An Empirical Study of Chinese Large Listed Family Firms: Financial Performance and R&D Investment Strategy

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Abstract

The aim of this thesis was to critically examine 'large' listed family firms (FFs) in China in terms of the role of family involvement (i.e., ownership and control) and the moderating effect of firm size within large listed FFs' short-term financial performance and R&D investment strategy for the longer term. The focus of this study was on a dataset of 654 Chinese listed FFs (including 490 large-sized FFs) from 2021. The results suggest that family ownership played a significant and positive role in large listed FFs' financial performance; but within the sample, firm size had no moderating effect on the relationship. Family CEO presence was also significantly, but negatively, associated with financial performance. In terms of long-term strategic performance, family ownership had a significant but negative impact on risky R&D investment; as firm size increased, such a significant impact was not found. Furthermore, family CEO presence was insignificantly and positively associated with R&D investment. However, as firm size increased, the impact of family CEO presence on R&D investment became significant and positive.

These findings highlight the complexity of large FFs across different sizes and the need to consider multiple factors when weighing financial performance and R&D investment. Theoretically, this study contributes to agency theory, the stewardship perspective, the socioemotional wealth (SEW) theory and the institution-based view (IBV) in exploring the impact of family shareholdings and family CEO presence on large listed FFs' financial performance and R&D investment. Additionally, these findings could potentially contribute to practitioner decisions, especially for large listed FFs. Overall, this study contributes to a comprehension of the dynamics within FFs and provides insights into potential areas for future research.

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Author's Declaration

"I declare that, except where explicit reference is made to the contribution of others, that this dissertation is the result of my own work and has not been submitted for any other degree at the University of Glasgow or any other institution."

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Signature:

List of Abbreviations

CFFD	Chinese Family Firm Database
CNRDS	Chinese Research Data Services
FF	Family Firms
GDP	Gross domestic product
GLS	Generalized Least Squares
IBV	Institution-based View
R&D	Research and Development
ROA	Return on Assets
ROE	Return on Equity
SMEs	Small-and Medium-Sized Enterprises
SEW	Socioemotional Wealth
SOEs	State-Owned Enterprises
OECD	Organisation for Economic Co-operation and Development
VIF	Variance Inflation Factor

Chapter 1 Introduction

The focus of this chapter is on the introduction of the research focus (namely, large listed family firms (FFs) in China) and the research context in terms of institutions, culture and policy. The reasons for the differences between Chinese FFs compared with FFs from Western countries are also introduced, as well as the major research motivation for why Chinese large listed FFs were chosen as the a topic of interest for this study.

1.1 Introduction

Family is one of the most resonant words in any language, and family-owned businesses generate a majority of the world's wealth (Birdthistle and Hales, 2023). According to the findings of the 2023 Ernst & Young (EY) and University of St.Gallen Family Business Index, the growth rate of the largest family firms (FFs) surpasses that of the global economy itself; the largest 500 FFs produced 8.02 trillion dollars in revenue with a 10% increase from 2021 (Robertsson, 2023). In 2021, 64% of GDP in the USA was attributed to family businesses (Van Der Vliet, 2021). According to European Family Business (2023), FFs comprise 65% to 80% of all EU companies, accounting for 40% to 50% of all average employment in the European Union. In the UK, FFs have become the fundamental pillar of the nation's economy (Oxford Economics, 2023). In China, FFs have also significantly facilitated economic development and the Chinese population's overall welfare improvement (e.g., Li et al., 2015; Liang et al., 2023; PwC, 2021; Wang, Xu and He, 2022). Thus, the prevalence of family-owned businesses on a worldwide scale has been widely acknowledged and accepted (Bennedsen, Lu and Mehrotra, 2022; Bornhausen, 2023; Chen et al., 2021; Fang et al., 2022; Floren, 1998; La Porta et al., 1999; Miroshnychenko et al., 2021).

Family enterprises are the dominant entities in many nations; nonetheless, their distinctive characteristics, organisational structure, and managerial approaches might result in distinct behavioural patterns when compared to non-FFs (Azizi et al., 2022; Chua, Chrisman and Sharma, 1999; Fang et al., 2022; Miroshnychenko et al., 2021; Siebels and Knyphausen-Aufseb, 2012). To be more specific, Miroshnychenko et al. (2021) examined a substantial

dataset, including 5,265 listed firms from 43 countries from 2007 to 2016, and they found that FFs exhibited superior growth rates compared to their non-FFs. Existing studies have also shown that family involvement positively determined Chinese FFs' superior performance to non-FFs (e.g., Amit et al., 2015; Goel, He and Karri, 2011). The economic landscape in China is intricately and substantially linked to the significant role that family plays in people's lives (Liden, 2012).

In recent years, China has been in second place only to the United States regarding the economy as measured by GDP (Eng et al., Wen and Wolla, 2017). For example, in 2022, its total retail sales reached US$7,383.7 billion, which makes it the largest retail market. In terms of the labour market, in 2020, its labour force reached nearly 880 million people (China Briefing, 2023). In terms of manufacturing power, in 2019, China contributed to 28.4% of the global manufacturing output, with America (16.6%), Japan (7.5%), Germany (5.8%), and the UK (1.8%) (Safeguard Global, 2023). The above figures suggest that China as the world's largest domestic market, provides the advantageous precondition for a growing number of private businesses. In 2020, the total number of publicly listed FFs in 17[1] European countries reached 1,201 (Gregoric, Rapp and Requejo, 2022). In comparison, in the Chinese Family Firm Database (CFFD) for 2021, 1,594 listed FFs were identified. Thus, there is a much greater number of listed FFs in China, and such a phenomenon is worthy of further investigation, and this provides a motive for an investigation into the performance of large FFs in the particular context of China.

Chinese private firms, particularly unlisted small and medium-sized enterprises (SMEs), usually exhibit a comparatively uncomplicated and consolidated ownership framework (Chen et al., 2021). As Chinese firms experience expansion, however, they have the potential to attract external shareholders. Thus, in some instances within larger firms, it is customary for external individuals to be granted membership on the board of directors, which are mainly composed of family members (Chen et al., 2021). The presence of cross-generational

[1] The 17 EU countries refer to Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom (Gregoric, Rapp and Requejo, 2022).

succession may also result in the distribution of ownership shares among various family members spanning several generations, posing a potential challenge to the power held by core family owners.

From another view, it is widely acknowledged that FFs tend to have a long-term perspective in their management strategy (Bertrand and Schoar, 2006; Madison et al., 2016), such as R&D investment, however, the impact of the risk aversion of undiversified families on strategy may have a constraining effect on FF innovation and growth (Le Breton-Miller and Miller, 2009). Morck and Yeung (2003) investigated investment in R&D to show how large FFs' agency problems could get worse. The extant literature suggests that large listed FFs adhere to the practises observed in large listed non-FFs (Chang et al., 2022). As a result, this leads to a worthwhile discussion and analysis to address the research questions:

How do Chinese large listed FFs survive and grow, and does the degree of family commitment make a difference?

1.2 Research Context

The business environment can significantly determine a firm's value creation and further development. China, as the largest emerging economy globally, provides an opportunity to examine the interconnected relationship between business climate and entrepreneurship (Long, Xu, and Yang, 2022). China's distinctive cultural, legal, social, and economic institutions shape a firm's behaviour and outcomes (Du, 2015). For instance, Zhang et al. (2022) found that their executives' political connections influenced Chinese family-controlled firms'value, and FFs in China have been significantly influenced by its underlying Confucian culture, extensive marketization, and ongoing institutional oversight by a transitional Chinese government (Chen et al., 2021). There is also a significant disparity in the level of law enforcement and related level of investor protection in China's different regions, although the legal system in China is united (Huang, Li and Zhang, 2019). Above all, formal institutions, culture, and policy are the most relevant factors concerning Chinese firms' differing behaviours compared to firms in developed nations. In this chapter therefore, the focus on China as a research context will be explained in terms of institutions, policy,

and culture.

1.2.1 Institutions

In emerging economies, institutional voids are relatively common, including imperfections in the regulation of finance, product and labour markets (Hoskisson et al., 2000; Khanna and Yafeh, 2007). As Allen et al. (2005:99) commented about China, "*Its legal and financial systems as well as institutions are all underdeveloped, but its economy has been growing at a very fast rate."* Despite the weaker institutional environment, there is empirical proof that FFs in China perform better than state-owned enterprises (SOEs) (e.g., Ding, Zhang and Zhang, 2008). Through the use of meta-analysis techniques, existing literature has revealed the significance of institutions while exploring the differences in the effects of family ownership on listed firms in different emerging countries (e.g., Wang and Shailer, 2017). In such contexts, large FFs in emerging economies may also form business groups or conglomerates to mitigate institutional voids.

Moreover, FFs in China are likely constrained by their access to financial loans, and tend to choose the stock market for publicly raising finance (Huang, Li, and Zhang, 2019). In terms of institutional differences, Eng et al. (2019) argued that Chinese FFs exhibit a greater degree of ownership concentration, which might potentially incentivize them to prioritise the interests of the family above those of other shareholders. In contrast to China, the United States exhibits distinct regulatory frameworks and robust legal enforcement mechanisms. FFs in the United States often show lower levels of ownership concentration compared to non-FFs, which renders them more susceptible to heightened levels of shareholder and stakeholder activism (Eng et al., 2019).

To address an increasingly changing external environment, firms may also be required to better reconfigure and reintegrate their resources (Eisenhardt and Martin, 2000; Teece, Pisano and Shuen, 1997). Glyptis et al. (2021) emphasise how FFs may foster the dynamic capabilities to deal with changing external environments and may assist FFs' owners in better-managing cross-generational transitions. Thus, some scholars argue that FFs may be

advantageous as their social capital can be used to mitigate institutional voids (e.g., Gedajlovic and Carney, 2010; Miller et al., 2009), while others contend that FFs are reluctant to change, which may make them unable to compete in emerging economies (e.g., Bertrand, Mehta, and Mullainathan, 2002). This may be because family ties may provide the best option for developing firm businesses (Bertrand and Schoar, 2006). It is also to be noted that in countries with institutional voids, existing studies show that having networking resources with government and politicians can provide advantageous access to information and then decrease related transaction costs (e.g., Ge, Carney, and Kellermanns, 2019; Hillman et al., 2004). Similarly, family ties also have the benefit of filling institutional voids (Ge et al., 2019; Luo and Chung, 2013; Miller et al., 2009). The family's social resources and its attitudes towards instititutions may therefore play a determining effect on the behaviours and performance of FFs in emerging economies.

The emergence of the Chinese stock market occurred throughout the 1990's with the initial objective of addressing the challenges that State-Owned Enterprises (SOEs) faced, with the market regarded as a platform for the purpose of privatization (Carpenter and Whitelaw, 2017). However, the government completely controlled the right to select firms to be publicly traded, and thus, during the first phase of the capital market's evolution, the probability of FFs being considered for listing was very low. In 2004 and 2009, the Small and Medium Enterprise (SME) and ChiNext boards were introduced on the Shenzhen Stock Exchange (SZSE) so as to provide smaller and entrepreneurial enterprises for raising financial capital (Carpenter and Whitelaw, 2017). In September 2021, the Beijing Stock Exchange was established (see Appendix Table A-1 for detailed listing requirements for Chinese enterprises in Mainland China). Specifically, Cheng (2014) summarized the main characteristics of capital markets in China, including inconsistent market development levels, inadequate laws of investor protection, significant intervention from the government, unequal resource distribution between SOEs and privately owned firms, and so forth, all of which have helped to determine Chinese FFs' establishment and development.

Despite the authorization for FFs to publicly offer their existing shares in the capital market, they still needed to obtain governmental consent in order to obtain the privileges associated

with issuing new shares for specific firms (Xu et al., 2013). In spite of prevalent political pressures for FFs in China, there are some opportunities that firms can utilize to reach strategic purposes, such as the new political connections (He and Liu, 2022). Establishing a positive rapport with the government for Chinese FFs may, therefore, be crucial when it comes to stock issuing. Xu et al. (2013) found that the financing challenges faced by Chinese FFs are evident, and that these firms tend to under-invest owing to issues related to asymmetric knowledge rather than over-investing as a consequence of free cash flow concerns.

Additionally, according to a nationwide survey of Chinese private firms between 1991 and 2012, Long et al. (2022) showed that private firms in China with political connections faced different business environments when compared with others without them. Chinese FFs with political connections may, therefore, effectively address the issue of access to loans and under-investment (Xu et al., 2013). The impact of political ties on value encompasses a range of manifestations, such as the provision of preferential treatment by banks under government control, tax concessions, and regulatory advantages (Claessens, Feijen, and Laeven, 2008). FFs in China that had chairpersons or CEOs who were politically engaged were found to be associated with higher corporate valuations compared to FFs without such political involvement (Tang, Ye, and Zhou, 2013).

The development of institutions may, however, set up an environment that increases large FFs' willingness to spend on R&D (Landau, Karna, Richter, and Uhlenbruck, 2016). Similarly, in countries with less developed legal institutions, the largest shareholder may play a more significant strategic role in enhancing firm value, which implies that family ownership can be a good thing (Heugens et al., 2009). In countries with more developed legal and regulatory institutions, the influence of family ownership and control may be less important for preserving firm value (Peng and Jiang, 2010). Chinese FFs may, however, still exhibit a conservative approach in their strategic choices. Liang et al. (2023) found that the presence of market institutions had a detrimental effect on the capacity of Chinese-listed FFs to obtain external resources, and this reinforced the favourable correlation between family control and a conservative strategic orientation. Thus, it is important to question whether

FFs are truly conservative or risk-takers in emerging economies.

1.2.2 Culture

In cultures that promote close familial bonds, it can be challenging for a company founder to separate their loyalty to their family from loyalty to the firm, even when this may result in financial burdens for the business (Bertrand and Schoar, 2006). Bertrand and Schoar (2006) further argued that cultural beliefs may influence a strong inclination to establish a family heritage and to cultivate a determination to secure survival and family authority regardless of the consequences.

Most existing studies have shown that the cultural environment in China is significantly different compared with developed countries (Chen, 2019; Chen, Xiao, and Zhao, 2021; Lee, 1953; Li, Chen, Chua, et al., 2015; Song and Ji, 2020; Xu, Wang, and Han, 2023). The collectivistic culture in China differs from the individualism inherent in Western societies (Qian, Cao, and Takeuchi, 2013). In terms of traditional cultural values, Chinese people, deeply influenced by their traditional cultural heritage, consistently place great importance on the concept of family, and therefore it is not surprising to see the prevalence of FFs within the Chinese business landscape (Xu, Wang, and Han, 2023).

In China, the Confucian cultural tradition places significant emphasis on the importance of familial bonds in maintaining collective cohesion and societal harmony (Gupta and Levenburg, 2010) and, therefore, family-oriented considerations in China may be accorded greater weight in influencing business decisions relative to Western economies (Chen, Xiao, and Zhao, 2021). Specifically, Chen, Xiao, and Zhao (2021) empirically found that the founders of Chinese firms who largely support Confucianism are more likely to select family members, or nonfamily members but with closely connected '*guanxi'* (informal family connections), as the following successor. In contrast to the American market, who operate mainly through formal legal agreements, the business environment in China for FFs is, however, predominantly determined by *guanxi*, or individuals with significant but informal personal connections to the family (Liu, Luo and Tian, 2015). These differences in national

culture also assist in understanding the unique characteristics of Chinese family businesses. For example, the founders of Chinese FFs who experienced the impact of Confucianism tended to choose their successors from family or non-family members but within a guanxi-connected network (Chen, Xiao and Zhao, 2021).

At a national level, Hofstede's (2023) scores of national culture, demonstrated that there is a high degree of interdependence and a low degree of independence in Chinese culture, and thus Chinese people are used to prioritizing collectivism over individualism. Notably, Confucianism also promotes collectivism which significantly differs from the high individualism in many Western countries (Hofstede, 1991). Based on interviews, Ma (2020) found that family owners in most Chinese FFs tended to rely more on family and friends to seek financial assistance during the pandemic. Likewise, based on 1,103 Chinese privately-owned listed firms, Fan et al. (2022) reported that founders from other strongly collectivist cultures have a greater likelihood of appointing family members as managers and retaining more ownership through family members. Another survey of Chinese FFs also suggested that Hofstede's national cultural dimensions (e.g., collectivism, masculinity and long-term orientation) significantly encourage start-up entrepreneurship in China (He, Ma, and Gan, 2022). Thus, it may be seen that China is culturally inclined towards uniformity, harmony, and adherence to established norms and protocols (Mourdoukoutas, 2004). Within most SMEs owned by Chinese families, ownership and control are therefore intertwined, and both are firmly established among family members through familial ties and matrimonial bonds (Cao et al., 2015).

1.2.3 Policy

In China, the ties between development and growth of family businesses and the continuous refinement of relevant policies are very complicated. The evolution of these FFs mirrors the broader shifts in regulatory frameworks, economic priorities, and societal dynamics. Despite the fast development of market institutions in China, the government has maintained its critical role in establishing regulations and exercising control over resource allocations (Long, Xu, and Yang, 2022).

As China transitions towards a more market-oriented economy, the role of policies becomes paramount in shaping the landscape for family-owned enterprises (Garnaut, Song, and Fang, 2018). Historically, the emergence of the private sector coincided with the reform and opening-up policies initiated in the late 1970s (Tsai, 2007). These policies marked a departure from centrally planned economic models towards market-oriented approaches, providing fertile ground for entrepreneurial endeavours, namely the emergence of private businesses. The journey of Chinese family businesses therefore evolves within a dynamic policy environment characterized by ongoing reforms and adjustments.

As an example of these complex political influences, the prior one-child policy in China resulted in a decrease in the number of direct successors within large family business groups (Bennedsen, Lu and Mehrotra, 2022). Cao et al. (2015) found that Chinese FFs' reinvestment rate and R&D were negatively affected by the family having fewer children owing to the one-child policy in China. The presence of a sole heir was associated with a drop in the likelihood of perpetuating family management by more than 3%, as well as a reduction of around 14% in the likelihood of adult offspring engaging in employment inside Chinese FFs (Cao et al., 2015). The one-child policy was eventually abolished in 2015 (Scharping, 2019). To thrive in this dynamic policy environment, therefore, FFs have to adopt a strategic approach to policy engagement and risk management. Then, proactive engagement with policymakers, industry associations, and regulatory bodies can help achieve favourable policy outcomes and address potential market barriers.

Another identified issue is that the impact of policies on family business development in China is not uniform across provincial regions. Regional differences in policy execution and economic possibilities have arisen as a result of the China's large geographical breadth and unequal development patterns. The concentration of economic activities and commercial prospects in coastal provinces (e.g., Shenzhen Special Economic Zone) can be attributed to the historical advantage they have received in terms of legislative backing, infrastructure investment, and market access. Inland provinces and rural areas, however, suffer more significant obstacles in relation to infrastructure, capital accessibility, and regulatory

assistance. Regional inequalities are therefore worsened, and the growth potential of family businesses in these locations is restricted, due to disparities in policy execution and resource distribution. Consequently, the growth paths of family businesses differ greatly based on their geographic position and proximity to economic centres.

The growth prospects of FFs are also greatly influenced by the Chinese government's policy orientation towards critical strategic sectors and developing industries (Young, 1989). For instance, by implementing specific industrial policies, technology initiatives, and investment incentives, the government aims to promote innovation, competitiveness, and sustainable growth in key sectors such as advanced manufacturing, biotechnology, and the digital economy (Zhang, 2023). Policy assistance in strategic industries presents FFs with prospects for growth, and market dominance, nevertheless, the adoption of policy direction poses certain difficulties and limitations for family-owned enterprises, especially those that operate within heavily regulated sectors. The preferential treatment, access to subsidised resources and government support that state-owned enterprises receive may lead to an imbalanced business environment for private businesses, especially FFs.

The development and success of Chinese family enterprises are therefore intertwined with the country's policy landscape, regional disparities, and economic orientation. The evolution of relevant policies governing business ownership, market access, and industry regulation is shaping the opportunities and challenges faced by family businesses across different sectors and regions. Overall, the growth and development of family businesses in China reflects a delicate balance between policy dynamics, market forces, and internal capacities.

1.3 Limits to applying Western theories in the Chinese context

The notion of the FF is substantiated by the significance and influence of human capital. At the same time, the ‘familiness’ of the business is used in scholarly works to denote the manifestation of this endorsement (O’Shea and Alonso, 2022). This construct of ‘familiness’ can be conceptualized as the FF’s collective capabilities and resources, which assist in determining the performance of an FF (Habbershon et al., 2003). FFs exhibit variations in

their resource endowments, and the heterogeneity and complementarity of these resources influence the performance differences among them. Hence, the different institutional environments may foster variations in FFs' resource endowments. For example, compared with American firms, Cheng (2014) found that Chinese FFs' ownership and control are largely concentrated in the founders and family members due to the firms' smaller size and younger age.

The dimension of familiness discussed in conjunction with involvement also pertains to aspects of ownership and control by family members (Zellwegger et al., 2010), and thus, family ownership and control have become the primary attributes of FFs (Amit et al., 2015; Chu, 2011; Islam et al., 2022; Peng and Jiang, 2010; Jiang and Peng, 2011). There may therefore be problems in applying Western Agency theories (Fama and Jensen, 1983; Jensen and Meckling, 1976) when studying Chinese FFs. For instance, while developing a theoretical framework for studying family businesses in China, Chen et al. (2021) considered family sociology as the main theoretical lens and stressed the importance of Confucian norms and values in determining Chinese people's behaviours in businesses, not individualism. A typical Western theory (i.e., Agency theory) was, however, used to build the research hypotheses in this present study, but with the empirical findings to be discussed in the context of alternatives to Agency theory.

1.4 The Justification for Investigating Chinese Large Family Firms

1.4.1 Family Firms in China

The exceptional success of FFs is particularly apparent in some emerging economies, where they are often regarded as vital drivers of economic growth (Whyte, 1996). China offers a favourable and fertile research opportunity due to its unique combination of significant variations in institutional development throughout its provinces, and a consistent adherence to cultural norms, legal frameworks, and regulatory practices (e.g., Amit et al., 2015; Banalieva et al., 2015; Li et al., 2015). Existing evidence has indicated that FFs in China are expanding at a quicker rate than their counterparts throughout the rest of Asia (Bennedsen et

al., 2022). China, as the largest emerging economy on a global scale, has seen a substantial and expeditious expansion in FFs over the course of the last three decades (Eng et al., 2021). Chinese FFs have significantly contributed to preserving the Chinese populace's welfare and promoting sustained economic expansion (e.g., Ding, Zhang and Zhang, 2008; Liang et al., 2023). In China, immediately after the "Open-up and Reform" of 1978, multiple family businesses were established by first-generation entrepreneurs (Chen et al., 2021; Huang, 2008; Liu, Qian and Au, 2023; Wang et al., 2014; Xu et al., 2013). Many Chinese FFs are therefore potentially in the nascent phases of their life cycle, exhibiting a comparatively youthful existence and energy in contrast to FFs in Western developed nations (Eng et al., 2021).

Despite the prevailing public health issue, namely the COVID-19 pandemic, it is noteworthy that a higher proportion of FFs in Mainland China, about 73%, as opposed to 65% globally, anticipated seeing economic growth in the upcoming year of 2021; and a majority (51%) of FFs in mainland China also expressed their intention to increase expenditures on R&D, in contrast to the comparatively lower figure of 28% among FFs worldwide (PwC[2], 2021). The Global Family Business Survey of 2021 also revealed that, before the epidemic, FFs in Mainland China enjoyed a superior performance in terms of sales turnover compared to the world average in 2019, and 65% of mainland FFs had an increase in their revenues, surpassing the worldwide average of 55% (PwC, 2021). It is therefore, worthwhile to explore these facilitators for performance and strategy in Chinese FFs.

In China's late imperial times, the traditional patterns of family life in China exhibited significant qualitative distinctions compared to those seen in Western societies, and the Chinese family were then seen as a hindrance to economic development, however, the Chinese family has also been regarded as "*a veritable engine of growth*" (Whyte, 1996:2). Whyte further suggested that both the "obstacle" and "engine" perspectives are too simplistic. Successful family businesses may also be prevalent in China due to China's collectivistic culture (Ding, Zhang and Zhang, 2008; Wong, 1985), which contrasts with the individualistic nature of Western cultures (Qian, Cao and Takeuchi, 2013). It is therefore relevant to explore

[2] Covering the perspectives of 129 executives in Mainland China and Hong Kong.

the family involvement effects within those large-sized FFs that have become listed and have achieved significant financial achievements, and which may contribute to a '*theory of Chinese management*' (Barney and Zhang, 2009).

A number of existing research studies have investigated the role of family involvement in Chinese FFs' performance (e.g., Amit et al., 2015; Cai, Luo, and Wan, 2012; Goel, He, and Karri, 2011; Kim and Gao, 2013). The concensus is that effective internal communication is facilitated within familial relationships since mutual trust among family members fosters a conducive environment for reaching an agreement on topics of significance. As a result the expense associated with management is also reduced. There are many rationales for a focus on family involvement in ownership and control. Chen et al. (2021) summarized three main reasons: first, the primary motivation of most pioneering entrepreneurs in China has been the desire to lift themselves up from impoverished conditions and to demonstrate a profound feeling of familial obligation. Second, similar to FFs in Western economies, Chinese firms often rely on blood ties, kinship, and associated social networks among family members as primary resources throughout the establishment phase. Third, in contrast to organisations that are not family-owned, FFs possess the capability to promptly adapt to changing market situations.

Chen et al. (2021) suggest that currently, Chinese FF owners are directing their attention towards two key areas: business growth concerns, including the expansion and performance of their enterprises within a fiercely competitive landscape, and family succession matters, which concerns the identification of the next-generation leaders who will assume control of the organisation. Therefore, in response to the above inquiries, this study is designed to critically examine the impacts of family involvement on large Chinese FFs' performance and strategy, specifically investigating the dynamics of such impacts as the firm's size expands further.

1.4.2 Chinese Large Family Firms

Many Chinese private businesses begin small and grow gradually into large ones. Their

efforts have significantly facilitated the seamless advancement of economic reform by providing consistent, steady, and robust development in the domestic economy. (Chen et al., 2021). Chen et al. (2021) further summarized that China's private enterprises can be categorised into three main groups: the first group consists of enterprises that were permitted to commence operations following the reforms implemented in 1978; the second group comprises reformed enterprises that were previously owned by the state, collectives, or were township, communal, or brigade enterprises, but have since been transformed into privately-owned firms; the third group encompasses foreign private enterprises that have been established and grown through foreign capital and partnerships with Chinese entities. Over time, they have all had to confront obstacles that are comparable to those encountered by enterprises in Western countries, such as business survival, succession concerns (particularly for family firms), innovation, and so forth. To date, some sizeable Chinese family businesses have been ranked in the 2023 Fortune Global 500, including for example, BYD (212th), Midea (278th), Shagang (348th), New Hope (363th).

