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Family Business Groups and the Efficiency of Capital Allocation: Evidence from Thailand's COVID Crisis

Introduction

Family business groups (FBGs) are commonplace around the world, especially in developing economies such as Thailand, India, Mexico, and many more. Unlike freestanding firms prevalent in the United States and other developed economies, FBGs contain several legally independent firms connected through a chain of control or significant ownership, all ultimately controlled by a single business family or tycoon. With control over many different firms, often in different industries, an FBG can instruct firms under its control to transact with one another, effectively creating a so-called “internal capital market” within its group. To illustrate the dominance of this form of organization, Masulis, Pham, and Zein (2011) show that, around the world, FBGs control an average of 21% of their country's total market capitalization. Moreover, they wield more corporate control in countries with lower GDP per capita such as Thailand and Indonesia whose FBGs control over 45% of their total market capitalization.

The economic importance of FBGs

naturally leads to a growing body of literature that attempts to explain their existence. One of the most widely accepted explanations is that business groups exist to overcome high market frictions in an early stage of economic development (Dau, Morck, and Yeung, 2021; Morck, Wolfenzon, and Yeung, 2005; Khanna and Yafeh, 2007). Economies in such stage suffer from underdeveloped financial institutions and dysfunctional legal systems, making arms'-length transactions between two independent firms very costly. This results in a classic hold-up problem in which an economic agent expects its profits to be ripped off by another agent who is the sole provider of its capital. For example, suppose there is only one company that produces concrete in the economy. A construction company may expect that, when it becomes profitable, the concrete company will increase prices of its supplies, effectively taking away the future profits the construction company would make. Anticipating this predicament, the construction company will not undertake its potential investments. A wide-spread hold-up problem can therefore stall economic growth. Business groups, however, can circumvent this problem. They can reduce such transaction costs by instructing firms under their control not to cheat one another. Due to their lower transaction costs, they can undertake value-enhancing investments that would otherwise be considered worthless by freestanding firms. These advantages of business groups allow them to efficiently allocate resources within the economy,

thus propelling economic growth.

Despite their advantages, FBGs may no longer be able to allocate resources efficiently when they grow too large. Dau et al. (2021) argue that larger business groups have greater hierarchy transaction costs. In particular, first, the controlling family may have problems gathering information necessary for efficient resource allocation. Second, they may also find it difficult to align the interests of the managements from different parts of the group such that the group's value is maximized. Finally, the controlling family itself may have interests, such as preserving family control, that do not necessarily maximize the group's value. Since large FBGs are arguably inefficient, their existence is consistent with the assertion that they exist to preserve control of the founding families (Masulis et al., 2011; Bertrand, Mehta, and Mullainathan, 2002; Johnson, La Porta, de Silanes, and Shleifer, 2000).

In this paper, I provide empirical evidence consistent with the above hypothesis: FBGs are necessary for efficient resource allocation in developing economies, but they become inefficient when they grow too large. I employ the recent COVID crisis in Thailand as an exogenous increase¹ in market frictions and observe the stock performance and other outcomes of firms affiliated with FBGs in comparison with their similar non-FBG counterparts. Note that non-FBG firms include state-controlled firms, freestanding firms that are controlled by families, multinational corporations, and those without controlling

shareholders.

To begin my analysis, I illustrate the impact of the COVID crisis on Thailand's private sector in Figure 1 which plots profitability, investment, and leverage levels of all Thai listed firms around the COVID crisis. Each point and its attached bar represent a mean and its 95% confidence interval, respectively. To attenuate the effects of outliers, all variables are winsorized at the 1st and 99th percentiles. The top left graph of Figure 1 shows the trend of firm profitability as measured by return on assets (ROA). Firm profitability drops sharply from 2019 to 2020 when the COVID crisis takes place, although it seems to recover in 2021. The bottom left graph reveals that, unlike profitability, firm investment, as measured by capital expenditure over total assets, falls dramatically in 2020 and does not recover its pre-COVID levels in 2021. Because of the unexpected lower profitability, firms can no longer fund their operations using retained earnings; thus, they opt to do so using leverage instead. The top and bottom right graphs of Figure 1 show that firms drastically increase their long-term debt

levels in 2020. Short-term debt levels, on the other hand, decrease in the same year.

