Family Affair—Insider Trading and Family Firms: Evidence from Thailand

Rapeepat Ingkasit and Arnat Leemakdej

Abstract Thai insiders can earn significant abnormal returns from trading shares of their firms. The effect is more pronounced when trades occurred prior to earnings announcement. The results provide reasoning for regulation that prohibits the insiders to trade prior to earnings announcement. Both family ownership and control structure affect the magnitude of market reaction. The findings support the entrenchment effect in family firms. The presence of specific categories of blockholder has monitoring effect, while some types of blockholder seem to exhance the insiders' signal and strengthen the market reaction. Significant reduction in abnormal returns earned by insiders in the firm with voluntary blackout policy suggests that the policy effectively forbid the insiders to trade when they possess valuable information that is not available to the public.

Keywords Insider trading · Family firms · Blackout policy · Corporate governance

1 Introduction

Over the last few years, family firms have attracted attention from academic researchers. Some researches consider family ownership as the most prevalent form of corporate in the world, while this type of ownership is uncommon in the USA. Villalonga and Amit (2006) suggest that if individual or family holds substantial voting rights, it is likely to lead Agency Problem II to overshadow Agency Problem I. Thus, the majority shareholders may seek the personal benefits at the expense of minority shareholders.

R. Ingkasit (✉)
Thammasat Business School, Thammasat University, Bangkok 10200, Thailand
e-mail: rapeepat.ib@gmail.com

A. Leemakdej
Department of Finance, Thammasat Business School, Thammasat University, Bangkok 10200, Thailand

Trading their own stocks is one technique that controls shareholders, managers, and members of the board of directors, so-called insiders, in family firm may gain their personal benefits. Insiders usually have more insights about their company than outsiders such as minority shareholders. Thus, they can gain abnormal returns from information advantages at the expense of the minority shareholders.

Insider trading in Thailand is unique in its own setting due to highly concentrated ownership structure and weak legal protection. Suehiro and Waileardsak (2004) collected data on 220 Thai family firms and documented that these firms generate more than 62% of nominal GDP in 1997. They also documented that family businesses are present in wide range of industries. The figures reaffirm the dominant presence of family firms in Thailand. These characteristics may result in predominant agency problem between large controlling and minority shareholders.

Building from the extended literatures about insider trading, this paper mainly focuses on how family-controlled structure can influence the information asymmetry of insider trading. This study also explores how corporate governance factors play a role to mitigate information asymmetry and how effectiveness of a blackout period policy which prevents insiders to trade during large information asymmetry period such as before earning announcements in Stock Exchange of Thailand. The authors implement two methodologies to capture the effect: event study and cross-sectional regressions. This study has at least two contributions. First, it complements the existing literature on family businesses in emerging markets. Second, the study provides more evidence to the researches on insider trading. To the best of our knowledge, the issues of how family-controlled structure affects insider trading behavior in developing countries have not been systematically documented.

2 Literature Review and Hypotheses

The existing empirical literature uses two different methodologies to measure the effect of insider trading on share prices. Some studies implement performance evaluation methods by forming portfolios according to the signal which insiders provide. The other strands of the literature apply an event study methodology to measure the abnormal return in the short period of time around insider trades.

Many studies are conducted around the world that observes abnormal returns from insiders trading. In the UK, Fidrmuc et al. (2006) document significant abnormal returns of the expected sign for 2- and 5-day after insiders' transaction announcement. For Italian market, Bajo and Petracci (2006) show that insiders can earn abnormal returns 3.18% for purchase and −3.67% for sales within 10-day event window. Betzer and Theissen (2009) use German market dataset which has the diverse reporting delays from 2 days to more than 30 days. The authors capture absolute 2% CARs for both purchases and sales within 11-day event window.

In developing countries like Thailand, Boonyawat et al. (2005) document that corporate insiders can gain abnormal returns from buy-side transactions. Their

findings also suggest that outsiders can earn abnormal returns by following insiders' purchases signal. Budsaratragoon et al. (2012) show that insiders earn abnormal returns from trading around firm's earnings announcement. They argue corporate insiders are likely to take their informational advantages to gain personal profits.

