling family equity stakes is a source of dilution of family control. Bauguess and Stegemoller (2008) also show that family firms make fewer acquisitions than non-family firms do. Given their undiversified investments, family firms are more risk adverse than other firms (Bianco et al., 2009; Faccio et al., 2011). Even during crises, family firms follow conservative policies (Zhou et al., 2011). Their cautious acquisition strategy tends to create economic value while at the same time avoiding dilution of control.

It is important to note that some authors suggest that in family firms, agency conflicts between controlling shareholders and minority shareholders are dominant due to the separation between ownership and control. Morck and Yeung (2003) find that managers may act for the controlling family, but not for shareholders in general. Faccio et al. (2001) explain that the probability of minority shareholder expropriation is particularly high if large investors hold voting rights greater than cash-flow rights. Dyck and Zingales (2004) find that higher benefits are associated with a less developed capital market and concentrated ownership. Chen (2005) shows that an increase in managerial ownership generally reflects the

strengthening of family control or the entrenchment of the controlling owner's private profits. Moreover, Bertrand and Schoar (2006) argue that family values can create efficiency distortions if they introduce non-monetary objectives into the founder's utility maximization that run counter to the optimal decisions for the business (e.g. nepotism, legacy).

Villalonga and Amit (2006) consider that the family firm definition plays an important role when studying their performance. They show that one must distinguish among three fundamental elements in the definition of family firms, namely, ownership, control, and management. Miller et al. (2007) also discuss the role of the definition used, and when they define a family firm, they take into account a number of variations: the level of ownership and voting control, the managerial role played by family members, and the family generation of key family members. Burkart et al. (2003) argue that the separation between ownership and management depends on the legal environment.

## **2.2. Family control and firm performance**

Despite the potential agency conflict between large shareholders and minority shareholders, the positive effects on firm value of family ownership seem to outweigh the possible counter-argument that large shareholders may use their position to collude with managers in sharing private benefits to the detriment of minority shareholders.

Anderson and Reeb (2003) explain that if monitoring requires knowledge of a firm's technology, families potentially provide superior oversight because their lengthy tenure permits them to move further along the firm's learning curve. The authors report that U.S. family firms have higher operating performance and firm value than non-family firms. Villalonga and Amit (2006) also find that U.S. family firms outperform non-family firms. Using a sample of European firms Barontini and Caprio (2006) confirm this finding. Moreover, these authors highlight that this out-performance depends on family management.



They show that CEO founders create value while CEO descendants destroy value or realize performance not distinguishable from non-family firms. Maury (2006) and Andres (2008) find that a family firm's performance is not distinguishable from other firms when families are just large shareholders without board representation. Using a sample of French firms, Sraer and Thesmar (2007) show that family firms outperform widely-held firms whether the CEO is the founder, a descendent or a professional. Ben-Amar and André (2006) examine the difference in the market reaction upon the acquisition announcements made by Canadian firms. The authors find that family firms outperform non-family firms in the short-term and confirm the monitoring hypothesis.

Morck et al. (1988) suggest that the relation between ownership structure and firm performance may be nonlinear if the incentive structure of the equity claimant changes as holdings increase. Anderson and Reeb (2003) find that firm performance increases until families own about one-third of the firm's outstanding equity. Thereafter, performance begins to decline but still better, on average, than in non-family firms. Basu et al. (2009) conclude that the incentive alignment effect dominates the entrenchment effect, by providing evidence of a significant and convex relationship between newly public firms' short-term abnormal returns and family ownership. The authors suggest that acquirers with low levels of family ownership earn lower abnormal returns than do those with high levels of ownership.

### **3. Data and methodology**

In this section we present our study sample, and different methodologies used to measure short-term and long-term performance. Finally, we present our dependent and control variables.

#### **3.1. Sample selection**

The sample of corporate acquisitions is drawn from completed deals undertaken by French listed acquirers between January 1997 and December 2006. Operations are identified from *Thomson One Banker Merger and Acquisition database*. Acquisitions involving firms operating in highly regulated industries, such as financial and utility sectors, are excluded. Acquisitions are defined as occurring when the bidder controls less than 50% of the target's share before the announcement and more than 50% after the transaction. We limit our sample to acquisitions whose deal value is more than €1 million and which is at least 1% of the acquirer's market value of equity measured at the end of the fiscal year prior to the announcement date. After eliminating firms, which complete more than one acquisition, and those, which do not have available data, our final sample includes 239 acquisitions. Acquirers' stock prices are extracted from *Datastream database*. The relative lack of information on private targets is a major impediment to conducting an operating performance analysis. We are lead, therefore, to use *Worldscope database* for listed targets and *Orbis (VanDijk) database* for unlisted targets<sup>1</sup>. Our sample for operating performance analysis consists of 120 acquisitions.

### **3.2. Methodology**

The aim of this paper is to examine the impact of ownership structure on acquirer short- and long-term performances. Pooled regression models using the Mackinnon and White (1985) OLS heteroskedasticity-consistent standard errors and covariance procedure are employed over the 1997-2006 period. Our models aim to explain stock and operating performance around and following acquisitions. Consequently, we run the following OLS model:

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<sup>1</sup> We compare for a sub-sample of 30 listed acquirers and targets, the data available in the two bases, and we conclude that there are no data compatibility problems.

$$Performance = \alpha_0 + \beta_1 Family\ Control + \beta_2 Family\ Wedge + \beta_3 Non\ Family\ Ownership + \beta_i Control\ Variables + \varepsilon \quad (1)$$

### 3.2.1. Measuring acquisition performance

In this subsection, we present different procedures used to measure announcement and long-term acquisitions performance.

#### a/ Short-term stock performance

We follow Brown and Warner's (1985) standard event study methodology to compute cumulative abnormal returns (CARs) three-day around the announcement date. The abnormal returns are estimated using the market model, where the benchmark is the return of SBF 250 index.

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \quad (2)$$

$R_{it}$  is the logarithmic return on firm  $i$  on day  $t$ ,  $R_{mt}$  is the logarithmic return on market index on day  $t$ . Expected returns are based on a 251-day window prior to the announcement [-261, -11]. We consider three-day around the announcement date as an event window.

#### b/ Long-term stock performance

To measure long-term stock performance, we also use an event study methodology. We use the event time approach recommended by Barber and Lyon (1997) and by Kothari and Warner (1997). We estimate thirty-six month abnormal performance as cumulative abnormal returns (CARs), beginning the month following the completion of acquisition<sup>2</sup>. CARs can be used in regression tests because they have the advantage of avoiding some problems relating to heteroscedasticity.

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<sup>2</sup> Fama (1998) favours CARs and notes that BHARs grow with the return horizon even if there is no abnormal return after the first period.

$$CAR_i = \sum_{t=1}^T [R_{it} - R_{benchmark,t}] \quad (3)$$

$R_{it}$  is the simple return on firm  $i$  on month  $t$ , and  $R_{benchmark,t}$  is the simple return on a control firm on month  $t$ .