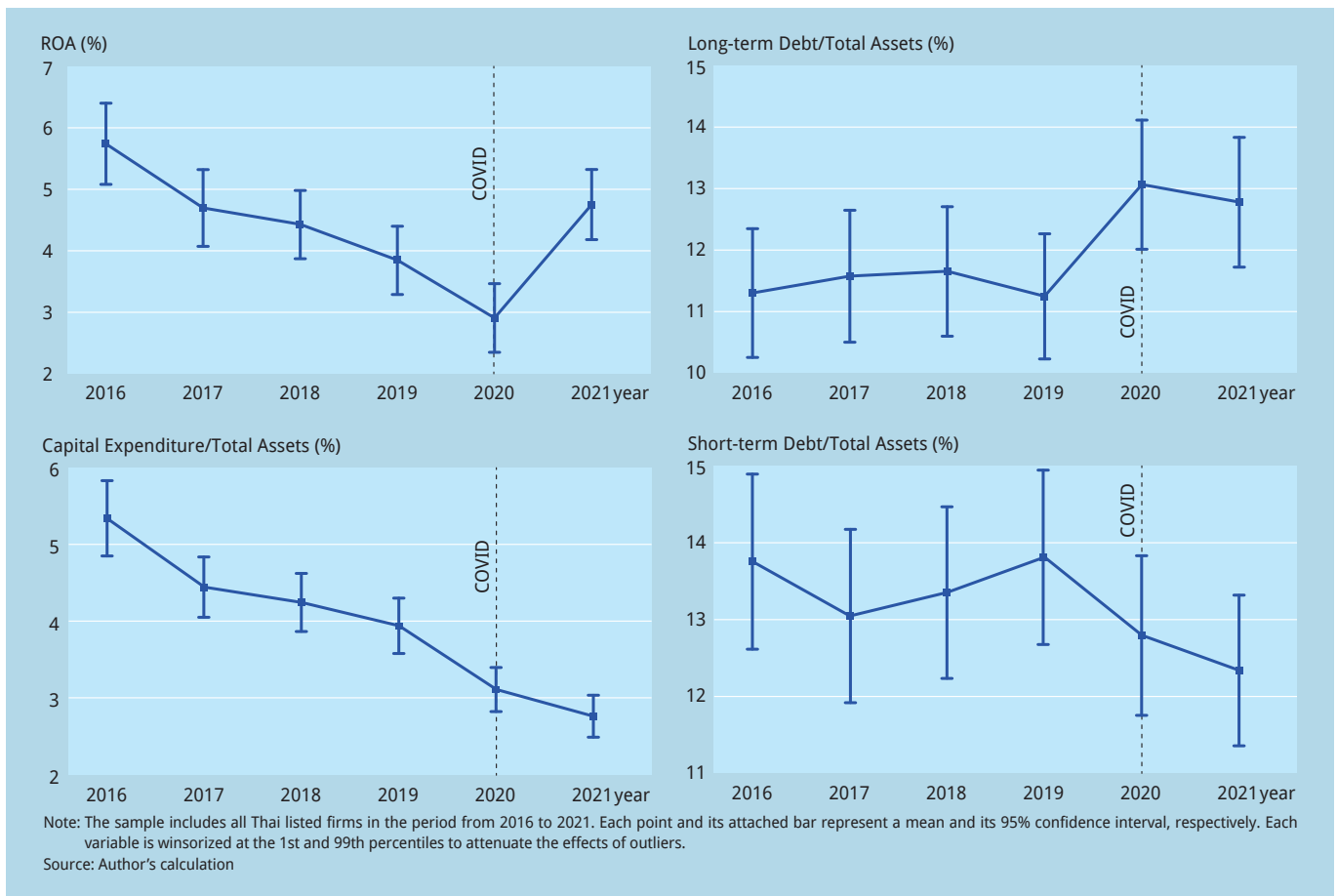
What are the sources of inefficiency of these large FBGs? In an attempt to answer this question, I compare the financing and spending of FBG affiliates with those of similar non-FBG firms. I find that firms affiliated with large FBGs receive more short-term and long-term debt financing after the COVID crisis occurs than their similar non-FBG peers do. With more access to financing, they maintain their dividend payout which is an important mode of compensation for the controlling family, while their similar non-FBG peers cut the payout. Moreover, their valuations (measured by Tobin's *q*) decrease more than those of their non-FBG peers, suggesting that they undertake value-destroying investments during the crisis. Interestingly, on the other hand, firms affiliated with small FBGs do not exhibit these patterns. Compared to their non-FBG peers, they receive comparable debt financing, cut their dividends, but are able to undertake more value-enhancing investment.