Based on a matched-sample meta-analysis of 1,028 U.S. and Chinese studies, Liu et al. (2022) summarised that indigenous perspectives can better assist in explaining the management practices of Chinese firms than Western management theories. A phenomenon that cannot be explained by existing theories can be seen as an *anomaly* which requires the generation of new knowledge or theories based on further empirical investigations (Mithani and Kocoglu, 2023; Saetre and Van de Ven, 2021). In this light, drawn from Saetre and Van de Ven (2021), the phenomenon of emerging large FFs in China in large numbers can be seen as an anomaly, which requires investigation. Thus, given the aforementioned prevalence of large FFs in China, increased complexity due to growing size (e.g., Li and Zhu, 2015), unique Chinese traditional cultural and Confucian values (e.g., Chen, Xiao, and Zhao, 2021), and rapid changes and market volatility in the Chinese business environment (e.g., Long, Xu, and Yang, 2022), these Chinese large listed FFs can be seen as a unique phenomenon. As a consequence, a second research question to answered is therefore:

Can FF performance and strategy be explained by the degree of family commitment to ownership and control?

1.5 Research Motivations

There are four main justifications for this study, and a detailed account of the author's journey, the origins of the study, significant experiences, and methodological adjustments made during the research project are given in Appendix Section-2:

In the first place, the anomaly of a larger number of listed FFs in China requires in-depth further examination. Based on a unique database of all listed FFs in China (i.e., *the Chinese Family Firm Research Database* available at the Chinese Research Data Services Platform 'CNRDS'), 1,594 Chinese listed FFs were identified compared with only 1,201 listed FFs in 17 EU countries. In particular, Saetre and Van de Ven (2021) argued that starting the observation and confirmation of an anomaly and seeking potential causes of the anomaly, followed by testing, can also be seen as a type of generative reasoning. As a consequence, the phenomenon of the high performance and successful strategies of large FFs' in the specific context of China merits further exploration.

Second, this study was driven by a specific gap identified: existing literature suggests that 'large' FFs refer to those publicly listed firms (e.g., Peng and Jiang, 2010; Peng et al., 2018), which, however, are probably not really large-sized. Family business research is still nascent, and there needed to be more consensus about the definition of an FF (Birdthistle and Hales, 2023). Worldwide variations in institutional and cultural settings imply that it would be erroneous to believe that a universally applicable definition of an FF can be used across different nations (Carney, 2005). In this research *all* large Chinese FFs were accepted for analysis according to the official classification criteria of the National Bureau of Statistics of China, i.e., the number of employees, turnover, and total assets in different industrial sectors. With such official criteria, this presents a more definitive approach than existing studies in the literature that classify large FFs solely by whether the FF is listed (e.g., Peng and Jiang, 2010) or by financial capital (Chang et al., 2022). There is also a Small and Medium Enterprise Board called the China Shenzhen Stock Exchange in China. In other words, not all listed firms in China can be regarded as large ones. Specifically, this dataset for this study comprised 490 *really* large listed Chinese FFs in 2021. This greater number of

large listed FFs can be seen as a unique opportunity, to examine how their performance and strategy can be explained by their degree of family commitment to ownership and control with a high degree of statistical power.

Third, this proposed study represents an opportunity for a further exploration of heterogeneity effects within all large FFs. A majority of scholarly investigations that explore the influence of family dynamics on company performance have undertaken a comparative analysis between FFs and non-FFs (e.g., Anderson and Reeb, 2003; Andres, 2008; Dyer, 2018; Martinez, Stohr and Quiroga, 2007). This study diverges from previous research on FFs by explicitly examining the internal differences across publicly listed FFs over time, without making comparisons with non-FFs. The primary research question concerned the influence of family ownership and control on performance within the context of large listed FFs. This study, therefore, focuses on two aspects of FF development, i.e. financial performance and R&D investment strategy. Another aim of this study is to examine the moderating effect of firm size on large FF financial performance and R&D investment strategy.

Fourth, this study provides an opportunity to apply Western theories, or perspectives, to large Chinese FFs. This includes focussing attention on the distinctiveness of local contexts and how they contribute to developing indigenous theory rather than applying existing theories (Bruton, Zahra, et al., 2022). Likewise, when analyzing a related event in the Chinese environment, it is essential to contextualize the application of a theory that was developed in the Western setting (Tsui, 2006). A potential unique contribution of this research is the application of a Western theory (i.e., Agency) to study the anomaly of the increasingly large number of large FFs in China. Since the 1990's, China has experienced significant transformationfrom centrally planned economies to market-based systems (Zhou et al., 2013). Li et al. (2015) suggested that researchers specializing in Chinese family business would not only enhance the existing body of knowledge on governance and management inside Chinese FFs but also contribute to developing a theory that can be applied internationally to FFs.

1.6 Research Aim, Research Objectives and Research Questions

To date, scholarly investigations have mostly focused on all publicly-listed FFs in China (e.g., Amit et al., 2015; Cai, Luo and Wan, 2012; Goel, He, and Karri, 2011; Jiang and Peng, 2011; Islam et al., 2022; Peng et al., 2018). As discussed above, however, these listed FFs are simply not all large. For the first time, in the present study the official Chinese criteria for firm size is applied that integrates the characteristics of each industry, and a large sample of large listed FFs was selected to explore the effects of heterogeneity among large listed FFs, with the intention of contributing to theories of corporate governance in large listed FFs, theories which have emphasized the unsuitability of family commitment as firm size, and thus examine complexity growth. **The aim of this research is therefore to focus on large listed FFs, investigating the role of family involvement (i.e., ownership and control) on financial performance and R&D strategy and the moderating effect of firm size**.

Building on the research aim, there is a set of research objectives. Saunders, Lewis and Thornhill (2009:34) suggested that "*research objectives are likely to lead to greater specificity than research or investigative questions*". Additionally, personal objectives can be also included in the list of research objectives (Maylor and Blackmon, 2005). Accordingly, to achieve the research aim above, there are **five specific research objectives** in this study:

1. To comprehensively and critically review related literature about the role of family involvement (i.e., ownership and control) in FFs' financial performance and R&D investment strategy in order to identify and formulate research gaps and questions and build research hypotheses.

2. To collect target research samples, i.e., large listed FFs, and then collect all relevant data and information to measure each key variable.

3. To run model estimations, in order to investigate the impacts of family involvement (i.e., family ownership and control) on Chinese large listed FFs' financial performance and the moderating effect of firm size on such impacts.

4. To run model estimations, examining the impacts of family involvement (i.e., family ownership and control) on Chinese large listed FFs' R&D investment strategy and the moderating effect of firm size on such impacts.

5. To critically discuss research findings by comparing them with the extant literature, in order to highlight the research contributions of this study, including theoretical and practical implications.

Overall, this study was designed to address four specific **research questions**:

1. To what extent to family ownership (e.g., family shareholdings) and control (e.g., family CEO presence) affect large FFs' short-term financial performance?

2. How does firm size moderate the impact of family ownership and control in large FFs' financial performance?

3. To what extent family ownership and control determine large FFs' R&D investment strategy for the longer term?

4. How does the firm size moderate the impact of family ownership and control in large FFs' R&D investment strategy?

1.6 The Structure of the Thesis

This thesis consists of seven chapters.

In Chapter One the is focus is on the introduction of the research project, large listed FFs, and the reasons for studying China as a particular research context, as well as the major research motivation for this research and the following main research agenda, including research questions, aims and objectives.

In Chapter Two a critical review of the relevant family business literature is provided andgaps in the current research clearly identified, as well as specific research questions that need to be investigated defined.

The aim of Chapter Three is to focus on large listed FFs in order to construct research hypotheses with respect to the impact of family ownership and control on large listed FFs in terms of financial performance and R&D investment strategy.

In Chapter Four, the research philosophy of this project is discussed, the specific research design is defined, and the data collection, processing, and analysis are proposed and justified.

In Chapter Five the results of all the descriptive analyses of the data and the regression model analyses are presented.

In Chapter Six the findings of this project are critically and systematically discusses in the context of the relevant theoretical perspective and literature, thereby distilling the research value and significance.

In Chapter Seven the key findings of this project are briefly summarized, followed by the main theoretical and practical contributions, and the unavoidable research limitations, and implications for future research.

Chapter 2 Literature Review

2.1 Introduction

Family firms (FFs) have become one important pillar of global economic development (De Massis et al., 2018; Eddleston et al., 2020), promoting social wealth creation, employment, and economic prosperity (Araya-Castillo et al., 2021). In spite of arguably underdeveloped financial and legal institutions, the private sector made a significant contribution to the economic growth of China (Allen, Qian, and Qian, 2005; Cui, Luo and Wan, 2012; Ding, Zhang and Zhang, 2008; Li et al., 2015). For most firms, continuing growth faces one unavoidable challenge: the growth prospects of each firm are limited by their existing resource endowments (Penrose, 1959; Thompson and Wright, 2005). For FFs, however, their growth could bring two main challenges related to business and family issues (Ingram et al., 2016), and their size may make a significant difference as well. To be specific, FFs may need to balance the business-oriented purpose of maintaining a financially sustainable future and, meanwhile, serve the family-oriented purpose of preserving a sustainable transfer for the next generation. For instance, FFs may need to manage contradictions between the expectation of protecting the family's traditions and control (Bird and Wennberg, 2014) and seeking the benefits of global expansion (Arregle et al., 2017). In short, a growth strategy could be a double-edged sword for FFs. however, large listed FFs need to consider not only the short-term financial performance to maintain good financial statements to satisfy shareholders but also to show potential investment clients the company's long-term sustainable development and competitiveness.

Over recent decades, a large body of literature has addressed factors determining FFs' performance, including the degree of family ownership (e.g., Poutziouris, Savva, and Hadjielias, 2015; Steier, Chrisman, and Chua, 2004), various types of conflicts between family members (e.g., Kellermanns and Eddleston, 2007), top management teams (Minichilli, Corbetta and MacMillan, 2010), family involvement in management control (Blanco-Mazagatos et al., 2016; Lee, 2019), and ethical focus (O'Boyle, Rutherford, and Pollack, 2010). Drawn from the 'upper echelons perspective', the demographic factors of

managers can influence the firms' outcomes (Hambrick and Mason, 1984). In particular, family involvement in top management teams can exert an influence on FFs' financial performance (Minichilli, Corbetta and MacMillan, 2010). Existing studies do, however, provide inconsistent findings about the impact of family involvement on FFs' performance (O'Boyle et al., 2012), which may be attributable to "*contradictory theoretical predictions, methodological inconsistencies, and the lack of attention to organizational factors that may moderate the relationship between FIM [family involvement in management] and performance*" (Kim and Gao, 2013:265). It may be reasonable to suggest therefore that family involvement in ownership and control may offer different advantages and disadvantages within various industries, sizes of firms and institutional environments. The question of whether family ownership and control in large firms positively or negatively affect firm performance has been frequently challenged but has yet to be answered (Peng et al., 2018). **As such, the aim of this chapter is to develop a comprehensive literature review of FF theories used for estimations of the effects of family involvement on performance and strategy, identifying a research gap for studying large FFs.**

The structure of this chapter is as follows. First a review of major underpinning theories and other relevant theories that have been employed to study FFs is undertaken, to better study large FFs' performance and strategy. A review of related literature on FFs is then undertaken to identify the main characteristics of FFs, in order to explore the challenges that both small- and medium-sized (S&M) FFs and large-sized FFs encounter while the firm size further expands. Related literature and studies are then reviewed to examine the role of family involvement in FFs to identify further research gaps and questions.

2.2 Literature Review

The purpose of this literature review is thus to review relevant definitions of FFs, to review underpinning theory and other relevant theories for studying FFs, to collect and structure the current body of knowledge on FFs, to assess the role of family involvement within FFs and to identify research gaps in questions related to large FFs' performance and strategy. The following sections review these general theories, including agency, stewardship, and the

socialemotional wealth (SEW) theories. Notably, agency theory will be adopted for building the theoretical framework for this thesis, as explained in the next chapter, Chapter 3. The other two theories are reviewed as critiques of agency theory and will be referred to in the discussion of the thesis findings. Next, the role of family involvement within large FFs is examined. The final purpose of this chapter is to identify potential research gaps in order to develop specific research questions, with the aim of generating academic contributions.

2.2.1 Large Family Firm Definitions

The topic of family business has been a consistent focus of scholarly investigation since the 1990s, as evidenced by the works of Lyman (1991), Daily and Dollinger (1992), Dunn (1996), Chrisman et al. (2008), Chua et al. (2009), and Steier et al. (2009). Nevertheless, a consensus has yet to be reached in the existing literature addressing the precise boundaries that define an FF. This lack of agreement can be attributed to the existence of numerous definitions proposed by various scholars (Chrisman et al., 1999). Despite the ongoing debate surrounding the precise definition of an FF, it is widely acknowledged that these enterprises hold significant economic significance and serve as a prominent representation of numerous major global economies (Wang et al., 2007). According to Wang et al. (2007), FFs are believed to comprise more than two-thirds of enterprises in the majority of economies, and also contribute around half of the economic activity and private employment, so making a significant contribution to the Gross Domestic Product (GDP).

While defining a family business, Chua, Chrisman and Sharma (1999) emphasized that it was important to ascertain its uniqueness, especially regarding its ownership pattern, management, governance and related succession issues. In order to discern the unique attributes that differentiate a family-owned business from a non-family enterprise, Mustakallio (2002) presented a set of distinct classification criteria. These criteria encompass (i) ownership structure; (ii) level of family involvement in managerial and strategic activities; (iii) processes related to generational transfer; (iv) the family's perspective on longevity and their intention to sustain the business as a family entity; (v) family-oriented goals; and (vi) the nature of the interaction between the family and the

business. There is a specific database called the Chinese Family Firm Database (CFFD) for studying Chinese FFs. Its identification as a family business necessitates the fulfilment of three specific requirements: (1) the actual controller is an individual who is either a immediate family member or a member of a family connected by blood or marriage; (2) the natural person or family member is the largest shareholder of the listed company, either directly or indirectly; and (3) at least two or more family members should hold shares or occupy positions in the listed company or its affiliated entities. This definition will be discussed later in the Methodology, Chapter 4.

2.2.2 Underpinning Theories

Underpinning theories are the basis upon which academic research is conducted. They provide structure, guidance, and a foundation for the systematic and rigorous understanding and advancement of knowledge. In terms of underpinning theories for studying FFs, there is no universally accepted theory, and scholars tend to use a wide range of related theories or concepts, such as agency theory (e.g., Dyer, 2018; Le Breton-Miller and Miller, 2009), stewardship theory (e.g., Chrisman et al., 2007; Chrisman, 2019; Kim and Gao, 2013; Le Breton-Miller and Miller, 2009), socioemotional wealth (SEW) (e.g., Block et al., 2013; Gomez-Mejia et al., 2007), bifurcation bias (e.g., Verbeke and Kano, 2012; Majocchi et al., 2018), resource-based view (e.g., Dyer, 2018), institution-based view (e.g., Peng et al., 2018), Confucianism (e.g., Chen, Xiao and Zhao, 2021), dynamic capabilities (e.g., Alonso, Kok and O'Shea, 2019; Glyptis et al., 2021), etc. Agency theory has, however, commonly been the theoretical base for studying the effect of family involvement (i.e., ownership and control) on firm performance (Block et al., 2011; Dyer, 2006; Miller et al., 2007; Poutziouris, Savva, and Hadjielias, 2015), although its assumptions may not apply universally.

2.2.2.1 Types of Agency Theory

Family businesses possess unique characteristics that distinguish them from non-family businesses. These include the involvement of family members in ownership and

management roles, maintaining a long-term orientation towards legacy preservation, and an emphasis on family values and traditions. Berle and Means (1932) discovered that ownership and controlling authority were divorced in contemporary corporations, and managers usually lacked any ownership, which resulted in conflicts of interest between shareholders and management. Subsequently, there are academic investigations into how governance in contemporary organisations could oversee the performance of managers, and Stigler and Friedland (1971) explained the issue as a division between ownership and control. Agency theory suggests that conflicts of interest arise when principals delegate decision-making authority to agents who may pursue their own self-interests rather than acting in the best interests of the principals. There is therefore an information asymmetry in the principal-agent relationship, and agents may act opportunistically. Agency theory therefore, highlights how crucial it is to monitor agent behaviour in order to reduce agency costs and ultimately increase organisational effectiveness. To be more specific, agency theory posits the following assumptions: (a) Owners and managers possess divergent objectives; (b) Managers may prioritise their own objectives, perhaps at the expense of owners; (c) Owners may encounter challenges in some aspects of the managers' conduct; and (d) Owners may exhibit limited rationality (Jensen and Meckling, 1976; Williamson, 1981).

Addressing this division between ownership and control, the two branches of agency theory, as classified by Eisenhardt (1989) are principal-agent theory and positivist agency theory. Although both principal–agent research and positivist research are grounded in the contractual relationship, principal–agent research tends to be more abstract and mathematical in nature, thus, principals are profit-oriented and risk-neutral, whereas agents are rent-seeking and risk-averse (Eisenhardt, 1989). In contrast, positivist agency theory posits two propositions that explain the origins of agency problems and the associated expenses: first, the initial proposition posits that in cases where the contract involves incentives, the agents might be inclined to act in the principal's best interest; the second suggestion posits that disciplinary action against the agents is possible if the principal possesses information regarding the agents' culpability (Eisenhardt, 1989).

As a further development, behavioural agency theory, as opposed to positivist agency theory,

offers three distinct perspectives (Wiseman and Gomez-Mejia, 1998; Pepper and Gore, 2015). First, behavioural agency theory places greater emphasis on the correlation between agency cost and performance. In contrast, positivist agency theory directs its attention towards the principal-agent relationship and agency cost as a consequence of this relationship. Second, the behavioural agency theory suggests that agents are boundedly rational and prioritise the distinction between internal and external benefits, however, the positivist agency theory contends that agents are more logical in nature and motivated by rewards. Third, it is worth noting that behavioural agency theory posits a direct correlation between the agent's motivation and performance, whereas positivist agency theory emphasises the principal's objectives and agency cost.

In short, agency theory provides a framework for understanding the relationships and conflicts of interest that arise between principals (e.g., shareholders) and agents (e.g., managers) in enterprises. In the context of FFs, agency theory provides insights into how the dynamics of agency relationships affect FFs' financial performance and strategic behaviours. To illustrate, non-family managers may prioritize their own career advancement or personal gains over the family business owner's long-term interests. When this happens, the lack of monitoring and agency costs associated with agency relationships can undermine the financial performance of FFs. Conversely, effective governance mechanisms can help align incentives and reduce agency costs, thereby enhancing financial performance. Additionally, family owners tend to seek to retain control over strategic decisions to prevent agency conflicts and protect their family interests. By contrast, however, non-family managers may actively support strategies that maximize short-term profits or personal interests, potentially at the expense of the founding family's long-term sustainability. Agency theory can thus shed light on FFs' strategic behaviours, and therefore, may offer valuable insights into studying family businesses by highlighting the dynamics of agency relationships and conflicts of interest. However, its applicability to the context of China has already been questioned, and Amit et al. (2015) found that family CEOs had a positive association with firm performance. In other words, the relevance of Western agency theory to Chinese firms is highly questionable and needs to be tested. At this stage of the analysis of FFs, rival theories (i.e. network theory, stewardship theory, SEW and the IBV) are incapable of generating testable

hypotheses, so the focus here remains on agency theory. These theories have been applied to Chinese FFs but not tested, see each sub-section, below.

2.2.2.2 Types of Agency Cost

La Porta et al. (1997) suggest that no universal agency model can sufficiently deal with the organizational governance issues of firms from all countries. The fundamental tenet of agency theory posits that self-interested conflicts between principals and agents or majority shareholders and minority shareholders give rise to the agency problem (Fama and Jensen, 1983; Jensen and Meckling, 1976).

The principal-agent (i.e., Type I) and principal-principal (i.e., Type II) are the two main types of agency problems (Purkayastha, Veliyath and George, 2022). For example, based on 499 publicly listed Indian family firms, Purkayastha et al. (2022) found that family's ownership control level significantly impacted the degree of Type I and Type II agency conflicts: Principal-principal agency problem as defined by Jensen and Meckling, (1976) as follows.

Type 1: Principal-Agent Problem

Ownership and management are typically kept separate in publicly traded companies; therefore, conflicts of interest may arise between shareholders and agents whose objectives diverge. The fundamental tenet of agency theory posits that conflicts of interest between principals and agents give rise to the agency problem (Fama and Jensen, 1983; Jensen and Meckling, 1976). This evaluation therefore, classifies the specific agency problem as a Type I agency problem, which is alternatively referred to as the principal-agent problem. The Type I agency problem arises due to the contractual relationship being divided. To illustrate, when agents are managers of the firm, e.g. CEOs, they may have selfish career objectives and different attitudes to risk. A manager who does not hold ownership in the firm is significantly less averse to entrepreneurial risk due to their considerably reduced financial risk (Tsai, Kuo and Hung, 2009).

In contrast, drawn from agency theory, when a lone owner-manager possesses a significant

ownership share, their financial resources tend to be less diversified, and they have a lower inclination towards pursuing new ventures (Jensen and Meckling, 1976). As such, family CEOs, with all their financial and human capital (e.g., job security and pensions) invested in the FF), may be less diversified than both family owners and non-family CEOs.

Type II: Principal-principal agency problem

The Type II agency problem is mainly involved with conflicts between different owners, i.e., majority and minority shareholders (Dharwadkar et al., 2000). There are some distinguishing features of principal-principal conflicts, including indicators of ineffective governance, concentrated ownership and control, inadequate institutional protection for minority shareholders (La Porta et al., 1997), decreased commitment to innovation input (Morck et al., 2005), and minority shareholders' expropriation (Faccio, Land and Young, 2001). Specifically, the expropriation of minority shareholders may be realized in three ways: by appointing individuals who lack necessary qualifications in important positions, but are family members or friends (Faccio et al., 2001); by engaging in the practice of buying supplies and materials at prices higher than the prevailing market rates (Khanna and Rivkin, 2001); by prioritizing familial or political objectives over the firm's financial performance (Backman, 1999).

One potential consequence is that controllers of the firm may inappropriately damage the interests of minority shareholders (Fama and Jensen, 1983). The shareholder with the most voting rights and controlling authority in a company is the largest shareholder, whereas minority shareholders each own only a tiny portion of the company's shares. Thus, majority shareholders may be able to supersede the interests of minority shareholders since the former possess the ability to enact their policies through their voting rights, with little recourse for minority shareholders to object.

On the contrary, however, controlling shareholders might exhibit a self-centred approach, prioritising their interests over those of lesser shareholders (Young et al., 2008). In general, significant conflict may arise when majority shareholders, who hold controlling interests, prioritise their gain over the concerns and welfare of other shareholders. For instance, Amin

and Liu (2020) found that shareholders with excessive control favour leverage financing for an optimal capital structure and value maximisation instead of expropriating minority shareholders.

Returning to Type 1 agency costs, when owners or principals delegate some authority to agents, agency relationships and increased costs arise (Jensen and Meckling, 1976). When the scale, scope and complexity of FFs increase, principals' delegation of authority may involve asymmetric information and behavioural discretion for agents seeking other non-compensatory forms of utility, e.g., by shirking (Jensen and Meckling, 1976). As a result, an agency problem arises when a self-interested manager with high-level information acts as an agent for the owner (Fama and Jensen, 1983), however, if the family insists on keeping its dual role of owning and managing the business, then agency problems could be reduced (Odom et al., 2019). The possible agency problems may therefore have a determining effect on FFs' financial performance and on their long-term investment decisions.

There is also a relative lack of developed laws and regulations concerning corporate governance in emerging economies, resulting in institutional voids in the governance environment (Mitton, 2002), inefficient information disclosure, limited securities trading, etc (Young et al., 2008), and insufficient institutional support concerning western governance mechanisms (Peng, 2004). Thus, Young et al. (2008) argued that 'principal-principal' conflicts are mainly identified in firms from emerging economies, while 'principal-agent' conflicts tend to be addressed in research concerning firms from developed countries. Daily and Dalton (1992) also believed that transforming into a professionally managed or governed firm in emerging economies is not easy, and hence, it would be more challenging for larger family businesses in emerging economies to continually operate with family control, despite their attempts to adopt western governance mechanisms (Young et al., 2008).

2.2.3 Other Relevant Theories

Blanck-Mazagatos et al. (2007) argued that integrating a resources-based approach with

agency theory offers a more comprehensive perspective on FFs' internal dynamics and evolutionary trajectory. This suggests that other relevant theories, such as stewardship theory, social-emotional wealth (SEW), and institution-based views, should also be discussed when studying FFs' performance or decision-making behaviour. Notably, the following specific references to the Chinese context further highlight the significance of the other theories while using empirical evidence from Chinese FFs to test agency theory.

2.2.3.1 Stewardship Theory

Stewardship theory presents an alternative perspective to agency theory, drawing upon sociological and psychological perspectives, which posits that organisational actors perceive greater long-term benefits in engaging in concentrated prosocial action rather than self-serving, short-term opportunistic behaviour (Hernandez, 2012). The notion of stewardship is widely accepted as an alternative to agency theory in examining governance within FFs (Chrisman, 2019; Madison et al., 2016). The concept of stewardship offers a framework for comprehending the actions of agents, for example managers, who are responsible for managing the assets of principals, like shareholders. According to the stewardship theory, managers, in their role as stewards, place a higher emphasis on the welfare of the principal (such as shareholders) rather than their own personal interests. Hence, the stewardship theory contrasts with agency theory by highlighting the intrinsic altruism and loyalty of managers towards the organization, rather than assuming that all managers may act opportunistically to maximise personal advantages.

Drawn from the stewardship theory, altruism serves as a driving force for individuals to engage in positive actions without anticipating any return (Schulze et al., 2001), which is more pervasive in FFs (Eddleston and Kellermanns, 2007; Eddleston and Kidwell, 2012; Zahra et al., 2008). FFs that exhibit altruistic characteristics may therefore possess a competitive advantage due to the alignment of individuals' interests with the success of the family business (Azizi, Bidgoli, Maley and Dabic, 2022). Azizi et al. (2022) believed that higher levels of altruism can facilitate stewardship behaviours that support firms' long-term organizational pursuits. Namely, family members with higher levels of altruism tend to

encourage R&D investment with long-term effects on firms' growth. Managers are therefore commonly perceived as stewards who are driven by the objective of augmenting the future worth of the organisation and harmonising their objectives with those of the shareholders. Stewardship theorists therefore critique the agency theory's assumption of self-interest as being overly severe (Hernandez, 2012). This criticism is based on the belief that opportunistic behaviour does not inevitably result from the pursuit of self-interest (Chrisman, 2019).