Following the recommendations of Barber and Lyon (1997) and Lyon et al. (1999) abnormal returns are estimated using a control firm<sup>3</sup> as a benchmark, selected according to two criteria: size and book-to-market. In our study we add industry criteria. To choose the control firm we, first, rank all French firms in Datastream, except those that made an acquisition, based on their industry using 2-digit SIC code. Second, in each industry group we rank firms based on market value of equity. Then we identify all firms with market value of equity between 70% and 130% of the market value of the sample firm one year before the acquisition. Finally, from this set of firms we choose the firm with a book-to-market ratio closest to that of the sample firm. If there is no match, we choose the firm with closest market value of equity.

### **c/ Operating performance**

Following Healy, Palepu and Ruback (1992), we compare the post-acquisition performance of acquirers with the pre-acquisition weighted average performance of acquirers and targets, adjusted to non-acquiring control firms. To obtain the pro-forma pre-acquisition performance of the combined firms, we calculate the weighted<sup>4</sup> average performance data of the acquirer and target firms over the three years before the acquisition (years -3 to -1). To measure the change in performance caused by the acquisition, we compare the pre-acquisition adjusted to control firm performance with the three-year post-acquisition adjusted performance (year +1 to +3). Similar to the approach employed by Ghosh (2001), the acquirer firm and the control

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<sup>3</sup> We avoid the use of the reference portfolio approach because it's subject to measurement, new listing, and skewness biases when calculating cumulative abnormal returns, it is also sensitive to new listing, rebalancing and skewness biases when calculating buy-and-hold abnormal returns (Barber and Lyon 1997).

<sup>4</sup> The weight for the acquiring firm is its book value of assets divided by the sum of the book value of assets for the acquirer and the target firms.

firm must have the same 2-digit SIC code, have similar size measured as book value of total assets (from 70% to 130%) one year before the acquisition. As a measure of operating performance, we divide earnings before tax depreciation and amortization (EBITDA) by total assets.

### **3.2.2. Variables definition**

We present the process of ownership variables construction and the definition of a family firm. We describe also control variables used in our models. Appendix 1 lists all variables used in the study.

#### **a/ Independent variables**

Ownership data is manually collected from annual report preceding and closest to the acquisition announcement. We use the same methodology as La Porta et al. (1999), Claessens et al. (2000) and Faccio and Lang (2002) to measure the ultimate cash-flow and voting held by family and by non-family shareholders. This procedure considers the pyramidal structures and the double voting rule. Cash-flow rights are measured after taking into account the whole chain of control<sup>5</sup>. Voting rights are measured as the weakest link in the control chain.

*Family firm:* Following Barontini and Caprio (2006), a family firm is determined when an individual or a family controls more than 51% of voting rights, or controls more than double the voting rights of the second largest shareholder<sup>6</sup>. Since there are one or more shareholders that hold voting rights similar to the family considered as the largest shareholders, Barontini and Caprio (2006) conclude that the corporation may be thought of as being controlled by a

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<sup>5</sup> If family A owns 60% of direct cash-flow of B and B owns 30% of direct cash-flow of C, family A owns ultimately  $60\% \times 30\% = 18\%$  of cash-flow of C.

<sup>6</sup> In our family firms defined based on Barontini and Caprio (2006) criteria, one or more family members are directors or officers.

coalition more than by the family. Furthermore, we check that the individual or the family, remain the largest shareholder after the completion of the acquisition<sup>7</sup>.

*Family wedge:* the separation between family control and family participation rights, is measured by the ratio of the level of voting rights to the cash-flow rights.

*Non-family blockholder:* represent ownership held by banks, insurance or non-financial companies when they equal or exceed 5% of cash-flow and voting rights. It represents the secondary shareholder in family firms and the main shareholders in non-family firms. We also distinguish between insider non-family blockholders represented on the board of directors and outsider blockholders not represented on the board<sup>8</sup>.

## **b/ Control variables**

Our control variables consider two categories of determinants: acquirer characteristics and acquisition characteristics. The acquirer traits that we control for are growth opportunities, leverage, cash reserves and firm size.

*Growth opportunities:* Numerous works highlight that growth opportunities impact market reaction around acquisitions. To control for this effect, we use Tobin's Q as a measure of growth opportunities. Taking into account the results of previous studies (Lang et al., 1991; Servaes, 1991), we expect a positive relation between Tobin's Q and abnormal returns.

*Leverage:* Stulz (1990) shows that highly leveraged firms may suffer from an underinvestment problem because of a potential shareholders' wealth expropriation by creditors. Jensen (1986) and Stulz (1990) highlight the governance role of leverage since it discourages managers from empire building when free cash-flows are high. In order to test

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<sup>7</sup> Franks et al. (2012) show that family control is very persistent over time in "insider countries" like France, Germany and Italy, compared to "outsider countries" like the U.K. Insider countries are characterized by less developed financial markets, lower mergers and acquisitions activity, and weaker investor protection.

<sup>8</sup> Shleifer and Vishny (1986) consider that a blockholder has substantial voting control to pressure management and pay for part of the gains that occur through acquisitions. The authors explain that controlling outside shareholders, are viewed as agents of other outside owners, able to minimize poor managerial discretion if their control is sufficient to influence an ownership change.

these hypotheses, we measure the leverage by dividing the acquirer's total debt by book value of assets.

*Cash reserve:* Harford (1999) finds that acquisitions by cash-rich firms are value decreasing and that this type of firm is more likely to make diversifying acquisitions and their targets are less likely to attract other acquirers. Gao (2011) finds that announcement returns are lower for a bidder with a higher excess cash reserve. To test this hypothesis, the cash reserve is evaluated by the firm cash and cash equivalents level divided by book value of assets. The relation between free cash reserve and acquisition performance is expected to be negative.

*Firm size:* Several studies show that acquirer size is negatively related to abnormal returns, that large acquirers, on average, pay higher premiums and make acquisitions that destroy firm value (Moeller et al., 2004). To test this hypothesis, we measure the firm size by the logarithm of market value of assets. The relation between acquirer's size and abnormal returns is expected to be negative.

The acquisition characteristics that we control for are relative deal size, target status and method of payment.

*Relative deal size:* Moeller et al. (2004) find that the relative deal size ratio is negatively related to acquirer abnormal returns. We expect a negative relation between abnormal returns and the relative deal size measured by the deal value divided by acquirer's market value of assets.

*Target status:* Several studies show that acquirers of listed targets underperform acquirers of unlisted targets. Officer (2007) explains this result by the fact that acquirers capture a liquidity discount when buying private or subsidiary targets. We introduce a dummy variable equal to one if the target is a listed firm. The relation between this variable and abnormal return is expected to be negative.

