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# **Insider Trading and Family Firms**

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## **Insider Trading and Family Firms**

**Abstract:** We find that CEOs of S&P 1500 family firms, founding CEOs in particular, are more active stock traders than are the CEOs of non-family firms. Importantly, the stock trades made by founding CEOs (and, to a lesser extent, those made by founders' descendants) are more profitable than those made by the CEOs of non-family firms. This finding is more pronounced for family firms that are difficult to value or that have poor corporate governance. Founding CEOs' excess stock trading returns arise both from trades made before earnings surprises and those made outside earnings announcement periods. Finally, founding CEOs' trades forecast their company's future stock returns better than those made by the CEOs of non-family firms.

## **I. Introduction**

Family ownership is considered to be the most prevalent form of corporate governance in the world (e.g., Claessens et al., 2000; Morck et al., 2005). Prior research suggests that family control mitigates the classic agency problem that arises from the separation of ownership and management, either through the direct appointment of a family member as CEO or through more effective monitoring of appointed executives relative to non-family firms (e.g., Demsetz and Lehn, 1985; Anderson and Reeb, 2003a). However, substantial ownership may enable family members to obtain personal benefits at the expense of minority shareholders. For example, family members can engage in related-party transactions (Anderson and Reeb, 2003a), issue special dividends (DeAngelo and DeAngelo, 2000), freeze out small shareholders (Gilson and Gordon, 2003), or entrench a family-appointed CEO (Shleifer and Vishny, 1997; Perez-Gonzalez, 2006). In addition to these avenues, controlling shareholders may accrue personal benefits by earnings excess returns on trading their own stocks - a possibility that has not been investigated in the prior literature. We fill in this void by examining the differences in insider trading behavior between the family-controlled businesses and widely-held companies listed in the S&P 1500 index.

Controlling families of family-own businesses are different from other investors. They typically invest a large portion of their personal wealth in the company, and they often hold their shares for a very long time. For example, Anderson and Reeb (2003b) indicate that, on average, the founding family members in S&P 500 firms have held their shares for more than 78 years and have invested 69 percent of their personal wealth in the companies they own. These lengthy investment horizons and undiversified portfolios

distinguish founding family members from both small atomistic shareholders and large unaffiliated blockholders such as institutional investors (Anderson and Reeb, 2003a). These characteristics give founding family members unique incentives and means to acquire more intimate knowledge of the company compared with typical managers and outside investors. The central position of controlling family members within the firm also equips them with greater flexibility to exploit private information. Thus, compared to other investors, founding family members are better able to reap excess gains from their stock trades. Our results are generally consistent with the notion that family members use their position for their own benefits at the expense of uninformed external shareholders.

First, we find that the CEOs of family firms are more active stock traders than are the CEOs of non-family firms. Specifically, the trades made by CEOs of family firms are larger and more frequent than those made by CEOs of non-family firms, a finding that is primarily driven by founding and descendant CEOs. The professional CEOs of family firms (hired CEOs who are not affiliated with the founding family), in contrast, do not trade any more actively than their counterparts in non-family firms. Importantly, stock trades made by the CEOs of family firms are more profitable than those made by the CEOs of non-family firms. Founding CEOs generate greater profits than the CEOs of non-family firms when they buy or sell stocks, whereas descendant CEOs in family firms earn greater profits only when they sell. In contrast, the profitability of the trades made by the hired CEOs of family firms is less than that of the trades made by their counterparts in non-family firms when those trades involve selling stocks. Our main results are robust to the use of different empirical strategies and to the inclusion of

different control variables. In particular, our conclusions hold both when we control for CEO ownership and when we compare family firms with non-family firms in which dedicated institutional investors have a high level of ownership. These additional results suggest that our findings do not merely reflect the effect of concentrated ownership, but rather demonstrate that family businesses are different from other types of firms.

Second, we find that certain firm characteristics affect family members' insider trading behavior. For example, larger abnormal returns for founding CEOs exist only in family firms that are difficult to value. Specifically, excess insider trading returns occur only in family firms with a low accrual quality, a low degree of market transparency (Anderson et al., 2009) or a high degree of price volatility. We also find that strong corporate governance mitigates the propensity of family CEOs to extract profits from their trades – that is, larger abnormal returns experienced by family CEOs occur only in firms with a low degree of institutional ownership or a poor governance score (i.e., the G-index, as in Gompers et al., 2003) and in those that do not institute “blackout” periods.<sup>1</sup> Moreover, the likelihood of the firm having a “blackout” policy is lesser when a founding CEO is managing a family firm than when a hired CEO is managing a non-family firm. This likelihood is greater, in contrast, for family firms managed by hired CEOs than it is for non-family firms managed by these CEOs. This suggests that family CEOs choose their optimal level of governance which allows them greater flexibility in trading their own stocks.

Lastly, we investigate the nature of the advantage enjoyed by the CEOs of family firms. We find that founding CEOs who trade before earnings surprises earn a higher

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<sup>1</sup> Many firms restrict insiders to trading during the period following quarterly earnings announcements. Such a restriction has been shown to be successful in preventing insiders from making trades based on private information that is related to earnings news (e.g., Bettis et al., 2000).

level of abnormal returns than do the CEOs of non-family firms when they trade during similar periods. There is no discernable pattern for the descendant or hired CEOs of family firms. Founding CEOs (and, to a lesser extent, descendant CEOs), in contrast, earn a higher level of abnormal returns than the CEOs of non-family firms when they trade outside pre-announcement periods, whereas the hired CEOs of family firms earn a lower level of abnormal returns than their counterparts in non-family firms. Further, the trades made by founding CEOs (and, to a lesser extent, those made by descendant CEOs) are more related to the company's future stock returns than are those made by the CEOs of non-family firms. In aggregate, our results suggest that the larger insider trading returns enjoyed by family CEOs can be explained by both superior private information and weaker corporate governance.

This study makes at least three contributions. First, we complement the existing literature on family businesses. Although prior studies have argued that the strong legal protection in the U.S. reduces the capacity of controlling shareholders to expropriate minority shareholders (e.g., Burkart et al., 2003), our findings indicate that founding families are able to accrue personal benefits by exploiting inside information. This result is perhaps surprising. Given that the personal assets of controlling family members are closely related to their firms, they could be expected to be more sensitive to the increased cost of capital and the reputational and legal risks associated with insider trading. However, our results show that this is not the case, and thus our study identifies a cost borne by the presence of founding family ownership. Second, we identify two potential channels, one information-based and one governance-based, through which family CEOs can earn greater insider trading profits than typical managers. Although we find support

for both channels, the evidence is more robust for the corporate governance-based one. More specifically, our results suggest that family firms choose their optimal level of governance (from the point of view of the family members) and allow themselves greater flexibility in trading their own stocks.<sup>2</sup> When they serve as monitors, in contrast, founding family members place hired CEOs under greater scrutiny, which leads to reduced insider trading profitability. Finally, our study contributes to the extant literature on insider trading. Insider trading has attracted a significant amount of attention from policy makers, researchers, and investors because of its potentially destabilizing effect on financial markets (e.g., Wei and Milkiewicz, 2003; Chakraborty and Yilmaz, 2004). Aside from a few notable exceptions (e.g., Givoly and Palmon, 1985; Aboody and Lev, 2000), however, previous studies have not thoroughly examined the variations in insider trading patterns across firms. We provide evidence of the way in which different types of CEOs and ownership structures affect insider trading behavior. To the best of our knowledge, this issue has not previously been investigated.<sup>3</sup> The results reported here suggest that it is essential that future studies consider ownership structure and CEO type when evaluating insider trading profitability.

The rest of the paper is organized as follows. Section II develops our empirical hypotheses, Section III describes the sample, and Section IV discusses the empirical results. Section V concludes the paper.

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<sup>2</sup> However, this does not necessarily imply that there is an overall negative effect on shareholder welfare. For example, insider trading may be an alternative form of managerial compensation that is perhaps more efficient than direct monetary compensation from the firm. Insider trading may also be an efficient way of impounding information into price.

<sup>3</sup> Fidrmuc et al. (2006) investigate how director ownership and outside shareholders affect the stock market's reaction to the reporting of insider trading in the U.K. Their study does not specifically consider family ownership, and they argue that insider trading regulations in the U.K. differ substantially from those in the U.S. Thus, their conclusions may not be generalizable to the U.S.



## **II. Hypothesis Development**

### **Family firms and the profitability of insider trading**

The prior literature (e.g., Anderson and Reeb, 2003a; Villalonga and Amit, 2006) suggests that one of the benefits of family ownership is the mitigation of the classic agency problem that arises from the separation of ownership and management. By construction, there is little divergence of interest between management and shareholders in family firms in which family members hold the CEO post. Even when family firms are operated by hired professional managers who are unaffiliated with the controlling family, the classical agency problem should be reduced because family members who hold a large and undiversified ownership stake have a strong incentive to scrutinize these managers. Consistent with this view, the prior literature suggests that family firms realize better operating performance (e.g., Anderson and Reeb, 2003a) and enjoy a lower cost of debt than non-family firms (e.g., Anderson et al., 2003).

However, their substantial share holdings also allow controlling family members to expropriate firm resources at the expense of minority shareholders, which may lead to more severe conflicts between controlling and non-controlling shareholders. For example, the prior literature suggests that family members can extract rents by freezing out small shareholders (e.g., Gilson and Gordon, 2003), issuing special dividends (e.g., DeAngelo and DeAngelo, 2000; Faccio et al., 2001), or holding the CEO position without delivering good performance (e.g., Shleifer and Vishny, 1997; Perez-Gonzalez, 2006).

We posit that there may be an additional channel by which controlling shareholders expropriate minority shareholders that has not been considered in the prior literature. Previous studies suggest that information asymmetry enables insiders to gain

excess returns from stock trading (e.g., Seyhun, 1986, 1998; Aboody and Lev, 2000). Thus, one channel by which family members can expropriate minority shareholders is the exploitation of private information to make profitable trades in the company's stock. Family members often maintain active involvement with the company and hold their stocks for extended periods of time (Anderson and Reeb, 2003b). This lengthy involvement may give them two advantages over the CEOs of non-family firms. On the one hand, family members may have a thorough understanding of the company's operations and superior industry knowledge. This may allow family members to possess better inside information relative to typical managers and outside investors (e.g., Kwak, 2003; Anderson and Reeb, 2003a). On the other hand, family members may also have greater facility to circumvent the internal checks-and-balances that may have prevented them from trading on superior information in non-family firms. In both cases, we predict that the stock trades made by the CEOs of family firms are more profitable than those made by their counterparts in non-family firms.