As a first step in our further analysis, we test the convention hypothesis that both directors and large shareholders trading contain private information or at least the traders are convinced that insiders' trades contain valuable information. In Thailand, due to the high concentrated ownership structure, the outcome may differ. Franks et al. (2001) propose the entrenchment effect which implies that shareholders with considerable voting rights may become unaccountable and exploit their private benefits at the expense of minority shareholders. Therefore, the market may respond negatively to insiders' purchase. We expect the latter effect overshadows the former. Our first hypothesis is summarized as follows:

Hypothesis 1:

> (a) Insiders' purchases result in positive market reaction.
> (b) Insiders' sales result in negative market reaction.
> (c) Absolute value of market reaction to insiders' purchases is lower compare to sales.

Next, we focus on insiders trading in family-controlled firms. By structure, family firms have little conflict of interest between management and shareholders or so-called classic agency problem (Anderson and Reeb 2003). In some cases, family firms are managed by unaffiliated professional CEOs but the classic agency problem is still insignificant due to 'lock-in effect' (Maug 1998) which means the large shareholders have incentives to monitor and sufficient voting power to control managements. On the other hand, concentrated ownership structure allows large or controlling shareholders to exploit resources from minority shareholders.

Another factor that is included in our consideration is whether CEOs of the family firms are family member or outsiders. Anderson and Reeb (2004) suggest that family shareholders can gain an information advantage by sending one of their family members to hold an active role in management. The next hypothesis can be summarized as follows:

Hypothesis 2:

> (a) The market reaction to the transactions of family firms' insiders is larger than non-family firms' insiders.
> (b) The market reaction to the insiders' transactions of family firms with family member as CEOs is higher than the transactions of family firms with outsiders as CEOs.

The authors proceed by relating information asymmetry to corporate governance mechanism. In this study, we implement abnormal returns earned by insiders, as informed traders, can represent information asymmetry.

In concentrated ownership structure settings, there are the possibilities that the significant shareholder(s) is only one ultimate owner or with a second controlling shareholder who owns at least 10 or 20% voting rights. The presence of second major shareholder makes the first owner more difficult to solely control the board of directors. Fidrmuc et al. (2006) suggest that market reaction from insiders' trades inclines to be smaller in firms with the presence of major outside blockholders due to monitoring activities.

Chung and Zhang (2011) argue that good governance structure reduces asymmetric information and improves corporate transparency. Budsaratragoon et al. (2012) assert that performance of informed traders is lower in firms with strong monitoring and great accountability of executive. Many studies document the relationship between corporate governance mechanism and firm performance. The most commonly used variables are (1) the separate of chairman and CEOs (2) the fraction of independent directors to board member (3) the number of board member. In this study, we also include voluntary 'blackout policy' which deters insiders to trade during the large informational asymmetry period, e.g., before quarterly earnings announcement, as one of governance mechanism.

In Thailand, there is no blackout period regulation like one in the UK to prevent corporate insiders from trading shares of their firms two months prior to earnings announcements and the month before quarterly earnings announcements. Due to this institutional gap, the authors hypothetically implement the UK regulations in Thailand and test whether transactions during blackout period convey more information than transactions at other times. The third hypothesis can be summarized as follows:

Hypothesis 3:

      (a) The market reaction to the insiders' transactions is weakened by the presence of an outside blockholders.
      (b) The market reaction to insiders' transactions can be mitigated by good governance structure.
      (c) The market reaction to insiders' transactions during blackout period is larger than insiders' transactions at other times.

3 Data Sources, Descriptive Statistics, and Methodology

3.1 Data

The sources of insiders' transactions information are the 59-2 forms provided by the Securities Exchange Commission (SEC). The insiders are obliged to report with no

exception. In case of multiple trades on the same day, the authors aggregate (e.g., purchasing 5000 shares and 10,000 shares equal to purchasing 15,000 shares) or net the transactions (e.g., purchasing 10,000 shares and selling 5000 shares equal to purchasing 5000 shares) irrespective of whether the trades are conducted by the same or different insiders.