*Method of payment:* Dutta and Jog (2009) find that performance of acquisitions paid with stocks is lower than those paid with cash. The main explanation of these results may be that acquirers will use stocks if they think that their shares are overvalued, and will pay with cash if they believe their shares are undervalued or correctly valued (Shleifer and Vishny, 2003). We introduce a dummy variable equal to one if only stocks are used for payment. The relation between this variable and acquisition performance is expected to be negative.

### **3.3. Summary statistics**

Table 1 provides relevant summary statistics of variables and the significance test between family and non-family firms. Family firms are acquirers in 33.9% of cases (81 out of 239).

[Insert Table 1]

Panel A shows that mean family ownership is 41.5%, and mean first blockholder ownership is 19.3% in non-family firms. The separation between cash-flow rights and voting rights is higher in family firms, and the difference between these categories of firms is statistically significant at the level of 1%. The mean wedge is equal to 13.1% in family firms and to 2.7% in non-family ones.

Panel B show that family firms are smaller than non-family firms. The mean market capitalization of family firms is equal to € 1.58 billion, while that of non-family firms is equal to € 10.7 billion. However, the relative deal sizeratio is similar for the two types of acquirers and is around 32%. Tobin's Q indicates that family firms have higher growth opportunities compared to non-family firms. Statistics also indicate that family firms have higher cash reserves than non-family firms, 18.1% and 14.2%, respectively. Debt represents about 20% of total assets for the two types of acquirers. We find that family firms and non-family firms use



only shares as a method of payment in the same way, 19.7% and 20.2%, respectively. Listed targets represent 29.6% of family firms' acquisitions, and they represent 39.2% of non-family firms' acquisitions.

#### **4. Results and discussion**

In this section, we present univariate analysis of acquirer's short- and long-term performance for each type of control. We also present results of OLS regressions realized to test the impact of family control on acquisition performance.

##### **4.1. Univariate analysis**

Table 2 shows that French acquirers realize positive abnormal returns of 1 % three days around the announcement, significant at the level of 5%. Family firms realize for the same event window abnormal returns of 2.81%, significant at the level of 1%. However, non-family firms realize weak abnormal returns of 0.08%. The test of difference shows that family firms outperform significantly non-family firms around the announcement date.

[Insert Table 2]

Thirty-six months following the completion, family firms realize positive, but insignificant, abnormal stock returns of 0.47%. Regarding non-family firms, the mean abnormal returns are negative insignificant of -9.09%, and the median measure indicates that abnormal returns are significantly negative at the level of 10%.

Median change in operating performance shows that family firms realize an improvement in their return on assets, significant at the level of 10%. This improvement is higher than that of non-family firms, 0.99% and 0.12% respectively. Univariate analysis supporting the

hypothesis that research of efficiency dominates the extraction of private benefits in family firms, which outperform non-family firms when they acquire. This analysis should be completed by a multivariate analysis that controls for firm and acquisition characteristics.

## **4.2. Multivariate analysis**

In this section, we investigate whether the ownership structure has an impact on the acquisition performance. Moreover, we study the nonlinearities between acquirer performance and family control. Variance Inflation Factors (VIF) are lower than 1.95 across all the models, ensuring that there is no serious multicollinearity problem.

### **4.2.1. Family firms and acquisition performance**

Table 3 presents regression results of the impact of ownership structure on acquirer short and long-term performance. In models (1) to (3), we use cumulative abnormal returns three days around the announcement<sup>9</sup> as the dependent variable. We find that family control has a positive, significant, impact on short-term performance.

[Insert Table 3]

We use three-year stock performance as the dependent variable in models (4) to (6). In all models, the impact of family control is positive but not statistically significant. The dependent variable in models (7) to (9) is three-year post-acquisition adjusted operating performance. Results show that the impact of family control is positive and significant. Therefore, after control for acquirer and acquisition characteristics, we obtain results that confirm our univariate findings. These results also confirm the hypothesis that incentive

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<sup>9</sup> In this models we include year dummy variables (for each year of our sample period) to control for macro economic factors. In unreported regressions we include industry dummy variables (for each 2-digit SIC code) to control industry effect, and we find insignificant change in results.

efficiency dominates the extraction of private benefits in family firms, and that they benefit more from acquisitions than non-family firms do. Our findings are in line with those of Ben-Amar and André (2006) that find a similar impact in their study of Canadian acquirers and in line with those of Anderson and Reeb (2003), Villalonga and Amit (2006) and Andres (2008) that find a positive impact on firm value.

This finding can be explained by different reasons. Families usually invest most of their private wealth in the company, and the objective of most of them is to ensure a transfer of wealth to their descendants. Therefore, they tend to adopt conservative management policies and to make fewer acquisitions than non-family firms. This cautious acquisition strategy conducts them to acquire only in order to create value. Then, family firms should be efficient when selecting the target firm and efficient in the integration process. However, according to agency conflicts and to the entrenchment theory, managers of non-family firms tend to realize multiple acquisitions in order to build empire and to become indispensable. Our result is in line with the finding of Caprio et al. (2011), which states that family firms may engage in significantly less frequent acquisitions than non-family firms without negatively affecting their growth. Franks et al. (2012) find another explanation for this outperformance. The authors highlight that legal and institutional environments make family control more value efficient in Europe, and that family ownership is a powerful and persistent arrangement. Therefore, family firms have strong economic incentives to decrease agency costs and extraction of private benefits. In France, family firms benefit from their developed relationships with bankers in an environment giving greater importance to banks than to the stock market. Moreover, according to Burkart et al. (2003), family control in France seems to be a substitute for weak formal investor protection.

We find in all models, an insignificant relationship between the family wedge and acquisition performance. This result contradicts the evidence of negative value impact of the

family wedge due to a higher risk of expropriation, documented by Barontini and Caprio (2006). Therefore, we cannot conclude that the separation between voting rights and cash-flow rights leads to value destruction. Studying the impact of non-family blockholder ownership on performance, we find that both insider and outsider blockholders have insignificant impact on acquisition performance. This result is in line with the findings of Bauguess and Stegemoller (2008). Tobin's Q has a positive significant impact on long-term performance, which indicates that firms with high growth opportunities realize a value creation when they acquire. However, as expected, firm size and cash reserves have negative significant impacts on long-term performance. These results indicate that big acquirers and cash-rich acquirers realize value decreasing acquisitions. Furthermore, firm leverage and the relative deal size ratio are negatively related to long-term performance.

#### **4.2.2. Nonlinearities between firm performance and family control**

Table 4 investigates the impact of nonlinearities in the effects of family control on acquisition performance. To conduct this analysis we relax Barontini and Caprio's (2006) definition of family firms. We define as family firms as those in which a family or an individual is the largest shareholder with voting rights superior to 10%.