**H1a:** The stock transactions made by the CEOs of family firms generate larger abnormal returns than those made by the CEOs of non-family firms.

Although we expect the trades made by the CEOs of family firms to earn abnormal returns on average, we expect the profitability of these trades to vary by CEO type. More specifically, we expect that the founding CEOs of family firms enjoy greater advantages than those hired from outside the family. For example, previous studies (e.g., Morck et al., 1988; Fahlenbrach, 2007) suggest that founding CEOs tend to have strong

managerial abilities and possess rich business knowledge relative to typical managers. Such CEOs also have the most intimate knowledge of the firm, as they have been closely involved with its daily operating activities since it was founded. In addition, Anderson et al. (2009) note (p. 206) that founders “can gain additional influence through disproportionate board control, management postings, dual-class share structures, and their long-term affiliation with the firm (Zingales, 1995; Shleifer and Vishny, 1997; Anderson and Reeb, 2004).” Thus, founding CEOs are better able to transform their knowledge into profitable trades. This reasoning motivates our next hypothesis, as follows.

**H1b:** The founding CEOs of family firms earn larger abnormal returns than the CEOs of non-family firms when they trade in their own company stock.

In contrast, we expect the hired CEOs of family firms to be less likely to profit from their stock trades than family managers or even than the hired CEOs of non-family firms. For example, the prior literature suggests that insider trading has a negative effect on liquidity and the cost of capital (e.g., Bettis et al., 2000; Jeng et al., 1998). Given that a very large portion of family members’ personal wealth is tied to their company, we expect them to monitor hired managers more closely than do the small or dispersed investors in non-family firms (Anderson and Reeb, 2003b) or more generally than investors who have fewer incentives to monitor managers. If this reasoning is correct, then we expect the hired executives in family firms to have less capacity to exploit their

inside information than the founding CEOs of family firms or the hired CEOs of non-family firms:

**H1c:** Hired CEOs in family firms earn a lower level of abnormal returns than their counterparts in non-family firms when they trade in the stock of their own companies.

We expect descendant CEOs to be in an intermediate position between the founding and hired CEOs of family firms. Descendant CEOs often start learning about the family business at a young age and gain hands-on experience from the founder (*BusinessWeek*, 2003; Kwak, 2003). Thus, these CEOs may also have a better understanding of their company than hired CEOs, although their level of skills and company knowledge is likely to be lower than that of founding CEOs. They are also likely to have greater influence on corporate decisions than CEOs hired from outside the family, but probably less influence than founding CEOs. This ambiguity precludes us from forming strong *ex ante* expectations regarding the amount of abnormal profits earned by descendant CEOs, although we expect it to fall between that earned by founding CEOs and the hired CEOs of family firms.

### **Information-based explanation**

We have motivated our first hypothesis that the CEOs of family firms, their founders in particular, earn more abnormal returns than the CEOs of non-family firms when they trade in their own company's stock by hypothesizing that family-member

CEOs either have greater business knowledge or greater capacity to exercise that knowledge (because they have greater control over firm governance). We now consider the merits of these two, not mutually exclusive, explanations. To do so, we examine whether differences in firm characteristics affect the capacity of these CEOs to generate abnormal profits.

Our first, information-based, explanation suggests that the greater profitability of the trades made by founding CEOs can be explained by their greater knowledge relative to the CEOs of non-family firms. If this explanation is correct, then we would expect that the advantage enjoyed by founding CEOs to be greater when their firms are difficult to value. For example, Huddart and Ke (2007) suggest that uncertainty over firm value is a prerequisite for information asymmetry, in which case this asymmetry creates opportunities for insiders to trade on private information. The information advantage enjoyed by a founding CEO should be mitigated by a transparent information environment. Consistent with this notion, Anderson et al. (2009) find that opaque family firms have a low Tobin's Q, whereas transparent family firms do not. This suggests that opacity enables controlling shareholders to extract firm resources for their personal benefit. Thus, we expect that the larger abnormal profits from stock trading earned by the founding CEOs of family firms, if any, occur primarily in firms with an opaque environment.

**H2:** The founding CEOs of family firms earn larger abnormal returns from their stock transactions than the CEOs of non-family firms only when the company is opaque.

### **Governance-based explanation**

Our second, governance-based, explanation suggests that the greater profitability of the trades made by founding CEOs stems from their greater capacity relative to the CEOs of non-family firms to circumvent internal corporate governance mechanisms. If this explanation is correct, then we would expect the advantage of founding CEOs to be less in firms in which alternative governance mechanisms can reduce their influence. We focus on two specific governance mechanisms that may restrict family CEOs from reaping excess insider trading gains: the presence of (1) institutional ownership and (2) “blackout” periods.

Chung et al. (2009) argue that good governance improves financial and operational transparency and thus reduces the information asymmetry between insiders and outside investors that is conducive to insider trading profits. Chung and Zhang (2009) show that the fraction of a company’s shares that is held by institutional investors increases with the quality of its governance structure. Putting these arguments together, we expect that the large abnormal profits from stock trading enjoyed by founding CEOs, if any, occur primarily in firms with a low percentage of institutional ownership.

**H3a:** The founding CEOs of family firms earn larger abnormal returns from their stock transactions than the CEOs of non-family firms only when the company’s level of institutional ownership is low.

Many companies in the U.S. regulate insider trading by instituting their own policies (e.g., Bettis et al., 2000; Jeng, 1998). These policies explicitly specify certain

periods during which insiders can trade their stocks and certain “blackout” periods during which they cannot. Such policies typically indicate that insiders are not allowed to trade immediately before quarterly earnings announcements and are only allowed to trade for around 12 days after earnings announcements. These restrictions appear to be successful at preventing insiders from trading based on earnings news-related private information. For example, Bettis et al. (2000) indicate (p.191) that “‘blackout’ periods successfully suppress trading, both purchases and sales, by insiders”. Jeng (1998) finds that a portfolio of insider purchases from firms that do not regulate the timing of trades made by insiders earns abnormal returns, whereas such purchases at firms that do regulate the timing do not. This finding should also hold true for founding CEOs, which brings us to our final hypothesis, as follows.

**H3b:** The founding CEOs of family firms earn larger abnormal returns from their stock transactions than do the CEOs of non-family firms only when the company has not instituted a “blackout” policy.

### **III. SAMPLE AND DESCRIPTIVE STATISTICS**

Our sample consists of all firms listed in the S&P 1500 index in 2002, and the sample period spans from 1997 to 2006. We follow Anderson and Reeb (2003a) in classifying corporations as family and non-family firms. For the companies in the S&P 500 index, we directly use the classification by *BusinessWeek* (2003), that is, a company is a family firm if the founder, or his or her descendants, holds the position of CEO, top

executive, or director of the board or is the largest shareholder.<sup>4</sup> Based on this definition, 177 firms (35.4%) in the S&P 500 index as family firms and the remaining 323 as non-family firms. We manually classify firms in the S&P 400 midcap and S&P 600 small cap indices using a two-step process. First, we collect information about a company's history and its founder from various sources, including corporate proxy statements, company websites, Hoover's Inc., Gale Business Resources, and an Internet search. Second, after identifying the founding family for each company, we read through SEC documents to see whether the founding family members still maintain a presence in the company. The results indicate that 508 firms (50.8%) in the S&P 400 midcap and S&P 600 small cap indices are still controlled by their founding families. Overall, we classify 685 (45.67%) of the firms in the S&P 1500 as family firms. The percentage of family firms in this index is similar to that reported by Chen, Chen, and Cheng (2008) and Anderson et al. (2009). We obtain insider trading data from Thomson Reuters, accounting data from Compustat, and price data from CRSP.

Table 1 provides descriptive statistics. In Panel A, we consider family and non-family firms separately. We first consider the characteristics of the trades made by insiders (*Trade*). As in Aboody and Lev (2000), we focus on the open market purchases and sales carried out by CEOs, as these transactions are more likely to be information-based.<sup>5</sup> We find that the number of transactions carried out per year by insiders (*Freq*) is nearly 50 percent larger in family firms than in non-family firms. The size of these

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<sup>4</sup> This definition of family firms has been used in various academic studies, including those carried out by Anderson and Reeb (2003b, 2004), Anderson, Mansi, and Reeb (2003), Villalonga and Amit (2006), Wang (2006), Ali et al. (2007), Anderson et al. (2009), Chen, Chen, and Cheng (2008), Chen, Cheng, and Dai (2008), and Chen et al. (2009).

<sup>5</sup> As indicated in Aboody and Lev (2000), open market stock purchases and sales tend to be driven by inside information, whereas other insider trading activities (e.g., the acquisition of stocks through incentive plans or option exercises) may be motivated by other purposes (e.g., liquidity needs).



transactions is also larger in family firms than in non-family firms. This finding holds true irrespective of whether we use the average monetary value (*MeanValue*) per transaction during each calendar year, the average raw number of shares (*MeanShares*) or the total shares traded per year as a percentage of total shares owned by CEO at the beginning of the year (*MeanShares%*). The differences in trading activity are all statistically significant at the 1% level. These results also hold regardless of whether we use the mean or the median values of the variables. We next look at the cumulative abnormal returns from the transaction date to one day before the U.S. Securities and Exchange Commission (SEC) transaction filing date (*CAR*) for sales and purchases. We employ the traditional market model to compute abnormal stock returns. We find that abnormal returns are higher in family firms than in non-family firms, although the differences are not statistically significant. Perhaps unsurprisingly, we also find that the percentage of CEO ownership (*CEO Ownership*) is four to five times larger in family firms than in non-family firms. Lastly, our results indicate that family firms have a lower market capitalization (*SIZE*), higher market-to-book ratio (*MB*), and higher return on assets (*ROA*) than non-family firms.<sup>6</sup> We control for these different variables in the models estimated below.