The results in this paper are useful in

that they provide systematic evidence that FBGs are still important drivers of growth in developing economies such as Thailand. This is because they can overcome high market frictions with their internal capital markets, allowing them to efficiently allocate resources within the economy. In addition, this paper shows that some FBGs may be too large and thus inefficient due to their high hierarchy transaction costs. Therefore, the existence of some large FBGs in Thailand might be consistent with the hypothesis that FBGs exist to preserve control of the founding families. Finally, the results suggest that, in times of crisis, investing in firms affiliated with small FBGs yields significant gains, while investing in those affiliated with large FBGs yields significant losses.

The rest of this paper is organized as follows. Data Section describes the process of constructing ownership structure data for Thai listed firms as well as other variables. Methodology Section explains the empirical methodology. Main Findings Section reports the main findings. Finally, Conclusion Section concludes.

Figure 1: Profitability, Investment, and Leverage Levels of Thai Listed Firms in 2016-2021



Data

In this section, I describe the process of constructing the datasets used in this paper. Comparing firms affiliated with FBGs to non-FBG firms around the COVID crisis requires two datasets, namely, ownership structures of all Thai listed firms and their associated financial statement variables.

As in Bordeerath (2022), I start with all publicly listed firms in Thailand that exist in 2019, one year prior to the COVID crisis in 2020. To identify the ultimate controlling shareholder of each firm, I rely on the comprehensive data on major shareholders from the Stock Exchange of Thailand. Because the pandemic starts in February 2020, the information on major shareholders used is as of the month closest to but before February 2020. With this information, I follow Masulis et al. (2011) and identify the ultimate controlling shareholder using the following steps. First, because major shareholders can be several

members from the same family or a company ultimately controlled by the family, I aggregate ownership of individuals or companies from the same family into family ownership. Note that, in this step, the ultimate controlling shareholder is not necessarily family, it can also be government, foreign firms, or nonexistent because the firm has dispersed ownership. Second, I classify a family, government or firm as the ultimate controlling shareholder if it has the largest ownership share and controls at least 20% of voting rights. The minimum voting rights cut-off is down to 10% if the family member is also a CEO or chairman. Third, if at least two descendants of the founding family hold positions at the board of directors, the founding family is classified as the ultimate controlling shareholder regardless of its voting rights. Finally, once the ultimate controlling shareholder is identified, I classify a firm as affiliated with an FBG if its ultimate controlling family controls at least two publicly listed firms.

Table 1 shows the ten largest FBGs by market capitalization in Thailand, in which group market capitalization is calculated as the summation of market values of all firms under the family's control. As with several other developing countries, the control of Thailand's corporate sector is concentrated in a few business families. Strikingly, only ten families control

approximately 38% of the country's total market capitalization.