[Insert Table 4]

In models (1) and (2), the dependent variable is abnormal returns three days around the announcement date. We find an insignificant relationship between family control and performance at moderate control levels (10-30% and 30-60% of votes). At high level of control (60-100% of votes), we find a positive impact of family control, significant at a level of 10%. Our results are consistent with those of Basu et al. (2009) who find a similar relation

between family ownership and short-term performance. This result shows that at high levels of control, there is a better alignment of family interests with those of minority shareholders. Therefore, the higher the family control, the higher the market reaction to the acquisition announcement.

In models (3) and (4), the dependent variable is abnormal stock returns thirty-six months following the completion. Regardless of the level of family control, we find a positive, but insignificant, relation between abnormal returns and family voting rights. In models (5) and (6), we use adjusted post-acquisition operating performance as the dependent variable. For an intermediate level of control (30-60%), we find a positive and significant relation between family control and acquisition performance. For a low and high level of control, the relation is positive but insignificant. Therefore, the relation between operating performance and family control is nonlinear. This result is in line with Maury's (2006) that shows that the positive impact of family control is pronounced at an intermediate level of control.

Since the objective of most families is the intergenerational transfer of managerial control, the risk of dilution is very pronounced at an intermediate level of control compared to a low or a high level of control. In addition, given their undiversified investments, family firms are more risk adverse than other firms. Therefore, firms in which families maintain an intermediate level of control tend to adopt an acquisition strategy that allows both to create value and to avoid dilution of family control. The value creation may also be explained by the monitoring role of new blockholders emerging from the acquisition process. At a high level of control, the family opportunism may increase and conduct to an extraction of private benefits during the years that follow the completion of the transaction (Maury, 2006).

## 5. Robustness checks

In this section, we test the robustness of our results by examining the endogeneity problem between ownership and performance, and by using alternative definitions of family firm. In addition, we test the nonlinearities between firm performance and family control by using a squared polynomial model. Finally, we check the robustness of our results by using alternative measures of acquisition performance.

### 5.1. Endogeneity

Our analysis potentially suffers from an endogeneity problem (Demsetz and Lehn, 1985; Demsetz and Villalonga, 2001; Loderer and Martin, 1997). Himmelberg, Hubbard and Palia (1999) argue that both managerial ownership and firm performance may be endogenously determined by unobserved characteristics in the firm's regulation and the stability of the environment in which they function.

[Insert Table 5]

In its simplest form, this problem might arise if firm performance caused choices about the ownership of the largest shareholder. The observed relation between firm performance and family ownership might be the result of a reversed causality. First, we test for endogeneity using the Wu-Hausman test as Andres (2008), and the Durbin-Wu-Hausman test<sup>10</sup> as Roosenboom and Schramade (2006). For all models in tables 3 we find that firm performance is not endogenous to family control (*p-value* varies between 0.62 and 0.80). Therefore, the evidence provided by OLS results is not driven by endogeneity. Second, although the test rejects endogeneity, we use the instrumental variables (IV-2SLS) technique

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<sup>10</sup> The Durbin-Wu-Hausman test is used as augmented by Davidson and Mackinnon (1993).

to address this potential problem. Demsetz and Lehn (1985) suggest that ownership is a function of firm size and risk. Following, Anderson and Reeb (2003) and Barontini and Caprio (2006), the occurrence of family control is instrumented using three instruments<sup>11</sup>: the natural log of total assets, monthly stock return volatility (measured as the standard deviation of monthly stock returns 36 months prior to the announcement), and the alpha of stocks (measured over 251 days prior to the announcement). We also employ LIML estimates instead of traditional 2SLS estimates to avoid the potential problem of weak instrument due to the modest correlation between the endogenous variables and our instruments.

Table 5 presents results of instrumental variable regressions. Regardless of the estimation technique, 2SLS or LIML, we find that the estimates from IV regressions are consistent with our prior OLS results, suggesting that the coefficient of family firm continues to be significantly positive. Similar to the results of Anderson and Reeb (2003), Maury (2006), Barontini and Caprio (2006) and Bauguess and Stegemoller (2008), the evidence presented in this paper is not driven by endogeneity of family ownership.

Since the IV technique is sensitive to the choice of instruments, we use, in unreported regressions, three other instruments to check the robustness of our results. These instruments are: the natural log of total assets, monthly stock return volatility (measured as the standard deviation of monthly stock returns 36 months prior to the announcement), and CEO founder (a dummy variable that equals 1 if the CEO is the founder of the company or a descendent). We obtain similar findings.

## **5.2. Alternative definitions of family firms**

Villalonga and Amit (2006) and Miller et al. (2007) highlight the importance of criteria used to define a firm as a family firm. Authors explain that it is necessary to distinguish among

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<sup>11</sup> We use tests of over-identifying restrictions to test the pertinence of instruments.

three fundamental elements in the definition of family firms, namely, ownership, control and management. Table 6 shows how definition matters by comparing the differences in acquisition performance between family and non-family firms across nine alternative definitions of family firm.

[Insert Table 6]

The last three columns of table 6 report coefficients of OLS regressions with three dependent variables: announcement period abnormal returns, thirty-six month abnormal returns, and adjusted operating performance, respectively. The first four definitions are based on control and consider that the family is the largest vote holder. We find that family firms outperform non-family firms. When definition is based on ownership (the second four definitions), the outperformance of family firms is significant only using operating performance. We highlight that results obtained using the definition of Barontini and Caprio (2006) are more significant, which indicates that this definition detects the real control by the family and allows the family to avoid a coalition taking control. Finally, the last definition is based on management. A firm is considered as a family firm if the CEO is the founder or a descendent. Results also indicate that family firms outperform non-family firms.

### **5.3. Nonlinearities between firm performance and family control: Squared polynomial model**

To check the robustness of table 4 results, we use a squared polynomial model that consists of family voting rights and family voting rights squared. Table 7 presents the results of this model.



[Insert Table 7]

When we use stock abnormal returns as dependent variables, models (2) and (4) show that both family voting rights and family voting rights squared are not significant. However, when the dependent variable is post-acquisition operating performance, model (6) confirms that the relation between family control and performance is nonlinear. We find that family voting rights are positively and significant related to operating performance, and that family voting rights squared are negatively and significantly related to performance<sup>12</sup>. We find an inflection point at 61.93% which indicates that operating performance starts to taper off. Beyond this level, according to results of table 4, operating performance begins to decline but is still insignificantly better than the operating performance of non-family firms. Anderson and Reeb (2003) show that family firms outperform non-family firms over the entire range of ownership level, peaking at around 30%. Yen and André (2007) find that the operating performance of English acquirers starts to decrease beyond the 61.62% level of ultimate blockholder ownership.