In Panel B, we partition the sample based on whether the family CEO is the founder, a descendant of the founder, or has been hired from outside the family. Results indicate that founding CEOs trade more often and in larger quantities than do the CEOs of non-family firms. This effect is statistically significant. The descendant and hired

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<sup>6</sup> *SIZE* is the natural logarithm of the market value (in millions of U.S. dollars) of common equity (Compustat Data#25\*Data#199) at the end of the fiscal year. *MB* is the ratio of the market value of common equity (Compustat Data#25\*Data#199) to the book value of common equity (Compustat Data#60) at the end of the fiscal year. *ROA* is the accounting return (Compustat #Data18) on total assets (Compustat#Data6).

CEOs of family firms also have higher mean and median trading activity values than do the CEOs of non-family firms, although the difference is largely statistically insignificant (in particular for hired CEOs). In addition, the values for mean and median abnormal returns are higher for the founding CEOs of family firms than for the CEOs of non-family firms. In contrast, these values are lower for the hired CEOs of family firms than for their counterparts in non-family firms. These differences are statistically significant at conventional levels. The profitability of the trades made by descendant CEOs is similar to that of those made by the CEOs of non-family firms. Finally, the level of CEO ownership is higher for all types of family firm CEOs (compared to non-family firm CEOs).

#### IV. EMPIRICAL ANALYSIS

##### **Family firms, frequency and size of insider trades**

Before testing our first hypothesis, we explore the trading pattern of insiders in family firms. To this end, we estimate two related models. In the first model, we regress different characteristics of trading activity on family firm status and different control variables:

$$Trade = \alpha + \beta_1 FAMILYFIRM + \beta_2 SIZE + \beta_3 MB + \beta_4 ROA + \beta_K Indus^K + \beta_J Year^J + \varepsilon, \quad (1a)$$

where *Trade* represents different characteristics of the stock trades made by insiders (*Freq*, *MeanValue* and *MeanShares%*), as defined in Section III.<sup>7</sup> *FAMILYFIRM* is an indicator variable that is equal to one if the company is a family firm, and zero otherwise.

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<sup>7</sup> We obtain similar results with *MeanShares* (untabulated).

We also include three previously defined firm characteristics (*SIZE*, *MB* and *ROA*).  $Indus^K$  ( $Year^J$ ) are K (J) indicator variables that take the value of one if a firm belongs to the K<sup>th</sup> two-digit SIC code (to the J<sup>th</sup> calendar year), and zero otherwise. The t-statistics are adjusted for heteroskedasticity and for the simultaneous clustering of observations by firm and calendar year (Cameron et al., 2009). We also estimate a second related model:

$$Trade = \alpha + \beta_1 FOUNDER + \beta_2 DESCENDANT + \beta_3 HIRED + \beta_4 SIZE + \beta_5 MB + \beta_6 ROA + \beta_K Indus^K + \beta_J Year^J + \varepsilon, \quad (1b)$$

where *FOUNDER* is an indicator variable that is equal to one if the company is a family firm and the CEO is the founder of that firm, and zero otherwise. *DESCENDANT* is an indicator variable that equals one if the company is a family firm and the CEO is a descendant of the firm founder, and zero otherwise.<sup>8</sup> *HIRED* is an indicator variable that is equal to one if the company is a family firm and the CEO has been hired from outside the family, and zero otherwise. The other variables are as previously defined.

We report the results for model (1a) in Panel A of Table 2. They indicate that the CEOs of family firms engage in more frequent and larger transactions than their counterparts in non-family firms, and the effect is economically significant. For example, setting *FAMILYFIRM* to one increases *MeanShares%* by close to 50% of its average value.<sup>9</sup> The effect is also statistically significant, with the t-statistics ranging from 3.49 to 7.97. The CEOs of firms with large market capitalization, a high market-to-book ratio, and high ROA also tend to engage in more frequent and larger transactions. We report

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<sup>8</sup> We treat sons- and daughters-in-law as descendants.

<sup>9</sup> The average values of *Freq*, *MeanValue*, and *MeanShares%* of the entire sample are 8.9, 1.72 and 3.49%, respectively.

the results for model (1b) in Panel B of Table 2. They indicate that founding CEOs engage in more frequent and larger transactions than do the CEOs of non-family firms, and the effect is economically significant. For example, setting *FOUNDER* to one increases the value of *MeanShares%* by 75% of its mean value. This effect is also statistically significant, with the t-statistics ranging from 3.58 to 11.74 for founding CEOs. We find a similar effect for descendant CEOs, although both its economic and statistical significance are less, with the t-statistics ranging from 1.82 to 2.73. In contrast, we observe no significant differences between the hired CEOs of family and non-family firms in terms of trading frequency or size. The results reported in Table 2 are not materially affected if we control for CEO age, tenure, and ownership in the estimation of equations (1a) and (1b).<sup>10</sup> Overall, these results are consistent with the univariate statistics reported in Table 1.

### **Family firms and the profitability of insider trading**

We next examine whether family firms generate larger abnormal returns from trading their own stocks. We form monthly calendar-time portfolios (i.e., Mitchell and Stafford, 2000; Fama, 1998) based on CEO type and the CEO's stock transactions, as follows. First, for each stock purchase made by insiders in family firms, we calculate raw returns from the transaction date to one day before the SEC filing date (as in Aboody and Lev, 2000). A company is considered to be a "net purchaser" ("net seller") if its CEO purchased more (fewer) stocks than he or she sold. Then, we compute the firm-specific transaction-to-filing date return as the average of all of the insider transactions that

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<sup>10</sup> We only control for ownership when *Freq* or *MeanValue* is the dependent variable.

occurred in the given month.<sup>11</sup> Next, we calculate equally weighted returns over all firms in the portfolio. We carry out a similar procedure for the purchases made by insiders in non-family firms, and form a hedge portfolio that goes long in the portfolios of family firms and short in those of non family firms. We then regress the monthly hedge portfolio returns on Carhart's (1997) four factors:

$$Hedge_{pt} = \alpha_p + \beta_{1p}(Rm_t - Rf_t) + \beta_{2p} SMB_t + \beta_{3p} HML_t + \beta_{4p} MOM_t + \varepsilon. \quad (2)$$

The dependent variable is the hedge portfolio monthly return (*Hedge*).  $Rm_t$  is the return on the value-weighted market index at time  $t$ .  $Rf_t$  is the three-month Treasury bill yield at time  $t$ .  $SMB_t$  is the return on small firms minus that on large firms at time  $t$ .  $HML_t$  is the return on high book-to-market stocks minus that on low book-to-market stocks at time  $t$ .  $MOM_t$  is the momentum factor in Carhart (1997). We obtain the data for the different factors from Ken French's website.<sup>12</sup> Our conclusions are unaffected (untabulated results) by controlling for the aggregate liquidity risk (Pastor and Stambaugh, 2003). We correct the standard errors for heteroskedasticity and for serial correlation using the Newey-West (1987) procedure. The intercept,  $\alpha$ , measures the abnormal returns associated with the insider trades in family firms relative to those obtained by insiders in non-family firms. We then repeat the procedure by constructing the following three hedge portfolios for each calendar month in our sample period. In the first hedge portfolio, we go long in a portfolio of family firms for which the CEO is a net stock purchaser in a given month and is the founding CEO. In the second, we go long in a portfolio of family firms for which

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<sup>11</sup> If the transaction-to-filing period is spread over two calendar months, we split the returns between the two months accordingly.

<sup>12</sup> <http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/>

the CEO is a net stock purchaser in a given month and is a descendant of the founder CEO. Finally, in the third, we go long in a portfolio of family firms for which the CEO is a net stock purchaser in a given month and is a hired CEO of a family firm. In all cases, we go short in a portfolio of non-family firms for which the CEO is a net stock purchaser in a given month. We then also form four similar hedge portfolios based on the returns of firms in which the CEO is a net stock seller in a given month. The results of this portfolio analysis are reported in Panel A of Table 3.

With regard to insider purchases, the results in column (1) of Panel A indicate that the CEOs of family firms generate larger gains from their stock purchases than do their counterparts in non-family firms. The intercept ( $\alpha$ ) is significantly positive, both economically (2.4 percent per month) and statistically (the t-statistic equals 2.38). These results are consistent with hypothesis H1a. Columns (2) to (4) of Panel A present the results for the subsamples of family firms. Consistent with hypothesis H1b, these results suggest that the larger gains from stock purchases in family firms are driven by founding CEOs. The estimated intercept is significantly positive (3.1%, the t-statistic equals 2.29) in column (2), whereas it is insignificant in columns (3) and (4) in which we report the results for descendant and hired CEOs.

The results for CEOs' stock sales are also consistent with hypotheses H1a, H1b, and H1c. The intercept in column (1) is significantly negative (-1.2% with a t-statistic of -1.84), which suggests that the stock sales undertaken by the CEOs of family firms are associated with more negative returns than those made by the CEOs of non-family firms. Again, the results for the sub-samples of family firms are presented in columns (2) to (4). The estimated intercept is significantly negative in column (2) for founding CEOs (-1.5%

with a t-statistic of -2.16) and in column (3) for descendant CEOs (1.5% with a t-statistic of -2.22). In contrast, the intercept is significantly positive (1.2% with a t-statistic of 2.24) in column (4), which suggests that the stock sales undertaken by the hired CEOs of family firms are less profitable than those undertaken by their counterparts in non-family firms. This result suggests that these trades are less likely to be motivated by inside information and more likely to be motivated by the need for liquidity or portfolio rebalancing than those made by founding CEOs or even by the CEOs of non-family firms.