With different basic assumptions, stewardship theory also analyzes the relationship between the principal and the steward-manager from a behavioural and governance perspective (Davis et al., 1997). Due to its roots in sociology and psychology however, stewardship theory develops a more socialised view than agency theory based on an individualistic, economic perspective (Donaldson and Davis, 1991). In short, stewardship governance is typified by human-based participatory and collectivist environments, whereas agency governance is mainly typified by some monitoring mechanisms (Madison et al., 2016). Stewardship is, therefore, a contrasting perspective used to assess the strengths and weaknesses of a family business.

Stewardship theory also suggests that many leaders and executives who pursue higher goals at work are not all just selfish economically driven individuals but some may also act altruistically for the firm's and its stakeholders' interests (Davis, Schoorman, and Donaldson, 1997; Fox and Hamilton, 1994). Not all people, therefore. are motivated by financial incentives or coercive measures (Chrisman, 2019). In short, this theory reveals that people may also have a collective mind rather than solely individualistic attributes, and they may also obtain more satisfaction in realizing organizational achievement and support pro-organizational measures. More importantly, stewardship capabilities have been proposed to represent FFs' unique strategic competitive advantage based on an empirical study of firms in Iran than non-FFs (Azizi et al., 2022).

On balance, some studies (e.g., Davis et al., 1997; Corbetta and Salvato, 2004b) have concluded that the stewardship hypothesis is predicated upon a conceptualization of

individuals as being oriented towards self-actualization and the welfare of others, as opposed to being driven just by self-interest and personal gain; that in the presence of such attitudes, stewardship theory posits that individuals will prioritise the interests of the principal over their interests, assigning greater importance to organisational objectives rather than individual aspirations; that under stewardship theory, it is presumed that the objectives of individuals are already in line with those of owners and/or the organisation, which suggests that the implementation of formal controls, such as monitoring and incentive compensation systems, is seen as unnecessary and might potentially have adverse effects.

Indeed, Chrisman (2019) argued that the model of human behaviour presented by stewardship theory needs more realism in depicting individuals' thoughts and actions. Specifically, the theory's assumptions about goals need to fully encompass the diverse, varied, and contradictory goals held by stakeholders within organisations (Chrisman, 2019). She further suggests that, the theory's disregard for monitoring and incentives overlooks the significance of these mechanisms in facilitating communication and motivation. This argument posits that instead of regarding stewardship theory as a substitute for agency theory, it would be more advantageous to explore the potential for integrating these two theories by employing a set of assumptions that align with real-world circumstances.

Steward-like family managers in family businesses are empowered to adopt pro-organizational attitudes and behaviors by means of the stewardship governance mechanism (James et al., 2017). Hence, in FFs, individuals who assume roles akin to stewards within the family unit are granted the authority to embrace attitudes and behaviours that prioritize the well-being and advancement of the organization as a whole. To be specific, FFs exhibit distinct characteristics that set them apart from non-family businesses, i.e., a stronger emphasis on family values, long-term orientation, and a focus on legacy preservation. In FFs, The role of family members frequently encompasses both ownership and management, resulting in a blurred distinction between ownership and control. As a result, the stewardship theory helps to reveal how family members, acting as stewards, prioritize the interests of the founding family and the firm over individual gains. Drawing from stewardship theory therefore, family members, as stewards of the firm, are encouraged to enhance its financial

performance and long-term sustainability.

By contrast, for external managers in non-FFs, the preservation of the firm's worth for future generations is of significant importance to family members. Stewardship-oriented behaviours, such as prudent financial management and strategic decision-making, can, therefore, contribute to family businesses' financial success. For example, family stewards may prioritize strategies that ensure the continuity and growth of the business, even if they entail short-term sacrifices. Similarly, FFs may invest in staff training and community engagement to enhance loyalty and trust, thereby enhancing the firm's integral reputation. Furthermore, stewardship-oriented behaviours can also promote collaboration and transparency, enhancing the firm's reputation in the marketplace. Subsequently, in the context of the family business, the stewardship theory provides a logical insight into how family members act as stewards of the firm's resources and interests.

2.2.3.2 Socioemotional Wealth (SEW)

While explaining firm behaviour, common theories mainly concern the economic drivers of strategic decision-making, however, family scholars also pay attention to non-economic drivers that affect FFs' management and strategic behaviours (e.g., Chen et al., 2022; He and Liu, 2022). These non-economic personal and emotional needs include family bonding, family reputation, and the family control to ensure their own psychological needs, and so forth. Currently, the SEW theory has been commonly used as only one important logical insight into FF decision making (Chen et al., 2022; Gomez-Mejia et al., 2007; He and Liu, 2022).

Gomez-Mejia et al. (2007) adopt the 'SEW' term to introduce non-economic factors that affect FFs' growth and strategy. Chen et al. (2022) defined SEW and elucidated its two distinct dimensions: emotional wealth, mostly derived from familial or pan-familial connections, and social wealth, primarily derived from connections between the family enterprise and external stakeholders. To be more specific, emotional wealth includes family control and influence, family ties, and family bonds through dynastic succession, while

social wealth refers to reputation and belongingness, and social legitimacy (Chen et al., 2022). In short, the SEW theory suggests that FFs pursue socioemotional objectives alongside economic goals, and unlike non-family businesses, FFs prioritize these socioemotional objectives (e.g., family control, identity, and legacy preservation) to satisfy family members' emotional needs and then maintain their socioemotional well-being.

Gomez-Mejia et al. (2018) argued that FFs encounter a predicament when making strategic decisions concerning whether they should prioritise the preservation of present SEW or the pursuit of future financial wealth. SEW refers to the collection of nonfinancial utilities that family owners encounter (Gomez-Mejia et al., 2011). Unlike non-FFs managers' non-financial pursuits (e.g., power-seeking: Finkelstein, 1992), family owners' SEW objectives are typically completely rooted in the FFs (Gomez-Mejia et al., 2018) and possess a long-term perspective that transcends multiple generations (Zellweger et al., 2012).

The SEW approach has increasingly been used in the context of FFs, involving the "*nonfinancial aspects or 'emotional endowments' of family owners*" (Berrone, Cruz, and Gomez-Mejia, 2012:259). The SEW view suggests that FFs have multiple pursuits rather than just financial ones, and the most important FF end purpose is to preserve the family endowment (Berrone et al., 2012; Chen et al., 2022; Gomez-Mejia et al., 2007; He and Liu, 2022). The SEW perspective assumes that family owners would place more emphasis on non-economic goals, which differ from non-FFs (Chrisman et al., 2010). Therefore SEW represents an intermediate theory between the agency and stewardship approaches to analysing the FF's performance and strategy. For instance, drawing on the SEW perspective, Block et al. (2013) found that founder-managed firms tend to embrace more start-up orientation. To protect FFs' long-term socioemotional wealth, Llanos-Contreras, Arias and Maquieira (2021) studied 133 Chilean listed firms and found that there was an alignment between founders' board leadership and FFs' enterprise risk levels. He and Liu (2022) found that private firms in China would follow the State's directives when the costs of resisting political pressure were greater than the benefits of protecting SEW (e.g., family reputation, family control). Drawn from SEW and social identity theories, Deephouse and Jaskiewicz (2014) found that corporate reputation is more preferred to increase the family's SEW for

FFs that occupy a higher level of family ownership in eight countries, including France, Germany, India, Italy, Japan, South Korea, Sweden, and the UK.

According to Berrone et al. (2012), family control is a crucial attribute of family firms that prompts the SEW endowment. Family-owned enterprises are therefore more likely to prioritise the preservation of family control over SEW, despite the potential negative impact on company performance. In this study, family CEO presence was found to be significantly and negatively associated with large listed FFs' financial performance.This might suggest that large listed FFs tend to prioritize the preservation of family control over SEW.

On balance, the SEW theory provides a framework for understanding how family involvement in business goes beyond financial gain to encompass emotional or non-financial objectives. For example, family businesses may place more importance on long-term sustainability than on immediate profit in order to guarantee the business's survival for future generations. Thus, the SEW theory can provide valuable insights into studying FFs' financial performance and strategic behaviours by highlighting the importance of socioemotional objectives alongside economic goals.

2.2.3.3 Institution-based View (IBV)

The institution-based view (IBV) has emerged as the prevailing framework for examining management practices in emerging countries (e.g., Banalieva, Eddleston, and Zellweger, 2015; Soleimanof, Rutherford, and Webb, 2018; Wright et al., 2005; Young et al., 2008). According to North (1990), organisations are the players constrained by the official and informal rules that define the game and govern how people interact in society. In an economy, the function of institutions is to lower the costs associated with transactions and information by lowering uncertainty and creating a solid framework that encourages communication (Hoskisson, Eden, Lau and Wright, 2000).

In emerging economies, however, the institutions that influence such organisational actions are unstable (Young et al., 2008), and moreover, it is frequently the case that the formal

institutions present in developing countries fail to foster impersonal exchanges among economic actors that are mutually advantageous (North, 1990). Consequently, informal institutions exert a more substantial influence on organisations in emerging economies (Peng and Heath, 1996). Despite weaker legal protection and standard financing channels, empirical evidence suggests that there are alternative financing channels and governance mechanisms that, dependent on reputation and relationships, facilitate the growth and development of private business in China (Allen, Qian, and Qian, 2005). For example, family control might be regarded as a response to weaker investor protection (Burkart, Panunzi, and Shleifer, 2003). Given that capital markets lack an effective mechanism, families might also be used for raising capital (Bertrand and Schoar, 2006).

The China Securities Regulatory Commission (CSRC), as the leading stock market supervision agency, achieved formal recognition in 1998, however the law enforcement and related monitoring mechanism is still weak (Allen, Qian and Qian, 2005; Jiang, Cai, Nofsinger and Zheng, 2020; Jiang and Kim, 2015). Due to weaker investor protection, listed firms in China may find themselves more likely to suffer a stock price crash risk (Jiang et al., 2020). In particular, families tend to pay more attention to the "friend cycle" culture that places more emphasis on establishing good relationships with related stakeholders (Park and Luo, 2001).

Allen et al. (2005) also found that in the absence of a prevailing religion, the primary influence on China's social values and institutions is the prevalent traditional set of ideas associated with Confucius. These beliefs establish the structure of families and social hierarchies, as well as the concept of trust, which diverge significantly from Western perspectives on the rule of law. For instance, it is commonplace that firms in China have a heavier reliance on guanxi networks (Goodman, 1997). For example, Chen, Xiao and Zhao (2021) found that Chinese firms that have guanxi-connected successors outperform rivals without a guanxi circle. Moreover, the political guanxi in China that has been built on a certain intimate level can significantly prompt Chinese family enterprises' entrepreneurial behaviours (Su et al., 2023). In regions that have significant economic growth and improvements in living conditions, government officials who are appropriately motivated

actively encourage and assist in the expansion of private businesses (Allen et al., 2005). Specifically, Chen, Xiao and Zhao (2021) presented novel evidence from Chinese FFs indicating that firm founders who are strongly affected by Confucianism are more inclined to select a family member or a nonfamily member related through guanxi as the successor. Furthermore, successors who are connected to the family or guanxi have a more beneficial impact on the performance of the company, in comparison to successors who are not part of the family or guanxi network.

Anderson and Reeb (2003) undertook an investigation on a sample of large US enterprises that are owned by families. Their findings indicate that family ownership has a positive impact on firm performance. It is, however, important to acknowledge that the results could be influenced by the specific institutional structures that regulate large family-owned businesses in the United States. Drawn from the IBV, Peng and Jiang (2010) assert that the influence of family ownership and control on the value of a corporation could potentially be linked to the extent of shareholder protection provided by the legal and regulatory frameworks of a specific country. FFs exhibit unique characteristics, including concentrated ownership, family members' involvement in governance, and a long-term orientation towards legacy preservation. These characteristics influence their interactions with societal institutions. As such, the IBV is indispensable for studying FFs, especially for those in weak institutions. The IBV provides a framework for understanding how societal institutions influence organizational outcomes and behaviours. Specifically, the IBV emphasizes the impact of both formal (e.g., laws, regulations) and informal (e.g., norms, cultures) institutions on organizational behaviour. The IBV suggests that organizations adapt their strategies and behaviours in order to conform to institutional pressures, and in order to achieve legitimacy and survival in their respective environments.

In addition, the influence of family members on the performance of family firms might be contingent on the firm's public status; however, unlisted firms are not burdened by the regulatory obligations that affect listed firms (Minichilli, Corbetta and Macmillan, 2010). The dataset in this present study included all listed FFs, and therefore, the IBV should be employed to study large listed FFs.

2.2.4 The Dilemma of Family Firms

The occurrence of agency problems can be observed in situations where there is a disparity in information and a need for more alignment of interests between multiple individuals engaged in a corporate endeavour (Jensen, 1994; Jensen and Meckling, 1976). In this case, owners are required to bear agency costs in order to effectively monitor managers and mitigate behaviours that do not align with the owners' objectives (Chrisman et al., 2014). The endeavour to achieve objectives that are not solely focused on economic gains inside family-owned businesses therefore poses challenges in terms of harmonising the interests of family owners and non-family managers (Chua, Chrisman, and Bergiel 2009). Notably, Majocchi et al. (2018) proposed an integrated perspective on FFs, with bifurcation bias (Verbeke and Kano, 2012), referring to a different governance mode whereby family assets are committed to the firm and are handled differently from nonfamily assets, resulting in inefficiency. For instance, existing research reveals that managers in European family SMEs who have prior foreign work experience play a positive role in firms' exporting performance (Majocchi et al., 2018). If that is the case, in order to attract competent non-family management, family-owned businesses may find it necessary to offer higher salaries compared to non-FFs.

Reciprocal altruism, is a moral principle wherein individuals engage in actions that benefit others without anticipating immediate or direct reciprocation (Schulze, Lubatkin and Dino, 2002), and may contribute to the alignment of interests between family managers and family owners. Existing literature also suggests that engaging in altruistic behaviour can help to build competitive advantages for FFs through harmonising the interests of family members and relatives (e.g., Karra, Tracey and Phillips, 2006). Reciprocal altruism can therefore play a crucial role in fostering interpersonal connections by promoting trust, effective communication, mutual respect, and affection (Lubatkin et al., 2005). Schulze et al. (2001) argue that agency problems might arise when there is a lack of reciprocal altruism from family owners towards family managers and a lack of self-control exhibited by family owners. In this context, the involvement of family members can contribute to the

development of collectivistic behaviours, prioritising the interests of the group over individualistic pursuits (Corbetta and Salvato, 2004a). In contrast, managers who are not part of the family may lack the emotional and personal connections that exist among family owners. Consequently, they may be more prone to possess and act upon divergent interests. Further, in situations where altruism is asymmetric or conflicts arise within family dynamics, family owners who possess a certain level of self-control are more likely to possess advantages in overseeing family managers than non-family managers.

Based on observational research of 2,000 Spanish manufacturing firms, Moreno-Menendez and Casillas (2021) found that FFs tend to exhibit more expansion in terms of workforce size (i.e., employees) than revenue growth, which is differierent to non-FFs. Through a dynamic lens, a FF is typically small in the initial growth stage, and the number of stakeholders is limited, and the ownership and control of the firm is, by and large, highly concentrated because the control benefits carry more weight than those brought by financing and interest adjustment. As the firm develops over time, the demand for growth (and, therefore, finance) may require more outside investor participation. and thus, the founders may need to transfer ownership shares to major outside shareholders for financing and interest adjustment. Large FFs can, however, gradually integrate external alternative resources, including professional managers and specific financial resources (i.e., bank loans, greater self-financing, formation of small capital partners, etc.) to increase sales growth. At the same time, large families may have high social and human capital levels, which may be critically important to decrease uncertainties during growth in size and scope. Increasing size may also make it easier for families to achieve higher growth rates to ensure the economic well-being of current and future family members (Gill et al., 2014), hence, S&M FFs and large FFs may encounter differing challenges in the course of growth. In China, however, all private business sectors' legitimacy may need to encounter challenges because Confucianism does not involve higher respect for merchants compared with scholars, farmers, and craftsmen (Li et al., 2015).

2.2.4.1 Small-and Medium-sized Family Firms

A significant majority of small and medium-sized enterprises (SMEs) are predominantly owned by their founders and the founders' families (Pindado and Requejo, 2015), and thus, family ownership in SM FFs is largely concentrated. In the early stages of a family business, when founders may be both owners and managers, they may be expected to achieve greater efficiency and better performance because of family-based, horizontal, non-vertical monitoring of their decisions. This efficiency may be so dependent upon the founder's personal qualities that it would be difficult to delegate authority and responsibility to other participants. Raising finance is, however, likely to be one of the dominant challenges for SM FFs, although families may also enable capital raising in which the capital markets are not developed for financing start-up businesses (Bertrand and Schoar, 2006).

SM FFs often lack a significant number of the formal systems and processes utilized by large organisations to oversee managers. This complicates and intensifies the need to monitor their managers' conduct effectively, and when deciding between family and non-family managers, these SM FFs may be forced to make significant compromises (Chrisman, Memili and Misra, 2014). Thus, it is common for family owners of SM FFs to occupy executive positions with significant discretionary authority and predominant ownership (Carney 2005). For SM FFs, combined family ownership and control appear to be a particular type of effective arrangement mechanism, exploiting family-specific knowledge or resources to mitigate principal-agent conflicts (Fama and Jensen, 1983; Miller et al., 2013). In such organisations (i.e., SM FFs), therefore, the continued control and influence of the family through ownership and management can be crucial. One of the strengths of FFs is that their CEOs serve as the public face of the company, where the CEO represents the SM FF in public interactions, in addition to managing the business and embodying its corporate culture, values, and image. This can strengthen the bonds of trust, loyalty, and kinship between the business and all of its stakeholders, including customers, staff members, and the general public. As such, the family CEO in the SM FF can play a significant role in establishing the company's reputation and brand through his or her outward leadership and personal involvement in the business's success.

In addition to directing the top management team, these family CEOs are tasked with allocating resources, authority, and accountability within the organisation (Fanelli and Misangyi, 2006). As such, a familial CEO of SM FFs is likely to act altruistically, making decisions that increase the performance of the FF and the wealth of the family (Eddleston, Otondo, and Kellermanns, 2008; Schulze, Lubatkin, and Dino, 2003).

2.2.4.2 Large Family Firms

A conflict of interest (Type II agency costs) may arise between majority shareholders, typically family members, and minority shareholders, who are nonfamily members, in the context of large family-owned businesses. The existence of a dominant shareholder with entrenched power and inadequate shareholder protection contributes to agency costs for minority shareholders (Morck, Schleifer and Vishny, 1988). For instance, Villalonga and Amit (2006) proposed that FFs, in which the CEO post is retained within the family, may encounter conflicts between family and nonfamily shareholders that incur higher costs than the owner-manager conflict observed in non-FFs. Conflicts of interest can therefore also arise within families when different family members assume distinct roles (Anderson and Reeb, 2003; Chrisman, Chua and Litz, 2004). Specifically, conflicts may emerge when certain family members are solely involved in ownership while others are engaged in ownership, governance, and management. This situation creates a potential conflict between principals (family members solely involved in ownership) and agents (family members involved in governance and management).

There may also be an increased level of generational involvement observed inside large FFs. Existing evidence supports the notion that individuals belonging to subsequent generations within a business will likely exhibit diminished emotional attachment to the organisation, and that these individuals may lack the requisite skills and abilities to effectively foster the growth of the organisation (Lubatkin, Ling and Schulze, 2007; Villalonga and Amit, 2006). In a similar vein, when the number of generations inside a firm expands, there may be an increased likelihood of conflict due to the divergence of identities and intentions (Bertrand

and Schoar, 2006). The inclusion of subsequent generations in the FF may give rise to familial issues, as well as challenges related to familial agency problems and stewardship downsides (Le Breton-Miller and Miller, 2011).

Thus far, scholarly research has predominantly focused on large public FFs, as acknowledged in the existing literature (e.g., Amit et al., 2015; Anderson and Reeb, 2003; Bammens et al., 2011; Goel, He, and Karri, 2011; Islam et al., 2022; Villalonga and Amit, 2006). Some scholars, (e.g., Jiang and Peng, 2011; Peng and Jiang, 2010) regarded publicly listed corporations as synonymous with large ones. The definition of large FFs is further discussed in the Methodology, Chapter 4. If an FF becomes listed in a stock market, it may acquire a higher level of legitimacy (Chang, Zare and Ramadani, 2022). For instance, for a firm headquartered in the United States, gaining presence on the Dow Jones or S&P may represent a special milestone in the achievement of a specific family goal because of its market quotation, its large size and business scope. In terms of family ownership, maintaining majority control may not be compatible with stock market membership, where the forces controlling gaining public legitimacy are also determined by outside situations. A publicly-traded FF will be required to provide full disclosures and take more consideration of related stakeholders. After large FFs achieve membership in a stock market, however, their previous long-term orientation may be forced to switch to a short-term perspective with an economic benefits-oriented purpose (e.g., Gomez-Mejia et al., 2011). Due to weaker institutional shareholder protection in China, Chinese listed FFs may appoint family members as CEOs to protect family interests (Cai et al., 2012), which may bring extra management challenges for non-family shareholders.

Table 2-1 Common attributes that SM FFs and large FFs may have and the differing challenges that they may encounter while growing.

Table 2-1 Summary of Comparisons Between SM FFs and large FFs

Dimensions	**Small- & Medium-sized Family Firms (SM FFs)**	**Large-sized Family Firms (Large FFs)**

Common attributes	A long-term vision; Desire to protect family wealth for future generations; More care about the reputation and the sustained presence of the family	
Differing challenges	More concentrated ownership	Ownership may be diffuse
	Fewer agency problems	Various types of agency problems, Types 1 & 2 agency problems
	Strong family management control	May have professional managers acting as CEOs
	Lack of financial resources	Public market provides ample financial resources

Subsequently, while considering the dilemma of FFs discussed above, it is relevant to comprehensively review the related literature on the role of family involvement within large FFs while growing, which can provide specific guidance when developing novel research on large FFs.

2.2.5 The Role of Family Involvement in Family Firms

The influence of family involvement on firm behaviour is a matter of worldwide significance (De Massis et al., 2018). Family involvement in firms is common in nations of Western Europe, Asia, Latin America, Africa, and the Middle East, although there is considerable variation from country to country (Bertrand and Schoar, 2006), which is mainly categorized into ownership and management/control as highlighted by Chua et al. (1999).

In terms of concentrated ownership, it is important to note that large shareholders typically advocate for their own interests rather than prioritising the interests of other shareholders or employees inside the company in which they have made their investments (Andres, 2008). This implies that they will exercise their control rights with regard to their personal utility, potentially at the expense of other shareholders. Family businesses incur substantial agency

costs as a result of conflicts arising from diverse forms of family participation in business, which compels them to protect their own interests (Dyer, 2006). According to Young et al. (2008), majority owners have a propensity to appropriate the wealth of minority shareholders (i.e. Type II agency costs) by means of disproportionate compensation, transactions involving related parties, and the special distribution of dividends. While FFs are expanding, the sharing of ownership among founding family members is seen as one specific type of ownership diffusion. The distribution of corporate ownership to family members may be attributed to inheritance; however the evolution of family structure may also determine the pattern of controlling ownership diffusion.

In terms of control, family participation in management may also be a crucial characteristic that sets FFs apart from non-FFs (Kim and Gao, 2013). In business organizations, the CEO is arguably the most critically influential actor (Minichilli, Corbetta and MacMillan, 2010), who should take responsibility for the firm's behaviours and performance (Finkelstein and Hambrick, 1996). Traditional Type I agency costs may be avoided when the CEO is a member of the family; this may create a shared interest between managers and owners (Jensen and Meckling, 1976; McConaughy, 2000). The notion that a family CEO is linked to enhanced performance is consistently supported by research (Anderson and Reeb, 2003; Minichilli et al., 2010; Villalonga and Amit, 2006). In order to engage in long-term investments, a family CEO may have to possess a long-term perspective (Le Breton-Miller and Miller, 2006). Due to the close relationship between the family's wealth and the firm's welfare, there may be a significant motivation for families to oversee managers to reduce agency conflicts and maximise firm value (Anderson and Reeb, 2003). Thus, the decision-making power of the firm should be granted in principle to those who are able to maximize the productivity of the FF’s assets. If the contribution of family members to the firm's value exceeds the contribution of non-family managers, the company could be best managed by the founding family members. In short, family members' characteristics and firm heterogeneities (i.e., family vs. non-family managers) may determine FFs’ performance and growth strategy.

Ownership and control may however diverge, and thus FFs may need help with decision-

making while family businesses continually expand. Specifically, family CEOs, who possess a dominant ownership interest in the organisation and either established the company themselves or inherited it from its creators, serve as a prominent illustration of owner CEOs, and they are prevalent in both developed and emerging economies (Bandiera et al., 2018; Caselli and Gennaioli, 2013). For instance, Anderson and Reeb (2003) suggested that family CEOs may bring with them two specific concerns: first, the alignment of the family's interests with those of the firm is more easily achieved, indicating that the impact of family ownership on firm performance may be amplified when a family CEO is present; second, family members may prioritise the appointment of one of their own relatives as the CEO, which may result in the exclusion of more competent and skilled external professional managers. Due to the intricate nature of the family business phenomena, existing literature on FFs have yet to establish a unanimous opinion regarding the impact of family control on firm performance (e.g., O'Boyle et al., 2012; Pindado and Requejo, 2015). On that account, Bau et al. (2020) demonstrated a career-based perspective for studying family business in the 21st century, which mainly explains how to attract, encourage and keep the most skilled family and non-family employees to improve firm performance.