Stocks included in the sample are listed stocks and have at least 10 months return prior to event day to ensure that the data are sufficient to perform the event study. The study period covers January 2006 to December 2015. We exclude insiders' trades after exercise of employee stock options because this kind of trades may be parts of remuneration package and do not contain valuable information. This study does not exclude the delisted firm to avoid the survival bias. We also exclude insiders' trades in financial firms because of their different set of monitoring mechanisms.

The data set also covers company-specific information such as accounting information, ownership structure, member of the boards, number of shares outstanding, governance structure, and corporate earnings announcement date which are collected from Stock Exchange of Thailand, SETSMART, DATASTREAM, and companies' consolidated financial statements, Annual Report and Annual Registration Statements (56-1 form).

3.2 Family Firm in Thailand

For family firm identification, we implement 25% as ultimate shareholders' cut-off level. The 1992 Limited Public Company Act allows shareholders who own at least 25% to veto some important resolutions such as issuing seasoned shares.

We combine the fractional equity ownership of the family and their sons' or daughters' spouses to complete the whole picture of family ownership by the sum of the weakest links along each control chain. We collect both direct and indirect links of controlling shareholders from corpus platform which allows users to track the target firms' parents and subsidiaries. Thus, this study can clearly specify the ultimate family shareholders compare to other literatures which are commonly observe only Tier I ownership structure.

The ownership structure of Thai listed companies, especially family firms, is not complex. They are less preferable to maintain their control through pyramid and cross-holding structures compared to other companies in East Asian markets (Claessens et al. 2000).

Our sample firms have similar ownership and control structure compared to the sample firms in Glaewketgarn (2013). The mean and median ownerships of largest shareholder are 40.25 and 38.55% (40.28 and 41.17%) for purchases (sales), respectively. These descriptive statistics imply that the firms' ownership structure is fairly concentrated. These features are commonly observed in East Asian market.

3.3 Descriptive Statistics

Table 1 presents summary statistics of our sample. Panel A presents no. of trades per firm per year is the average number of trades per firm per year (include only the year that the transactions occur). Percent of market capitalization is the average fraction of number of shares traded by insiders over the number of shares outstanding. The no. of firms refers to number of the firms that insiders' transactions satisfy the conditions previously described. Panel B, C, and D exhibit the descriptive statistics of insiders' all transactions, large transactions, and small transactions, respectively.

The sample description is comparable to Lakonishok and Lee (2001) for the USA and Fidrmuc et al. (2006); for the UK Panel B, C, and D shows the statistics on transaction size in both absolute and relative terms for all transactions, large transactions (at least 0.1% of the market capitalization) and small transactions (less than 0.1% of the market capitalization) respectively. The transaction size of both purchases and sales is heavily skewed as shows in large differences between mean and median.

In our sample, purchases account for 59.7% of all transactions. In contrast, both mean and median of purchases are considerably small compare to mean and median of sales. Their average size is 6356.57 and 335.30 thousand baht representing 0.099 and 0.006% of the value of shares outstanding (mean and median, respectively), whereas the size of sales is approximately twice as large; 15,502.54 and 750 thousand baht representing 0.226 and 0.006% of the value of shares outstanding (mean and median, respectively).

3.4 Methodology

3.4.1 Event Study

The authors implement a standard event study methodology to observe the market reaction from insiders' trades and perform event studies for insider purchases and sales separately, and the event date is defined as the trading day.

We compute cumulative abnormal returns by using market model as the benchmark. Brown and Warner (1985) suggest that OLS can be implemented to obtain the beta without misspecifications. The event windows are 20 days prior to and after the event date. Because Thai insiders are not allowed to make transactions until the public evaluate recent corporate news, e.g., merger or acquisition, thoroughly, we have to ascertain that significant CAR is due to information value of insiders' trades rather than sensitive news. This is the reason behind 20 days observation period prior to the event date. The beta is estimated from 200 to