Next, I obtain the data on stock returns and other financial statement variables from the Worldscope database in Datastream. Stock returns are computed based on Datastream's total return indexes which account for dividends and other types of payout. Following are the variables describing firm characteristics and their associated Datastream designations. *TotalAst* is total assets in THB billion (Datastream designation: WC02999). *Age* is the number of years after incorporation (WC18273). *Market/Book* is market value of equity over book value of equity (WC08001/(WC05491 × WC05301)). *ROA* is return on assets defined as net income over total assets (WC08376). *Sales Growth* is current year's sales divided by last year's sales minus one (WC01001). *Collateral* is property, plant and equipment divided by total assets (WC02501/WC02999). *Leverage* is total debt divided by total assets (WC03255/WC02999). Each variable is an average of its values in 2018 and 2019, two years before the pandemic. After obtaining the data on firm characteristics, I merge them with the ownership structure data.

Using the merged data above, I compare firms affiliated with FBGs with the rest of the market before the COVID crisis. In an unreported test, the data observed in

Table 1: Ten Largest FBGs in Thailand by Market Capitalization

Family	Group	Group Market Cap (% Total Market Cap)
Chearavanont	CP (Charoen Pokphand Group)	8.445
Ratanavadi	GULF (Gulf Energy Development)	5.928
The Royal Family	SCB (Siam Commercial Bank) and SCG (Siam Cement Group)	5.355
Prasattongsoth	Bangkok Airways and Bangkok Dusit Medical Services	3.475
Sirivadhanabhakdi	TCC (Thai Charoen Corporation Group), Fraser & Neave, and ThaiBeverage*	2.658
Asavabhokhin	Land and Houses	2.651
Chirathivat	Central Group	2.466
Lamsam	Kasikorn Bank	2.270
Sophonpanich	Bangkok Bank	2.265
Kanjanapas	BTS Group and Bangkok Land	2.114
	Total	37.627

Note: *This firm is listed on Singapore's stock exchange and is therefore excluded in the sample. All data are as of the end of 2019, immediately before the COVID crisis started. Source: Data are from Bordeerath (2022).

Thailand are consistent with the literature on FBGs. That is, FBG firms are significantly larger and more leveraged than the rest of the market. Moreover, they are, on average, older, have higher market-to-book ratio and collateral but lower profitability, although these differences are not statistically significant. The following section describes the empirical methodology, i.e., how I estimate the impact of affiliation with an FBG during the crisis. Non-technical readers may skip this section without loss of continuity.

Methodology

To estimate the impact of affiliation with an FBG, one may simply compare the outcomes of FBG firms with those of non-FBG firms. This straightforward comparison, however, can pose a problem when interpreting the results. This is because firms in these two groups are systematically different, at least in terms of size and leverage as described in Data Section. To illustrate this problem, suppose FBG stocks outperform the rest of the market during the pandemic. One may argue that this is not a result of being affiliated with FBGs, but rather a result of having more assets which allow them to better survive the pandemic. Therefore, one cannot conclusively attribute such outperformance of FBG stocks to their affiliation with FBGs.

To alleviate this problem, I compare FBG firms with their *similar* non-FBG counterparts. To find these similar firms, I use the following propensity score matching algorithm. To begin with, I estimate the following logit model:

$$FBG_i = \alpha + \beta_1 \log(1 + age)_i + \beta_2 Collateral_i + \beta_3 Market/Book_i + \beta_4 ROA_i + \beta_5 SalesGrowth_i + \beta_6 \log(TotalAst)_i + IndustryFE + \varepsilon_i \quad (1)$$

where FBG_i is an indicator variable equal to one if firm i is affiliated with a family business group, and zero otherwise; $IndustryFE$ indicates industry fixed effects which follow the two-digit Standard Industrial Classification (SIC); and ε is an error term. All other variables are defined in Data Section. Once the parameters in Equation (1) are estimated, the propensity score

for each firm is computed as the predicted probability of being affiliated with an FBG. A non-FBG firm i is said to be *similar* to an FBG firm j if both are in the same two-digit SIC industry and the absolute difference between their propensity scores is smallest among the pairs between firm j and all other firms in the same industry.