#### **5.4. Alternative measures of acquisition performance**

*Short-term performance:* First, we use the adjusted market model instead of the market model. Second, we also use different windows to measure the cumulative abnormal returns (five days and ten days around the announcement). We find qualitatively unchanged univariate and multivariate results.

*Long-term stock performance:* First, we use other control firms selected using only size and book-to-market criteria and we find similar results. Second, we use buy-and-hold

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<sup>12</sup> In an unreported analysis, we include the family voting rights cubed in model (6). We find insignificant relations between the three independent variables and operating performance.

abnormal returns (BHAR) rather than cumulative abnormal returns (CAR). The relation between family control and acquisition performance is always positive and not significant.

Third, as mentioned by Fama (1998), Lyon et al. (1999) and by Mitchell and Stafford (2000), the measure of long-term stock performance is sensitive to the methodology used. Therefore, we use the calendar time portfolios approach rather than the event time approach. The advantage of this approach is that it accounts for cross-dependence among acquisition events. We calculate the calendar time abnormal returns as the intercept variable (alpha) of Fama and French's (1993) three- factor model:

$$(R_{pt} - R_{ft}) = \alpha_p + \beta_p (R_{mt} - R_{ft}) + s_p SMB_t + h_p HML_t + \varepsilon_{pt} \quad (4)$$

$R_{pt}$  is the equally weighted<sup>13</sup> return on a bidder portfolio in month t.  $R_{ft}$  is the risk-free rate measured as a one-month Euribor rate. The intercept  $\alpha_p$  provides a measure of monthly abnormal returns during the post-acquisition period.  $R_{mt}$  is the return on the SBF 250 market return.  $SMB_t$  and  $HML_t$  are return differentials on the portfolio between small and large firms, and between high book-to-market and low book-to-market firms. SMB and HML are calculated using the method employed by Fama and French (1993) based on all French firms in Datastream. We estimate the parameters of the model using OLS regression. To control for the heteroskedasticity problem that may be due to changes in portfolio composition, we also use, following Mitchell and Stafford's (2000) recommendations, the weighted least square (WLS) regression. The weights are proportional to the square root of the number of firms in each portfolio.

[Insert Table 8]

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<sup>13</sup> Loughran and Ritter (2000) argue that the three factor model using value-weighted returns tends to underestimate abnormal returns when the event being studied is a managerial choice variable.

Table 8 presents the parameters of the three factor model. Results indicate that family acquirers outperform non-family acquirers. Panel A presents results of OLS regressions. For family firms, the alpha is positive and significant at the level of 1%. For non-family firms the alpha is lower and significant only at the level of 10%. After controlling for heteroskedasticity, panel B shows that the intercept variable is significant only for family firms thirty-six months following the completion. This result confirms the weak outperformance of family firms found through the event time approach.

*Operating performance:* First, we use another benchmark selected according to industry, size and pre-acquisition criteria, as recommended by Barber and Lyon (1996). We find similar univariate and multivariate results. Second, as a measure of performance, we use EBIT divided by total assets and EBITDA divided by sales rather than EBITDA divided by total assets. We find that results are qualitatively unchanged.

#### **5.4. Additional robustness tests**

First, we measure the wedge as the difference between voting rights and cash-flow rights rather than the voting rights to cash-flow rights ratio. We find that the relation is always insignificant. Second, we consider voting rights of non-family insider blockholder and largest outsider blockholder rather than cash-flow rights and we find that results are qualitatively unchanged.

#### **6. Summary**

This paper examines the impact of family control on short-term and long-term acquisition performance. Using a sample of 239 French acquisitions during the 1997-2006 period, we find that family firms outperform non-family firms when family firms acquire another firm.

They attain significantly higher short-term stock performance and long-term operating adjusted performance. The calendar time approach shows that the long-term stock performance of family firms is significant. Results show specifically that family firms with a high level of control have a positive impact on announcement period performance. However, we find a nonlinear relation between family control and operating performance. Our findings indicate that research of efficiency dominates extraction of private benefits in family firms. We find that non-family blockholders do not have any significant impact on performance whether they have representation on the board of directors or not. Finally, we highlight that firm performance does not seem to be endogenous to family control, and that our results are not highly sensitive to the definition of family firm used.

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**Table 1: Summary statistics**

	<i>All Sample (N = 239)</i>		<i>Family (N = 81)</i>		<i>Non-Family (N = 158)</i>		<i>t-stat (M-Whitney)</i>
	<i>Mean</i>	<i>Median</i>	<i>Mean</i>	<i>Median</i>	<i>Mean</i>	<i>Median</i>	
<i>Panel A: Ownership characteristics</i>							
First Block Own	0.269	0.223	0.415	0.399	0.193	0.113	-8.602***
Non-Fam Insider	0.126	0.060	0.031	0.000	0.175	0.087	6.427***
Largest Outsider	0.029	0.000	0.032	0.000	0.027	0.000	-0.750
First Block Wedge	0.062	0.019	0.131	0.118	0.027	0.000	-8.602***
<i>Panel B: Acquirer and acquisition characteristics</i>							
Market Val (€mil)	7.641	1.657	1.583	0.418	10.700	3.662	4.396***
Tobin's Q	1.703	1.110	2.015	1.257	1.544	1.034	-1.771*
Relative Deal Size	0.325	0.133	0.327	0.110	0.323	0.137	-0.043
Leverage	0.209	0.208	0.205	0.194	0.211	0.214	0.394
Cash Reserve	0.155	0.109	0.181	0.130	0.142	0.097	-1.966**
Listed Target	0.359	0.000	0.296	0.000	0.392	0.000	1.462
All Shares	0.200	0.000	0.197	0.000	0.202	0.000	0.091

*First block Own* is holdings of the ultimate blockholder. *Non-Family Insider Own* is holdings of the ultimate non-family blockholder. *Largest Outsider* is holdings of blockholder not represented on the board of directors. *First Block Wedge* is the difference between biggest blockholder's voting rights and cash-flow rights. *Market Value* is measured at the end of the fiscal year preceding the acquisition. *Tobin's Q* is the sum of the market value of assets and total debt divided by book value of assets. *Relative Deal Size* is the deal value divided by the market value. *Leverage* is total debt divided by book value of assets. *Cash Reserve* is cash and cash equivalents divided by book value of assets. *Listed Target* is a dummy variable equal to 1 if target is a listed company and 0 otherwise. *All Shares* is a dummy variable equal to 1 if only shares are used for payment, and 0 otherwise. \*\*\*, \*\* and \* denote significance at the 1%, 5% and 10% levels, respectively.