Table 1 Summary statistics for insiders' transactions, from 2006 to 2015

Panel A: Thailand sample description			
	All	Purchase	Sales
No. of trades per firm per year	6.70	4.27	3.01
No. of firms	420	386	387
Panel B: Insiders' all transactions			
	Mean		Median
Net purchases (15,902 transactions)			
Transaction value (฿'000)	6356.57		335.30
% Market capitalization	0.099		0.006
Net sales (10,732 transactions)			
Transaction value (฿'000)	15,502.54		750.00
% Market capitalization	0.226		0.006
Panel C: Insiders' large transactions (Market capitalization > 0.1%)			
	Mean		Median
Net purchases (1357 transactions)			
Transaction value (฿'000)	52,781.59		6870.00
% Market capitalization	1.019		0.220
Net sales (1228 transactions)			
Transaction value (฿'000)	118,662.94		10,123.00
% Market capitalization	1.915		0.322
Panel D: Insiders' small transactions (Market capitalization < 0.1%)			
	Mean		Median
Net purchases (14,545 transactions)			
Transaction value (฿'000)	2025.27		278.40
% Market capitalization	0.013		0.005
Net sales (9527 transactions)			
Transaction value (฿'000)	2459.61		579.00
% Market capitalization	0.005		0.013

Panel A shows the summary statistics for 26,634 insiders' transaction during 2006–2015. *No. of trades per firm per year* is the average number of trades per firm per year (include only the year that transactions occur). *% Market Capitalization* is the average fraction of number of shares traded by insiders over the number of shares outstanding. *No. of firms* refer to number of the firms that included in the study. Panel B, C, and D exhibit the descriptive statistics of insiders' all transactions, large transactions, and small transactions, respectively

21 days before the event dates. To test the null hypotheses, this study follows Barber and Lyon (1997) and implements the following cross-sectional test statistics:

$$t_{CAAR_{t1,t2}} = CAAR_{t1,t2} \Big/ \left(S_{CAR_{t1,t2}} \Big/ N^{1/2} \right) \qquad (1)$$

where $CAAR_{t1,t2}$ represents cumulative average abnormal returns from period t_1 to t_2, $S_{CAR_{t1,t2}}$ is the cross-sectional sample standard deviation of the individual

cumulative abnormal returns, and t_{CAAR} is the test statistic following student t distribution with $N - 1$ degrees of freedom.

3.4.2 Cross-Sectional Regression Analysis

For testing Hypotheses 2(c) and 3(a), we implement cross-sectional OLS analysis with the value of CAR (1, 20) as dependent variables because it can represent the complete market reaction to insider trades. TRANS is the set of dummy variables representing the characteristics of transaction. FAMILY is the set of dummy variables representing whether the firm is a family firm and family member holds CEOs office. BLOCK is the set of dummy variables representing three types of blockholder: corporations, institutional investors, and other individuals or families. The dummies are equal to one if corresponding type has its ownership exceeds 5%. GOV is the set of variables representing governance mechanism in the firm including (1) the separation of chairman and CEOs, (2) the fraction of independent directors to board members, (3) the number of board members, and (4) whether the company has voluntary blackout period policy. CONTROL is the set of control variables that include firm's specific revenue, market to book value, return to equity, and leverage.

$$\text{CAR } (1, 20) = a_0 + a_1(\text{TRANS}) + a_2(\text{FAMILY}) + a_3(\text{BLOCK})$$
$$+ a_4(\text{GOV}) + a_5(\text{CONTROL})$$

4 Results

4.1 Abnormal Returns Around Insider Trading

Table 2 reports the market reaction to both purchases and sales. The table demonstrates CAARs in three different panels—large trades, all trades, and trades during blackout period for Panel A and B, respectively. This study follows Fidrmuc et al. (2006) by applying cut-off level of large transactions as those exceeding 0.1% of the firm's market capitalization.

The results in Table 2 support Hypothesis 1(a) which states that there are positive market reactions following insiders' purchases. The post-event CAARs ($CAAR_{1,10}$ and $CAAR_{1,20}$) in all trades are 0.42 and 0.48%, respectively. Both values are significantly different from zero regardless of the statistic used. For large trades, $CAAR_{1,20}$ is almost twice as large (0.73%) compare to all trades although it is not statistically different from zero.