In Panel B of Table 3, we reproduce the results from Panel A, but further partition the sample between family firms with high and low degrees of family ownership. We recalculate the monthly returns of our different hedge portfolios for both categories and re-estimate the portfolio regressions. To conserve space, we tabulate only the estimated intercepts and their corresponding t-statistics, but include our different control variables in the specifications. A firm is defined as having a high degree of family ownership if the ownership stake held by the founding family is above the sample median. The remaining family firms are considered to have a low degree of family ownership. We report the results in Panel B of Table 3. They are consistent with those reported in Panel A. For family firms with a high degree of family ownership, the intercept is significant in the sample of the CEOs of family firms and that of founding CEOs who are net purchasers. The intercepts are significantly positive in all four samples of net sellers (positive for the CEOs of family firms, positive for founding and descendant CEOs, and negative for CEOs hired from outside the family). In contrast, they are all statistically insignificant for family firms with a low degree of family ownership. The only exception is the

portfolio of insider purchases made by founding CEOs. In this case, the intercept is marginally significant (the t-statistic equals 1.83) in the low family ownership sample.

Before moving to the test of our next hypothesis, we perform several robustness tests to confirm the results presented in Table 3. First, we reproduce our analysis but, instead of using a portfolio approach, we use ordinary least square regressions in which we treat each stock trade as an observation. More specifically, we estimate the following models.

$$CAR = \alpha + \beta_1 FAMILYFIRM + \beta_2 SIZE + \beta_3 MB + \beta_4 ROA + \beta_K Indus^K + \beta_J Year^J + \varepsilon, \quad (3a)$$

$$CAR = \alpha + \beta_1 FOUNDER + \beta_2 DESCENDANT + \beta_3 HIRED + \beta_4 SIZE + \beta_5 MB + \beta_6 ROA + \beta_K Indus^K + \beta_J Year^J + \varepsilon, \quad (3b)$$

where  $CAR$ ,  $FAMILYFIRM$ ,  $FOUNDER$ ,  $DESCENDANT$ ,  $HIRED$ ,  $SIZE$ ,  $MB$ ,  $ROA$ ,  $Indus^K$ , and  $Year^J$  are previously defined variables. The t-statistics are adjusted for heteroskedasticity and for the simultaneous clustering of observations by firm and calendar month (e.g., Cameron et al., 2009). We estimate the model in the samples of net buyers and net sellers, and the results (untabulated) are consistent with those reported in Table 3. In the net buyer sample,  $FAMILYFIRM$  and  $FOUNDER$  are positive with t-statistics of 1.81 and 2.42,  $HIRED$  is negative with a t-statistic equal to -1.93, and  $DESCENDANT$  is insignificant. In the net seller sample,  $FAMILYFIRM$ ,  $FOUNDER$ , and  $DESCENDANT$  are negative with t-statistics ranging from -1.98 to -2.64, whereas  $HIRED$  is positive with a t-statistic equal to 1.99. These results remain robust to controlling for



firm leverage, distress risk, firm age, the number of business segments, CEO tenure, CEO wealth, CEO compensation, the number of days from the transaction to one day before the SEC filing date, and the size of the trade scaled by the size of the firm.<sup>13</sup>

Second, we perform two additional tests to ensure that our results are really driven by family firm status and are not simply a reflection of family firms' concentrated ownership, which may exacerbate the conflict between large and minority shareholders. First, we include CEO ownership percentage in our CAR regressions, and the results (untabulated) are unaffected. Second, we compare the CEO stock trading in family firms to that in non-family firms with a large presence of dedicated institutional investors – that is, we eliminate non-family firms in which the percentage of dedicated institutional investors is in the bottom quartile. In this sample, founding members control 15.6% of their family firms, on average, and dedicated institutional investors control 15.4% of non-family firms, on average. We then re-estimate our portfolio and CAR models for this sample, but the results (untabulated) are unaffected. These results suggest that the effect of family ownership on insider trading goes above and beyond a simple concentrated ownership effect.

Third, Aboody and Lev (2000) document larger insider trading gains in R&D intensive firms. We examine whether our results are driven by differences in R&D

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<sup>13</sup> We define leverage as long-term debt (Compustat#9) divided by total assets (Compustat#6). We measure distress risk with the decile rank of Altman's (1968) z-score. Age is the number of years since the firm's inception. If this information is unavailable, then we use the number of years the firm has been included in the CRSP database. We obtain the number of segments from the Compustat Segment database. We use the market value of a CEO's shareholding (the number of shares owned multiplied by the year-end stock price) to proxy for CEO wealth. CEO compensation is proxied by the total amount of compensation reported in Execucomp (data item: TDC1). The average number of days from the transaction to one day before the SEC filing date is 14.51 for family firms and 14.69 for non-family firms. The scaled size of the trade is the number of shares traded divided by the number of shares outstanding at the end of the previous year. The results also hold if we focus on trades of more than 10,000 shares (e.g., Lakonishok and Lee, 2001). Barclay and Warner (1993) find that the price impact is largest for medium-size trades (trades of more than 500 shares, but fewer than 10,000). Focusing on large trades mitigates any liquidity issues.

intensity between family and non-family firms. To do so, we re-estimate the portfolio regressions for non-R&D intensive firms alone. We classify a firm as R&D intensive if its reported R&D expenses scaled by sales revenue are above the sample median; otherwise, we classify it as a non-R&D intensive firm. The untabulated results indicate that, even in non-R&D intensive firms, the CEOs of family firms, founding CEOs in particular, earn excess returns from stock trading ( $\alpha$  equals 2.2 percent with a t-statistic of 2.24 for stock purchases;  $\alpha$  equals -1.4 percent with a t-statistic of -1.99 for stock sales). Our conclusions with regard to founding and descendant CEOs are unaffected. The intercepts in the hedge portfolios formed with descendant CEOs become insignificant (the t-statistic equals -1.43 for stock sales), but this may reflect the relatively low number of observations in this portfolio ( $n = 41$ ). These results suggest that our findings are not driven by any difference in R&D intensity between family and non-family firms.

Fourth, results in Panel B of Table 1 indicate that family firms, particularly if they are managed by the founder, are smaller than non-family firms. We control for this potentially confounding effect by including *SMB* in our portfolio-level regressions and by including the log of size in our firm level regression. To further rule out the possibility that size has an effect through a non-linear relation with return, we perform two additional tests. First, we replace the log of market capitalization in our firm level regression by nine size-decile-indicator variables. Our results (untabulated) are similar. Second, we form a matched sample based on size, industry and profitability. Specifically, we match each family firm-year observation with a non-family firm in the same three-digit SIC industry and with the closest size (market value) and profitability

(ROA). We then use the matched sample to re-estimate our portfolio level regressions. Our results remain unaffected.

Lastly, we consider the effect of the Sarbanes-Oxley Act (SOX) on the profitability of trades. Prior to the SOX, insiders had to report their trades no later than the 10<sup>th</sup> day of the calendar month following the date on which they were made. Since its enactment in 2002, insiders must report trades within two business days.<sup>14</sup> We repeat the estimation of equations (3a) and (3b) for the pre- and post-SOX period separately. We find (in untabulated results) that the passage of the SOX does not eliminate our key results. One exception is that the excess returns associated with the stock purchases by founding CEOs disappear in the post-SOX period if we consider the entire cross-section of family firms. However, this relation still exists for family firms with high family ownership (i.e.; the same definition that is used in Panel B).

### **Insider trading and transparency**

We now consider our second hypothesis, H2, which posits that the founding CEOs of family firms earn more abnormal returns than the CEOs of non-family firms only when the company is opaque and its value is uncertain. To test this hypothesis, we use a model similar to (3b) and split the overall sample based on whether the firm's value is difficult to ascertain or not. We use three variables to proxy for such difficulty.

First, we use a model of accounting quality derived from the Dechow and Dichev (2002) approach. Specifically, we calculate the measure using the procedure outlined in

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<sup>14</sup> Small acquisitions that do not exceed US\$10,000 in market value within six months (SEC rule 16a-6) are exempt from these reporting requirements. Such small acquisitions are not reported on Form 4, as insider transactions usually are, but on Form 5, which is due within 45 days of the issuer's fiscal year end (SEC rule 16a-3(f)).

Ball and Shivakumar (2006). We define *ACCRUAL-QUALITY* as an indicator variable that takes the value of one if the firm-specific accrual quality is above the median value, zero otherwise. The correlation between *ACCRUAL-QUALITY* and *FOUNDER* within each sub-sample is insignificant (with p-values of 0.41 and 0.36, respectively), thus demonstrating that these two variables are not measuring the same underlying construct. We present the results in Panel A of Table 4,<sup>15</sup> with the first two columns reporting those for transparent firms and the last two columns those for opaque firms. *FOUNDER* is significant in the low-accrual-quality sample, with t-statistics equal to 2.41 and -1.94 in the purchase and sale regressions, respectively. *FOUNDER* is insignificant, in contrast, in the high-accrual-quality firm sub-sample. The untabulated results indicate that the coefficients associated with *FOUNDER* are significantly different from each other in the low- and high-transparency sub-samples. These results support hypothesis H2. *DESCENDANT* is significantly negative only in the fourth column of Panel A in Table 4 (net sellers in low-accrual-quality firms), with a t-statistic of -2.89, whereas *HIRED* is significant in the first two columns.

Second, we follow Anderson et al. (2009) in developing an index (*TRANSPARENCY*) that employs four variables: *AnalystFollowing*, *ForecastError*, *Bid-ask Spread*, and *TradeVolume*. *AnalystFollowing* is the number of analysts providing earnings per share (EPS) estimates nine months prior to the fiscal year-end. *ForecastError* is the absolute value of the difference between the mean analysts' earnings forecast (nine months prior to the end of the forecast) and actual firm earnings, scaled by the beginning of the year price. *Bid-ask Spread* is the ask price minus the bid price

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<sup>15</sup> The correlation between *ACCRUAL-QUALITY* and *FAMILY* is also insignificant (0.41 and 0.26, respectively).

divided by the average of the bid and ask prices. Bid-ask spreads are computed by averaging all trades for each firm from the third Wednesday of each month and then the average across these 12 observations. *TradeVolume* is the firm's average daily trading volume. We rank our sample firms into 10 deciles based on *AnalystFollowing*, *ForecastError*, *Bid-ask Spread*, and *TradeVolume*, with the most transparent firms taking a value of 10 and the least transparent a value of 1. The four ranks are then summed, and we split the overall sample using the median value of *TRANSPARENCY*. The correlation between *TRANSPARENCY* and *FOUNDER* within each sub-sample is insignificant (with p-values of 0.21 and 0.33, respectively), thus demonstrating that these two variables are not measuring the same underlying construct. We present the results in Panel B of Table 4,<sup>16</sup> with the first two columns reporting those for transparent firms and the last two columns those for opaque firms. *FOUNDER* is significant in the opaque firm sub-sample, with t-statistics equal to 2.31 and -1.81 in the purchase and sale regressions, respectively. *FOUNDER* is insignificant, in contrast, in the transparent firm sub-sample. The untabulated results indicate that the coefficients associated with *FOUNDER* are significantly different from each other in the low- and high-transparency sub-samples. These results support hypothesis H2.