With the above algorithm, each FBG firm in the sample is matched with a non-FBG firm that is comparable in terms of age, collateral, market-to-book ratio, ROA, sales growth, total assets and is from the same industry. Therefore, the concern that these factors are driving the results is mitigated. To illustrate the effectiveness of this algorithm, I compare FBG firms with their matched non-FBG firms. In an unreported test, the observable characteristics of both groups are no longer significantly different, suggesting that they are comparable along these dimensions.

In addition to the above controls, I also account for time-invariant unobservable differences between FBG and non-FBG firms that can explain their outcomes during the COVID crisis. These differences may include, for example, FBG firms having more capable CEOs than non-FBG firms because the former have more resources than the latter. To control for these fixed unobservable factors, I compare the change in outcome variables rather than their levels. Doing so differences out these fixed unobservable factors, thus allowing us to more accurately estimate the impact of affiliation with an FBG.

Main Findings

Do FBGs allocate resources efficiently?

The efficiency of resource allocation by FBGs depends on their size. Small FBGs benefit from their internal capital markets. They can efficiently allocate resources within their groups to overcome market frictions that often prove too high for standalone firms in emerging economies. However, such benefit can be compromised when FBGs grow too large and thus suffer from high hierarchy transaction costs. That is, gathering information necessary for efficient resource allocation be-

comes difficult due to the bureaucracy in a large organization. Aligning interests of the management from different parts of the group is also considerably more challenging than doing so in a small group. Lastly, the family behind the business group themselves may have an objective, such as preserving their control, that does not necessarily maximize their group's value.

To test the above hypothesis, I split the sample of all Thai listed firms into four quartiles by the total market capitalization of the business group with which they affiliate. If a firm is standalone, i.e., not affiliated with any group or state-controlled, its group's total market cap equals its own market cap. I define large FBGs as those whose total market caps are in the top (fourth) quartile, and small FBGs as those in the bottom three quartiles.² Each FBG firm is then matched with its similar non-FBG counterpart using the algorithm proposed in Methodology Section. Figure 2 below compares the stock performance of FBG firms with that of their matches after the end of February 2020 when the COVID crisis started.

The three bar charts in the upper part of Figure 2 compare the stock performance of small FBG firms with their non-FBG counterparts as well as the market whose returns are from Datastream's total market index of Thailand. Using the end of February 2020 as a base date, stocks of firms affiliated with small FBGs significantly outperform both their non-FBG peers and the market. In particular, over the next 12 months (also 18 and 24 months), they outperform their peers by 13.7% (34.5% and 44.8%) and outperform the market by 14.9% (56.0% and 80.3%). These differences are also statistically significant at 5% level or better. In contrast to small FBG firms, those affiliated with large FBGs underperform both their non-FBG peers and the market. The three bar charts in the lower part of Figure 2 show that, over the next 12 months (also 18 and 24 months), large FBG firms underperform their non-FBG peers by 10.9% (29.0% and 35.9%) and the market by 11.5% (6.65% and 0.55%). The stock return differences between large FBG firms and their non-FBG peers are also statistically significant at 5% level.

Overall, the above results suggest that being affiliated with a small FBG adds significant value to the firm during the COVID crisis, likely because of the benefits of the FBG's internal capital market. However, being affiliated with a large FBG curtails such benefits and the firm value, because of the large FBG's high hierarchy transaction costs.