Miller et al., (2007) refer to family involvement in family ownership, family management control (e.g. CEO), or both. Notably, Peng et al. (2018:188) argued that the question of "Are *family ownership and control of large firms helpful for or harmful to firm performance?*" is frequently debated but remains unresolved. Ownership and control in the context of FFs are characterized by a dilemma manifested by FFs when they tend to balance family ownership and managerial control while pursuing further business growth or expansion. This has generally led to two key questions that scholars and practitioners must address. **How can family owners and managers resolve this dilemma and thereby promote the continuing expansion of their business? How do large FFs continue to survive financially while retaining family ownership and control?**

Large FFs' performance was therefore examined from two perspectives: in terms of the financial performance that determines firm survival in the short term, and from the perspective of FFs' investment in R&D, which may influence longer-term financial

performance. In the following sections the literature concerning the impact of family ownership and/or control on large firms' financial performance and R&D strategy is reviewed. It is also noteworthy to further explore the size effect on FFs while studying their short-term financial performance and R&D investment decisions for the long term.

2.2.6 Financial performance of large family firms

Empirical data exists suggesting that established large firms (i.e., Fortune 500) tend to have weaker financial performances when they are managed by a member of the founding family (Morck et al., 1988). Based on an analysis of all Fortune 500 companies from 1994 to 2000, it was found that family ownership is associated with value creation solely in instances where the founder assumes the role of CEO within the FF (Villalonga and Amit, 2006).

While some scholarly works indicate that family ownership and control may result in suboptimal business performance, it is important to acknowledge that family influence can also yield competitive advantages (Anderson and Reeb, 2003; Jiang and Peng, 2011). The following research question therefore arises: **To what extent do family ownership and control determine large FFs' financial performance?**

In an emapirical analysis, Peng and Jiang (2010) examined the literature on the performance of large FFs, and found common research perspectives. First, some agency theorists (Anderson and Reeb, 2003; Demsetz and Lehn, 1985) and FF scholars (Gomez-Mejia et al., 2007; Habbershon and Williams, 1999) pointed out that large FFs can achieve *higher operating efficiency* than smaller FFs. Other studies have demonstrated that FFs perform better through effective agency govrnance mechanisms, such as monitoring and incentive compensation (Chrisman et al.m 2007). Block (2012) also pointed out that FFs' lower productivity performance may be attributed to invalid monitoring which brings with it extra moral hazard problems. It is therefore worthwhile to investigate how large FFs manage that and how family ownership and control matter.

Agency scholars (e.g., Fama and Jensen, 1983) and other family business researchers (e.g.,

Schulze et al., 2001) contend that large firms with concentrated family ownership could be less efficient than those with dispersed ownership. This may be because outsider shareholders are largely diversified and less risk-averse, while family shareholders in large FFs may be relatively undiversified. For example, Faccio, Marchica and Mura (2011) found that firms controlled by nondiversified shareholders are more conservative than those controlled by diversified shareholders. Additionally, another group of scholars argue that there are no significant differences in the aspects of value production between owner-managed and professionally managed firms (Daily and Dalton, 1992), and FFs with multiple family members involved as owners may not perform better in terms of market value (Miller et al., 2007), which implies that family ownership and control are not significantly related to firm value. As a result, existing studies provide inconsistent evidence on the effect of family ownership and control on FFs' financial performance (e.g., Dyer, 2006; Kim and Gao, 2013; Taras et al., 2018). Such an impact, however, varies significantly based upon the type of family participation, the performance measurement, regional disparities, as well as variances based on the size of the company and the design of the study (Taras et al., 2018).

Table 2-2 reviews the extant literature on family involvement effects on FFs' financial performance. For instance, the degree of family ownership (in FFs and non-FFs) has been positively associated with the 2007 performance (i.e., ROA) of all listed firms in China, but the coefficient is not significant when ownership is measured continuously. In addition, the presence of the family founder or other family members as CEOs has a positive impact on the performance of all listed firms (Amit et al., 2015). In contrast, Kim and Gao (2013) found that family involvement (i.e., the ratio of family members present as CEOs and any departmental head positions) had no direct significant effect on firms' performance based on 158 Chinese FFs located in the eastern-coastal region and the inland region.

On balance, Table 2-2 presents the main contingencies that have influenced the relationship between family involvement and firm performance. These contingencies included the operationalization of firm performance, the type of family involvement, the institutional context by region, firm size, the definition of family firm, the theoretical background, the research design in terms of comparison between family and non-family firms, heterogeneity

among FFs, the time periods studied, and the sample size. Specifically, it is evident that extant empirical research pertaining to the consequences of family members' ownership and control in FFs is usually limited in scope to a specific nation or geographical area, yielding inconsistent results. Additionally, there are substantial variations in the definitions of FFs and the ownership and control of family members among existing empirical studies. Consequently, a research gap may be identified in terms of the lack of a comprehensive and in-depth understanding of the true effects of family involvement on FFs.

Table 2-2 Literature Concerning the Family Involvement Effect on Firms' Financial Performance

Citation	Data sample	Family effect measures	Performance measures	Findings
Amit et al., 2015	1,453 Chinese listed firms in 2007; 324 of them are family-controlled, 167 entrepreneur-controlled, and 962 non-family firms	Family ownership: percentage of all shares owned by the family as a group; Family control: Dummy variable equal to '1' if the family's CEO is a member of the controlling family, and '0' otherwise.	ROA: return on assets, computed as net income over total assets. Tobin's Q: ratio of the firm's market value	Family ownership is positively associated with performance (i.e., ROA) of all listed firms including FFs and non-FFs, but the coefficient is not significant when ownership Ris measured continuously; The entrepreneur or family members as CEO has positive impact on performance of all listed firms including FFs and non-FFs.
Anderson and Reeb, 2003	403 nonbanking firms in S&P 500 between 1992 and 1999	Family ownership: the fractional equity ownership of the founding family; Family control: the presence of family members as COEs	ROA: Return on assets; Tobin's Q	Family firms perform better than non-family firms
Andres, 2008	275 German public	Family control: a dummy	Tobin's Q and Return on	The FFs with the founding family member

	listed firms	variable that value '1' refers to the founder acting as the CEO, and '0' other wise	assets (ROA)	as the executive or the supervisory board perform better than other firms
Bhatt and Bhattacharya, 2017	100 top Indian listed firms	Family CEO: A dummy variable with value '1' for family CEO, and '0' otherwise; Family Ownership: Refers to the ratio of equity held by the firm's family members	Tobin's q; ROE: Return on equity; ROCE: Return on capital employed.	There is no significant impact of family CEO on family firm's performance; Family ownership is also found to be insignificantly associated with family firm's performance
Cai, Luo, and Wan, 2012	351 Chinese listed family companies from 2004 to 2007	Family CEO: value '1' if a controlling family member acted as the CEO, and '0' otherwise.	ROA: Return on assets Tobin's Q	FFs with the family CEO presence are better performer than those with outside CEOs
Chu, 2011	786 public family firms in Taiwan, China during 2002-	Family ownership: the percentage of equity owned by family members.	ROA: Return on assets	Founding-family ownership positively influences performance; Family CEOs significantly and positively moderates the

	2007	Family CEO: '1' denotes a family CEO, '0' an outside CEO.		association between family ownership and performance, particularly in SMEs than large firms.
Goel, He, and Karri, 2011	163 Chinese listed family firms during 2001-2005	A herfindhal index measure of family members' voting rights. (It is is derived by adding the squared proportion of each shareholder's shares, and it's used to calculate the distribution or concentration of control rights. The higher value of Herfindahl index means a few family members have higher concentration of ownership.)	ROA: return on assets	High dispersion of control among family members is significantly and positively associated with firm performance.
Gonzalez,	523 listed and non-	Family CEO: it refers to a	ROA: Return on assets	The founder as a CEO significantly and

Guzman, Pombo and Trujillo, 2012	listed Colombian firms over 1996 to 2006	dummy variable that the value '1' equals to the founding family member appointed as the CEO, and value '0' otherwise; Family ownership: a dummy variable that value '1' refers to the founding families are the largest shareholder of the firm, and '0' otherwise		positively affects firm's financial performance; Both direct and indirect family ownership structures positively determine firm's financial performance.
Gupta and Nashier, 2017	1,100 Indian listed firms	Family ownership: ratio of equity shares held by family shareholders	Tobin's Q: ratio of earnings before taxes; ROA: return on assets	Family ownership is negatively associated with firms' both accounting and financial performance
Ha et al., 2022	31 nonfinancial listed firms in Vietnam between 2011 and 2019	Family ownership: the percentage owned by a family	ROA: Return on assets Tobin's Q	There is a U-shaped curve about the effect of family ownership on Vietnamese firms' performance

Jiang and Peng, 2011	744 publicly listed large family firms in 8 Asian countries including Hong Kong China, Indonesia, Malaysia, Philippines, Singapore, South Korea, Taiwan China, and Thailand	Firm performance: the cumulative stock return	Family ownership: the cash-flow rights in percentage of total outstanding shares Family CEO: a dummy variable, a value '1' refers to firms appointing a family member as CEO, and '0' otherwise	The family CEO has differing impact on the performance of firms from different countries; The family ownership has insignificant impact on firms' performance
Kang and Kim, 2016	7,362 large Korean business groups including 1,298 firms with family CEOs	Family control: a dummy variable that the value of '1' refers to that the firm has a family member as the CEO position, and '0' otherwise.	Performance: two measures-Q value, which is similar to Tobin's Q; EBITA-Earnings before interest, taxe.	Firms that have non-family CEOs perform better in terms of Q value.
Kim and Gao, 2013	158 family firms in China	The proportion of family members undertaking these positions including CEO,	Rate firm performance from "1=very low" to "5=very high" including	Family involvement has no direct effect on performance, and family-longevity goals positively moderate the relationship

		Vice CEO, marketing head, production head, and HR head", "0" otherwise	return on investment, sales growth, market sales, product quality, and operation efficiency	between family involvement and performance.
Maury, 2006	1,672 non-financial firms from 13 Western European countries	Family control: four dummy variables-first, value of '1' refers to the family, an individual or an unlisted firm is the largest controlling shareholder occupying 10% voting rights, and '0' otherwise; second, '1' refers to the family shareholder is an unlisted firm, and '0' otherwise; third, '1' refers to the identified family or individual is the largest	Financial performance: Tobin's q; ROA-return on assets	Financial control is significantly associated with firms' higher performance than firms controlled by nonfamily owners

		controlling shareholder, and '0' otherwise; fourth, '1' refers to the family member as the CEO is the largest shareholder, and '0' otherwise.		
Minichilli, Corbetta and MacMillan, 2010	113 top-500 industrial Italian family-controlled firms	Family CEO: a dummy variable with the value '1' if the CEO was a controlling family member, and '0' otherwise.	ROA: Return on assets, the net operating income before extraordinary items divided by total assets	There is a strong significant and positive relationship between a family CEO and firm's performance, i.e., ROA
Miralles-Marcelo et al., 2014	55 listed firms in Portugal and 115 listed firms in Spain	Family control: a dummy variable that '1' refers to family firm's CEO is the founder or family member, and '0' otherwise.	ROA: return on assets Tobin's q value	The family CEO presence plays a significant but negative role on firm financial performance in terms of Tobin's Q value for listed firms in both two countries; and negative but insignificant in terms of ROA.

O'Boyle et al., 2012	A meta-analysis of 78 articles with a total sample size of 80,421	Five categories: 1-family ownership; 2-succession; 3-family CEO; 4-self-reported; 5-more than one of the above.	ROA: Return on assets	Family involvement did not significantly influence firms' financial performance
Poutziouris, Savva and Hadjielias, 2015	107 non-family-controlled and 34 family-controlled UK listed companies	Family CEO: a dummy variable that the value '1' refers to the CEO is from the owning family members, and the value '0' otherwise; Family ownership: the equity ownership level of the firms' founding family member	ROA: return on assets based on EBITDA and net income; Tobin's Q: Market value of the firm divided by the total assets	Family firms perform better than non-family firms in terms of ROA; Family ownership plays a significant and positive effect on firms' ROA; Family CEO is significantly and positively associated with firms' ROA
Saidat et al. 2020	56 Jordanian listed FFs observed from 2009 to 2015	Family CEO: a dummy variable that value of '1' refers the family member is	ROA: return on assets; Tobin Q	Overall family CEOs are negatively related to corporate performance, i.e., ROA and Tobin's Q

		appointed as the CEO, and '0' otherwise		
Taras et al., 2018	A meta-analysis of 47 journal articles with a total sample size of 125,751 publicly traded firms	Family ownership: a continuous variable such as ownership of the largest shareholder in family firm, the percentage of equity owned by family members, or ratio of the number of shares of all classes held by the family; a dummy variable showing the family CEO presence or continuous variable refers to the total number of family members in the top-management team.	Market valuation: Tobin's Q etc. Accounting performance: ROA, ROE etc. Operation performance: sales growth, income growth, R&D/sales etc.	Involvement of founding family members in firm governance tends to strengthen firm's performance, albeit with a relatively modest impact.
Villalonga	508 firms listed on the	Family ownership stake:	Tobin's Q; ROA	The family ownership stake plays a

and Amit, 2006	Fortune 500	ratio of the number of shares of all classes held by the family as a group; Family management: the presence of a family CEO		positive and significant impact on firms' performance in terms of Tobin's Q value; only when the founder as CEO; The family CEO presence has no significant effect on firms' performance.

2.2.7 R&D Investment Strategy of Large Family Firms

The internal organisation of a family plays a crucial role in determining its effectiveness as a governance framework for economic activity and the allocation of resources within the family unit (Pollak, 1985). In contrast with the arguably shorter time horizons of more diversified, risk-averse, non-family owners, family shareholders may have longer investment horizons than other shareholders, indicating a greater propensity to allocate capital towards long-term endeavours (Anderson and Reeb, 2003; Bertrand and Schoar, 2006). Specifically, R&D investment is one major form of a firm's long-term strategy endeavours (Berton-Miller and Miller, 2006). Such R&D strategy is positively associated with FFs' performance (Alberti and Pizzurno, 2013). There are strong theoretical reasons to believe that the antecedents and effects of technological R&D differ between FFs and non-FFs, making technological R&D in FFs a relevant and promising research topic (De Massis et al., 2012).

The meta-analysis of the literature in Table 2-3 shows that there have been no consistent results on the impact of family ownership and family members' involvement in the management or governance of listed firms' R&D investment. In terms of family ownership, a negative impact was found in U.S. listed firms (e.g., Block, 2012); no significant effect was found in German listed firms (e.g., Matzler et al., 2015); and mixed effects were found in Indian listed FFs (e.g., Agnihotri and Bhattacharya, 2022). In terms of family management or governance impact on listed firms' R&D investment, a negative effect was found (e.g., Matzler et al., 2015; Munoz-Bullon and Sanchez-Bueno, 2011) and no direct effect found (e.g., Block, 2012). These inconsistent findings reveal a common thread in that, in the typical study, samples comprised all listed FF versus non-FFs, not focusing on FFs themselves, to facilitate estimations of the effect of heterogeneity among just FFs. Also, the most recent meta-analyses on FFs' R&D suggest that future investigations should prioritise exploring the diversity within the category of FFs rather than only comparing them to non-family-owned organisations (Block et al., 2023). The extant empirical studies on the impact of family ownership and control on the R&D strategy of FFs are notably constrained to a particular country or geographic region, resulting in inconclusive findings. Furthermore, extant

empirical research reveals significant discrepancies in the conceptualizations of FFs as well as the family ownership and control structures. It therefore becomes more difficult to achieve a thorough comprehension of the actual impacts of family involvement on the R&D strategy of FFs.

Table 2-3 Literature On the Family Involvement Effect on Firms' R&D Investment Strategies.

Citation	Data sample	Family effect measures	R&D strategy	Findings
Agnihotri and Bhattacharya, 2022	532 Indian family firms in the manufacturing sector from the period 2005-2015	Family ownership concentration: the ratio of equity held by Indian promoters to the total common stock; Family CEO: a dummy variable that value '1' refers to CEO was a family member, and '0' otherwise	R&D intensity: the R&D expenditure to sales ratio	Family ownership concentration follows an inverted U-shaped relationship with R&D strategy; Family CEO moderates the inverted U-shaped relationship.
Ashwin et al. 2015	216 Indian listed companies in the pharmaceutical section between 2003 and 2009	Family ownership: the ratio of equity held the family owners to the total common stock of the firm. Family CEO: a dummy variable that '1' refers to the family member is appointed as the CEO,	R&D intensity: the ratio of R&D expenditure to sales	Family ownership and family control as CEO and chairperson are positive and significantly associated with firms' R&D investments

		and '0' otherwise		
Block 2012	154 large public U.S. firms in the S&P 500 in research-intensive industries as 2003 as a starting point	Family ownership: percentage of common stock owned by members of the founding family	R&D intensity: R&D expenditures divided by total assets; R&D expenditures divided by total sales	Family ownership is *negatively* associated with the level of R&D intensity; no evidence showing the management dimension of family firms has an effect on R&D spending
Chen and Hsu, 2009	369 electronic listed firms in Taiwan China between 2002 and 2007	Family ownership: the number of shares of all classes held by the family divided by total shares outstanding	R&D ratio: R&D expenditures by total sales	A *negative* relationship between family ownership and firms' R&D investment
Chrisman and Patel, 2012	964 firms listed in S&P 1500 index between 1998 and 2007	Family firm measure: a binary measure of FFs that a family should own 5% of the shares at least. Family involvement: the	R&D investment: the ratio of R&D expenditures to sales	FFs are less likely to undertake R&D investment than non-FFs; and family involvement is negatively associated with firms' R&D investments.

		percentage of ownership held by the family under the conditions that family member should own 5% of the shares and one family member at least should be appointed on the top management team		
De Massis et al., 2012	23 peer-reviewed journal articles on technological R&D in FFs	Family involvement	R&D investments	A *negative* relationship between family involvement and R&D investments
Islam et al. 2022	44 Chinese listed family firms over the period from 2010 to 2018	Family ownership: the ultimate controller's proportion of shareholding. Family management involvement: the ratio of family executives accounting for the	Technology R&D intensity: total R&D expenditure divided by main business income	Family ownership is significantly but negatively related with firms' technological R&D intensity; Family management involvement is positively correlated with FFs' technical R&D intensity.

		total number of senior executive members		
Lichtenthaler and Muethel, 2012	119 German medium-sized manufacturing firms	Family involvement: 7-point scale, '7' refers to very strong family involvement, '1' indicates no family involvement at all	Dynamic innovation capability: sensing capacity, seizing capacity, and transforming capacity	Family involvement has a significant and *positive* impact on firms' dynamic innovation capabilities.
Matzler et al., 2015	134/136 large German publicly traded firms between 2000 and 2009	Family ownership: the portion of ownership stakes held by the dominating family; family management: the number of family members in top management divided by the total number of top management positions; family governance: the number of family members on the company's supervisory board	R&D intensity-the ratio of a firm's R&D expenditure by total sales	No significant impact of family ownership; Family participation in management and governance *negatively* influences R&D intensity.
Munoz-	736 publicly held	Family firm: '1' refers to two	R&D intensity: the ratio of	There is a *negative* impact of family

Bullon and Sanchez-Bueno, 2011	companies in Canada for the years 2004-2009	members on the board at least were family members and the family owned 10% or more of the firm's equity, '0' otherwise	R&D expenditure to total sales	governance on firms' R&D intensity compared with non-FFs.
Wang, Xu, and He, 2022	A-share family firms listed on Chinese stock markets from 2008 to 2019	Family involvement effect: the ratio of the number of family members on the board or in executive positions divided by the number of total people on the board	R&D intensity: R&D expenditure+R&D input divied by operating revenue	There is a significant but negative association between family involvement in management and R&D investment intensity of firms from both high-tech sector and non-high-tech sector.
Yang et al., 2019	577 listed SMEs in China over a period of 2013-2015	FFs: first, one family owns 5% of the shares of stock at least; second, two family members at least should serve as top management positions	R&D intensity: the average percentage of firm R&D expenses over sales	FFs are *less likely* to invest in R&D than non-FFs.

The implementation of a research strategy enables the identification of gaps within the existing empirical literature on FFs, indicating potential areas of investigation for future research. Table 2-3 presents the main findings concerning the impact of family involvement on firms, particularly for FFs' R&D investment strategy.

2.3 Research Gaps and Research Questions

There is a great volume of literature on the influence of family involvement on Chinese family enterprises' performance (e.g., Amit et al., 2015; Cai, Luo and Wan, 2012; Chen, Xiao, and Zhao, 2021; Ding, Zhang and Zhang, 2008; Goel, He and Karri, 2011; Kim and Gao, 2013) and their R&D investment strategies (e.g., Islam et al., 2022; Jiang, Shi and Zheng, 2020; Li, Hu and Li, 2022; Wang, Xu, and He, 2022; Zulfiqar, Chen, and Yousaf, 2022). However, few scholars focus on the 'real' large-sized FFs and the moderating effect of firm size on family involvement's influence.

Notably, the size of a firm is a significant yet sometimes overlooked characteristic (Li and Zhu, 2015). The variation in business sizes serves as a fundamental determinant in clarifying the variations observed in other facets of organisations, as well as their social distinctions (Baron, 1984). Organisational structures, business environments, and managerial methods may vary significantly among enterprises of varying scales. When FFs grow in size, they may adopt a more professionalized governance structure to make businesses more productive and efficient (Dekker, Lybaert, Stejvers and Depaire, 2013), and their behaviour and performance may converge on those of non-FFs (Stewart and Hitt, 2012). It is of utmost importance to critically analyze the primary agency problems that may be inherent to large FFs' ownership systems (Morck and Yeung, 2003). Further, González et al. (2012) found that FFs have achieved better financial performance than non-FFs if the founder is still engaged in business operations, but this effect decreases with firm size. Subsequently, increasing attention should be paid to investigating how to deal with large FFs' operational issues from a dynamic perspective.

The above literature review emphasises that focusing on large FFs as an observational sample and variations across FFs in that sample may provide a better understanding of the performance and strategy of FFs as a particular organisational form. This contrasts with studies that compare FFs and non-FFs. Understanding the effects of size on FF performance may therefore not simply be determined by whether they are publicly traded or rely on external financial capital or not (e.g., S&P500). For instance, publicly listed firms have simply been defined as large firms in existing studies (e.g., Peng and Jiang, 2010; Jiang and Peng, 2011; Peng et al., 2018).

According to thirty years of research in family business journals, Rovelli et al. (2022) stressed that the most important prospective research direction may address the need to consider heterogeneity across FFs more rigorously. In a meta-analysis based on 118 peer-reviewed journal articles published between 1961 and 2017, Calabro et al. (2019) stressed the significance of adhering to this contemporary pattern and proposed that researchers should carefully consider the variety of FFs while investigating R&D investment in FFs. Similarly, Rovelli, Ferasso et al. (2022) produced a bibliometric overview of 1,381 published papers on FFs between 1988 and 2020 and suggested that more attention should be paid to studying the heterogeneity of FFs. **As a result, the main gaps identified in this research indicate a need for more empirical studies to concentrate on just 'large' FFs as the sole research focus and to examine the role of family involvement and the moderating effect of firm size.**

Regarding firm heterogeneities, large FFs may behave significantly differently from each other, e.g. in terms of the commitments of family members. In addition to defining 'large' FFs more appropriately, other firm characteristics may be considered, such as total assets, number of employees, and the type of industry. As such, the main research question can be defined as follows:

> **How is family ownership (i.e., family member shareholdings) and control (e.g. family CEOs) associated with large FFs' short-term financial performance and R&D investment strategy for the longer term.**

Chapter 3 Hypothesis Development and Theoretical Framework

3.1 Introduction

Since China's market reforms of 1992, the prevalence and size of family businesses have experienced significant growth (e.g., Cheng, 2014). Specifically, the aim of this research is to examine the anomaly of the growth and survival of many large listed FFs in a fresh context (i.e., China) and analyse the effects of specific heterogeneous characteristics (e.g., family ownership and control) across these firms, without comparisons with non-FFs. The aim of this chapter is to generate research hypotheses on the associations between family ownership and control in all large listed Chinese FFs in relation to financial performance in the short term and R&D spending for the long term.

3.2 Hypothesis Development

In this section research hypotheses concerning the impact of family involvement on large FFs in terms of short-term financial performance and R&D investment for the long-term are proposed.

3.2.1 Large FFs' Financial Performance

Owing to agency costs, Chrisman, Chua and Litz (2004) believed that family involvement in FFs could potentially positively or negatively determine firms' financial performance.

3.2.1.1 Family Ownership and Financial Performance

Due to the heterogeneity of family business and their empirical characteristics, studies have yet to establish unanimous agreement about the impact of family ownership on performance (Pindado and Requejo, 2015). Family members may provide a variety of resources and skills for their organizations, including dedication, loyalty, trustworthiness, firm-specific tacit knowledge, high-quality social networks, and financial and physical assets, which are a key

source of human, physical, financial, and social capital (Kim and Gao, 2013). Family ownership can affect performance, which may depend on voting rights concentration (Silva and Majluf, 2008). Anderson and Reeb (2003) argued that the possession of significant income flow rights by founding families provides them with both the motivation and authority to engage in acts that prioritize their own interests, sometimes to the detriment of overall business performance. Thus, family members may allocate the resources of the business to their own projects or affiliates instead of investing them in the most profitable areas, leading to wasted and inefficient resources and thus ROA.

Likewise, resource restrictions might arise when family members own shares since they may exert pressure for dividends or other kinds of capital repayment. This might potentially result in a decrease in the financial resources accessible to the company for R&D investment, hence constraining the increase of ROA. In large FFs, the family owners with greater ownership may have influential power to promote the interests of the owning family exclusively (Morck and Yeung, 2003) and bring extra agency costs. In these cases, family ownership may lead to decision-making conflicts within the large FFs, i.e. “bifurcation bias” (Majocchi et al., 2018), which may be due to family members' interference in the business's management, leading to inefficient decision-making. This may then negatively impact the business performance if family members pursue their personal or family interests rather than the business's best interests.

Agency theory also suggests that the principal-agent separation of ownership from specialist management may assist in achieving operating efficiency. Professional managers may, however, incur extra monitoring costs called ‘Type 1’ agency costs. Maintaining a higher percentage of ownership inside the company may limit the FF's ability to recruit external stakeholders who possess the expertise necessary to enhance the organisation's professionalism (Chang et al., 2022). When family members own shares in a company, there is a risk that their personal or familial interests may take precedence over the broader interests of the organisation. This phenomenon has the potential to result in suboptimal decision-making on the part of the organisation, such as allocating money towards initiatives that lack a significant potential for high returns, thereby diminishing the firm's ROA.

Greater family ownership in larger FFs may therefore bring more complex interest conflicts among family members due to possible two-tier shareholdings, which may negatively affect large FFs' performance. Thus, families may have longer investment expectancies than other shareholders, indicating a propensity to invest in long-term ventures compared to managers with shorter investment horizons (Anderson and Reeb, 2003; Bertrand and Schoar, 2006; Le Breton-Miller and Miller, 2006). Thus, when family members hold greater ownership, they may be more inclined to pursue long-term family interests rather than maximizing short-term shareholder value (i.e., ROA).