Insiders' sales have significant negative impact on prices regardless of transaction size. Panel A shows market reaction to insiders large sales. The post-event CAARs in large trades are significantly different from zero (−1.82 and −3.96% in

Table 2 Market reaction around insiders' transaction

Panel A: Market reaction around insiders' transaction

	Purchases				Sales			
	CAAR (−20, 0)	CAAR (1, 10)	CAAR (1, 20)	No. of observations	CAAR (−20, 0)	CAAR (1, 10)	CAAR (1, 20)	No. of observations
Large trades	1.12%	0.48%	0.73%	1357	5.07%	−1.82%	−3.96%	807
t_{CAAR}	2.04[b]	1.36	1.32		7.70 [a]	−5.37[a]	−7.36[a]	
All trades	−1.65%	0.42%	0.48%	1205	4.15%	−1.15%	−1.95%	398
t_{CAAR}	−14.54[a]	6.41[a]	4.77[a]		28.27[a]	−13.42[a]	−15.33[a]	

Panel B: Market reaction during blackout period

Blackout period	−0.86%	1.09%	1.09%	5243	5.32%	−0.91%	−2.22%	3507
t_{CAAR}	−4.37[a]	8.98[a]	5.29[a]		20.34[a]	−5.80[a]	−8.94[a]	
Other times	−2.04%	0.09%	0.18%	10,659	3.59%	−1.27%	−1.82%	7225
t_{CAAR}	−14.68[a]	1.18	1.61		20.26[a]	−12.43[a]	−12.51[a]	

This table shows the cumulative average abnormal returns (CAARs) for insiders' purchases and sales for six intervals around the trading date: pre-event period (−20, 0) and post-event periods (1, 10) and (1, 20). The authors categorize transactions into two subgroups. Panel A covers the trades of at least 0.1% of firm's market capitalization and all trades, and Panel B covers the transactions that occur during blackout period (within 1 month prior to quarterly earnings announcement and 2 months preceding annually earnings announcement) compared with the transactions that occur other times outside the period. Our estimation period is (−200, −21)-day. We present test statistics which are described in methodology section

[a]Significance at the 1% level
[b]Significance at the 5% level

10- and 20-day window, respectively). $CAAR_{1,20}$ for large sales is twice as large compare to all trades (−1.95%). The authors conclude that insiders' sales can be interpreted as unfavorable signal. Hence, our result validates Hypothesis 1(b).

The pre-event and post-event CAARs for both purchases and sales transactions have similar pattern. In the pre-event period, CAARs are significantly negative (positive) and then revert after the insiders' purchases (sales). However, they do not return to their initial level. The insiders seem to have information about intrinsic price and time their trades accordingly. The complete picture of purchases and sales patterns is illustrated in Fig. 1 which shows that CAARs increase and then decrease after the event date.