Financing and spending of FBGs during the pandemic

This subsection explores other advantages and disadvantages of being affiliated with an FBG. Specifically, I examine how FBG firms finance themselves and spend their funds during the COVID crisis, as compared to non-FBG firms. Table 2 shows the comparison. The outcome variables considered here are: a) change in short-term debt over total assets ($\Delta StDebt/TotalAst$); b) change in long-term debt over total assets ($\Delta LtDebt/Total Ast$); c) relative change in dividend payout ($\Delta \log(1 + Dividend)$); and d) change in firm valuation ($\Delta TobinsQ$). Change is calculated as the value in 2020 (the pandemic year) minus the value in 2019. As in the previous subsection, I split the sample by FBG size. The results for small FBGs are reported in Panel A, Table 2, and those for large FBGs in Panel B.

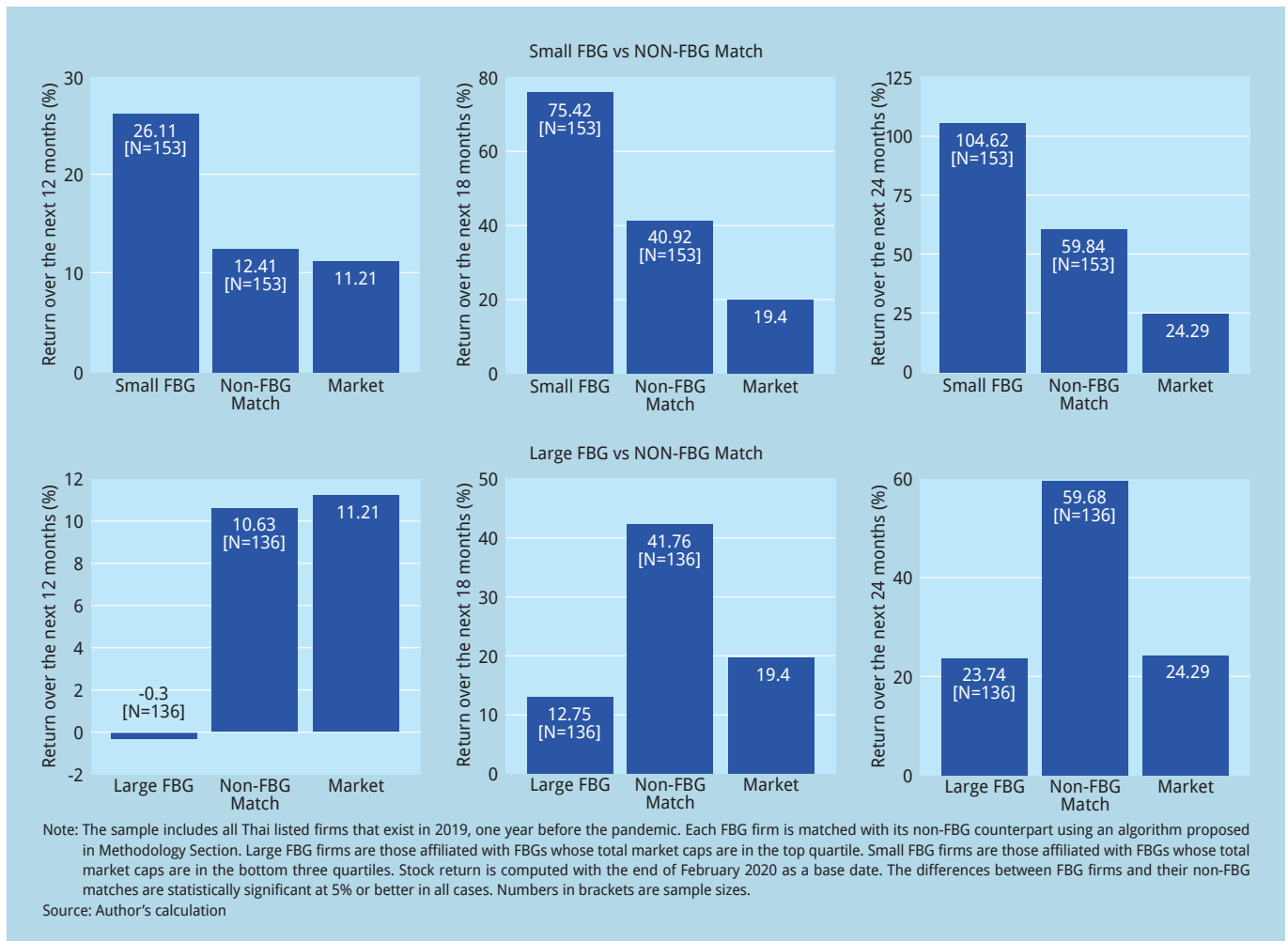
During the pandemic, firms incur

losses due to the sudden drop in demand. To sustain their operations, they must raise capital from the market. Firms affiliated with FBGs have an advantage in that their collateral comes not only from their own assets, but also from the assets of other firms in the same group. Thus, being affiliated with an FBG should give more access to debt than other freestanding firms. Consistent with this argument, Panel A in Table 2 reports that small FBG affiliates increase their short-term leverage by 2.4 percentage points (ppt),³ while their non-FBG peers increase it by 0.6 ppt. This result suggests that an affiliation with a small FBG increases access to short-term debt financing by 1.8 ppt (2.4 minus 0.6). However, it does not affect long-term debt financing. On the other hand, Panel B, Table 2 shows that an affiliation with a large FBG significantly increases access to both short-term and long-term financing during the crisis by 2.0 ppt and 2.2 ppt, respectively. This might be because, in addition to having more tan-

gible assets as collateral, large FBGs often have strong political connection, which makes them more likely to be bailed out by the government (Faccio, Masulis, and McConnell, 2006). Anticipating this bailout, the market is willing to provide large FBGs with low cost of debt, which in turn allows large FBGs to be more leveraged.