Furthermore, potential agency conflict (i.e., Type II agency costs) may also arise from the divergence of interests between family shareholders and external investors, which may subsequently impact on firms' decisions about financing leverage (Chee, Hooy and Ooi, 2016). Here, the ROA may be affected as controlling shareholders could be flexible in making decisions on leverage ratio adjustment. In addition to the usual Western predictions of a negative relation between family ownership and performance based on agency assumptions, larger family shareholders may discourage outsider investors from buying minority stakes and will favour family interests rather than just ROA. In China, the existing literature suggests that private FFs prefer family ownership because of a shortage of formal financing channels compared with State-owned firms (Bai, Cai and Qin, 2021). Large FFs with greater family ownership may have needed to over-rely on family capital, which may hinder their innovative investment and then limit the financial returns. For all these theoretical reasons, family ownership may have a more negative relation with financial performance than in Western firms. As a result, the first hypothesis, H1, is established as follows:

> **Hypothesis 1:** Family ownership is significantly and negatively associated with large FF financial performance.

The expansion of organisations on a large scale frequently leads to complicated changes in structure within enterprises, resulting in an amplified volume of internal information

processing (Li and Zhu, 2015). An augmented level of information asymmetry would result in an acceleration of supervision costs associated with agent behaviours, as well as an expansion of the scope for agent behaviours. Li and Zhu (2015) further argued that the establishment of family businesses in China also results in the participation of peripheral family members. As the size of a business expands, an additional layer of family engagement will bring a greater number of peripheral family members into the firm. The lack of alignment in objectives and advantages among the management board would thereafter become even more evident. In the presence of structural complexity within a firm, the agency costs for a rise in family numbers resulting in an increase in the marginal cost of family involvement as the business size expands. In short, as the size of the FF increases, the structure of the family ownership may change. The family may need to bring in outside investors or engage in equity splits to raise capital to support expansion, however, some family members may increase their shareholdings to maintain control of the firm. Scaling up may therefore require large FFs to face more complex management structures, higher operating costs, and greater financing needs. These challenges can affect decisions concerning family members' ownership as well as the financial performance of the large FF.

As they grow, families may face the challenge of balancing the shareholding interests of family members with the effectiveness of the business. Excessive family control may therefore lead to inflexible and inefficient decision-making, which can affect financial performance in terms of ROA. To cope with the complexities associated with scaling up, large FFs may consider introducing more specialised management teams and governance structures to improve the operational efficiency and performance of the business. If they resist the recruitment of specialist non-family managers, however, this may impede ROA. Consequently, H2 can be established:

> **Hypothesis 2:** Firm size significantly and negatively moderates the association between family ownership and large FF financial performance.

3.2.1.2 Family Control and Financial Performance

Family commitment is prevalent in privately held enterprises and also in a significant proportion of large publicly held firms (Bertrand and Schoar, 2006). Top executives have long been seen as a critically important determinant of a firm's strategic decisions (Bertrand and Shoar, 2003) and family affiliations may be positively associated with financial performance.

A typical form of family control is to appoint a family member as the CEO (Cai, Luo, and Wan, 2012; Liu et al., 2012). The CEO is often recognised as the preeminent and influential figure inside an organisation. According to Finkelstein and Hambrick (1996), the CEO is the executive who bears the ultimate accountability for the behaviour and effectiveness of the entire organisation. Family CEOs were found to exhibit a lower frequency of short-sighted acquisitions and downsizing decisions compared to non-family outside professionals. They also engaged in more long-term research and development and capital expenditures, resulting in the development of unique capabilities that lead to higher financial outcomes (Miller and Le Breton-Miller, 2006). Consequently, the altruistic conduct exhibited by the family CEO should result in an overwhelming expansion of profits since the CEO prioritises family profits whenever the decision between family profits and other outcomes is in close proximity.

Nevertheless, Lubatkin et al. (2005) highlighted the negative aspects of familial connections within the organization, and contend that family firms possess a theoretical distinction from private enterprises due to the significant influence of family links on agency relationships inside family firms. This influence has the potential to negatively impact the owner-managers' capacity to exercise self-control over time. The presence of family members within the top management teams of family-controlled enterprises has the capacity to increase agency risks rather than diminish them and undermine the CEO's altruistic intentions for their own personal gain.

According to McConnell and Servaes (1990), advocates of agency theory contend that

family CEOs, being inside shareholders, may possess motivations to implement investment strategies that favour their own interests and those of their families, while concurrently diminishing the returns distributed to external shareholders. The abilities and professionalism of certain family CEOs may therefore be questionable. Even competent family CEOs, if not strictly controlled, could potentially deviate from the goal of maximising shareholder wealth (Gomez-Mejia et al., 2003).

Using a survey of 1,114 CEOs of manufacturing firms in six nations, Bandiera et al. (2018) found that firms with family CEOs exhibited lower levels of productivity and profitability compared with those led by professional CEOs. Based on agency theory's principal-agent perspective, however, family CEOs may have better performance implications than outside professional CEOs by avoiding separation costs, i.e., reducing agency conflicts between principals and agents. A plausible non-agency interpretation for the existence of family-owned businesses is also that familial relationships (i.e., trust among family members) can function as a viable alternative to professional control, especially in nations with inadequate legal frameworks, which may be a substitute for which formal governance and contractual enforcement mechanisms are lacking (Bertrand and Schoar, 2006). For example, Ge et al (2019) found that family members' political ties can fill institutional voids in emerging markets (i.e., China). After appointing family CEOs, close family ties and trust may reduce information asymmetry between principals and agents (Liu et al., 2012), which may assist FF owners in effectively managing and monitoring their businesses (Fama and Jensen, 1983). Chrisman et al. (2007) suggest that FF owners' monitoring of managers' behaviour may positively influence financial performance.

Family CEOs could fill the institutional voids to address inefficiencies in labour, capital, tehcnologiy markets in emerging economies (Khanna and Yafeh, 2007; Lee et al., 2008). The presence of family members in top CEO positions may however also adversely affect financial performance due to governance challenges, their aversion to risk or their preference for long-term thinking compared with outside professionals. For instance, Anderson and Reeb (2003) argued that the presence of family CEOs may result in the exclusion of highly skilled and competent external professional managers. Meanwhile, family CEOs may exhibit

diminished capabilities or heightened family attachments and emotional burdens when supervising and delegating tasks to their subordinate managers (Bloom and Van Reenen, 2007), which may have a detrimental impact on firms' performance. In addition, family relatives who lack the necessary qualifications and attributes, can potentially be designated as CEOs inside the large FFs. In which case, family relations may make agency problems much more challenging to deal with (Schulze et al., 2001) because principals and family CEOs are possibly appointed based on some informal linkages, which may lead to less effective governance.

As the opposite of altruism, self-interested family conflicts may further negatively affect family governance (Peng and Jiang, 2010). Family management can bring extra costs, including generation envy, sibling rivalry, and other irrational influences. Hence, family CEOs in large FFs may generate more governance challenges as they are required to navigate the delicate equilibrium between family interests and the sustained expansion of the organisation. This may result in bifurcation bias, i.e. a preference for maintaining the family's wealth rather than prioritising strategic efforts to enhance ROA. The extant literature has provided some empirical evidence of a negative impact of family CEO presence on firm performance, e.g., Jordanian-listed FFs (Saidat et al., 2020) listed firms in Portugal and Spain (Miralles-Marcedo et al., 2014). In China, through observing 351 Chinese listed FFs from 2004 to 2007, Cai, Luo and Wan (2012) found that family CEO presence had a significant positive impact on firms' financial performance (e.g., ROA). However, differing from the listed FFs only, this study specifically focused on rather complex, large-sized listed FFs which would have a greater need for external, specialist CEOs in terms of management expertise. As such, the following hypothesis, H3, is proposed as follows:

> **Hypothesis 3:** Family control is significantly and negatively associated with large FF financial performance.

Whether family control is advantageous or disadvantageous is also contingent on the organization's scale and complexity (Young et al., 2008). The relationship between company size and market competition suggests that more prominent organisations tend to be more

susceptible to the influences of market rivalry and technical advancements due to their extensive presence in several marketplaces. This may compel businesses to adopt a more assertive and calculated approach to enhance their ROA, which may include greater R&D spending. Larger FFs may possess more resources and face heightened market competition, which could lead to increased investment and strategic initiatives to enhance ROA. Thus, the corporation's expansion necessitates implementing more rigorous governance procedures to safeguard the senior management's ability to independently formulate plans, free from excessive intervention by family members.

As business size expands, however, the level of an enterprise, the intricacy of relationships, and internal coordination become more challenging, leading to heightened transaction costs within the organisation, e.g. the costs of supervision of agents and the marginal cost of family involvement (Li and Zhu, 2015). Size undoubtedly brings FFs more complex issues to address, which may increase the need for outside specialist managers' contributions. In that case, enlarged firm size may increase the demand for outside capital, which may negatively affect family control's (i.e., family CEO) effective governance. Based on a survey of Chinese private firms, Li and Zhu (2015) found that family managers negatively determined firm performance when firm size reached a certain level. The following hypothesis, H4, can therefore be defined as follows:

> **Hypothesis 4:** Firm size significantly and negatively moderates the association between family control and large FF financial performance.

Figure 3-1, below, displays the theoretical framework for studying the effects of family involvement on large FFs' financial performance.

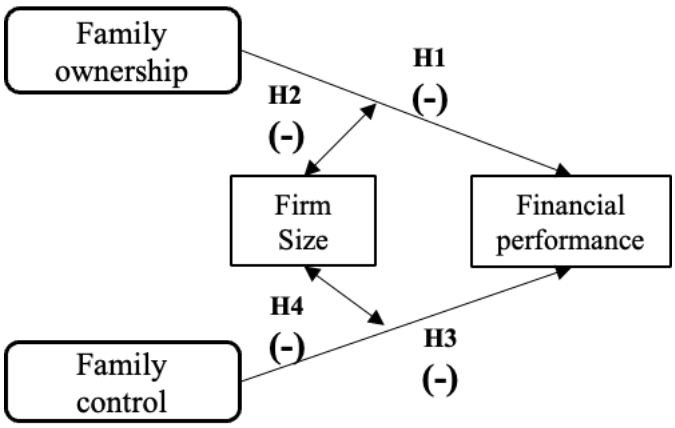

Figure 3-1 Theoretical Framework for Large Listed Family Firm Financial Performance

3.2.2 Large FF R&D Investment

3.2.2.1 Family Ownership and R&D Investment

Investments in R&D can play a crucial role in driving firms' financial performance forward in the longer term, however, differing from other investment forms, R&D investments are often finance-intensive (Hall, 2002), and Block (2012) argued that R&D is a process that demands a significant amount of time and may fall short of achieving its intended goals.

The extant literature has shown inconsistent results about the influence of family ownership on FFs' R&D investment. For example, Block (2012) found family ownership negatively determined American large-listed firms' R&D investment. The negative impact of family ownership on large-listed firms was also found in Chen and Hsu's (2009) study on listed firms in Taiwan, China. Based on 964 publicly listed firms in the S&P 1500, Chrisman and Patel (2012) found that family ownership was negatively associated with firms' R&D investments. Agnihotri and Bhattacharya (2022), however, found a U-shaped relationship between family ownership concentration and Indian listed firms' R&D intensity.

Compared with other shareholders, family owners tend to regard the ownership as one kind of family asset that can be pass on to their future generations, and they have long-term horizons of investments (Cheng, 2014). Family owners may have a greater propensity to

allocate their investments towards family-oriented projects and longer term initiatives. Schmieder (2014) suggested that family shareholders tend to have expectations of the long-term operation of the family and encourage R&D activities, though the extant literature provides mixed evidence (e.g., Agnihotri and Bhattacharya, 2022). Nevertheless, the distribution of resources in large FFs might be subject to concerns related to equity due to the presence of family members as shareholders. For instance, R&D investment was shown to be adversely influenced by family ownership in large American-listed firms (Block, 2012). Block (2012) suggested that greater family ownership leads to additional agency costs, resulting in decreased R&D intensity.

Family members may also have limited knowledge or experience in R&D, making it difficult to accurately assess the value of R&D projects. Due to this information asymmetry, the presence of uncertainties may contribute to the escalation of risks in R&D endeavours. Consequently, these factors heighten the probability of lower and/or less effective R&D spending. Through observing 44 Chinese listed family enterprises between 2010 and 2018, Isiam et al. (2022) found that family ownership without the involved family management negatively affects firms' expenditure on R&D projects. In other words, Chinese-listed FFs with less family ownership tend to be reluctant to risky R&D investment. Building on this logic, the fifth hypothesis, H5, is therefore defined as follows:

> **Hypothesis 5:** Family ownership is significantly and negatively associated with large FF R&D investments.

The expansion of the company can incentivize large FFs to adopt a more assertive approach towards investment in R&D to sustain their competitiveness. It may be because increased size brings complexity, and then families are less qualified to evauate R&D proposals. Specifically, the expansion of the firm's scale may provide more resources to facilitate R&D expenditures while also mitigating the potential bifurcation bias in resource allocation stemming from greater family ownership. In that case, increased size may need the implementation of more stringent governance procedures in order to mitigate unwarranted involvement from family owners and to guarantee that R&D choices are made using

professional expertise and strategic evaluations. In particular, Li and Zhu (2015) suggested that the expansion of firm size would bring more complex corporate governance issues. Specifically, larger-sized companies are required to employ more professional and skilled managers, but the closeness of family networks in China may hinder the recruitment of a professional manager. As a consequence, the following hypothesis, H6, is defined:

> **Hypothesis 6:** Firm size significantly and negatively moderates the association between family ownership and large FFs' R&D investments.

3.2.2.2 Family Control and R&D Investment

Family CEOs may have conflicts of interest due to the inherent requirement to navigate the delicate balance between the family's financial interests and the firm's long-term development objectives. This inclination may result in a preference for wealth preservation within the family rather than undertaking the risks involved with investing in R&D. The governance concerns surrounding family CEOs pertain to instances when they have excessively intervened in the firm's governance framework, impeding the decision-making process for R&D investments.

From another perspective, the successful execution of knowledge-intensive operations, such as R&D, requires the presence of exceptionally skilled individuals in crucial roles. Inadequate recruitment efforts to attract such brilliant personnel may have a detrimental impact on the firm's ability to R&D. Accordingly, family CEOs in large FFs may not possess the requisite professional experience and skills that are specifically required for an executive role, particularly in the fields of R&D. If family CEOs do not possess the requisite knowledge and expertise to comprehend and lead R&D initiatives, they could exhibit hesitancy against investing in such projects or may make ill-advised choices. In short, the presence of family members serving as executive CEOs could hinder R&D investment due to their inclination towards short-term goals, limited competence, potential conflicts of interest, and interference in the decision-making process in large FFs. Based on an investigation of Chinese listed FFs 2008 to 2019, Wang et al. (2022) found that family

members appointed as board members or senior executives have a negative impact on firms' R&D investment intensity. A similar effect would be expected to be found on large listed FFs in China based on the aforementioned discussion. The following hypothesis, H7, can therefore be proposed:

> **Hypothesis 7:** Family control is significantly and negatively associated with large FFs' R&D investments.

The potential resolution of this conflict of interest may have been facilitated by the expansion of the business since bigger organizations possess the ability to effectively distribute risk and allocate more financial resources towards R&D investment. Additionally, larger, more complex firms often need professional management, which further emphasizes the importance of R&D investment. Family managers in larger FFs may need help to handle complexity, and more costs and challenges could be involved, such as low efficiency due to non-specialist family control.

Given the importance of family networks in China, Li and Zhu (2015) believed that the expansion of firms, and its associated complexity, would create a need for specialist enterprise managers. The expansion of a firm may also need the implementation of more rigorous governance systems to enable senior management to independently establish R&D initiatives, free from unwarranted intervention by family members. In addition, the scale of a corporation and its susceptibility to external factors, such as market rivalry and technical advancements, are often intertwined. Due to their presence in several markets, larger organizations are therefore often more exposed to these pressures. Consequently, R&D spending may become essential for their continued existence. The following hypothesis, H8, can therefore be proposed :

> **Hypothesis 8:** Firm size significantly and negatively moderates the association between family control and large FF R&D investment.

Figure 3-2 displays the theoretical framework of studying family involvement effects on

large FFs' R&D investment.

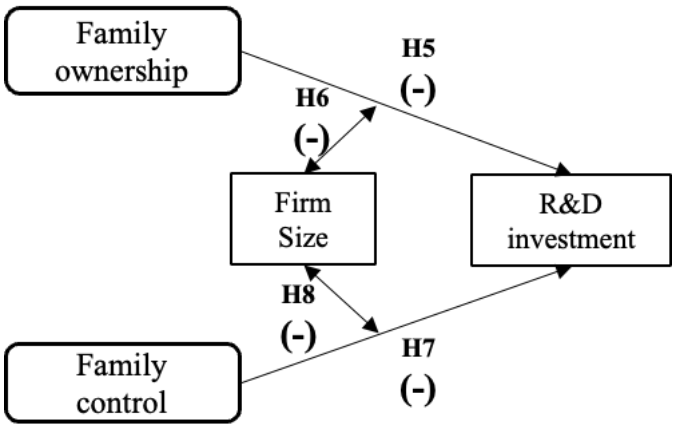

Figure 3-2 Theoretical Framework for Large Listed Family Firms' R&D Investment

3.3 Intended Research Contributions

Overall, this empirical study is proposed to shed light on the focal anomaly of large FF survival and growth in terms of the decisive heterogeneity characteristics among all large FFs that influence their financial performance and R&D investment, and will contribute to the extant literature on FFs. On the balance, this research is intended to make contributions in the following areas:

3.3.1 Intended Empirical Contribution

Bruton, Zahra et al. (2022) suggest that existing theories need more realism and relevance when analyzing firms in different contexts, and therefore, indigenous theories are required to help provide a better understanding of large FF behaviour. This research therefore focuses on large listed FFs considering family ownership, control and effects of variations in firm size. All listed and non-large listed firms will also be compared and the results listed in in the Appendix Sections 3-4. This research will contribute to a better understanding of the financial performance and R&D investment of large FFs from an emerging economy (i.e., China).

3.3.2 Intended Theoretical Contribution

This research will also make atheoretical contribution by expanding existing viewpoints in the domain of FF governance research, and by offering valuable insights into the processes by which family ownership and family members serving as CEOs enable large FFs to survive and grow and impact on financial performance, as well as their investment in R&D. This will facilitate an increased comprehension of the internal governance framework and decision-making processes inside large FFs. It may also provide a starting point for deeper studies that investigate the means by which large listed FFs manage to defy the predictions of agency theory, to survive and grow. The intended theoretical contribution will be made as follows.

The research findings of the present study are intended to contribute by exposing agency theory to empirical tests in the context of large FFs, and are anticipated to contribute to agency theory by providing insights into how agency conflicts between family and non-family stakeholders influence financial performance and R&D investment decisions within large publicly listed FFs. The findings may shed light on the exploration of agency relationships in the context of large listed family-controlled businesses, thereby advancing theoretical understanding in this area.

This aim of this study is to consider stewardship for any findings contrary to agency theory predictions, and by examining the role of family members as stewards of the firm's resources and interests, this will contribute to stewardship theory. The findings may explicate how family stewardship influences financial performance and R&D investment behaviour in large publicly-listed FFs, offering theoretical insights into the motivations and behaviours of family members in managerial roles. For example, an existing study found that stewardship capabilities became competitive advantages for FFs in Iran over non-FFs (Azizi et al., 2022).

Socioemotional wealth (SEW) has been increasingly seen as a mainstream perspective in FF research (Chen et al., 2022; Tsao et al., 2021). The SEW concept has emerged as a prominent framework for understanding FFs due to their purported emphasis on goals beyond just

economic concerns but including the social and emotional requirements of family owners and management (Tsao et al., 2021). The present research is expected to contribute to SEW theory by exploring how family ownership and CEO positions impact the preservation of the SEW and its implications for financial performance and R&D investment. The findings may uncover the trade-offs between financial objectives and socioemotional considerations within large publicly-listed FFs, enhancing theoretical understanding of SEW dynamics.

Lastly, this research is also expected to contribute to the institution-based view (IBV) by considering the institutional context in which large publicly listed FFs operate and studying the role of family involvement in Chinese large listed FFs' financial performance and R&D investment, compared with those listed FFs from developed countries. The present study will further contribute to understanding the nature of the institutional embeddedness of large listed FFs in China, and by exploring how these firms navigate institutional pressures while pursuing short-term financial objectives or R&D investments from a long-term perspective, the research will explicate the mechanisms through which institutions shape firm behaviour and outcomes compared with firms from different countries with distinct institutions.

3.3.3 Intended Managerial and Practical Contribution

Existing studies have provided inconsistent results on the role of family ownership and family control (i.e., family members appointed as CEOs) within listed firms' financial performance (e.g., Dyer, 2006; Kim and Gao, 2013; Taras et al., 2018) and R&D investment (e.g., Agnihotri and Bhattacharya, 2022; Block, 2012; Matzler et al., 2015; Munoz-Bullon and Sanchez-Bueno, 2011). This requires a sole and in-depth investigation on only listed FFs from one single nation. Thus, it is expected that the findings of this study will have some managerial and practical implications.

The present research has the potential to provide practical insights and suggestions that inform strategic decision-making processes inside large FFs. Corporate governance highlights the resource allocation within the company and the conflict resolution among the company's various stakeholders (Pindado and Requejo, 2015). In order to enhance their

governance strategies and investment choices, it is essential for leaders of family businesses to get a comprehensive understanding of the implications associated with family ownership and the appointment of family members as CEOs. This knowledge will enable them to make more informed assessments of the short-term performance outcomes and long-term R&D investment decisions.

The research findings are expected to provide valuable insights towards enhancing the governance structure and methods of large FFs, and underscores the significance of business size in enlarging the influence of family members on decision-making processes and facilitating the allocation of more resources towards R&D, ultimately bolstering firm competitiveness.

The study's findings could also underscore the need for leaders of large FFs to carefully consider the connection between financial success and investment in R&D when formulating strategic objectives. Organizations may have the capacity to customize their approaches based on the firm's size and the structure of family governance, therefore enhancing the equilibrium between R&D and performance.

Chapter 4 Methodology

4.1 Introduction

In this chapter the rationale for the choices made concerning the research methods employed in this research is presented with relevant justifications. The chapter starts with a discussion of the research philosophy followed by an explanation and justification for the choices made for research data, data collection and research methods for testing hypotheses developed in the previous chapter. Finally, a detailed description of the approaches to modelling estimations and robustness checks is presented.

4.2 Research Philosophy

Contemporary research methodology or empirical investigation in management studies generally refers to the classification of quantitative, qualitative and mixed methods (Casula, Rangarajan and Shields, 2021). Each of these methods is associated with a philosophical underpinning, or so-called research orientation, that mainly includes positivism, interpretivism, pragmatism, and realism (Ghauri, Gronhaug, and Strange, 2020; Guba and Lincoln, 1981; Morgan, 2007; Stebbins, 2001). In short, a research philosophy refers to a fundamental belief system that guides the approach employed to gather, analyse, and utilise relevant data pertaining to certain phenomena. This research philosophy provides the foundation for the research, and encompasses the selection of a research strategy, formulation of the research problem, the gathering and processing of the data, and subsequent analysis.

4.2.1 Positivism

The positivist research philosophy stands in contrast to the interpretive research philosophy. Positivism refers to scientific, objective or measurable facts that can be used to predict the future (Donaldson, 1997). Hence, predictions can be formulated by leveraging the knowledge and understanding derived from past observations and the elucidation of their

interconnectedness. It has been argued to be the best method of generalizing an empirical theory (Purnamasari, 2016), therefore, the logic of positivism was most appropriate since this research relies on Chinese publicly available secondary data gathered over a decade. Given that the aim of this study was to examine the role of family ownership and control on large listed FFs' financial performance and R&D investment strategy, positivism was deemed the most appropriate approach as the study's empirical findings will help advance the application of agency theory, the social-emotional wealth (SEW) perspective and stewardship theory within an under-researched context.

Positivism has also been criticized, however, for example, Chua (1986) argued that positivism carried more weight through empirical models and statistical analyses but tended to neglect the subjective influence of the researchers themselves, and concepts difficult to measure, e.g. power. Positivism therefore arguably merely offers a superficial understanding of an event and fails to delve into its intricate technical and social aspects (Christenson, 1983). Likewise, Chua (1986) criticized positivism for giving more weight to empirical data and models but paying little attention to things in great depth, and therefore may not offer a comprehensive solution to a problem, through only focussing on findings derived from a distant view of the research objects. Arguably, positivism can only assist in providing a superficial understanding without in-depth observations (Christenson, 1983). Nonetheless, positivism provides a rationale for the process of generalising and analysing a phenomenon in order to develop a theoretical framework (Purnamasari, 2016). On balance, the theoretical logic of positivism is appropriate for this research, while recognizing its weaknesses.

4.2.2 Interpretivism

Alharahsheh and Pius (2020) argue that the positivist paradigm lacks theoretical grounding in the field of social science, and that interpretivism, as a theoretical framework, underscores the importance of avoiding the oversimplification of societal complexities through the identification of universal patterns. Crotty (1998) stressed the purpose of interpretivism to provide abundant interpretational stories combined with contextual factors to strengthen understanding. In other words, interpretivists argue that reality can be more fully understood

by subjectively interpreting and intervening in it. Further, the positivist approach suggests an objectivist ontology that an objective reality can be revealed, while interpretivism highlights a relativist ontology and a subjectivist epistemology (Levers, 2013). In short, interpretivists draw conclusions by examining the context of an action or event, as well as its relationship to a larger set of acts, events, and interpretations.

The primary purpose of this study is, however, to examine the impact of family involvement (i.e., ownership and control) on the financial performance and R&D investment of large listed FFs over the past decade. This research purpose necessitates a quantitative analysis of linear or nonlinear relationships between variables, which is fundamentally more aligned with positivism rather than interpretivism. The framework of the study was therefore designed to deductively test hypotheses concerning the relationships between family involvement and large FFs' performance indicators in a structured and objective manner. As discussed above, interpretivism focuses on understanding the subjective meaning of social phenomena, which is not the fundamental aim of this study, and a recognized omission. As a result, given the study's main research purpose, a positivist approach employing quantitative methods is deemed more appropriate than interpretivism when taking the limitations of each approach into account.