**Table 2: Acquirer performance**

(%)	<i>All Sample (N = 239)</i>		<i>Family (N = 81)</i>		<i>Non-Family (N = 158)</i>		<i>t-stat (M-Whitney)</i>
	<i>Mean</i>	<i>Median</i>	<i>Mean</i>	<i>Median</i>	<i>Mean</i>	<i>Median</i>	
CAR [-1 ; +1]	1.008** (0.016)	0.498*** (0.010)	2.816*** (0.000)	1.355*** (0.001)	0.081 (0.868)	0.253 (0.433)	-3.156*** -2.487**
CAR (36 months)	-5.849 (0.357)	-3.255 (0.216)	0.473 (0.964)	3.528 (0.775)	-9.090 (0.253)	-6.699* (0.091)	-0.713 -1.251
$\Delta$ Adj Op. Perform	0.889 (0.357)	0.610 (0.367)	2.078 (0.834)	0.998* (0.076)	0.273 (0.834)	0.128 (0.964)	-0.871 -1.270

*CAR [-1;+1]* is cumulative abnormal stock returns three-day around the announcement. *CAR (36 months)* is cumulative abnormal stock returns three years following the completion.  *$\Delta$ Adj Op. Perform* is adjusted operating performance measured following Healy et al. (1992) methodology. We consider *Family Firm* those where the family controls more than 51% of voting rights or controls more than double the voting rights of the second largest shareholder. t-statistics are used for means, and Wilcoxon signed rank tests are used for medians. \*\*\*, \*\* and \* denote significance at the 1%, 5% and 10% levels, respectively.

**Table 3: Acquirers short- and long-term performances regressions**

	<i>Exp Signs</i>	<i>CAR[-1 ; +1]</i>			<i>CAR (36 months)</i>			<i>Post-acq Adj Performance</i>		
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Family Firm	+	0.023** (0.035)	0.027** (0.049)	0.028* (0.061)	0.045 (0.760)	0.032 (0.849)	0.038 (0.837)	0.023** (0.026)	0.019* (0.086)	0.031** (0.029)
Family Wedge	-		-0.010 (0.533)	-0.011 (0.536)		-0.035 (0.861)	-0.069 (0.746)		0.025 (0.785)	0.008 (0.919)
Non-family Insider Own	+/-			0.010 (0.716)			0.242 (0.537)			0.068 (0.168)
Largest Outsider Own	+/-			-0.072 (0.428)			1.644 (0.387)			-0.057 (0.580)
Tobin's Q	+	0.001 (0.606)	0.001 (0.632)	0.001 (0.632)	0.110* (0.076)	0.109* (0.078)	0.113* (0.069)	0.019** (0.050)	0.019* (0.052)	0.018** (0.045)
Leverage	+/-	-0.044 (0.161)	-0.043 (0.168)	-0.040 (0.215)	-1.432** (0.023)	-1.430** (0.023)	-1.339** (0.028)	-0.035 (0.674)	-0.034 (0.682)	-0.028 (0.736)
Cash Reserve	-	-0.021 (0.674)	-0.023 (0.645)	-0.024 (0.651)	-1.443* (0.070)	-1.452* (0.069)	-1.491* (0.061)	-0.232*** (0.000)	-0.231*** (0.000)	-0.254*** (0.000)
Acquirer Size	-	-0.001 (0.435)	-0.001 (0.452)	-0.002 (0.390)	-0.071** (0.034)	-0.071** (0.035)	-0.053 (0.141)	-0.005 (0.179)	-0.005 (0.169)	-0.005 (0.176)
Relative Deal Size	-	0.004 (0.618)	0.003 (0.646)	0.003 (0.665)	-0.103 (0.557)	-0.104 (0.548)	-0.119 (0.493)	-0.026** (0.015)	-0.026** (0.016)	-0.028** (0.013)
Listed Target	-	-0.008 (0.419)	-0.008 (0.431)	-0.007 (0.474)	-0.151 (0.260)	-0.150 (0.259)	-0.159 (0.249)	-0.005 (0.670)	-0.006 (0.654)	-0.005 (0.685)
All shares Payment	-	-0.023* (0.097)	-0.022 (0.119)	-0.022 (0.123)	-0.292 (0.202)	-0.287 (0.222)	-0.263 (0.276)			
Pre-acq Performance	+				0.073 (0.392)	0.074 (0.388)	0.074 (0.382)	0.337*** (0.000)	0.336*** (0.000)	0.340*** (0.000)
CAR[-1 ; +1]	+/-				-1.356 (0.234)	-1.362 (0.236)	-1.314 (0.256)	0.118 (0.270)	0.122 (0.252)	0.109 (0.320)
Constant		0.038 (0.329)	0.049 (0.234)	0.058 (0.209)	1.356** (0.017)	1.506** (0.021)	1.181* (0.067)	0.103 (0.150)	0.104 (0.144)	0.102 (0.212)
Year Dummies		Yes	Yes	Yes						
N		239	239	239	239	239	239	120	120	120
F. Stat		1.92**	1.83**	1.62**	2.15**	1.96**	1.81**	9.23***	9.58***	10.66***
Adjusted R <sup>2</sup>		0.056	0.053	0.049	0.065	0.061	0.060	0.325	0.320	0.323

*CAR[-1;+1]* is short-term stock performance. *CAR (36 months)* is long-term stock performance. *Post-acq Adj Pfcfe* is operating performance. *Family Firm* is a dummy equal to 1 if the family controls more than 51% of voting rights or controls more than double the voting rights of the second largest shareholder. *Family Wedge* is the ratio of the level of voting rights to the level of cash-flow rights. *Non-family Insider Own* is holdings of the ultimate non-family blockholder represented on the board. *Largest Outsider* is holdings of blockholder not represented on the board. *Tobin's Q* is the sum of market value of assets and total debt divided by book value of assets. *Leverage* is total debt divided by book value of assets. *Cash Reserve* is cash and cash equivalents divided by book value of assets. *Acquirer Size* is the logarithm of market value. *Relative Deal Size* is the deal value divided by the market value. *Listed Target* is a dummy variable equal to 1 if target is a listed company. *All Shares Payment* is a dummy variable equal to 1 if only shares are used for payment. *Pre-acq Performance* is 36 month pre-acquisition CAR in models (4) to (6), and 3 year pre-acquisition adjusted operating performance in models (7) to (9). Statistical significance is corrected for heterocedasticity using McKinnon and White (1985) adjustment. \*\*\*, \*\* and \* denote significance at the 1%, 5% and 10% levels, respectively.