With more access to debt financing, how do FBGs spend their funds during the crisis? I first examine their dividend payment as this is one of the main channels through which an FBG spends its cash as compensation for its controlling family. Because some firms pay no dividends and we are also comparing firms of different sizes, I measure a *relative* change in dividend as $\Delta \log(1 + Dividend) = \log(1 + Dividend_{2020}) - \log(1 + Dividend_{2019})$. In Panel A, Table 2, $\Delta \log(1 + Dividend)$ for both small FBG affiliates and their non-FBG peers are significantly negative, suggesting that both cut their dividends and that, as a result, the controlling families of small FBGs receive

Figure 2: Stock Performance of Family Business Group Affiliates vs Non-FBG Matches



less compensation in the crisis period. In contrast, Panel B shows that $\Delta \log(1 + \text{Dividend})$ for large FBGs is not significantly different from zero, suggesting that large FBG affiliates maintain their dividends and that the controlling families do not receive less compensation even in times of crisis. This stands in contrast to their non-FBG peers whose $\Delta \log(1 + \text{Dividend})$ is significantly negative, indicating that these firms decrease their dividends during the pandemic.

Next, I analyze how efficiently FBGs invest when they are hit by the pandemic. To measure the investment efficiency, I argue that a firm's valuation ought to be high relative to its total assets if it invests efficiently. Thus, I measure a firm's investment efficiency using Tobin's q ratio. Ideally, Tobin's q is the market value of the firm divided by its replacement cost, i.e., the total value of assets had they been sold to the market piece by piece. If the management invests in value-enhancing projects, Tobin's q ought to be high, and vice versa. Measuring the true Tobin's q is very challenging, however. Two of the many reasons are that the market value of debt does not reflect on the bond price because debt is not often traded and also that the true replacement cost is unobservable. Therefore, I follow Croci, Doukas, and Gonenc (2011) and define Tobin's q as total assets minus book value of equity plus market value of equity all divided by total assets. Panel A, Table 2 reveals that Tobin's q of firms affiliated with small FBGs increases significantly more than that of their non-FBG counterparts, by 10.4 ppt. This suggests

that affiliation with a small FBG increases firm valuation during the crisis, reflecting the benefits of an internal capital market. Panel B paints a different picture. Firms affiliated with large FBGs, on average, see their valuation decrease by 16.9 ppt as compared to their non-FBG counterparts. This result indicates that large FBGs may have considerable hierarchy transaction costs, which melt away the benefits of their internal capital markets.