The authors hypothesize that an absolute value of market reaction from insiders' purchases is lower compare to sales. For all trades, the absolute $CAARs_{1,20}$ for sales are approximately four times larger than purchases. For large trades CAARs present in Panel A, the sales' abnormal return is 5.4 times larger comparing to purchases. Hence, we failed to reject Hypothesis 1(c).
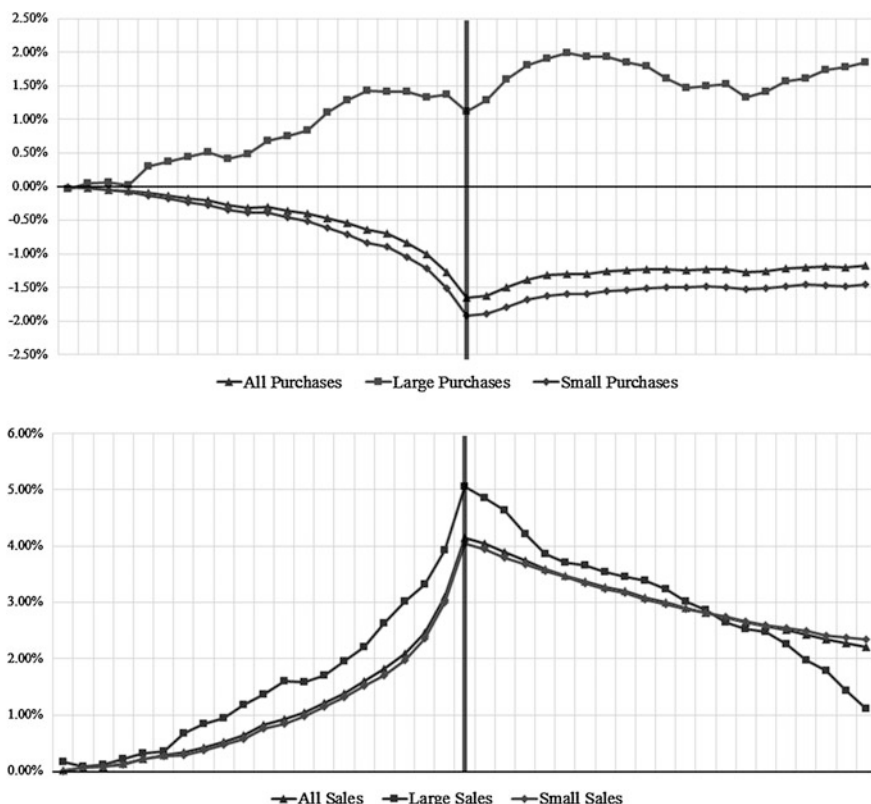

Fig. 1 CAARs of purchases and sales transactions. Both figures illustrate CAARs over the event window period (−20, 20) of purchases and sales transactions, respectively. Each comprises of three transactions categories as follows: all transactions, large transactions, and small transactions. The black vertical line indicates the event date

In panel B, the insider trades are sorted into two groups. The first group consists of insiders' transactions that occurred during the blackout period. The second group contains insiders' trades outside the blackout period. CAARs and test statistic obtained from event study are reported in Table 2.

Notably, insider purchases during the blackout period have an impact on prices as measured by the $CAARs_{1,20}$, which shows almost six times larger than purchases occurring outside blackout period. The results of insider sales also have similar pattern, but the differences of trades within blackout period and the other times are slightly small. Most of the CAARs are significantly different from zero. These results indicate that insiders exploit their informational advantages during high informational asymmetries period such as before earnings announcement. Therefore, we fail to reject Hypothesis 3(c).

4.2 The Effect of Family Ownership and Control

In this section, we investigate further on how family ownership affects the CAARs earned by the insiders. Table 3 reports the market reaction according to family

Table 3 Market reaction to insiders' transaction, family ownership, and control

Panel A: Family ownership (All trades)						
	Purchases			Sales		
	CAAR (−20, 0)	CAAR (1, 20)	Obs.	CAAR (−20, 0)	CAAR (1, 20)	Obs.
Family firms	−1.43%	0.50%	10,461	4.36%	−2.71%	6294
t_{CAAR}	−10.08[a]	4.07[a]		22.03[a]	−15.48[a]	
Non-family Firms	−2.08%	0.44%	5441	3.87%	−0.87%	4438
t_{CAAR}	−11.01[a]	2.52[b]		17.74[a]	−4.84[a]	
Family CEOs	−1.60%	0.65%	6506	4.47%	−2.54%	4341
t_{CAAR}	−8.44[a]	4.49[a]		19.02[a]	−12.75[a]	
Non-family CEOs	−1.15%	0.26%	3858	4.23%	−3.10%	1886
t_{CAAR}	−5.41[a]	1.16		11.20[a]	−8.58[a]	

This table shows the cumulative average abnormal returns (CAARs) for insiders' purchases and sales for three intervals around the trading date: pre-event period (−20, 0) and post-event period (1, 20). The authors categorize transactions into three subgroups according to family ownership and control. Panel A compares the trades of family firms and non-family firms. Panel B compares CAARs of trades by the insiders from family firms with family member as CEOs (family-controlled firms) and family firms with hired CEOs. We describe the test statistics in methodology section
[a]Significance at the 1% level
[b]Significance at the 5% level
[c]Significance at the 10% level

ownership and control. We use 25% cut-off level to separate family firms and non-family firms. Panel A summarizes the CAARs of all transactions. Panel B presents different characteristics of family firms whether CEOs are family member or outsiders.