**Table 4: Nonlinearities between firm performance and family control**

	<i>CAR[-1; +1]</i>		<i>CAR (36 months)</i>		<i>Post-acq Adj Pfce</i>	
	(1)	(2)	(3)	(4)	(5)	(6)
Fam_Votes [10 ; 30%]		-0.008 (0.665)		0.036 (0.903)		0.009 (0.696)
Fam_Votes [30 ; 60%]	0.004 (0.721)	0.002 (0.853)	0.044 (0.807)	0.054 (0.744)	0.024** (0.047)	0.023* (0.061)
Fam_Votes [60 ; 100%]	0.021* (0.074)	0.018* (0.081)	0.033 (0.867)	0.023 (0.899)	0.022 (0.328)	0.021 (0.396)
Tobin's Q	0.002 (0.463)	0.002 (0.448)	0.110* (0.078)	0.110* (0.075)	0.018* (0.051)	0.018* (0.053)
Leverage	-0.036 (0.250)	-0.038 (0.225)	-1.425** (0.026)	-1.433** (0.019)	-0.031 (0.708)	-0.033 (0.699)
Cash Reserve	-0.013 (0.789)	-0.014 (0.774)	-1.431* (0.076)	-1.434* (0.074)	-0.228*** (0.000)	-0.230*** (0.000)
Acquirer Size	-0.002 (0.249)	-0.003 (0.199)	-0.067* (0.074)	-0.069** (0.043)	-0.005 (0.141)	-0.005 (0.145)
Relative Deal Size	0.003 (0.696)	0.003 (0.707)	-0.098 (0.577)	-0.099 (0.571)	-0.027** (0.015)	-0.027** (0.013)
Listed Target	-0.008 (0.444)	-0.008 (0.423)	-0.154 (0.260)	-0.156 (0.255)	-0.007 (0.591)	-0.007 (0.578)
All Shares Payment	-0.023 (0.103)	-0.022 (0.101)	-0.285 (0.208)	-0.282 (0.194)		
Pre-acq Performance			0.073 (0.399)	0.074 (0.392)	0.333*** (0.000)	0.334*** (0.000)
CAR[-1 ; +1]			-1.414 (0.225)	-1.423 (0.231)	0.130 (0.220)	0.129 (0.237)
Constant	0.055 (0.184)	0.061 (0.137)	1.396** (0.040)	1.429** (0.016)	0.106 (0.124)	0.112 (0.141)
Year Dummies	Yes	Yes				
N	239	239	239	239	120	120
F. Stat	1.72**	1.60*	2.00**	1.95**	9.95***	9.06***
Adjusted R <sup>2</sup>	0.036	0.033	0.061	0.057	0.320	0.314

*CAR[-1;+1]* is short-term stock performance. *CAR(36 months)* is long-term stock performance. *Post-acq Adj Pfce* is operating performance. *Fam\_Votes [10;30%]* is a dummy equal to 1 if controlling shareholders is a family with votes  $\geq 10\%$  but  $< 30\%$ . *Fam\_Votes [30;60%]* is a dummy equal to 1 if controlling shareholders is a family with votes  $\geq 30\%$  but  $< 60\%$ . *Fam\_Votes [60;100%]* is a dummy equal to 1 if controlling shareholders is a family with votes  $\geq 60\%$ . *Tobin's Q* is the sum of market value of assets and total debt divided by book value of assets. *Leverage* is total debt divided by book value of assets. *Cash Reserve* is cash and cash equivalents divided by book value of assets. *Acquirer Size* is the logarithm of market value. *Relative Deal Size* is the deal value divided by the market value. *Listed Target* is a dummy variable equal to 1 if target is a listed company. *All Shares Payment* is a dummy variable equal to 1 if only shares are used for payment. *Pre-acq Performance* is 36 month pre-acquisition CAR in models 3 and 4, and 3 year pre-acquisition adjusted operating performance in models 5 and 6. Statistical significance is corrected for heteroscedasticity using McKinnon and White (1985) adjustment. \*\*\*, \*\* and \* denote significance at the 1%, 5% and 10% levels, respectively.

**Table 5: Instrumental variable regressions**

	<i>CAR[-1; +1]</i>		<i>Post-acq Adj Pfce</i>	
	<i>2SLS</i>	<i>LIML</i>	<i>2SLS</i>	<i>LIML</i>
	(1)	(2)	(5)	(6)
Family Firm	0.022** (0.038)	0.026** (0.041)	0.018** (0.022)	0.024** (0.035)
Tobin's Q	0.002 (0.601)	0.002 (0.616)	0.035*** (0.003)	0.035*** (0.004)
Leverage	-0.040 (0.198)	-0.039 (0.250)	-0.044 (0.560)	-0.042 (0.585)
Cash Reserve	-0.016 (0.749)	-0.016 (0.748)	-0.315*** (0.000)	-0.315*** (0.000)
Acquirer Size	-0.002 (0.530)	-0.003 (0.602)	-0.009 (0.259)	-0.009 (0.282)
Relative Deal Size	0.003 (0.656)	0.003 (0.714)	-0.024* (0.097)	-0.025 (0.104)
Listed Target	-0.007 (0.453)	-0.007 (0.503)	-0.015 (0.293)	-0.016 (0.292)
All Shares Payment	-0.025* (0.084)	-0.025* (0.097)		
Constant	0.056 (0.476)	0.065 (0.563)	0.163 (0.231)	0.175 (0.255)
Year Dummies	Yes	Yes		
N	239	239	120	120
Wald. Stat	31.93**	31.36**	22.28***	9.06***
Adjusted R <sup>2</sup>	0.051		0.154	
<i>Tests of over-identifying restrictions:</i>				
Sargan	(0.149)		(0.484)	
Basman	(0.161)	(0.163)	(0.510)	(0.511)
Anderson-Rubin		(0.137)		(0.482)

Instruments are: *the natural log of total assets*, *monthly stock return volatility* (measured as the standard deviation of monthly stock returns 36 months prior the announcement), and *the alpha of stocks* (measured over 251 days prior the announcement). *CAR[-1; +1]* is short-term stock performance. *CAR (36 months)* is long-term stock performance. *Post-acq Adj Pfce* is operating performance. *Family Firm* is a dummy equal to 1 if the family controls more than 51% of voting rights or controls more than double of the voting rights of the second largest shareholder. *Tobin's Q* is the sum of market value of assets and total debt divided by book value of assets. *Leverage* is total debt divided by book value of assets. *Cash Reserve* is cash and cash equivalents divided by book value of assets. *Acquirer Size* is the logarithm of market value. *Relative Deal Size* is the deal value divided by the market value. *Listed Target* is a dummy variable equal to 1 if target is a listed company. *All Shares Payment* is a dummy variable equal to 1 if only shares are used for payment. Statistical significance is corrected for heteroscedasticity using White (1980) adjustment. \*\*\*, \*\* and \* denote significance at the 1%, 5% and 10% levels, respectively.