Collectively, the results in this subsection suggest that despite more access to debt financing during the COVID crisis, large FBGs invest inefficiently and spend their cash maintaining dividends which act as compensation for the controlling families. In contrast, small FBGs utilize their internal capital markets and invest efficiently, thus seeing their valuation significantly increase.

Conclusion

Developing economies like Thailand are plagued with significant market frictions which stem from underdeveloped financial markets and dysfunctional legal systems. A group of firms ultimately controlled by a single business family or tycoon can miti-

gate such problems. Particularly, firms under the family's control can be instructed to transact with one another with lower costs, effectively creating an internal capital market. However, as the business group grows large, it can become inefficient due to its high hierarchy transaction costs and thus might exist to preserve control of the founding family.

This paper provides empirical evidence consistent with the argument above. I find that, in the presence of heightened market frictions due to the COVID crisis, firms affiliated with small FBGs significantly see their stocks outperform those of their similar non-FBG peers, reflecting the benefits of internal capital markets. Moreover, they decrease their dividends and invest efficiently during the crisis. In contrast, firms affiliated with large FBGs, underperform their non-FBG counterparts, likely because of greater hierarchy transaction costs that outweigh the benefits of their internal capital markets. Additionally, they maintain their dividend payment and invest inefficiently.

Overall, the findings in this paper suggest that internal capital markets are necessary for the growth of Thailand's economy. They also raise the possibility that some business groups in Thailand might be too large and thus are inefficient at allocating resources.

Acknowledgments

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Table 2: Financing and Spending of FBGs during the COVID Crisis

	FBG Firms			Non-FBG Matches			Difference: FBG minus Non-FBG	
	N	Mean	p-Value	N	Mean	p-Value	Mean	p-Value
Panel A: Firms affiliated with small FBGs								
$\Delta \text{LtDebt}/\text{TotalAst}$	125	0.024***	0.004	125	0.006	0.464	0.018*	0.088
$\Delta \text{StDebt}/\text{TotalAst}$	122	-0.004	0.682	122	0.002	0.818	-0.006	0.635
$\Delta \log(1 + \text{Dividend})$	150	-0.974***	0.006	150	-1.088***	0.002	0.114	0.812
$\Delta \text{TobinsQ}$	150	0.076***	0.003	150	-0.028	0.433	0.104**	0.019
Panel B: Firms affiliated with large FBGs								
$\Delta \text{LtDebt}/\text{TotalAst}$	116	0.035***	0.000	116	0.015**	0.035	0.020**	0.039
$\Delta \text{StDebt}/\text{TotalAst}$	109	0.019**	0.027	109	-0.003	0.606	0.022**	0.034
$\Delta \log(1 + \text{Dividend})$	135	0.437	0.175	135	-1.245***	0.000	1.682***	0.000
$\Delta \text{TobinsQ}$	134	-0.159***	0.000	134	0.010	0.795	-0.169***	0.001

Note: This table compares changes in debt levels, dividend, and Tobin's q of FBG firms with their similar non-FBG counterparts. Change is calculated as the value at the end of 2020 (the COVID crisis year) minus that at the end of 2019. Number of observations varies due to data availability of each variable. p-Values are probability levels of rejecting the null hypothesis of zero means. ***, **and* indicate statistical significance at 1%, 5%, and 10% levels, respectively.

Source: Author's calculation



Notes

- 1 An increase caused by nature, not by other factors that may be able to explain the results.
- 2 The results remain robust when I split the sample into three terciles instead of four quartiles.
- 3 Percentage point is a difference between two percentages.

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