Lastly, we partition the firms into two groups: high-volatility and low-volatility firms. It can be argued that more volatile firms are associated with a greater uncertainty of the firm and that the advantage is particularly strong when the company's environment is unstable (e.g., Demsetz and Lehn, 1985). We follow Demsetz and Lehn (1985) and measure firm-specific volatility (*VOLATILITY*) as the standard deviation of the firm's

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<sup>16</sup> The correlation between *TRANSPARENCY* and *FAMILY* is negative in the sub-sample of high-transparency firms, but this relationship is only marginally significant (with a p-value of 0.09). The correlation is totally insignificant in the sub-sample of low-transparency firms (with a p-value of 0.64).

monthly stock returns over the entire sample period. We classify a company as highly volatile if its firm-specific volatility is above the median of the sample distribution; otherwise, we classify it as a low-volatility firm.<sup>17</sup> Untabulated results indicate that founding CEOs in the high-volatility sub-sample earn greater abnormal returns than the CEOs of non-family firms. The t-statistics associated with *FOUNDER* are 2.18 and -2.56, respectively. The magnitude of the coefficients is six to seven times smaller than in low-volatility sub-sample than in the high-volatility sub-sample and the difference is statistically significant. In addition, the t-statistics are only 0.35 and 0.31 in the sample of low volatility firms. To the extent that there is a greater uncertainty about firm value when its price is volatile, these results support hypothesis H2.

### **Insider trading and corporate governance**

We next test hypothesis H3 and examine whether the advantage that the founding CEOs of family firms have over the CEOs of non-family firms is mitigated when the firm's corporate governance is good. We do so by estimating model (3b) in a sample split into firms with a high and low degree of corporate governance. We first operationalize the partition by considering the percentage of institutional ownership (*INSTIT*). We classify firms as having a good corporate governance if their degree of institutional ownership is greater than the median level in the overall sample, and as having poor corporate governance otherwise. The correlation between *INSTIT* and *FOUNDER* within each sub-group is insignificant (with p-values of 0.53 and 0.82,

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<sup>17</sup> The correlation between *VOLATILITY* and *FOUNDER* within each sub-group is totally insignificant (with p-values of 0.64 and 0.58, respectively), thus demonstrating that these two variables are not measuring the same underlying construct. The correlation between *VOLATILITY* and *FAMILY* within each sub-group is also insignificant (with p-values of 0.83 and 0.41, respectively).

respectively), thus demonstrating that these two variables are not measuring the same underlying construct.<sup>18</sup> We present the results in Panel A of Table 5. We find that *FOUNDER* is significant only in the low institutional ownership sub-sample (the t-statistic is 1.98 in column (3), in which we consider net buyers, and -3.22 in the fourth column, in which we consider net sellers). In contrast, both coefficients are insignificant in the high institutional ownership sub-sample. The magnitude of the coefficients is three to eight times larger in the sub-sample of firms with a low degree of institutional ownership. The untabulated results indicate that the coefficients associated with *FOUNDER* are significantly different from each other in the two sub-samples, which supports hypothesis H3a. The coefficient on *DESCENDANT* is insignificant in all four columns of Table 5, whereas that on *HIRED* is significant only in the first two columns.

Next, we investigate our last hypothesis, H3b, by re-estimating equation (3b), but with the sample split on the basis of whether the company has insider trading restrictions in place (a *blackout* trading period). Following Roulstone (2003), we classify a firm as having insider trading restrictions if 75% of its insider trades occurred within 20 trading days of an earnings announcement. The estimation results in Panel B of Table 5 indicate that *FOUNDER* is significant in the sub-sample of firms with no insider trading policy. The t-statistics are 1.83 and -3.13 in the third and fourth columns, respectively. In contrast, *FOUNDER* is statistically insignificant in the sub-sample of firms that have enacted an insider trading policy (the t-statistics are -0.28 and -1.17, respectively). The magnitude of the coefficients is two to four times larger in the sample of firms with a low degree of institutional ownership. The untabulated results indicate that those associated

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<sup>18</sup> The correlation between *INSTIT* and *FAMILY* within each sub-group is also insignificant (with p-values of 0.41 and 0.83, respectively).

with *FOUNDER* are significantly different from each other in the sub-samples with a low and high probability of having a “blackout” policy. These results are consistent with hypothesis H3b, which states that family CEOs are able to earn larger abnormal profits than the CEOs of non-family firms only in firms without insider-trading restrictions.

As a robustness check, we also consider a partition based on a measure of overall corporate governance quality, the G-index (e.g., Gompers et al., 2003). Accordingly, we split the overall sample based on the median value of the G-index (we lose approximately one third of our observations because this index is missing for many firms). To conserve space, we do not tabulate these results, but they also indicate that founding CEOs earn more abnormal returns than the CEOs of non-family firms only in firms with a high G-index. More specifically, the t-statistics associated with *FOUNDER* are 2.02 and -2.37 for insider purchases and insider sales, respectively, in the high G-index sub-sample, whereas they are insignificant in the low G-index sub-sample. The coefficients are statistically different from each other at the 5% level.

### **Correlation between the different partitions**

Our results thus far indicate that founding CEOs earn superior returns only in firms characterized low levels of transparency, institutional ownership and governance rating, by a high degree of price volatility, and by no insider trading restrictions. It would be natural to wonder, however, whether the partitioned samples are independent of one another or essentially include the same firms. To examine this issue, we calculate the pair-wise correlations between our partitioning variables. The untabulated results indicate a low level of correlation, with the two largest existing between accrual quality and



transparency (the coefficient equals 0.31 and is significant at the 5% level) and between volatility and transparency (the coefficient equals 0.13 and is significant at the 1% level). The other pair-wise correlations are all below 0.10 and are mostly insignificant. We thus conclude that, except for our measures of transparency, the partitioning variables are largely independent of one another.

### **Likelihood of instituting a “blackout” policy**

Our results indicate that founding CEOs are able to earn greater abnormal returns than their counter-parts in non-family firms when the firm they manage is either opaque or have a poor governance. It would be natural to wonder if family CEOs manage opacity and governance strategically to gain this advantage. To answer this question, we perform two tests. First, we examine whether the likelihood of a firm instituting a “blackout” policy is lower when family CEOs are involved. Specifically, we employ a Probit model to regress *RESTRICT* on *FOUNDER*, *DESCENDANT*, and *HIRED*, controlling for *TRANSPARENT*, *VOLALITY*, *SIZE*, *MB*, *ROA*, *INS\_TRADE* (the ratio of total insider trading over the sample period to total shares outstanding), and year and industry indicators (Roulstone, 2003). We correct the z-statistics for heteroskedasticity and for the simultaneous clustering of observations by firm and calendar year. The untabulated results indicate that the coefficient associated with *FOUNDER* is extremely negatively significant with a t-statistic of -18.00 (marginal probability equals 10%). In contrast, *HIRED* is positive with a t-statistic of 3.46 (marginal probability equals 4%). *DESCENDANT* and the different control variables are statistically insignificant (except for *MB* and *ROA*, which are both marginally positive). This result confirms that founding

CEOs face fewer, whereas hired CEOs of family firms face more insider trading restrictions as compared to CEOs of non-family firms. Second, Anderson et al. (2009) indicate that founder and descendant firms are more opaque than non-family firms. We confirm their results in our sample by repeating the test described above but substituting *ACCRUAL-QUALITY* to *RESTRICT*. We find that family firms are related to lower accrual quality. When we consider the different types of family CEOs, we find that the negative effect is only significant for founding and descendant CEOs. The coefficient is positive but insignificant for *HIRED*. These results are consistent with the idea that founding CEOs manage opacity and governance strategically to gain a trading advantage.

### **Insider trading conditional on future performance**

Finally, we examine more precisely where the source of the superior returns earned by founding CEOs lies. More specifically, we conduct two additional tests to determine whether these abnormal returns are caused by a short- or long-term advantage. First, we consider the profitability of trades made in three different time periods: the 10 days prior to an earnings announcement that creates a surprise, the 10 days prior to an earnings announcement that does not create a surprise, and all days outside the pre-earnings announcement period. We consider a firm's quarterly earnings announcement to create a surprise if the difference between actual quarterly earnings and the consensus earnings forecasts is in the first and fifth quintile of the distribution for the entire sample. We tabulate the differences between the mean CARs for different types of family firm and non-family firm CEOs in Panel A of Table 6. We also report the t-statistics for the differences in CARs between the three different types of family and non-family firms.

As can be seen from this panel, greater profitability is witnessed for both purchases and sales made by founding CEOs prior to an earnings surprise (compared to similar trades made by the CEOs of non-family firms), but not for those made by descendant and hired CEOs. In contrast, we observe significant differences in profitability for trades made outside pre-earnings announcement periods for all three groups of family CEOs. Consistent with our prior results, trades made by founding CEOs (and, to a lesser extent, by descendant CEOs) are more profitable than those made by the CEOs of non-family firms, whereas those made by the hired CEOs of family firms are less profitable than those made by their counterparts in non-family firms. Not surprisingly, we observe no significant patterns before an earnings announcement that does not create a surprise.