CAARs presented in Panel A indicate that both insiders in family and non-family firms follow similar pattern and earn insignificantly different post-event CAARs for purchases. In contrast with sales transactions, the insiders of family firms earn almost four times CAARs more than the insiders of non-family firms. These CAARs are also significantly different from zero. This evidently supports that the insiders of family firms can derive benefits from private information, especially in selling company's shares. Hence, our results partly support Hypothesis 2(a).

For Hypothesis 2(b), we expect that the insiders of the family firms with a family member held top management office (family-controlled firms) can earn higher abnormal return from an informational advantage. The results in Panel B partly support this argument.

4.3   The Effect of Outside Blockholders and Governance Structure

We further investigate the impact of the presence of blockholders and governance structure to the abnormal returns earned by the corporate insiders (Hypothesis 3(a) and 3(b)) by applying cross-sectional regressions. The 20-day post-event CARs are regressed on a set of outside blockholders variables that measure the presence of individuals, families, corporations, and institutional investors that own at least 5% of the firm's equity. We also include three determinants of governance structure: (1) the separation dummy equals to one when the chairman of the board and the CEO are not related, (2) the board size, and (3) fraction of independent directors in the board. In addition, we incorporate blackout policy dummy in the models. It represents whether the firm has voluntary blackout policy which recommends the insiders to refrain from performing shares transactions during specifically defined periods of time such as prior to earnings announcement or when they receive the information that is not publicly available.

The regression results are presented in Table 4 for both purchases and sales. The results from Models 1 and 2 moderately support Hypothesis 3(a), but the results are slightly mixed. The coefficients measuring the monitoring effect of individuals or families in purchases and corporations in sales follow the expected sign, showing that outside blockholders weaken the market reaction, but only the latter is statistically different from zero. The presence of individuals or families as blockholders tend enhances the sales signal, while corporations' blockholders enhance the purchases signal. On the other hand, the presence of institutional investors has no significant impact on abnormal returns.

Table 4 Market reaction to insiders' transactions and governance structure

Variables	Purchases	Sales
	Model 1	Model 2
Family firm	0.000796	−0.0144***
	(0.00216)	(0.00276)
Blackout period	0.00839***	−0.00333
	(0.00213)	(0.00270)
Blockholder dummies		
Individuals/families	−0.00136	−0.00612**
	(0.00220)	(0.00278)
Corporations	0.00307	0.00773**
	(0.00261)	(0.00366)
Institutional investors	0.00117	0.000574
	(0.00302)	(0.00327)
Separation	0.00195	−0.000976
	(0.00221)	(0.00288)
Board size	0.00126***	−0.000903
	(0.000395)	(0.000584)
Fraction of independent directors	0.00354	−0.00458
	(0.0121)	(0.00878)
Blackout policy	−0.00423**	0.00533**
	(0.00209)	(0.00265)
Transaction value	0.000829*	−0.00258***
	(0.000490)	(0.000614)
Multiple trades	−0.00191	0.00194
	(0.00296)	(0.00330)
ROE	0.000366	0.0160***
	(0.00306)	(0.00258)
D/E	0.00137***	0.00401***
	(0.000514)	(0.000568)
Size	−0.000875	0.00141
	(0.000762)	(0.000941)
M/B ratio	−0.00552***	−0.00523***
	(0.000404)	(0.000394)
Constant	0.0118	−0.0304***
	(0.00916)	(0.0101)
Observations	15,902	10,732
R-squared (%)	1.5	2.8