4.2.3 Pragmatism

The pragmatic perspective suggests that knowledge can be sourced from the factual actions that induce transformations in the real world, and then pragmatism can make a contribution to philosophy in the field of social science (Baert, 2004). The underpinning essence of pragmatism lies in the fact that knowledge is gained through experience (Kaushik and Walsh, 2019). The pragmatist paradigm is therefore associated with purposeful inquiry (Casula, Rangarajan, and Shields, 2021), and seeking knowledge using various methods to provide a solution (Elkjaer and Simpson, 2011).

As noted above, pragmatism in research methodology is characterized by its focus on research questions, allowing for flexibility in the use of methods to address the problem.

Pragmatists argue that the research approach should be driven by the question and should not be limited by philosophical commitments to any specific methodology. This means that a pragmatic research approach can include both qualitative and quantitative methods, depending on which are most useful for addressing the research question. Consequently, although pragmatism offers more flexibility and the potential for a comprehensive understanding of complex phenomena, it may be that a more focused quantitative methodology would provides a more direct pathway to addressing the research questions in the present study. Again, positivism was preferred to pragmatism as there was insufficient time or resources to supplement a quantitative study with deeper, qualitative enquiries.

4.2.4 Realism

Schwandt (1997:133) argued that "*scientific realism is the view that theories refer to real features of the world.*" Realism is grounded in essential assumptions required to acknowledge human perception's subjective nature, i.e. realism is particularly concerned with revealing the principal mechanisms that explain observed phenomena. Hence, critical realism holds that as long as the researcher is as realistic and objective as is feasible, a range of facts and methodologies are appropriate (Bhaskar, 1986), which largely supports the diversity of methodological options (Ghauri, Gronhaug and Strange, 2020). Similar to pragmatism, a realism approach can support both qualitative and quantitative methods, but the emphasis on understanding the reality behind observable phenomena often requires a mixed-methods approach to explore the complexity of the causal mechanisms. The focus of this study however, is on quantitatively analyzing the role of family involvement in large FFs, thus, while realism offers a framework for understanding the complexities of social phenomena by exploring the potential mechanisms, the specific objectives of this research are more closely aligned with positivist traditions that prioritize the objective measurement and statistical analysis of variables to identify relationships, rather than delving into the qualitative exploration of potential mechanisms that realism would support. It is acknowledged, however, that "the reality behind observable phenomena" can be very important, e.g. the invisible power structures that lie behind family ownership and control.

4.3 Research Approaches

There are two logical approaches to knowledge building involving induction and deduction (Ghauri, Gronhaug, and Strange, 2020). Deduction is generally based on logic, while induction is based on empirical evidence. The selection of the appropriate research approach depends on whether it can better address the research questions.

4.3.1 Deductive Research

Deduction means that testable hypotheses are generated based on logical reasoning and are often associated with quantitative research, thus, quantitative methods usually follow a deductive logic using formal hypotheses to predict potential causative relations (Casula, Rangarajan and Shields, 2021; Islam, Khan and Baikady, 2022; Morgan, 2007). On that account, deductive reasoning may result in inappropriate conclusions if the principles established are flawed or unsuitable for the given context, moreover, with powerful inferential statistics, quantitative research may have external validity that can generalize results to the population. Fundamentally therefore, deductive methods are applied to testing theory. As a consequence, quantitative researchers tend to take careful consideration of so-called "objective" empirical evidence valued for testing logical propositions against experience (Zyphur and Pierides, 2020). The purpose of deductive research is therefore to both establish hypotheses based on existing knowledge and display them in measurable terms so that they may be tested using the data (Bryman and Bell, 2015). The hypotheses in this study are therefore derived deductively from agency theory. As such, the deductive approach is more appropriate in this study.

4.3.2 Inductive Research

Inductive analysis, by contrast, requires that the researcher initiates the investigation by selecting a specific field of study and subsequently permits the theory to manifest organically from the collected evidence (Strauss and Corbin, 1998). Induction follows from observations, analysis, and findings to the final step of theory building, and such research is generally

associated with qualitative methods. Qualitative research tends to provide an understanding and description of subjective perceptions of phenomena (Casula, Rangarajan and Shields, 2021). It is evident therefore that inductive research based on quantified variables is inappropriate for this study.

The aim of this research was to investigate the effects of specific characteristics (e.g., family ownership and control) on large FF performance, measured quantitatively. A positivist lens is therefore adopted and quantitative methods with deductive logic based on agency theory were employed.

4.4 Research Data and Sources

One important issue regarding research feasibility is data availability. Notably, a specific Chinese FF database (i.e., the Chinese Family Firm Research Database 'CFFD') allows scholars to obtain detailed FF information. An increasing number of scholars have published papers in internationally known and top journals based on this database such as the *Journal of Corporate Finance* (e.g., Ashraf, Li, and Ryan, 2020; Liu, Luo and Tian, 2015).

Another important database that was accessed for this research was the BVD Orbis. Orbis has information on around 450 million companies around the world, which includes detailed financial information (i.e., ROA, profit margin, total assets, public status, R&D information, board information and so forth (Orbis, 2023). The data used in this research were therefore, drawn from both the CFFD and Orbis Databases.

Family enterprises can exhibit various structures and inclinations in diverse institutional contexts, and the existence of worldwide variations in institutional and cultural contexts implies that it would be erroneous to make the assumption that a universal definition of a family enterprise can be applied universally across different civilizations (Carney, 2005).

Given the existence of global differences in institutional and cultural contexts, it would be optimistic to assume that a universal definition of an FF could be applied across nations

(Carney, 2005; Stewart, 2003). For example, for the purpose of this present study, a family firm in China refers to the founder of the firm and/or a family member who, by either blood or marriage, has at least 20% control rights directly and indirectly over the sample period (Liu, Luo, and Tian, 2015). Andres (2008:435) argued that German FFs should satisfy two criteria: "*a) the founder and/or family members hold more than 25% of the voting shares, or b) if the founding family owns less than 25% of the voting rights they have to be represented on either the executive or the supervisory board*".

Consequently, Table 4-1 displays the definitions of FFs from different countries in extant studies and this is consistent with the conclusion of Miller et al. (2007) that a consistent definition of FFs is lacking. According to the CFFD, in China, FFs should satisfy three criteria: (1) the actual owner can be a single owner or a family connected by blood or marriage; (2) a family member is directly or indirectly the largest shareholder of the listed company; (3) at least two family members should hold shares or hold positions in the listed company or its related company. Compared with the related literature, the major distinct difference in the definition of FF via CFFD is that it provides no specific requirement on the precise ownership level of family members.

Table 4-1 Definition of Family Firms From Different Countries in Empirical Studies

Author(s)	Target samples	Definition of family firms
Cai, Luo and Wan (2012)	Chinese listed firms	Firms having a family or an individual ultimate owner holding 20% at least of firm-control rights
Chang, Zare and Ramadani (2022)	Biggest firms in eight countries of Latin America, Spain, and Portugal	A threshold of family control with 50% at least of the voting shares in a privately owned company and 32% of the voting rights in a publicly listed company
Lin and Wang (2021)	Listed high-tech firms in Taiwan	(1) one family member at least holds a management position; (2) the large owner is a family member and controls 20% shares at least
Lodh, Nandy and Chen (2014)	Indian listed firms	The founding family holds 20% of shares at least
Martinez, Stohr and Quiroga (2007)	Chilean listed firms	One of the following criteria should apply: (1) a firm whose ownership is clearly controlled by a family, and family members are board members; (2) a firm whose ownership is clearly controlled by a group of 2 to 4 families, and family members are board members; (3) a firm is included in a specific business group and associated with a business family; (4) a firm is included in a specific business group and is clearly associated with an entrepreneur who has no direct descendants, but has designated family successors.
Miller et al.,	Publically traded	Firms have more than one family member

2007	listed firms in the United States (Fortune 1000)	working for the company as an officer or director or large owner with 5% at least equity
Munoz-Bullon and Sanchez-Bueno (2011)	Canadian listed firms	Two conditions: (1) two or more directors are family members; (2) family members hold a 10% ownership at least
Sakawa and Watanabel (2019)	Japanese large listed firms	Firms that include board members from the families of the largest shareholders
Srivastava and Bhatia (2022)	Indian listed companies	A dummy variable that equals to '1' if the family has 10 per cent or more equity ownership and at least two-family member representation on the board

Due to variations in the criteria for distinguishing between large and small firms globally, Peng et al. (2018) suggested a commonly employed practical definition for a "large firm" is that it is publicly traded on a stock exchange. The existing literature on defining large-sized FFs mainly refers to those publicly listed and traded firms, such as public U.S. firms in the Standard & Poors 500 (Anderson and Reeb, 2003; Block et al., 2013), Taiwanese companies listed in the Taiwan Stock Exchange (Chu, 2011), large publicly listed family-owned and -controlled firms in eight countries in East and Southeast Asia (Jiang and Peng, 2011) and so forth. As usual, firms' listing thresholds vary by exchanges and minimum stockholder's equity, a minimum number of shareholders, which are irrelevant to the exact size of firms (i.e., the number of employees) and the type of sectors.

In the manufacturing sector, OECD[3] identifies that firms that employ more than 250 people can be seen as large enterprises. On the whole, not all publicly listed firms, or firms with more than 250 people, are really large firms. In China, this is especially the case where there is a Small and Medium Enterprise Board on the Shenzhen Stock Exchange. In that case, all

[3] Enterprises by business size. Available at: https://data.oecd.org/entrepreneur/enterprises-by-business-size.htm (Accessed: 22nd May, 2023).

Chinese listed firms cannot be treated as large ones. To address potential endogeneity issues and selection bias while studying FFs' performance, Miller et al. (2007) investigated two groups of samples including Fortune 1000 firms (i.e., the largest) and another 1,000 smaller-size listed firms. In this research, therefore, the focus was mainly on an exploratory study of large listed FFs as a subset of all Chinese listed FFs. To facilitate comparisons with the extant literature, a parallel analysis based on all listed FFs and other non-large listed FFs is provided in Appendix sections 3-4.

In this research a unique database of all listed FFs in China was developed, from which all large listed FFs were identified according to the official classification criteria of the National Bureau of Statistics of China. For example, in the case of industrial enterprises, which include mining, manufacturing, electricity, heat, gas and water production and supply, the criteria to be met by a large FF was to have at least 1,000 employees and at least $55 million in revenue; in the case of the retail sector, a large FF needed to have at least 300 employees and $27 million in revenue.

4.5 Data Collection and Sample Characteristics

4.5.1 Data Collection

Four data sources for detailed relevant data collection were accessed in this research.

For the detailed data collection (seen in Figure 4-1), 1,594 listed Chinese FFs via CFFD were identified.

In order to collect more firm-level information via ORBIS, all English names of firms obtained via QCC.com, which identified 1,581 listed Chinese FFs, were then obtained .

Once the sample of FFs' English names was obtained, the batch function via the ORBIS database was employed to collect the sample firms' financial information and innovation performance (i.e., R&D investment). The period 2012 to 2021 was chosen because the

ORBIS database nable aceess to complete firm-level information over 10 years. After cross-database matching, a sample of 1,165 listed Chinese FFs, from 2012 to 2021 was identified.

Last but not least, the '*eastmoney.com'* website gave access to the detailed information regarding the exact date in which the firm was listed in a stock exchange, the shareholders' details (e.g., historical ownership level), top-level managers (e.g., CEO, CFO), and so forth. Based on the database, it was found that there were 654 listed Chinese FFs whose largest shareholders were family members and 511 listed Chinese FFs whose largest shareholders were actually companies other than real persons. More importantly, the latter group of Chinese FFs had more complex ownership structures, where it was hard to identify how much ownership was attached to individual family members. To precisely address the research questions, it was necessary to focus on 654 listed Chinese FFs where the largest shareholders were exclusively family members. Based on the criteria for defining large FFs above, 490 large FFs in 2021 were chosen from the target samples. Regression models were also run for the period 2012-19 as a further robustness test, because 2020 and 2021 were years potentially influenced by the COVID-19 pandemic. These data collection stagesare summarised in Figure 4-1 below.

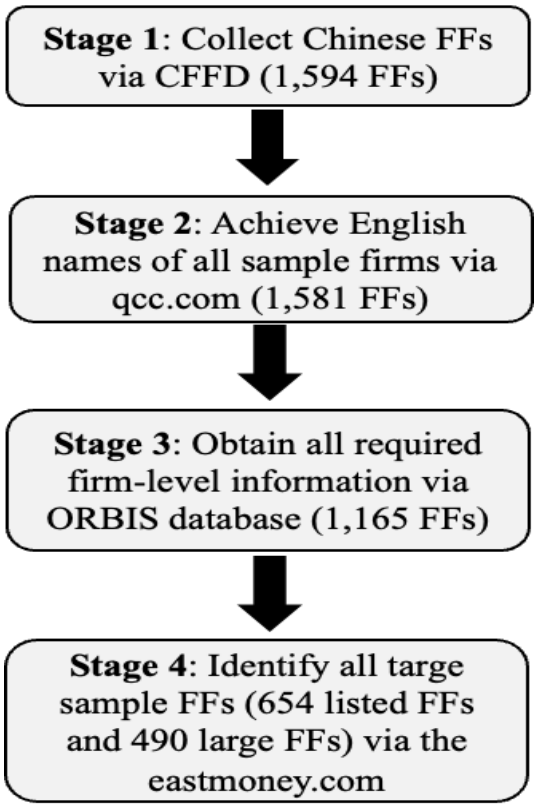

Figure 4-1 Stages of Data Collection

4.5.2 Sample Characteristics

The role of family-owned businesses that have become publicly listed companies is a subject of considerable interest in the landscape of China's economy. The present analysis was conducted on a final dataset of 654 such listed FFs across China. Table 4-2 displays their geographical distribution and the proportion they represent within the dataset. This offers a straightforward analysis of where these family businesses are flourishing and achieving the milestone of becoming publicly listed entities. To be specific, the top five ranked provinces in terms of the number of listed FFs includes Guangdong Province (147, 22.5%), Zhejiang Provine (109, 16.7%), Jiangsu Province (99, 15.1%), Shanghai (49, 7.5%), and Beijing (39, 6.0%). The number of listed FFs in these top five ranked provinces reaches 67.7% of the total listed family businesses in China. The data clearly shows regional disparities in the distribution of these enterprises. These areas have the highest concentrations of listed family businesses, indicating regional economic strengths and perhaps a conducive environment for FFs to grow and eventually become listed in the public market.

Guangdong Province, known for its dynamic economy and openness to innovation and entrepreneurship (Liu, Liao and Wang, 2022), leads the list of listed FFs in China. This could be attributed to its leading role in China's economic reforms and its status as a known global manufacturing hub (Huang and Sharif, 2009). Zhejiang and Jiangsu provinces are not far behind, reflecting their strong private sectors and entrepreneurial spirit. Shanghai and Beijing, as China's economic and political centres, respectively, provide more strategic advantages that likely support the growth and public listing of Chinese family businesses. This distribution pattern suggests that certain regions in China are more favourable for the development and expansion of FFs. Factors such as local government policies, access to capital markets, and large regional differences may play significant roles in this regional variance in China (Deng et al., 2022). In addition, the concentration of listed FFs in these provinces and cities further underlines the importance of regional economic hubs in driving the growth of family enterprises to the status of public listing. As such, in the following modelling analyses, the aspect of geographical distribution should be considered as one control variable. The descriptive analysis is therefore designed to shed light on the significant presence and uneven geographical spread of listed family-owned businesses in China, highlighting the impact of regional differing characteristics on the regional development of these enterprises.

Table 4-2 Geographical Distributions of Chinese Listed Family Firms

Province in China	Number of Listed Family Firms	Percentage
Guangdong	147	0.225
Zhejiang	109	0.167
Jiangsu	99	0.151
Shanghai	49	0.075
Beijing	39	0.060
Shandong	36	0.055
Fujian	31	0.047
Sichuan	21	0.032
Henan	17	0.026
Anhui	15	0.023
Hunan	14	0.021
Hubei	13	0.020
Hebei	11	0.017
Chongqing	7	0.011
Jiangxi	6	0.009
Liaoning	6	0.009
Xinjiang	6	0.009
Guangxi	5	0.008
Gansu	4	0.006
Shanxi	4	0.006
Hainan	3	0.005
Heilongjiang	3	0.005
Tianjing	3	0.005
Ningxia	2	0.003
Shan_Xi	2	0.003
Yunnan	2	0.003
Total	654	1.000

Table 4-3 presents the industrial distributions of all chosen Chinese listed FF, including the number in each main sector and its percentage accordingly. The distribution across various industries highlights the variety of industries that characterize China's market in terms of family businesses. It also reveals these entities within specific sectors where family-owned businesses are making substantial contributions. Specifically, the number of listed FFs involved in the top two sectors reaches 306, occupying 46.8% of the total chosen sample FFs, which clearly showcases the strategic sectors where Chinese private businesses mainly aim to drive growth and development. The leading two sectors were Industrial, Electric & Electronic Machinery and Chemicals, Petroleum, Rubber & Plastic.

The Industrial, Electric & Electronic Machinery sector stands out, showcasing the significant role that family-owned businesses play in propelling China's manufacturing and technological advancement. As Dougherty, Herd, and He (2007) suggest, the private sector in China made an influential impact in the industrial output. The size of this sector, which is also renowned for its dynamic nature and higher international demand, demonstrates the agility and capacity of FFs to adapt to technological trends and market demands. Following closely, the Chemicals, Petroleum, Rubber & Plastic sector reflects the foundational role of family businesses in the supply chain of essential materials and products.

In third, the Metals & Metal Products industry further exemplifies the advantages of Chinese family-owned entities in sectors that are crucial for infrastructure development and the broader manufacturing sectors. In other words, Chinese listed FFs contribute significantly to China's industrial output in domestic and international metal markets.

Additionally, the distribution in the Wholesale sector suggests the important positioning of family businesses in bridging the gap between manufacturers and the market, playing a crucial role in the distribution networks that fuel the Chinese economy.

Above all, these industrial distributions not only represent the areas where Chinese listed FFs are most prevalent but also illustrate the integral role that family enterprises play in China's economic landscape, contributing to employment and economic stability.

Table 4-3 Industrial Distributions of Chinese Listed Family Firms

BVD Sectors	Number of Listed Family Firms	Percentage
Industrial, Electric & Electronic Machinery	187	0.286
Chemicals, Petroleum, Rubber & Plastic	119	0.182
Metals & Metal Products	43	0.066
Wholesale	29	0.044
Transport Manufacturing	28	0.043
Computer Software	25	0.038
Business Services	24	0.037
Communications	24	0.037
Food & Tobacco Manufacturing	22	0.034
Textiles & Clothing Manufacturing	22	0.034
Wood, Furniture & Paper Manufacturing	21	0.032
Retail	17	0.026
Miscellaneous Manufacturing	15	0.023
Leather, Stone, Clay & Glass products	14	0.021
Utilities	12	0.018
Agriculture, Horticulture & Livestock	9	0.014
Media & Broadcasting	9	0.014
Construction	6	0.009
Computer Hardware	5	0.008
Mining & Extraction	4	0.006
Printing & Publishing	4	0.006
Public Administration, Education, Health Social Services	4	0.006
Transport, Freight & Storage	4	0.006
Property Services	2	0.003
Travel, Personal & Leisure	2	0.003
Banking, Insurance & Financial Services	1	0.002
Waste Management & Treatment	1	0.002
(blank)	1	0.002
Grand Total	654	1.000

Figure 4-2 presents the mean number of employees in all chosen listed family businesses in the period of 2012 to 2021. The bar graph shows that the average number of employees

within Chinese listed FFs gradually rose from 1,375 in 2012 to 4,233 in 2021. This decade-long trend not only highlights a significant expansion in workforce size but also reflects the growing operational scale and market influence of these enterprises. The steady increase in employee numbers underscores the robust growth and development of family businesses in the Chinese economy, suggesting a commitment to contributing to economic prosperity through job creation and employment opportunities. Existing studies suggest that private businesses in China made a significant contribution to social and economic development (Tsui, Bian and Cheng, 2006).

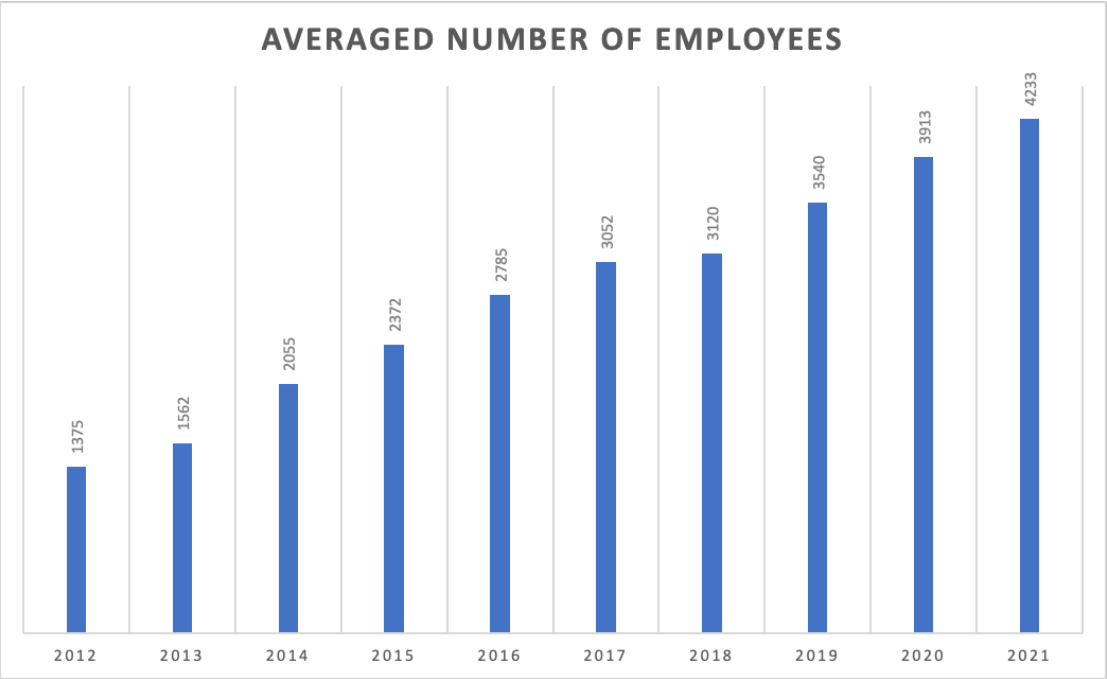

Figure 4-2 Mean Number of Employees in all Chosen Listed Family Firms

Figure 4-3 covers the period from 2012 to 2021, and the data suggests a gradual upward trend in the proportion of shares held by family members in Chinese family-owned publicly listed companies. Specifically, the mean family shareholding rose from 12.94% in 2012 to 26.16 in 2021. This gradual increase in shareholding percentage by family members over the decade not only reflects a strengthening of family control and influence within these enterprises but also indicates a strategic consolidation of family ownership. This trend underscores the intent of family stakeholders to maintain their family involvement and decision-making authority in the company's operations, and aligns with a broader aim to secure long-term stability and guide the strategic direction of the private business. Such a

graphical presentation of historic family ownership changes effectively captures the evolving dynamics of ownership structures in the context of China's private businesses, and highlights a deepening commitment of families to their enterprises.

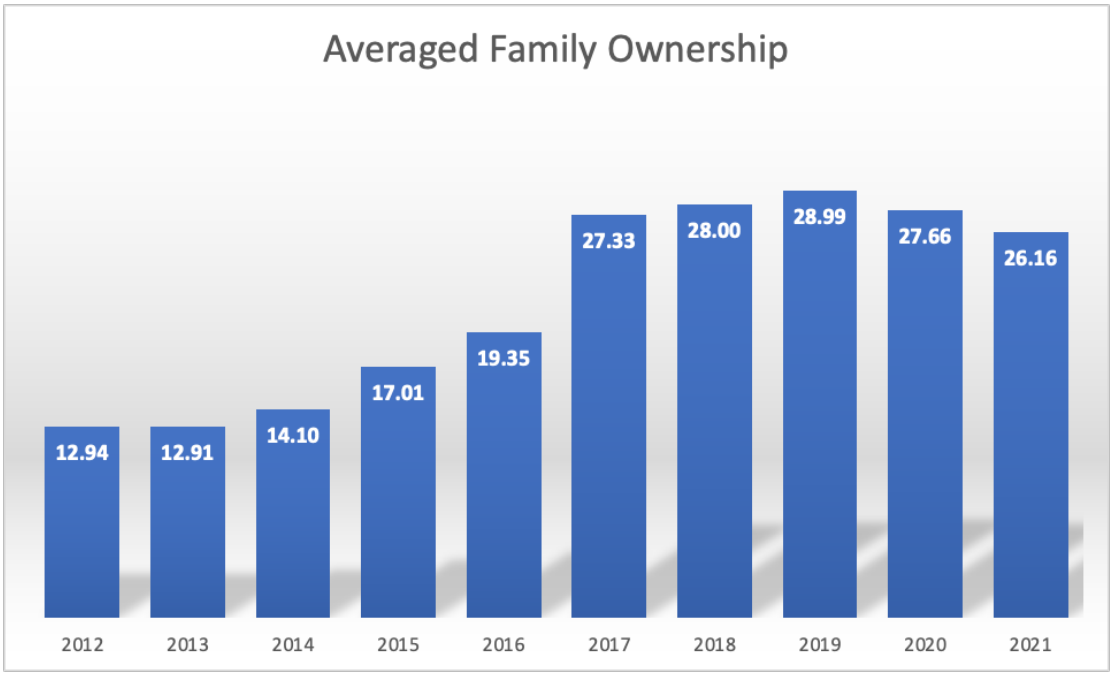

Figure 4-3 Mean Family Ownership in all Chosen Listed Family Firms

Figure 4-4 presents the rising number of family-owned publicly listed companies that appointed family members as CEOs from 2012 to 2021. To be concise, 198 Chinese listed FFs chose a family member to take the CEO position in 2012, however that number rose to 402 listed FFs in 2021. The line graph spanning from 2012 to 2021 presents a generally upward trajectory in the number of Chinese-listed FFs with family members serving as CEOs. This decade-long trend underscores a distinct preference for familial leadership within these enterprises, indicating a strategic alignment of family interests with executive roles. The steady increase in the prevalence of family CEOs within listed FFs reflects a concerted effort to maintain familial control and influence over corporate governance, which was possibly driven by values of continuity, trust, and familial stewardship. This graphical representation may suggest the increasing significance of familial ties in shaping corporate decision-making and strategy for Chinese listed family busineses. As Cai, Luo, and Wan (2012) argued, family CEOs can bring more positive values to firms when there are weaker formal institutions.