Second, we investigate whether the differences in abnormal returns experienced by family CEOs are due to private information about the future of the firm. More specifically, we examine whether stock trades by the CEOs of family firms are more associated with the company's future stock returns. To do so, we compute the percentage of CEOs who are net buyers (net sellers), conditional on the 12-month market-adjusted return being positive (negative) for family and non-family firms, respectively, and then report the differences in this percentage (and the corresponding t-statistics) in Panel B of Table 6. The results indicate that the trading behavior of founding and descendant CEOs is a better indicator of future firm profitability than that of non-family firm CEOs. In contrast, we observe no significant difference for the hired CEOs of family firms. The results hold true for both sales and purchases (except for descendant CEOs, in which case the difference is significant only for net sellers).<sup>19</sup> Overall, these findings suggest that

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<sup>19</sup> As a robustness check, we evaluate a model similar to that in Piotroski and Roulstone (2005), and the results are broadly consistent with those reported in Panel B of Table 6. We find no evidence of greater

founding CEOs have more opportunities to accrue benefits through trading in their firm's stocks during blackout periods, and also earn excess trading returns based on their superior business knowledge.

## **V. Conclusion**

We examine how insider trading differs between family and non-family firms. Our results are generally consistent with the idea that family members can use their position for their own benefits at the expense of uninformed external shareholders. First, the CEOs of family firms, founding CEOs in particular, are more active stock traders than their counterparts in non-family firms. More importantly, the trades of family firm CEOs are more profitable than those of their non-family firm counterparts. We find this to hold particularly true for founding CEOs. In contrast, the profitability of the sales made by the hired CEOs of family firms is less than that of those made by their counterparts in non-family firms. Additional results suggest that our findings do not merely reflect the effect of concentrated ownership or size, but rather demonstrate that family businesses are different from other types of firms.

Second, certain firm characteristics affect the differences found in insider trading between family and non-family firms. Specifically, larger insider trading gains for founding CEOs occur only in family firms that are difficult to value, either because they have low-accrual-quality, they operate in an opaque environment or they are characterized by a high degree of price volatility. We also find that larger insider trading gains for founding CEOs occur only in family firms with poor corporate governance, as

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contrarian activity for family firm managers than for non-family firm CEOs, but we do confirm that the trades made by founding CEOs are indicators of future abnormal performance.

proxied by a low degree of institutional ownership, the absence of a “blackout” period policy, or a low G-index score. Further, the likelihood of a firm instituting such a “blackout” period policy is lower if it is a family firm with a founding or descendant CEO than if it is a non-family firm but greater if it is a family firm with a hired CEO.

Third, we consider whether the advantage over the CEOs of non-family firms enjoyed by the CEOs of family firms is a short- or medium- to long-run effect. We find support for both views. More specifically, founding CEOs who trade before an earnings surprise earn higher abnormal returns than the CEOs of non-family firms who engage in similar trades, but the trades made by founding CEOs outside an earnings announcement period also forecast year-ahead abnormal returns better than similar trades made by CEOs of non family firms.

We motivated our analysis by the hypothesis that the CEOs of family firms, the founding CEOs in particular, may have better information about their firms or greater capacity to use that information than their counterparts in non-family firms. Overall, our results provide support for both explanations. Our findings that family CEOs earn more abnormal returns than the CEOs of non-family firms only in the sub-samples of firms with weaker governance, or when they trade prior to an earnings surprise, and that hired CEOs of family firms earn fewer abnormal returns than their counterparts in non-family firms, all support the notion that founding family members strategically choose their firms’ corporate governance to serve their own purposes.<sup>20</sup> In contrast, our findings that founding CEOs earn superior abnormal returns only in firms that are difficult to value and that their trades made outside earnings announcement periods better forecast 12-

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<sup>20</sup> If our results were driven only by a difference in information advantage, then we would expect the hired CEOs of family firms to behave no differently from the hired CEOs of non-family firms.

month-ahead abnormal returns are consistent with the notion that founding CEOs have greater understanding of their firms than do typical managers.

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**Table 1**

Descriptive statistics for firm attributes. The sample includes S&P 1500 firms from the years 1997 to 2006. Panel A presents the means, median tests, and standard deviations for S&P 1500 family and non-family firm attributes. Panel B presents the mean (median) firm attributes for S&P 1500 family firms with founding CEOs, descendant CEOs, and hired CEOs, and those for non-family firms. Founding CEO family firms are firms in which the founder is the CEO. Descendant CEO family firms are firms in which one of the founder's heirs is the CEO. Hired CEO family firms are firms in which the CEO has been hired from outside the family. *Freq* measures how many times a CEO trades his or her stocks during the year (including open market purchases and sales). *MeanShares* measures the number of shares traded per stock transaction during the year (in millions). *MeanShares%* measures total shares traded per year as a percentage of total shares owned by CEO at the beginning of the year. *MeanValue* measures the monetary value per stock transaction during the year (in US\$ millions). *CAR* is the cumulative abnormal returns from the transaction date to one day before its filing date with the SEC. We use the traditional market model to compute abnormal stock returns. *CEO ownership (%)* is the percentage of shares owned by the CEO relative to the firm's total shares outstanding. *SIZE* is the natural logarithm of the market value (in US\$ millions) of common equity (Compustat Data#25\*Data#199) at the end of the fiscal year. *MB* is the ratio of the market value of common equity (Compustat Data#25\*Data#199) to the book value of common equity (Compustat Data#60) at the end of the fiscal year. *ROA* is the accounting return (Compustat Data#18) on total assets (Compustat Data#6).

Panel A: Summary statistics and difference of means and median tests for S&P 1500 family and non-family firms

	Means		Median		Standard Deviation	
	Family firm	Non-family firm	Family firm	Non-family firm	Family firm	Non-family firm
<i>Freq</i>	10.927	7.263	2.962	2.095	31.139	18.176
<i>MeanShares</i> (million)	0.066	0.035	0.020	0.016	0.146	0.076
<i>MeanShares%</i>	4.512	2.617	0.834	0.602	3.865	2.597
<i>MeanValue</i> (\$million)	2.134	1.379	0.645	0.500	4.651	3.107
<i>CAR Purchase</i>	0.050	0.046	0.036	0.039	0.154	0.139
<i>CAR Sale</i>	-0.023	-0.024	-0.020	-0.018	0.146	0.131
<i>CEO ownership (%)</i>	3.364	0.612	0.783	0.115	7.376	2.617
<i>SIZE</i>	7.207	7.664	7.059	7.553	1.536	1.681
<i>MB</i>	3.482	3.243	2.455	2.273	3.342	3.248
<i>ROA</i>	0.050	0.044	0.051	0.041	0.082	0.080
N	6,039	7,541	6,039	7,541	6,039	7,541

Panel B: Summary statistics and difference of means and median tests for S&P 1500 family and non-family firms

	Mean				Median			
	Founding CEO	Descendant CEO	Hired CEO	Non-Family firms	Founding CEO	Descendant CEO	Hired CEO	Non-Family firms
<i>Freq</i>	12.468 (3.37)***	12.768 (2.62)***	7.293 (0.02)	7.263	3.900 (4.79)***	2.613 (0.89)	2.183 (0.66)	2.095
<i>MeanShares</i> (million)	0.087*** (6.98)	0.048* (1.71)	0.052** (2.59)	0.035	0.028*** (6.86)	0.018 (1.42)	0.018 (1.31)	0.016
<i>MeanShares%</i>	5.821*** (4.54)	4.846*** (3.17)	3.189* (1.92)	2.617	0.924*** (4.09)	0.753** (2.47)	0.617 (0.82)	0.602
<i>MeanValue</i> (\$million)	2.592*** (4.71)	1.513 (0.42)	1.790 (1.73)	1.379	0.829*** (5.13)	0.530 (0.31)	0.565 (1.27)	0.500
<i>CAR_Purchase</i>	0.073 (4.06)***	0.054 (0.48)	0.020 (-5.35)***	0.046	0.065 (3.51)***	0.037 (-0.42)	0.015 (-5.02)***	0.039
<i>CAR_Sale</i>	-0.029 (-1.98)**	-0.026 (-1.96)**	-0.014 (3.00)***	-0.024	-0.027 (-2.16)**	-0.021 (-1.69)*	-0.012 (2.86)***	-0.018
<i>%CEO ownership</i>	6.049 (45.37)***	3.069 (23.34)***	0.758 (2.89)***	0.612	1.493 (37.57)***	0.677 (22.04)***	0.151 (4.85)***	0.115
<i>SIZE</i>	6.986 (-18.50)***	7.170 (-8.75)***	7.478 (-4.76)***	7.664	6.868 (-18.03)***	7.082 (-8.58)***	7.263 (-5.20)***	7.553
<i>MB</i>	3.752 (6.80)***	2.531 (6.58)***	3.553 (4.01)***	3.243	2.545 (6.50)***	2.017 (-6.84)***	2.603 (7.25)***	2.273
<i>ROA</i>	0.050 (3.22)***	0.048 (1.75)*	0.052 (4.60)***	0.044	0.050 (5.90)***	0.048 (3.11)***	0.054 (7.97)***	0.041
N	2,728	967	2,344	7,541	2,728	967	2,344	7,541

**Table 2**

Family firms and insider trading frequency and size. Panel A reports the regression estimates for the association between family firm status and the frequency of CEO stock trading and the size of his or her stock transactions. For transaction size, we consider the natural log of average shares per transaction and the natural log of monetary value per transaction. In Panel B, we repeat the same estimation but use three indicator variables: *FOUNDER*, *DESCENDANT*, and *HIRED*. *FAMILYFIRM* equals one if the company is a family firm, and zero otherwise. *FOUNDER* equals one if the family firm's CEO is its founder, and zero otherwise. *DESCENDANT* equals one if the family firm's CEO is the descendant of its founder, and zero otherwise. *HIRED* equals one if the family firm's CEO is not related to the firm's founding family, and zero otherwise. *Freq* measures how many times a CEO trade his or her stocks during the year (including open market purchases and sales). *MeanValue* measures the monetary value per stock transaction during the year (in US\$ millions). *MeanShares%* measures total shares traded per year as a percentage of total shares owned by CEO at the beginning of the year. *SIZE* is the natural logarithm of the market value (in US\$ millions) of common equity (Compustat Data#25\*Data#199) at the end of the fiscal year. *MB* is the ratio of the market value of common equity (Compustat Data#25\*Data#199) to the book value of common equity (Compustat Data#60) at the end of the fiscal year. *ROA* is the accounting return (Compustat Data#18) on total assets (Compustat Data#6). We include industry and year indicator variables in the regression, and use two-digit SIC codes for industry membership. The *t*-statistics are adjusted for heteroskedasticity and for the clustering of observations by firm and calendar month. The *t*-statistics are in parentheses, and \*\*\* indicates significance at the 0.01 level, \*\* indicates significance at the 0.05 level, and \* indicates significance at the 0.10 level.