The table presents the results of cross-sectional analysis regressions with $CAR_{1,20}$ as dependent variable, and the event date is the trading date. *Family Firm*, *Family CEOs*, *Non-family CEOs*, *Blackout Period*, *Transaction Value*, *Multiple Trades*, *ROE*, *D/E*, *Size* and *M/B ratio* are described in methodology section. Blockholder dummies include three types of blockholders: *Individuals/Families, Corporations, and Institutional Investors*. All these blockholder dummies equal to one if they own at least 5% of the voting rights or zero otherwise. *Separation* is set to one if chairman of the board and CEOs is not family related. *Board Size* is the number of members of the board. *Fraction of Independent Directors* is the number of independent directors divided by the board size. *Blackout Policy* equals to one if company has voluntary blackout policy. The standard errors are reported in parentheses
*$p < 0$, **$p < 0.05$, ***$p < 0.01$

Hypothesis 3(b) expects that good governance structure, which refers to separation in management and control, small board size and high proportion of independent directors, can reduce the opportunistic insiders trading. The results in Models 1 and 2 representing in Table 4 show that larger board size leads to less effective at performing fiduciary duty due to its strong correlations with abnormal returns earned by the insiders, especially for purchases.

Unexpectedly, the fraction of independent directors is also positively associated to the abnormal returns. It is supported by some studies that put the question to the benefits of board independence because of information asymmetry or fear of litigation (Jensen 1993). The separation between chairman of the board and top management does not reduce the information value of director purchases and sales.

The coefficients that identify firms with voluntary blackout policy strongly support Hypothesis 3(b) and statistically different from zero in both purchase and sales. This indicates that the policy forbids the insiders to trade when they possess the valuable information that is not available to the public.

In conclusion, the effects of outside blockholders and governance structure are still perplexed. These mixed effects of blockholders are also documented by Fidrmuc et al. (2006). In this section, the authors portray the dynamic interaction between the presence of blockholders, governance structure, and family ownership. These results partly support Hypothesis 3(a) and 3(b).

5   Conclusion

Our sample consists of 26,634 insiders' transactions performed between January 2006 and December 2015. Several conclusions come to light. First, insiders' purchases and sales affect shares price significantly. The results are consistent with most existing studies in both developed and emerging markets.

Second, the transactions that take place prior to quarterly and annually earnings announcement trigger higher market reactions. Compared to other times, the results indicate that insiders exploit their informational advantages during the period of large informational asymmetries between corporate insiders and outsiders.

Third, there is a strong relationship between family ownership and control structure with the price reaction to insiders' trades. The insiders of family firms earn almost four times CAARs when compared to the insiders of non-family firms for sales. However, we do not find significant difference in purchases.

Fourth, the share price reactions to family firms with professional CEOs are significantly low because the controlling family closely monitors the opportunistic trades. However, there is no evidence that supports these effects for sales.

Fifth, the presence of blockholders matters. The presence of individuals or families as blockholders can reduce the price reaction to insiders' purchases, whereas the corporate blockholders have the same effect to insiders' sales. The institutional investors have no significant impact on abnormal returns.

Lastly, the evidence supports that smaller board size can reduce opportunistic insiders trading, while an increase in proportion of independent directors of separation of ownership has no effect. The significant reduction in abnormal returns earned by the insiders of the firm with voluntary blackout policy suggests that the policy effectively forbids the insiders to trade when they possess the valuable information.

Our results have numerous implications. First, there is clear evidence that even insiders are abided to publicly report their transactions; they can earn significant abnormal returns. Thus, the current regulations are not effectively prohibiting the opportunistic insider trading behavior. Second, the insiders can earn significantly higher abnormal returns when transactions occur during blackout period. Therefore, the regulators may forbid the insiders from trading their shares during that period. Finally, firms' ownership and control structures are important factors that indicate the performance of insider trading and current governance structures, and monitoring roles of blockholders do not mitigate the problems.

This topic of insider trading can be investigated further in number of ways. Most important is to find the factors driving the opportunistic behavior of insiders or other misconduct occurring in the stock market. The study can be extended by developing methodologies to observe signal of illegally informed trading. In addition, our methodologies can be implemented in some East Asian countries which have publicly available insider trading data. The complications are ultimate ownership indentification process because the pyramid shareholding structure and cross-holdings among firms are typical ownership structure in the region.

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