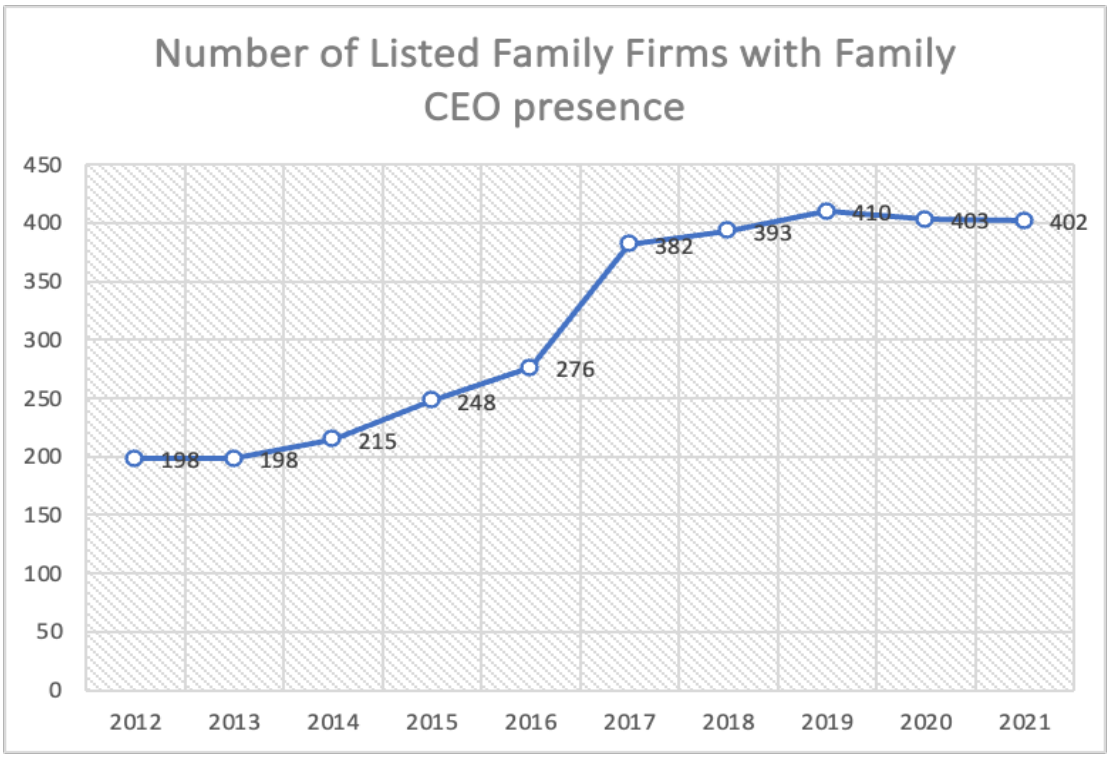

Figure 4-4 Number of Listed Family Firms with Family CEO Presence in all Chosen Samples

Figure 4-5 shows a gradual rise in the number of large-sized listed family enterprises in China from 2012 to 2021. This trend suggests a notable expansion of family businesses achieving significant market presence and operational scale over the decade. The increasing prevalence of large-sized FFs reflects their growing prominence within the Chinese market, potentially driven by factors such as strategic investments, higher operational efficiencies, and committed market expansion efforts. This data suggests the growing strength and adaptability of family-owned enterprises in navigating the business landscape development and solidifying their market positions as important players in the Chinese economy.

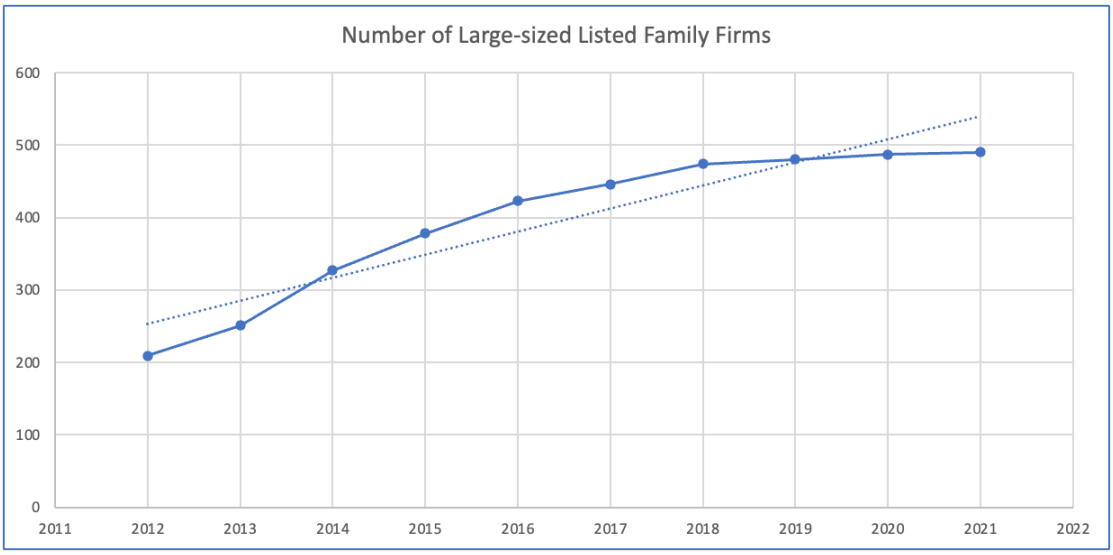

Figure 4-5 Number of Large-sized Listed Family Firms in all Chosen Samples

4.6 Variables

4.6.1 Dependent Variables

Based on the Literature Review, in Chapter 2, the aim of this study was to examine large Chinese FFs' short-term financial performance and R&D investment strategy, and how these influence their longer term performance. Rose and Peterson (1965:11) stressed that "……*Facts must be observed within a specified frame of reference, must be measured with precision, must be observed where they can be related to other relevant facts.*" Thus, the measurement of dependent variables should be based on related existing literature support.

In terms of financial performance, return on equity (ROE) and return on assets (ROA) are two popular proxies for determining how effectively a firm is performing financially. The main difference between the two is that ROE does not consider debt, while ROA does. The ROA can therefore be efficiently used to measure how well a firm utilises its assets. Robins and Wiesema (1995: 290) noted that "*the use of ROA as a performance measure allows the results of the analysis to be directly compared with a substantial body of work on related topics in strategy*". Following an analysis of the extant literature (e.g., Anderson and Reeb, 2003; Andres, 2008; Gonzalez et al., 2012; Herrero, 2018; Lee, 2019; Martinez et al., 2007; O'Boyle et al., 2012; Tang et al., 2022; Zhou, Tam and Yu, 2013), return on assets (ROA)

was also used as the main measure of financial performance. In spite of this, following existing studies (e.g., Bhatt and Bhattacharya, 2017; Blanco-Mazagatos et al., 2016), 'ROE' was still utilized as the alternative proxy of financial performance and added into the modelling analyses (see Appendix Section-3 Table A-M7-8).

In addition, many prior studies adopted Tobin's Q as a proxy for financial performance (e.g., Bhatt and Bhattacharya, 2017; Cai, Luo and Wan, 2012; Miller et al., 2007; Srivastava and Bhatia, 2022), but Zhou et al. (2013:204) contended that "*Tobin's Q computed based on limited tradable shares in stock markets is inappropriate and unreliable in the context of Chinese family firms*". Due to imperfect capital markets, Chang and Choi (1988) argued that the ROA index is more accurate for assessing a firm's operating efficiency. The use of ROA is employed as a means to mitigate the possible apprehension around the reliability of market-based performance indicators in China, owing to the inefficiencies prevalent in Chinese stock markets (Amit et al., 2015). Thus, in this present study ROA was used as a financial performance measure, therefore, more precisely, the ROA for year t+1 was employed as the dependent variable in this study.

Besides financial performance, FFs also need to consider non-financial or 'socioemotional wealth' goals. For example, according to an observation of 1,237 FFs which produce olive oil in Southern Spain, Gomez-Mejia et al. (2007) found that FFs tended to protect the family's socioemotional wealth (e.g. independence), although there were business risks and loss of family control. The presence of innovation inside a business signifies a higher level of advancement and a willingness to undertake ventures that carry the potential for failure since endeavours in innovation do not consistently produce favourable outcomes (Joshi, 2016). Concerning relatively long-term and risky innovation strategy, the use of R&D intensity as the main proxy for defining long-term investment strategy was adopted, i.e., measured as R&D as a proportion of operating revenue, folowing Agnihotri and Bhattacharya (2022).

4.6.2 Main Independent Variables

While making decisions about authority patterns, resource allocation, incentive plans, and conflict resolutions, firm ownership and control are the main governance mechanisms (Purkayastha, Veliyath and George, 2019). Such variations in a firm's governance mechanisms have been regarded as measures to deal with principal-agent conflicts (Dalton et al., 2007; Eisenhardt, 1989) and principal-principal conflicts (Renders and Gaeremynck, 2012; Sakawa and Watanabel, 2019), although Peng and Jiang (2010) found that both family ownership and control (e.g., family CEO presence) have no significant and direct impact on the financial performance of FFs in seven Asian countries, including Hong Kong China, Indonesia, Malaysia, Singapore, South Korea, Taiwan, and Thailand, nevertheless the interactions of family control and the country's institutional development do have a significant impact.

To study the effects of family control on FF financial performance, existing studies (e.g., Cai, Luo and Wan, 2012; Gonzalez et al., 2012; Peng and Jiang, 2010; Purkayastha, Veliyath and George, 2019, 2022; Srivastava and Bhatia, 2022) used a dummy variable 'FCEO' where the value of 1 refers to the family member serving as CEO, and value of 0 otherwise. In addition Block et al. (2013) also sought to find out the effects of the family founder's ownership share and family CEO presence on FFs' R&D investment.

To study Indian listed firms' R&D investment, prior studies have focused on the effects of both family ownership and control (i.e., family CEO presence) (Ashwin et al., 2015; Lodh, Nandy and Chen, 2014). For instance, Ashwin et al. (2015) found that both family ownership and family CEO presence significantly and positively determine Indian firms' R&D investments. The focus of this research is therefore mainly on studying the effects of both family ownership and control on large FFs' short-term financial performance and R&D investment strategy. To better measure each dimension of large FF performance, theoretical and empirical support was sought from the existing related literature.

As a result, based on the above-related literature support, the two main independent variables,

including family ownership (FSHARER) and family CEO presence (FCEO), were measured as follows: the former was measured using a ratio of the largest family shareholder's ownership percentage after IPO; the latter was measured using a dichotomous variable that takes the value of '1' if the family member is CEO, and '0' otherwise.

4.6.3 Control Variables for Studying Financial Performance

A series of control variables were included in orer to study large FFs' financial performance, and a number of micro- and macro-level characteristics were controlled for such as firm age, firm size, board size, total asset value, industry type, firm locations, etc. The aim of this research was to study the effects of family ownership and control on the financial performance of large FF. As such, all related control variables chosen should be based on the relevant literature on FFs' financial performance.

Existing studies have found the firm age may be associated with the firm's financial performance (Andres, 2008; Gonzalez et al., 2012; Martinez et al., 2007; Purkayastha et al., 2019; Srivastava and Bhatia, 2022). Following related existing studies (e.g., Chrisman et al., 2004), firm age ('AGE') was measured as the number of years since the firm was incorporated and should be included as one control variable for several reasons. First, older firms typically have accumulated more experience and capacities in their respective industries, and then controlling for firm age helps isolate the impact of this accumulated knowledge on large FFs' financial performance. Older firms may also have survived in the market due to their ability to adapt to changing economic conditions, technological advancements, and so forth, and therefore their adaptability can positively influence financial performance. Another reason is that established firms often benefit from a strong reputation and trust built over years of operation which have advantages such as customer loyalty, favourable supplier relationships, and so on.

The firm size ('FSIZE') was added as a control variable in the modelling, because firm size can significantly impact financial performance, as larger firms may have access to greater resources, economies of scale, and market influence, which can affect ROA. As such,

controlling for firm size helps to isolate the effects of other variables on financial performance, providing a clearer understanding of the specific contributions of factors like family ownership, family management structure, and so on. The existing literature has used the total asset value to measure firm size by using the logarithm of total assets (FSIZE) (e.g., Andres, 2008; Martinez et al., 2007; Sakawa and Watanabel, 2019; Srivastava and Bhatia, 2022). The logarithm of total assets was also used to measure firm size in this study. The board size, measured as the number of directors, may also be related to family governance (Gonzalez et al., 2012), however, the size of the firms' boards was not included as the control variable because it was not possible to collect this historical data.

Notably, Tang, Osmer and Zheng (2022) found that larger firms with married couples perform better in China. On top of this, the FF that is owned or managed by a couple ('FCOUP') was also included as one control variable. Following the prior related literature (Chrisman et al., 2004; Martinez et al., 2007; Sakawa and Watanabel, 2019), this study also considered the control effect of industry. According to the target sample, nearly 70% were mainly involved in manufacturing, thus, the differences between manufacturing and non-manufacturing firms might indicate the different effects of family involvement. The manufacturing sector ('MANU') was therefore used as a dummy variable where the value of '1' refers to that the firm being involved in the manufacturing sector, and '0' otherwise.

Since the Orbis database allows access to the firms' financial information over the past ten years (2012-2021), a year control variable ('YB2012') was included, where the value of '1' refers to that the firm was listed on a stock exchange in a year before 2012, and the value of '0' otherwise. If the firm was listed on a stock exchange before 2012, the sample firms' financial information from the past ten years was included in the analysis.

4.6.4 Control Variables for Studying R&D Investment Strategy

Besides financial performance, this research was designed to investigate the effects of family ownership and control on large FF R&D investment strategy,therefore all related control variables chosen should be based on the relevant literature studying FFs' R&D investment

strategy. There are a series of control variables for studying large FFs' R&D investment strategy. On balance, a number of micro- and macro-level characteristics were controlled for such as firm age, firm size, industry type, year control, firm locations, and so forth.

Using firm age ('AGE') as a control variable in analyzing R&D investment within large FFs was relevant for several reasons. The firm age can reflect the firm's accumulated experience and knowledge, which can determine its propensity and capacity for R&D spending. Older firms may even have established research capabilities and organizational cultures that facilitate R&D investment. Thus, controlling for firm age can better isolate the effects of other variables on R&D investment, ensuring a more accurate analysis of the factors driving R&D investment within large FFs. For instance, Lodh et al. (2014) believed that a firm's age can be used to control the experience of the firm.

Firm size ('FSIZE') was included as a control variable because it can significantly influence the capacity to invest in R&D activities. Larger firms often have more financial resources and managerial expertise to support R&D initiatives compared to smaller enterprises. Controlling for firm size can isolate the specific impact of family ownership and other relevant factors on large FFs' R&D investment. The extant literature also suggests that firm size can be used as a control variable while studying the determinants of FFs' R&D investment (e.g., Agnihotri and Bhattacharya, 2022). Munoz-Bullon and Sanchez-Bueno (2011) controlled for several variables that may determine a firm's R&D intensity, including firm size (via the logarithm of total assets), firm age, and industry effect through setting up a dummy variable.

Existing studies have also included a dummy variable for measuring industry effects while studying the determinants of FFs' R&D investment activity (Agnihotri and Bhattacharya, 2022; Block et al., 2013; Lodh et al., 2014). In this study, the manufacturing sector ('MANU') was therefore included as one control variable in the modelling.

Daily and Dalton (1992) further suggested that many small FFs from emerging economies are experiencing a transition from traditional family management to professional

management. If FFs receive extra support from investors in economies with relatively developed financial institutions, their performance may improve. For instance, Andres (2008) suggested that capital structure plays a critical role in FFs' financial performance. Hence, in the present study, the effects of FFs' capital structure and built one dummy variable were also considered, i.e. investment from Sino-Foreign joint venture ('SINO'), was included as another control variable .

In addition, Peng and Jiang (2010) argued that the local level of shareholder protection in relevant legal or regulatory institutions can significantly moderate the effects of family ownership and control on firm value. China offers a valuable research laboratory in this context due to the significant variation in the level of institutional development across its provinces and regions (Amit et al., 2015; Banalieva et al., 2015). Specifically, Banalieva et al. (2015) found that FFs possess a competitive edge in provinces that undergo gradual reform, but non-FFs have a comparative advantage in provinces that experience quick change. The sample FF's specific geographical area were therefore included as another control variable. Specifically, a dummy variable was built with the value of '1' if the large FF was located in Guang Dong Province and '0' otherwise ('GDONG'). Here, Guang Dong province was chosen because McMillan and Woodruff (2002) argued that firms are required to prioritize efficiency, flexibility and prompt adaptability in Chinese provinces characterized by profound pro-market reforms.

Equally, to investigate large FFs' R&D investment, a year control variable ('YB2012') was also included in this study where the value of '1' refers to whether the firm was listed on a stock exchange in a year before 2012, and the value of '0' otherwise.

Below, in Table 4-4 all key relevant variables and the data sources available are defined.

Table 4-4 Variable Definitions and Measurements and Sources

Variable abbreviation	Definition	Measurement	Data source
Dependent variables			
ROA	Return on assets	Net Income/Value of Average Total Assets ($)	ORBIS
RDratio	Rsearch and Development (R&D) investment strategy	R&D expense/Operating revenue	ORBIS
Independent variables			
FSHARER	Family ownership percentage	The percentage of family members' ownership	CFFD; Eastmoney.com
FCEO	Family CEO	"1" refers to a family member appointed as CEO, and "0" otherwise	CFFD; Eastmoney.com
Control variables			
AGE	Firm's age	Firm's age	ORBIS/CFFD; Eastmoney.com
FSIZE	Firm size	Logarithm of total assets	ORBIS
FCOUP	Family couple	"1" refers to that the firm being owned and managed by a couple, and "0" otherwise	CFFD, eastmoney.com
SINO	Sino-foreign investment	"1" refers to that the firm being established by Sino-Foreign joint investment, and "0" otherwise	CFFD
MANUF	Manufacturing	"1" refers to the firm being involved in the	ORBIS/CFFD

		manufacturing sector, and "0" otherwise	
GDONG	Guangdong Province	"1" refers to that the firm being located in Guangdong Province, and "0" otherwise	CFFD, Eastmoney.com
YB2012	Year Before 2012	"1" refers to that the firm was listed before 2012, and "0" otherwise	CFFD, Eastmoney.com

4.7 Research Methods

The aim of the research design was to address the main research question, namely:

To what extent do family ownership and control determine Chinese large FFs' financial performance and R&D investment strategy?

The final dataset assembled from two directories comprised of 654 listed Chinese FFs over the period from 2012 to 2021. Within it, 74.9% of listed FFs (i.e., n=490) reached the threshold of large-sized listed FFs in 2021, which comprised the main research sample.

As discussed above, the existing related literature on large listed FFs mainly assumes that large FFs are synonymous with all publicly listed and traded FFs (e.g., Anderson and Reeb, 2003; Block et al., 2013; Chu, 2011; Jiang and Peng, 2011), however, listing requirements differ across exchanges and sectors. For example, the minimum number of shareholders and the value of stockholder equity are not ideal measures of firm size compared with the number of employees. Additionally, the Small and Medium Enterprise Board is a component of the Shenzhen Stock Exchange in China, therefore, Chinese listed firms cannot simply be regarded as large ones, for, as explained above, the focus of this research was mainly on large listed FFs. Then, based on the nature of the dependent variables, specific regression models were used to analyze the data.

4.7.1 Financial Performance

Fixed effects models require the presence of longitudinal change in the data due to their inherent nature. Due to the limited occurrence of changes in family status and/or industry affiliation among the enterprises in the sample during the observed period, however, estimations failed to identify fixed effects and used random effects instead (e.g., Arellano and Bond, 1991; Blundell and Bond, 1998). Similar studies (e.g., Andres, 2008) were followed by also using random-effects GLS regressions. As stated above, because only very few sample FFs changed their level of family commitment over the observation period, fixed effects cannot be identified (e.g., Andres, 2008; Ashwin et al., 2015), so random effects were selected.

Large FF financial performance was measured as ROA, and since ROA has a minimum and a maximum value based on the sample firms, it is censored. Thus, based on a panel dataset, random-effects generalized least squares (GLS) regressions were used, which is a type of regression model that accounts for within-cluster dependence of the outcome variable and left and/or right censoring (Wang and Griswold, 2016).

Thus, the equation can be formally written as:

$$y(ROA_{it}) = \alpha + \beta_1 FSHARE_{it} + \beta_2 FCEO_{it} + \beta_3 AGE_{it} + \beta_4 FSIZE_{it} + \beta_5 RDratio_{it} + \beta_6 FCOUP_{it} + \beta_7 SINO_{it} + \beta_8 MANU_{it} + \beta_9 GDONG_{it} + \beta_{10} YB2012_{it} + \varepsilon$$

Here, y_{it} is the financial performance of firm *i* in time *t*. In the actual process analyses, given that several control variables change over time, the dependent variables were advanced by one and two years respectively via Stata to address possible endogeneity issues.

4.7.2 R&D Investment Strategy

A supplementary analysis of annual financial performance with R&D investment strategy was undertaken to investigate an underlying influence of family commitment over the long

term. The random-effects GLS regression models were used instead of fixed effects because the independent variables in models only slightly change over time (Kennedy, 1998), hence, the equation in the large FFs' R&D investment study can be written as:

$$y(RDratio_{it}) = \alpha + \beta_1 FSHARE_{it} + \beta_2 FCEO_{it} + \beta_3 AGE_{it} + \beta_4 FSIZE_{it} + \beta_5 FCOUP_{it} + \beta_6 SINO_{it} + \beta_7 MANU_{it} + \beta_8 GDONG_{it} + \beta_9 YB2012_{it} + \varepsilon$$

4.8 Research Estimations and Robustness checks

To address potential multicollinearity problems in this research, the variance inflation factor (VIF) test was used vis Stata 17, where if the VIF value is more than 10, then multicollinearity exists (Neter, Wasserman, and Kutnerm, 1990; Kutner, Nachtsheim and Neter, 2004).

It has become increasingly common in business research to control for endogeneity (Campa and Kedia, 2002). There are three main types of endogeneity problems, such as, first, errors in variable measurement; second, reverse causality, and third, unobserved heterogeneity (Gretz and Malshe, 2019). The first type of endogeneity problem cannot be fully dealt with by variable measurement errors, however, all variable measurement estimations should be based on best-practice from existing studies. Reverse causation is a type of endogeneity problem (Leszczensky and Wolbring, 2022). There is an issue of reverse causality when there is a suspicion that the hypothesised dependent variable may potentially have an impact on the independent variable. In this study, however a panel regression model analysis was employed that incorporated the lag of the dependent variables for conducting a causality analysis. Thus, it may be inferred from the findings that family ownership and control have the potential to exert a significant influence on the performance of large FFs, extending beyond an association linkage, thus, the remaining possible endogeneity problem could be attributed to unobserved heterogeneity. Ward and Filatotchev (2010) were followed and it was decided to advance the dependent variables to achieve unbiased coefficients, which is equivalent in effect to using the lagged value of the independent variables.

In addition, based on a longitudinal observation of 3,350 listed firms worldwide, Miroshnychenko et al. (2023) found that FFs' financial performance was better than other non-FFs during the pandemic, though the effect of the pandemic was also relevant to FFs. On that account, to mitigate the impact of the pandemic on FFs' performance, a further robust analysis was undertaken that dropped the two years of the pandemic period (i.e., year in 2020 and 2021) and focussed on the observation period from 2012 to 2019 for a test of robustness.

To address potential selection bias, the typical two-stage technique was employed, following Heckman, (1979), to handle the particular type of endogeneity that can arise from sample selection for family CEO presence. During the initial phase, a probit regression analysis was employed to forecast the likelihood of a family member being chosen and appointed as CEO. In this analysis the variables of registered capital, the presence of siblings among family members, and the geographical location of Shanghai were all considered. The value obtained from the initial stage was converted into the inverse Mills ratio, denoted as 'lambda'. The regressor (correction variable) was then incorporated into the second stage model to account for selection bias.

Based on the chosen philosophy, data, data collection, variables, models and estimations, the next chapter, Chapter 5, presents the research findings, followed by a discussion of them in relation to prior studies.

Chapter 5 Results

In this chapter the findings relating to the effects of family involvement (i.e., ownership, control) on their financial performance and R&D investment are pesented with a view to contributing to an understanding of how large FFs in China grow and survive. The dynamic changes in the effects of family ownership and control on large listed FFs' financial performance and R&D investment with increased firm size were observed throughout. In this section, therefore, there are two separate studies, where each comprises descriptive statistics, regression analysis and robustness checks.

5.1 Financial Performance

5.1.1 Descriptive Statistics

Table 5-1 reports the dependent variables' means, standard deviations, and minimum and maximum values for large listed FFs. For further comparison, descriptive statistic results on all listed FFs are included in the appendices (see Table A-D1 in Appendix Section-3). For large listed FFs, the average largest family shareholder's ownership reaches 28.25%, and 62% of large FFs have family CEOs. Chinese large listed FFs achieved an average total assets of US $874 million and have 4,357 employees. In contrast, Cai et al. (2012) found that 52% of 351 Chinese-listed FFs from 2004 to 2007 had a family CEO. Furthermore, the average age of Chinese large listed FFs was just over 16 years. Hence, large listed FFs in China were relatively younger than developed-country FFs, e.g., an average of 84.3 years for listed FFs on the London Stock Exchange (Poutziouris et al., 2015) and 84.5 years for Standard & Poors 500 firms in 1992 (Anderson and Reeb, 2003). In addition, based on an observation of 750 largest family businesses in the 2019 Family Capital list, Ibero-American and Asian firms attained revenues of US $11.8 billion, 42,179 employees, 67.5% of family control, and 76 years of operations (Chang, Zare, and Ramadani, 2022). In addition, 48% of sample large listed FFs are owned by a couple, 64% of them are involved in the manufacturing sector, 25% of them originally started operations in Guangdong Province, China.