Panel A: Regression estimates

	<i>Freq</i>	<i>MeanValue</i>	<i>MeanShares%</i>
<i>Intercept</i>	-1.920 (-0.83)	4.217 (-8.98)***	0.051 (3.78)***
<b><i>FAMILY</i></b>	3.506 (3.49)***	0.365 (7.97)***	0.017 (2.89)***
<i>SIZE</i>	0.689 (2.53)**	0.309 (4.27)***	-0.004 (-2.22)**
<i>MB</i>	0.640 (4.17)***	0.115 (7.27)***	0.001 (0.36)
<i>ROA</i>	3.572 (5.85)***	3.505 (3.58)***	0.051 (1.83)*
<i>Industry indicator variables</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>Year indicator variables</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>N</i>	13,580	13580	13580
<i>Adjusted R<sup>2</sup></i>	0.022	0.101	0.017

Panel B: Regression estimates

	<i>Freq</i>	<i>MeanValue</i>	<i>MeanShares%</i>
<i>Intercept</i>	-2.747 (-1.18)	-4.294 (-9.82)***	0.050 (3.62)***
<b><i>FOUNDER</i></b>	6.702 (5.15)***	0.674 (11.74)***	0.026 (3.58)***
<b><i>DESCENDANT</i></b>	5.040 (2.56)***	0.256 (2.73)***	0.018 (1.82)*
<b><i>HIRED</i></b>	-0.625 (-0.46)	0.043 (0.71)	0.002 (0.43)
<i>SIZE</i>	0.792 (2.90)***	0.320 (5.15)***	-0.004 (-2.22)**
<i>MB</i>	0.639 (4.15)***	0.112 (6.88)***	0.001 (0.29)
<i>ROA</i>	3.010 (5.92)***	3.577 (2.92)***	0.050 (1.72)*
<i>Industry indicator variables</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>Year indicator variables</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>N</i>	13,580	13580	13580
<i>Adjusted R<sup>2</sup></i>	0.027	0.110	0.021

**Table 3**

Family firms and insider trading profitability. This table presents the portfolio returns from going long on a CEO's stock trading in family firms and going short on such trading in non-family firms. The portfolio returns are computed as follows. For each individual firm, we calculate the mean raw returns from the stock transaction date to one day prior to the SEC filing date for all of the CEO's stock transactions during the month. We then calculate the mean returns separately for four portfolios: family firms whose CEO is a net stock purchaser, family firms whose CEO is a net stock seller, non-family firms whose CEO is a net stock purchaser, and non-family firms whose CEO is a net stock seller.  $RM_t$  is the return on the value-weighted market index at time  $t$ .  $RF_t$  is the three-month T bill yield at time  $t$ .  $SMB_t$  is the return on small firms minus the return on large firms at time  $t$ .  $HML_t$  is the return on high book-to-market stocks minus the return on low book-to-market stocks at time  $t$ .  $MOM_t$  is the momentum factor in Carhart (1997). In Panel B, we repeat the same procedure, but separate family firms into high and low family ownership groups. A family firm is considered to have a high degree of family ownership if the ownership stake held by the founding family is above the sample median; the remaining family firms are considered to have a low degree of family ownership. The  $t$ -statistics are corrected for heteroskedasticity and for serial correlation using the Newey-West procedure. \*\*\* indicates significance at the 0.01 level, \*\* indicates significance at the 0.05 level, and \* indicates significance at the 0.10 level.

Panel A: Portfolio returns from going long on a CEO's stock trading in family firms and going short on such trading in non-family firms

	<i>Dep. Var</i> = Hedge portfolio monthly returns from going long on family firms and short on non-family firms			
	<i>Insider purchases</i>			
	Family firm	Founding CEO	Descendant CEO	Hired CEO
<i>Intercept</i>	0.024 (2.38)**	0.031 (2.29)**	-0.004 (-0.21)	0.007 (1.19)
$RM_t - RF_t$	-0.138 (-0.65)	-0.481 (-1.43)	0.493 (0.93)	-0.511 (-2.34)**
$SMB_t$	-0.197 (-0.67)	0.012 (0.06)	-0.422 (-1.28)	-0.399 (-1.67)*
$HML_t$	-0.311 (-1.04)	-0.039 (-0.75)	-0.582 (-0.91)	-0.581 (-2.38)**
$MOM_t$	-0.174 (-0.54)	-0.113 (-0.42)	-0.238 (-0.54)	-0.185 (-1.29)
N	120	108	51	112
<i>Adjusted R</i> <sup>2</sup>	0.022	0.016	0.039	0.070
	<i>Insider sales</i>			
	Family firm	Founding CEO	Descendant CEO	Hired CEO
<i>Intercept</i>	-0.012 (-1.84)*	-0.015 (-2.16)**	-0.015 (-2.22)**	0.012 (2.24)**
$RM_t - RF_t$	0.163 (2.38)**	0.274 (1.54)	0.250 (1.18)	0.008 (0.02)
$SMB_t$	-0.115 (-0.84)	0.066 (0.36)	0.305 (1.38)	-0.216 (-1.51)
$HML_t$	-0.079 (-0.21)	-0.216 (-0.96)	0.137 (0.47)	-0.345 (-1.84)*
$MOM_t$	0.104 (1.25)	-0.250 (-2.08)**	0.350 (2.41)**	0.257 (1.74)*
N	120	105	118	120
<i>Adjusted R</i> <sup>2</sup>	0.041	0.024	0.053	0.065



Panel B: Portfolio returns from going long on a CEO's stock trading in (1) family firms with a high degree of family ownership and short on such trading in non-family firms vs. (2) going long on family firms with a low degree of family ownership and short on stock trading in non-family firms

Stock trading by CEOs of family firms with a high degree of family ownership vs. CEO stock trading in non-family firms				
	Family firm	Founding CEO	Descendant CEO	Hired CEO
<i>Insider purchases</i>	0.035 (2.64)** N=112	0.042 (2.08)** N=100	0.003 (0.63) N=32	0.006 (0.82) N=84
<i>Insider sales</i>	-0.021 (-2.37)** N=120	-0.025 (-2.79)*** N=105	-0.024 (-2.88)*** N=112	0.019 (2.34)** N=116
Stock trading by CEOs of family firms with a low degree of family ownership vs. CEO stock trading in non-family firms				
<i>Insider purchases</i>	0.009 (0.48) N=108	0.019 (1.83)* N=82	-0.009 (-0.85) N=27	0.008 (1.07) N=96
<i>Insider sales</i>	-0.003 (-0.41) N=120	-0.006 (-0.21) N=105	-0.007 (-0.62) N=92	0.005 (0.41) N=117

**Table 4**

The impact of corporate transparency on insider trading in family firms. Our sample firms are classified into two groups based on the difficulty of valuing them. In Panel A, we consider firm-specific accrual quality as a partitioning variable. We define accrual quality as in Ball and Shivakumar (2006). A company is considered to have high accrual quality if its measure of quality is above the median of the sample distribution; otherwise, it is classified as a low-accrual-quality firm. In Panel B, we use a transparency index similar to that in Anderson et al. (2009) to operationalize transparency. A company is considered to be transparent if its transparency value is above the median of the sample distribution; otherwise, it is classified as opaque. The dependent variable, *CAR*, is the cumulative abnormal returns from the transaction date to one day before its SEC filing date. We use the traditional market model to compute abnormal stock returns. *FOUNDER* is an indicator variable equal to one if the company is a family firm whose CEO is the founder, and zero otherwise. *DESCENDANT* is an indicator variable equal to one if the company is a family firm whose CEO is a descendant of the firm's founder, and zero otherwise. *HIRED* is an indicator variable equal to one if the company is a family firm whose CEO has been hired from outside the family, and zero otherwise. *SIZE* is the natural log of the firm's total assets. *MB* is the firm-specific market-to-book ratio. *ROA* is earnings before extraordinary items divided by lagged total assets. *SIZE*, *MB*, and *ROA* are included in Panel B, but are not tabulated. We also include, but do not tabulate, industry and year indicator variables. The *t*-statistics are adjusted for heteroskedasticity and for the clustering of observations by firm and calendar month. \*\*\* indicates significance at the 0.01 level, \*\* indicates significance at the 0.05 level, and \* indicates significance at the 0.10 level.