**Table 6: Effect of the definition of “family firm” on short- and long-term performances**

<i>Definition of family firm</i>	<i>% of family firm in the sample</i>	<i>OLS Coefficient CAR [-1 ; +1]</i>	<i>OLS Coefficient CAR (36 mois)</i>	<i>OLS Coefficient Post-acq Adj. Performance</i>
1. The family is the largest vote holder and has at least 10% of the votes	43%	0.007 (0.280)	0.099 (0.406)	0.025* (0.065)
2. The family is the largest vote holder and has at least 20% of the votes	36%	0.019* (0.061)	0.073 (0.589)	0.033** (0.022)
3. The family is the largest vote holder and has at least 30% of the votes	31%	0.017* (0.066)	0.059 (0.634)	0.037** (0.029)
4. Family voting rights		0.020* (0.081)	0.018 (0.936)	0.024* (0.063)
5. The family is the largest shareholder and has at least 10% of the cash-flow rights	41%	0.014 (0.237)	0.291 (0.315)	0.022** (0.043)
6. The family is the largest shareholder and has at least 20% of the cash-flow rights	33%	0.011 (0.194)	0.003 (0.976)	0.026* (0.081)
7. The family is the largest shareholder and has at least 30% of the cash-flow rights	23%	0.013 (0.241)	0.051 (0.728)	0.027 (0.121)
8. Family ownership		0.033 (0.137)	0.238 (0.317)	0.482* (0.093)
9. The <i>CEO</i> is a founder or a descendant	34%	0.022** (0.028)	0.041 (0.823)	0.031* (0.075)

This table reports the coefficient of the independent variable in OLS regressions. *CAR[-1;+1]* is short-term stock performance. *CAR (36 months)* is long-term stock performance. *Post-acq Adj Pfce* is operating performance. Control variables are those used in table 2. Statistical significance is corrected for heterocedasticity using McKinnon and White (1985) adjustment. \*\*\*, \*\* and \* denote significance at the 1%, 5% and 10% levels, respectively.

**Table 7: Nonlinearities between firm performance and family control: Squared polynomial model**

	<i>CAR[-1; +1]</i>		<i>CAR (36 months)</i>		<i>Post-acq Adj Pfce</i>	
	(1)	(2)	(3)	(4)	(5)	(6)
Fam_Votes	0.020*	0.017	0.018	-0.675	0.024*	0.120**
	(0.081)	(0.938)	(0.936)	(0.250)	(0.063)	(0.028)
(Fam_Votes) <sup>2</sup>		0.003		0.850		-0.116**
		(0.783)		(0.201)		(0.039)
Tobin's Q	0.002	0.002	0.108*	0.112*	0.019**	0.018**
	(0.474)	(0.467)	(0.076)	(0.071)	(0.046)	(0.048)
Leverage	-0.036	-0.036	-1.438**	-1.445**	-0.027	-0.024
	(0.225)	(0.228)	(0.026)	(0.026)	(0.743)	(0.764)
Cash Reserve	-0.016	-0.015	-1.441*	-1.421*	-0.227***	-0.220***
	(0.742)	(0.757)	(0.075)	(0.078)	(0.000)	(0.000)
Acquirer Size	-0.003	-0.003	-0.065*	-0.073**	-0.006*	-0.004
	(0.223)	(0.217)	(0.073)	(0.042)	(0.099)	(0.223)
Relative Deal Size	0.003	0.003	-0.096	-0.109	-0.027**	-0.025**
	(0.702)	(0.713)	(0.579)	(0.528)	(0.016)	(0.022)
Listed Target	-0.007	-0.007	-0.154	-0.156	-0.006	-0.007
	(0.474)	(0.471)	(0.259)	(0.251)	(0.650)	(0.603)
All Shares Payment	-0.024*	-0.024*	-0.289	-0.275		
	(0.089)	(0.090)	(0.203)	(0.221)		
Pre-acq Performance			0.068	0.080	0.335***	0.336***
			(0.421)	(0.347)	(0.000)	(0.000)
CAR[-1 ; +1]			-1.399	-1.443	0.132	0.131
			(0.228)	(0.206)	(0.200)	(0.205)
Constant	0.058	0.060	1.371**	1.511**	0.117	0.093
	(0.163)	(0.154)	(0.039)	(0.021)	(0.101)	(0.221)
Year Dummies	Yes	Yes				
N	239	239	239	239	120	120
F. Stat	1.71**	1.60*	2.17**	2.23**	9.07***	8.66***
Adjusted R <sup>2</sup>	0.037	0.033	0.064	0.065	0.319	0.323
<i>Inflection Point</i>						61.93%

*CAR[-1;+1]* is short-term stock performance. *CAR (36 months)* is long-term stock performance. *Fam\_Votes* is the voting rights of family. *Tobin's Q* is the sum of market value of assets and total debt divided by book value of assets. *Leverage* is total debt divided by book value of assets. *Cash Reserve* is cash and cash equivalents divided by book value of assets. *Acquirer Size* is the logarithm of market value. *Relative Deal Size* is the deal value divided by the market value. *Listed Target* is a dummy variable equal to 1 if target is a listed company. *All Shares Payment* is a dummy variable equal to 1 if only shares are used for payment. *Pre-acq Performance* is 36 month pre-acquisition CAR in models 3 and 4, and 3 year pre-acquisition adjusted operating performance in models 5 and 6. Statistical significance is corrected for heterocedasticity using McKinnon and White (1985) adjustment. \*\*\*, \*\* and \* denote significance at the 1%, 5% and 10% levels, respectively.

**Table 8: Long-term abnormal returns using calendar time portfolios approach**

	$\alpha$ (%)	Market	SMB	HML	Adj. R <sup>2</sup> [F]
<i>Panel A: using OLS regression to estimate the alpha</i>					
All Firms	0.845*** (0.007)	1.230*** (0.000)	0.780*** (0.000)	0.343*** (0.002)	0.804*** [189.86]
Family Firms	1.052*** (0.006)	1.319*** (0.000)	1.103*** (0.000)	0.249* (0.054)	0.772*** [161.86]
Non Family Firms	0.665* (0.077)	1.175*** (0.000)	0.595*** (0.000)	0.332*** (0.009)	0.741*** [108.05]
<i>Panel A: using WLS regression to estimate the alpha</i>					
All Firms	0.717** (0.015)	1.208*** (0.000)	0.680*** (0.000)	0.264*** (0.000)	0.843*** [210.08]
Family Firms	0.888*** (0.009)	1.289*** (0.000)	1.040*** (0.000)	0.213** (0.040)	0.791*** [217.24]
Non Family Firms	0.604 (0.128)	1.161*** (0.000)	0.490*** (0.000)	0.245** (0.019)	0.790*** [123.03]

Family firm is determined when an individual or a family controls more than 51% of voting rights, or controls more than double the voting rights of the second largest shareholder. The alphas are calculated for 36 months following the completion using Fama and French (1993) three-factor model. The weights in WLS technique are  $\sqrt{N}$  where  $N$  is the number of firms in each portfolio. Statistical significance is corrected for heteroskedasticity and autocorrelation using the Newey-West (1987) adjustment. \*\*\*, \*\* and \* denote significance at the 1%, 5% and 10% levels, respectively.