Panel A: The effect of accrual quality on insider trading profitability

	High accrual quality firms		Low accrual quality firms	
	(1) <i>Insider purchases</i>	(2) <i>Insider sales</i>	(3) <i>Insider purchases</i>	(4) <i>Insider sales</i>
<i>Intercept</i>	0.016 (3.81)***	-0.034 (-2.93)***	0.039 (4.17)***	-0.055 (-3.03)**
<b><i>FOUNDER</i></b>	0.008 (0.38)	-0.016 (-1.28)	0.021 (2.41)**	-0.023 (-1.94)*
<b><i>DESCENDANT</i></b>	0.006 (0.41)	0.08 (0.69)	-0.006 (-0.18)	-0.033 (-2.89)***
<b><i>HIRED</i></b>	-0.027 (-1.83)*	0.011 (2.77)***	-0.013 (-1.05)	0.036 (0.79)
<i>SIZE</i>	-0.016 (-4.21)***	0.007 (2.88)***	-0.019 (-2.23)**	0.011 (0.85)
<i>MB</i>	-0.003 (-0.25)	0.002 (2.31)	-0.004 (-0.26)	0.008 (2.07)**
<i>ROA</i>	-0.089 (-0.42)	-0.053 (-0.31)	-0.124 (-2.96)***	0.073 (0.92)
<i>Industry indicator variables</i>	Yes	Yes	Yes	Yes
<i>Year indicator variables</i>	Yes	Yes	Yes	Yes
<i>Adjusted R<sup>2</sup></i>	0.034	0.037	0.040	0.028
<i>N</i>	1,468	5,724	1659	5,906

Panel B: The effect of corporate transparency on insider trading profitability

	Transparent firms		Opaque firms	
	(1) <i>Insider purchases</i>	(2) <i>Insider sales</i>	(3) <i>Insider purchases</i>	(4) <i>Insider sales</i>
<i>Intercept</i>	0.017 (4.57)***	-0.084 (-4.13)***	0.036 (3.35)***	-0.058 (-2.59)**
<b>FOUNDER</b>	0.010 (0.53)	-0.010 (-1.37)	0.042 (2.31)**	-0.016 (-1.81)*
<b>DESCENDANT</b>	0.002 (0.56)	0.017 (1.47)	0.015 (0.72)	-0.033 (-2.89)***
<b>HIRE</b>	-0.033 (-2.71)***	0.019 (2.24)**	-0.022 (-1.31)	0.025 (0.35)
<i>SIZE</i>	-0.014 (-3.48)***	0.007 (2.88)***	-0.013 (-1.93)*	0.004 (1.41)
<i>MB</i>	-0.001 (-0.67)	0.002 (2.31)	-0.002 (-0.57)	0.004 (2.52)**
<i>ROA</i>	-0.121 (-0.83)	-0.023 (-0.23)	-0.174 (-3.48)***	0.061 (1.13)
<i>Industry indicator variables</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>Year indicator variables</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>Adjusted R<sup>2</sup></i>	0.026	0.048	0.019	0.028
<i>N</i>	1083	4911	1023	4920

**Table 5**

The impact of corporate governance on insider trading profitability in family firms. Our sample firms are classified into two groups based on the quality of their corporate governance. In Panel A, we consider the effect of institutional ownership. If a firm's level of institutional ownership is higher than the sample median, then it is considered to have a high level of institutional ownership; otherwise, it is considered to have a low such level. In Panel B, we consider the effect of insider trading restrictions. A firm is considered to have insider trading restrictions in place if 75% of its insider trades occurred within the 20 trading days following a quarterly earnings announcement. The dependent variable, *CAR*, is the cumulative abnormal returns from the transaction date to one day before its SEC filing date. We use the traditional market model to compute abnormal stock returns. *FOUNDER* is an indicator variable equal to one if the company is a family firm whose CEO is the founder, and zero otherwise. *DESCENDANT* is an indicator variable equal to one if the company is a family firm whose CEO is a descendant of the firm founder, and zero otherwise. *HIRED* is an indicator variable equal to one if the company is a family firm whose CEO has been hired from outside the family, and zero otherwise. *SIZE* is the natural log of the firm's total assets. *MB* is the firm-specific market-to-book ratio. *ROA* is earnings before extraordinary items divided by lagged total assets. *SIZE*, *MB*, and *ROA* are included, but are not tabulated. We also include, but do not tabulate, industry and year indicator variables. The *t*-statistics are adjusted for heteroskedasticity and for the clustering of observations by firm and calendar month. \*\*\* indicates significance at the 0.01 level, \*\* indicates significance at the 0.05 level, and \* indicates significance at the 0.10 level.

Panel A: The likelihood of firm-level insider trading restrictions

	<b>Firms with high level of institutional ownership</b>		<b>Firms with low level of institutional ownership</b>	
	(1) <i>Insider purchases</i>	(2) <i>Insider sales</i>	(3) <i>Insider purchases</i>	(4) <i>Insider sales</i>
<i>Intercept</i>	0.087 (3.41)***	0.012 (0.67)	0.088 (2.61)**	-0.058 (-2.67)***
<b>FOUNDER</b>	-0.012 (-0.43)	-0.004 (-0.54)	0.041 (1.98)**	-0.036 (-3.22)***
<b>DESCENDANT</b>	0.032 (1.36)	-0.007 (-1.06)	0.020 (0.75)	-0.010 (-1.43)
<b>HIRED</b>	-0.041 (-3.81)***	0.020 (2.67)***	-0.013 (-0.76)	-0.007 (-0.23)
<i>SIZE</i>	-0.009 (-1.53)	-0.005 (-2.37)**	-0.008 (-1.78)*	0.004 (1.91)*
<i>MB</i>	-0.004 (-1.53)	0.003 (2.78)***	0.003 (1.25)	0.002 (1.80)*
<i>ROA</i>	-0.351 (-1.95)*	-0.151 (-2.54)**	-0.114 (-0.90)	0.024 (0.36)
<i>Industry indicator variables</i>	Yes	Yes	Yes	Yes
<i>Year indicator variables</i>	Yes	Yes	Yes	Yes
<i>Adjusted R<sup>2</sup></i>	0.079	0.024	0.035	0.032
<i>N</i>	1298	6208	2101	6790

Panel B: The effect of insider trading restrictions on insider trading gains

	Firms with insider trading restrictions		Firms without insider trading restrictions	
	(1) <i>Insider purchases</i>	(2) <i>Insider sales</i>	(3) <i>Insider purchases</i>	(4) <i>Insider sales</i>
<i>Intercept</i>	0.124 (3.73)***	-0.032 (-1.06)	0.084 (2.29)**	-0.061 (-3.89)***
<b>FOUNDER</b>	-0.010 (-0.28)	-0.013 (-1.17)	0.044 (1.83)*	-0.026 (-3.13)***
<b>DESCENDANT</b>	0.014 (0.35)	0.006 (0.54)	-0.003 (-0.13)	-0.022 (-1.83)*
<b>HIRE</b>	-0.053 (-2.97)***	0.008 (0.61)	-0.037 (-2.16)**	0.001 (0.14)
<i>SIZE</i>	-0.013 (-1.58)	0.001 (0.09)	-0.008 (-1.44)	0.004 (2.34)**
<i>MB</i>	-0.001 (-0.15)	0.001 (0.93)	0.014 (1.84)*	0.003 (2.81)***
<i>ROA</i>	-0.388 (-2.97)***	-0.004 (-1.06)	-0.089 (-0.47)	0.027 (0.19)
<i>Industry indicator variables</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>Year indicator variables</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>Adjusted R<sup>2</sup></i>	0.110	0.009	0.061	0.029
<i>N</i>	1355	5436	1521	5794

**Table 6**

Sources of the excess returns family CEOs earn from insider trading. Panel A reports the excess profitability earned by the CEOs of family firms from insider trading. We separate the CEO's stock trades into three types: (1) stock trading that occurs 10 days before quarterly earnings announcements that contain earnings surprises; (2) stock trading that occurs 10 days before quarterly earnings announcements that do not contain earnings surprises; and (3) stock trading that does not occur before quarterly earnings announcements. We consider a firm's quarterly earnings announcement to have an earnings surprise if the difference between its actual quarterly earnings and the consensus earnings forecasts is ranked in the first and fifth quintile of the entire sample. The number in each cell represents the excess trading profitability earned by the CEOs of family firms relative to their counterparts in non-family firms. We use the cumulative abnormal returns from the transaction date to one day before the SEC filing date (CAR) as a proxy for stock trading profitability. The traditional market model is used to compute abnormal stock returns. *FOUNDER* is an indicator variable that equals one if the family firm's CEO is its founder, and zero otherwise. *DESCENDANT* is an indicator variable that equals one if the family firm's CEO is a descendant of its founder, and zero otherwise. *HIRED* is an indicator variable that equals one if the family firm's CEO is not related to the founding family, and zero otherwise. Panel B reports the *additional* likelihood of family firm CEOs being net purchasers (net sellers) conditional on future positive (negative) stock performance. More specifically, we first compute the percentage of CEOs who are net purchasers (sellers) conditional on future good (bad) news for those of family and non-family firms, respectively. Next, we report the differences in the percentage across family and non-family firms and test its significance.  $MARET_{t+1}$  is future 12-month market-adjusted returns, measured as the firm's 12-month cumulative returns during fiscal year  $t+1$  less the corresponding 12-month return on the value-weighted market index. The  $t$ -statistics are for the differences between the corresponding cell and non-family firms. \*\*\* indicates significance at the 0.01 level, \*\* indicates significance at the 0.05 level, and \* indicates significance at the 0.10 level.

Panel A: Family firms and insider trading profitability

	<i>Insider trades that occur 10 trading days before quarterly earnings announcements with an earnings surprise</i>		
	(1) Founding CEO	(2) Descendant CEO	(3) Hired CEO
<b><i>Insider purchases</i></b>	0.051* (1.86)	-0.016 (-0.10)	-0.023 (0.28)
<b><i>Insider sales</i></b>	-0.039** (-2.04)	0.015 (0.43)	0.016 (1.22)
	<i>Insider trades that occur 10 trading days before quarterly earnings announcements without an earnings surprise</i>		
<b><i>Insider purchases</i></b>	-0.044 (-1.12)	-0.019 (0.25)	-0.071 (-1.24)
<b><i>Insider sales</i></b>	-0.015 (-0.99)	-0.023 (-0.23)	0.010 (0.62)
	<i>Insider trades that do not occur 10 trading days before quarterly earnings announcements</i>		
<b><i>Insider purchases</i></b>	0.046* (1.92)	-0.053 (-0.66)	-0.035*** (-4.02)
<b><i>Insider sales</i></b>	-0.016** (-2.04)	-0.044** (-1.99)	0.030** (1.99)

Panel B: Additional likelihood of the CEO of a family firm engaging in purchases/sales conditional on future stock performance

	Good news ( $MARET_{t+1} > 0$ )		
	Founding CEO	Descendant CEO	Hired CEO
<i>Additional percentage of net buyers</i>	0.108** (1.97)	-0.042 (-1.35)	0.073 (0.05)
	Bad news ( $MARET_{t+1} < 0$ )		
	Founding CEO	Descendant CEO	Hired CEO
<i>Additional percentage of net sellers</i>	0.070** (2.24)	0.058** (2.11)	-0.040 (-1.10)