Table 5-1 Financial Performance Study-Summary Statistics for the Large Family Firm Sample

Variable	Observation	Mean	Std. Dev.	Min	Max
ROA	4,239	6.71	9.51	-97.564	78.215
FSHARE	3,487	28.25	13.66	0.21	80.01
FCEO	3,562	0.62	0.48	0	1
AGE	4,722	16.59	5.76	0	41
FSIZE	4,241	19.84	1.05	15.74262	24.56121
FCOUP	4,722	0.48	0.50	0	1
RDratio	3,389	4.05	3.90	-3.173	64.829
SINO	4,722	0.02	0.12	0	1
MANU	4,722	0.64	0.48	0	1
GDONG	4,722	0.25	0.43	0	1

Table 5-2 presents pairwise correlations of the main variables included in the modelling analyses. It can be clearly seen that family ownership (FSHARE) in the sample is significantly and positively correlated with the large listed FF financial performance measure, i.e., ROA (coeff.=0.18, $p<0.001$), but the 'FCEO' is insignificantly and negatively correlated with 'ROA' (coeff.=-0.017, $p>0.05$). Further, these variables, including 'AGE', 'FSIZE', 'RDratio', 'MANU' and 'GDONG', are significantly correlated with 'ROA'. Notably, all variables' correlations are relatively low, which might mitigate the multicollinearity problem in the following modelling analyses. In addition, the result of a pairwise correlation analysis for all listed FFs is included in the Appendix (see Section-3, Table A-D2).

Table 5-2 Financial Performance-Pairwise Correlation Analysis for Large Listed Family Firms

No.		1	2	3	4	5	6	7	8	9	10
1	ROA	1									
2	FSHARE	0.18***	1								
3	FCEO	-0.017	0.17***	1							
4	AGE	-0.17***	-0.05**	0.0156	1						
5	FSIZE	-0.25***	-0.18***	-0.11***	0.27***	1					
6	FCOUP	0.0216	0.06***	0.0106	-0.0277	-0.08***	1				
7	RDratio	-0.03*	-0.0242	0.0218	-0.0241	-0.12***	0.05**	1			
8	SINO	0.009	-0.04*	0.10***	-0.0209	0.0267	0.07***	0.0134	1		
9	MANU	0.04**	0.0164	-0.002	-0.0269	-0.003	0.01	-0.11***	-0.0015	1	
10	GDONG	-0.0299	0.12***	0.0029	0.08***	-0.04*	0.03*	0.005	-0.04**	0.004	1

Notes: **p<0.05, **p<0.01, ***p<0.001;*

.

The pairwise correlation analysis results presented in Table 5-2 above for large-sized listed family firms in China, suggest that 'FSHARE' and 'MANU' are significant and positively correlated with large-sized listed family firms' financial performance, i.e., ROA; and 'AGE', 'FSIZE', 'RDratio' and 'GDONG' are significant but negatively correlated with large-sized listed family firms' ROA.

Prior to the regression analyses, fit plots for listed FFs and large-sized listed FFs were also created, in order to observe their financial performance, i.e., ROA, and the effect of and family involvement (i.e., family shareholding proportions and family CEO presence) and the firm size on predicted ROA respectively.

Figure 5-1 displays the fit plot between listed FFs and large listed FFs regarding their financial performance, i.e., ROA. It can be seen that large listed FFs had differing ROA performances compared with listed FFs from 2012 to 2022.

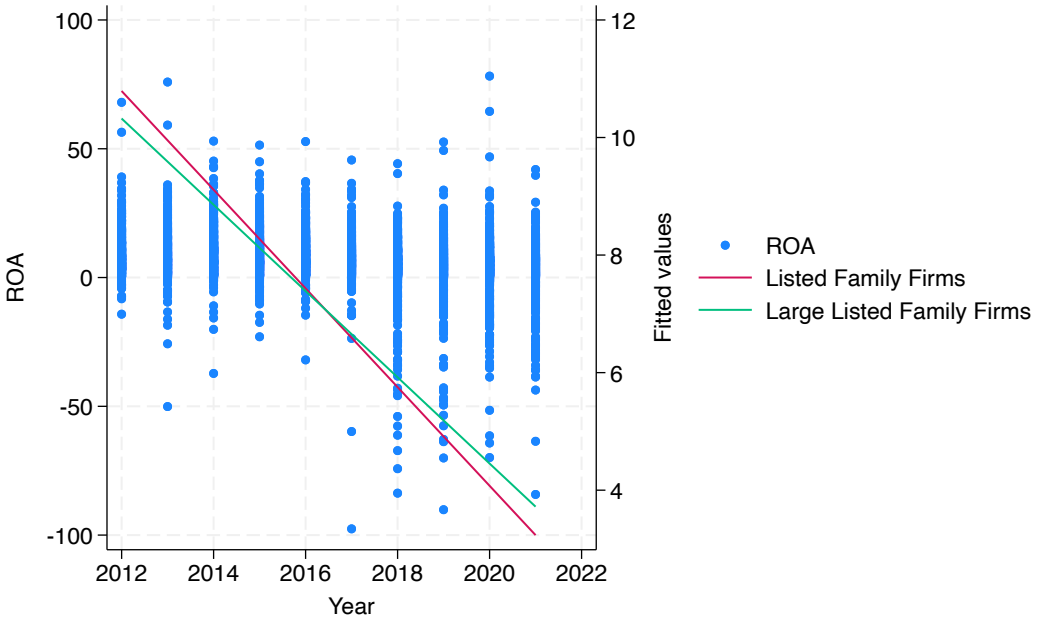

Figure 5-1 Fit Plot of Relationship Between All Listed Family Firms and Large Listed Family Firms

Figure 5-2 displays the fit plot on the impact of family ownership on listed FFs' and large listed FFs' financial performance, respectively. There was a positive relationship between

family ownership and large FFs' financial performance, suggesting that family ownership over a certain level was positively correlated with large FFs' financial performance.

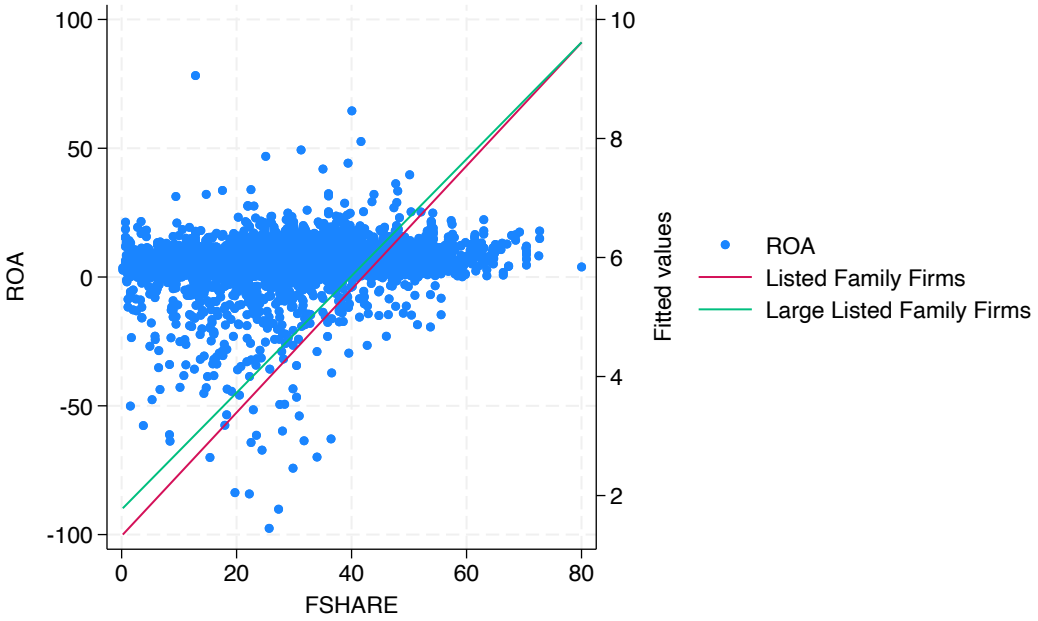

Figure 5-2 Fit Plot Showing the Impact of Family Ownership on Listed and Large Listed Family Firms' Fnancial Performance

Figure 5-3 presents the relationship between family CEOs and the financial performance of listed FFs and large-sized listed FFs, respectively. It is evident that the effect of family CEO was negatively correlated with both listed and large-sized listed FFs' subsequent ROA.

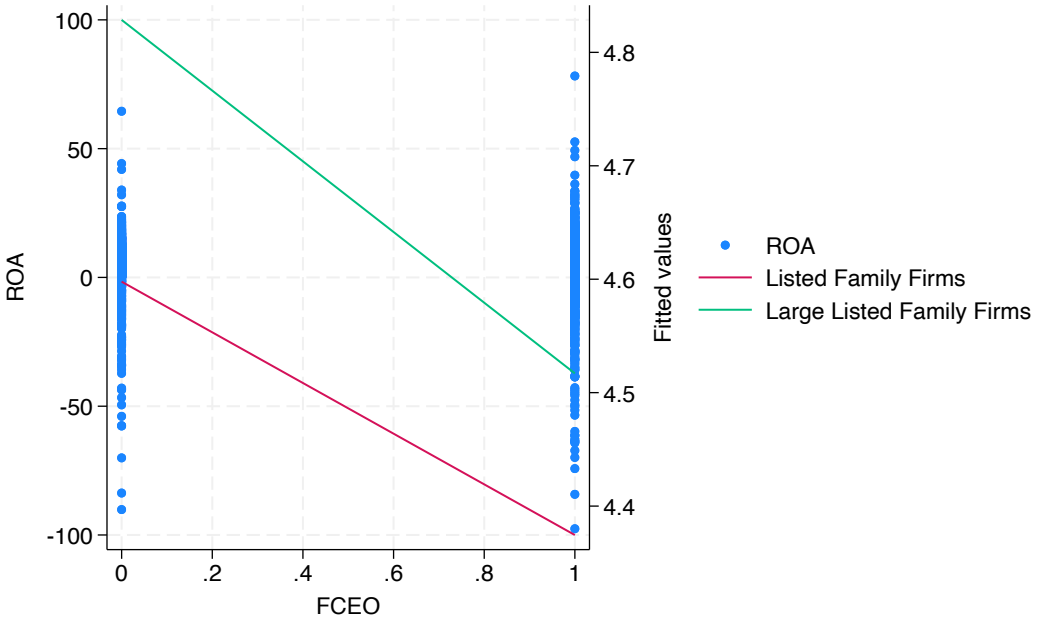

Figure 5-3 Fit Plot of the Effect of Family CEO in All Listed Familys and Large Listed Family Firms' Financial Performance

Figure 5-4 shows a fit plot on the effect of firm size (i.e., total assets) on listed FFs' and large listed FFs' financial performance respectively. Evidently, firm size played a negative role in the financial performance of listed and large-sized listed FFs.

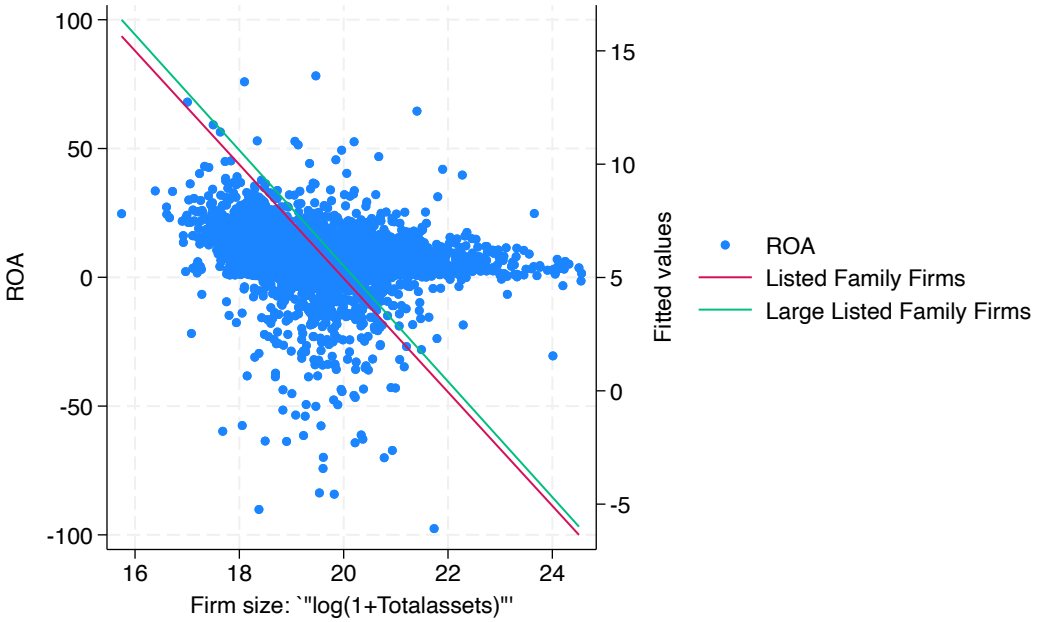

Figure 5-4 Fit Plot of the Effect of Firm Size on Listed and Large Listed Family Firms' Financial Performance

On balance, the statistical analyses above suggests it may be profitable to explore the potential causality between the level of family involvement (i.e., family ownership and control) and large FFs' financial performance, i.e., ROA.

5.1.2 Regression Analysis

Table 5-3 displays preliminary estimations of the heterogeneous effects of family commitment levels on large listed FFs' financial performance. Model 1 adds all relevant variables except for the 'LFF' (large FF); Models 2-3 add 'LFF' with the dependent variables 'f_ROA' (forward 1 year) and 'f2_ROA' (forward 2 years), respectively. The Wald chi-square results in Models 1-3 are 73.07, 73.14, and 52.31 at 99.99% confidence level, which indicates that the variable 'LFF' is statistically significant for that model. In other words,

among listed FFs in China, the large-sized FFs are a distinctive subset. From Models 2-3, it can be seen that the estimated coefficients for 'LFF' were all significantly and positively associated with ROA advanced by 1 year and 2 years (coeff.=1.842, $p<0.01$; coeff.=1.911, $p<0.01$). This reveals that Chinese large-listed FFs were more likely to perform better in terms of ROA than other non-large-listed FFs.

Table 5-3 Preliminary Analysis of Large-sized Listed Family Firms' Financial Performance

Random-effects GLS regression-for testing the effect of large-sized family firms in financial performance			
Variable	Model 1	Model 2	Model 3
	f_ROA	f_ROA	f2_ROA
LFF		1.842**	1.911**
		(0.634)	(0.677)
FSHARE	0.095***	0.097***	0.087***
	(0.018)	(0.018)	(0.019)
FCEO	-1.752**	-1.787**	-1.756*
	(0.608)	(0.606)	(0.679)
AGE	-0.116*	-0.117*	-0.068
	(0.047)	(0.047)	(0.053)
FSIZE	-1.364***	-1.670***	-2.100**
	(0.362)	(0.416)	(0.488)
FCOUP	0.477	0.433	0.263
	(0.552)	(0.546)	(0.605)
RDratio	-0.117*	-0.113*	-0.036
	(0.057)	(0.056)	(0.053)
SINO	1.049	1.362	1.054
	(2.683)	(2.563)	(2.924)
MANU	0.662	0.842	0.917
	(0.621)	(0.632)	(0.700)
GDONG	-1.297	-1.523*	-1.815*
	(0.691)	(0.697)	(0.792)
YB2012	-1.668**	-1.657**	-0.977
	(0.616)	(0.604)	(0.641)
Constant	32.619***	37.249***	43.892***
	(6.831)	(7.608)	(8.942)
Observations	3276	3264	2739
Wald chi2	73.07***	73.14***	52.31***
R-squared	0.0635	0.0623	0.0674

Notes: +,*, **, *** *denote significance at the 10%, 5%, 1% and 0.1% level respectively; This analysis is based on panel data running a random-effect GLS regression.*

Table 5-4 presents the estimation results from the random-effects GLS regression model on large listed FFs' financial performance (see Appendix Section-3, Table A-M1, A-M2 for further comparison with the earlier studies, the sample modelling results on listed FFs and non-large listed FFs). It first presents a baseline model with control variables only (Model

4) and then a model including two main independent variables, i.e., family ownership 'FSHARE' and family control 'FCEO' (Model 5). From Models 4-6, regression were run on samples of large listed FFs. The significant Wald test results in Models 4-6 showed that adding the two independent variables, including 'FSHARE' and 'FCEO', were collectively significant for the model fit at 99.99% confidence level.

In the baseline model, it can be seen that the estimated coefficients for 'AGE', 'FSIZE', and 'RDratio' were all significantly but negatively associated with 'ROA' (coeff.=-0.154, $p<0.01$; coeff.=-3.460, $p<0.001$; coeff.=-0.142, $p<0.05$ respectively). This means that younger FFs were likely to perform better on ROA; large listed FFs with greater total assets were more likely to achieve lower ROA. Regarding firms' R&D expense, it was significantly but negatively associated with large listed FFs'ROA. After adding the main independent variables, the coefficient of the control variable (i.e., 'FSIZE') remained consistently significant.

Concerning the main independent variables, family ownership can be seen that ('FSHARE') is positively and significantly associated with financial performance ('f_ROA') in Model 5 and Model 6 respectively (coeff.=0.092, $p<0.001$; coeff.=0.085, $p<0.001$). The regression analysis results suggest that large FFs with greater family ownership were better performers, 'FCEO' was also found to be significantly but negatively associated with ROA in Model 5 and Model 6 respectively (coeff.=-1.929, $p<0.01$; coeff.=-2.306, $p<0.01$). This means that large FFs without a family CEO presence performed better than those with family members appointed as CEOs.

Table 5-4 Random-effects GLS Regression on Large-sized Listed Family Firms' Financial Performance.

Random-effects GLS regression for testing the impact of family involvement on large-sized family firms' financial performance			
Variable	Model 4	Model 5	Model 6
	f_ROA	f_ROA	f2_ROA
FSHARE		0.092***	0.085***
		(0.021)	(0.023)
FCEO		-1.929**	-2.306**
		(0.693)	(0.789)
AGE	-0.154**	-0.065	0.011
	(0.057)	(0.060)	(0.069)
FSIZE	-3.460***	-1.815***	-2.721***
	(0.399)	(0.445)	(0.550)
FCOUP	-0.164	-0.221	-0.878
	(0.622)	(0.634)	(0.724)
RDratio	-0.142*	-0.042	0.043
	(0.067)	(0.072)	(0.080)
SINO	1.269	4.609*	4.586
	(2.007)	(2.235)	(2.806)
MANU	0.906	0.908	1.003
	(0.687)	(0.681)	(0.778)
GDONG	-1.069	-1.661*	-1.921*
	(0.763)	(0.767)	(0.881)
YB2012	-1.729*	-1.384*	-0.398
	(0.679)	(0.654)	(0.721)
Constant	77.940***	41.230***	57.143***
	(7.169)	(8.422)	(10.273)
Observations	2990	2345	1954
Wald chi2	183.10***	62.89***	50.35***
R-squared	0.1372	0.064	0.0859

Notes: +,*, **, *** *denote significance at the 10%, 5%, 1% and 0.1% level respectively; This analysis is based on panel data running a random-effect GLS regression.*

The significant Wald test results in Models 4-6 showed that adding the two independent variables, including 'FSHARE' and 'FCEO', were collectively significant for the model fit at 99.99% confidence level.

Table 5-5 presents the average marginal effects of family ownership and control on large listed FFs' ROA. The result suggests that an increase of 1% in family ownership for public

FFs results in a rise of 9.2% in ‘f_ROA’ and 8.5% in ‘f2_ROA’.

Table 5-5 Average Marginal Effects on Financial Performance for Large Listed Family Firms

Variables	Marginal-Model 5	Marginal-Model 6
FSHARE	0.092*** (p=0.000)	0.085*** (p=0.000)
FCEO	-1.929** (p=0.005)	-2.306** (p=0.003)

Notes: +,*, **, *** *denote significance at the 10%, 5%, 1% and 0.1% level respectively; This analysis is based on panel data running a random-effect GLS regression.*

Robustness check

As a robustness check, first of all, the variance inflation factor (VIF) test was introduced, and was calculated for each independent variable and control variable. In Table 5-6 the VIF value for each variable was particularly low and can be seen to be significantly less than 2 within a range from 1.04 to 1.09. This means that there were fewer multicollinearity issues in the GLS regression analysis (Myers, 1990; Pelled et al., 1999). To mitigate endogeneity problems, the forward one-year and two-year values of ‘ROA’ were created as dependent variables, respectively, in Models 5-6 , as seen in Table 5-5 above. Therefore, the robustness check provided consistent results concerning the impact of family involvement (i.e., family ownership and control) on large FFs’ financial performance.

Table 5-6 VIF test for Testing the Effect of Family Ownership and Control on Large-sized Family Firms' Financial Performance

Variable	VIF	1/VIF
FSHARE	1.19	0.84
FCEO	1.06	0.95
AGE	1.03	0.97
FSIZE	1.40	0.72
FCOUP	1.02	0.98
RDratio	1.06	0.95
SINO	1.02	0.98
MANU	1.03	0.97
GDONG	1.04	0.96

To conclude, **H1 can be rejected** in that family ownership was significantly and **positively** associated with large FF financial performance, and **H3 can be accepted** as there was a significant but negative association between family CEOs and large FF financial performance.

Table 5-7 provides explorative findings from Models 7-8 on the moderating effects of firm size (i.e., total assets) between family involvement (i.e., family ownership and control) and large listed FFs' financial performance (see Appendix Section-3, Table A-M3 and A-M4 for detailed explorative findings on the moderating effects of firm size in all listed FFs, large listed and non-large listed FFs' financial performance). In Models 7-8, no significant moderating effect of firm size between family ownership or family CEO presence and large FF financial performance was found. This suggests that the firm size played an insignificant moderating effect on the association between family involvement and large FF financial performance. **As a consequence, H2 was rejected, and H4 was rejected as well, at the 95% confidence level.**

Table 5-7 Random-effects GLS Regression for Testing the Scale Effects on Large-Family Firms' Financial Performance

Random-effects GLS regression for large-FFs' financial performance-scale effect		
Variable	Model 7	Model 8
FSHARE	0.089	0.034
	(0.502)	(0.635)
FCEO	17.565	33.174
	(15.637)	(19.380)
FSHARE_FSIZE	0.000	0.003
	(0.025)	(0.032)
FCEO_FSIZE	-0.975	-1.779+
	(0.795)	(0.987)
AGE	-0.063	0.015
	(0.060)	(0.069)
FSIZE	-1.291	-1.815*
	(0.715)	(0.936)
FCOUP	-0.207	-0.834
	(0.633)	(0.721)
RDratio	-0.032	0.060
	(0.074)	(0.084)
SINO	4.558*	4.402
	(2.251)	(2.806)
MANU	0.934	1.041
	(0.683)	(0.775)
GDONG	-1.717*	-2.034*
	(0.764)	(0.870)
YB2012	-1.328*	-0.29905465
	(0.661)	(0.727)
Constant	30.517*	38.665*
	(14.060)	(18.478)
Observations	2345	1954
Wald chi2	69.14***	54.37***
R-squared	0.0622	0.0844

Notes: +,*, **, *** *denote significance at the 10%, 5%, 1% and 0.1% level respectively; This analysis is based on panel data running a random-effect GLS regression.*

The significant Wald test results in Models 7-8 showed that adding the two moderating variables, including 'FSHARE_FSIZE' and 'FCEO_FSIZE', were collectively significant for the model fit at 99.99% confidence level.

Table 5-8 displays the average marginal effects of the moderating effects of firm size on the relationship between family involvement and large-sized listed FFs' financial performance with the value forward one year and two years, respectively. The results suggest that 'FSIZE' did not play a significant moderating effect on the linkage between family involvement (i.e., family sharehodings and members as CEOs) and large listed FFs' ROA at a 95% confidence level.

Table 5-8 Average Marginal Effects of the Moderating Effects of Firm Size on Large-sized Listed Family Firms' Financial Performance

Sample	**Large FF**	**Large FF**
Models	Model 7	Model 8
Financial performance	Forward 1 Year	Forward 2 Years
FSHARE_FSIZE	0.0002 (p=0.993)	0.003 (p=0.933)
FCEO_FSIZE	-0.975 (p=0.220)	-1.779+ (p=0.071)

Notes: +,*, **, *** *denote significance at the 10%, 5%, 1% and 0.1% level respectively; This analysis is based on panel data running a random-effect GLS regression.*

Figure 5-5 and Figure 5-6 clearly show the average marginal effects of family involvement (i.e., family ownership and family CEO) and the moderating effect of firm size (i.e., total assets) on large listed FFs' financial performance. **It shows that firm size played an insignificant positive moderating role in the linkage between family shareholding and listed FFs' financial performance and an insignificant but negative moderating role in the association between the family CEO presence and large FFs' financial performance**.

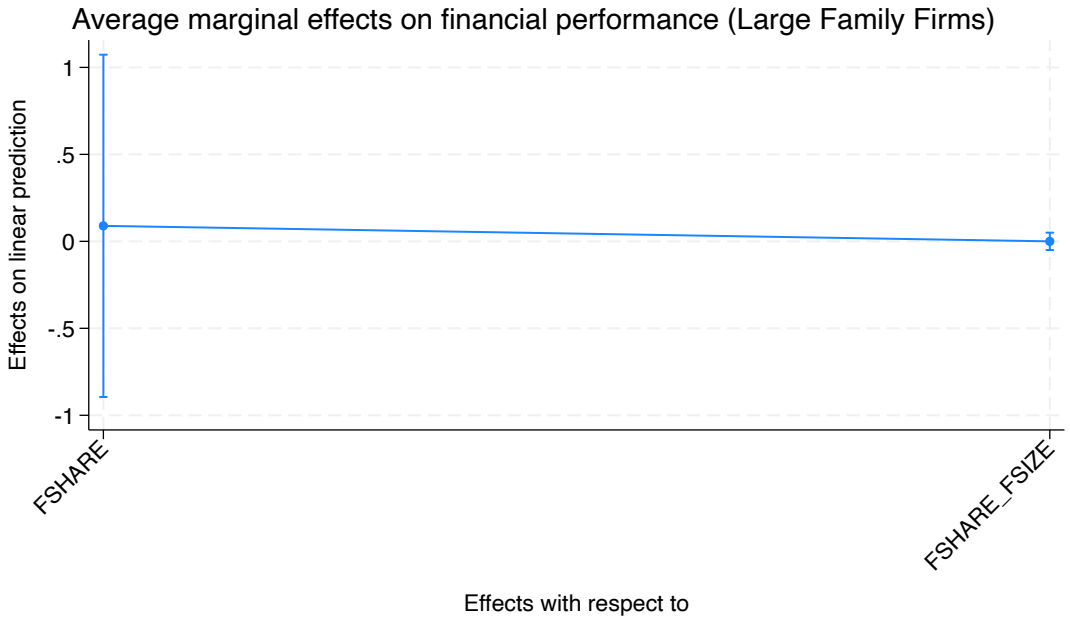

Figure 5-5 Average Marginal Effects With Respect to Family Ownership in Large-sized Family Firms

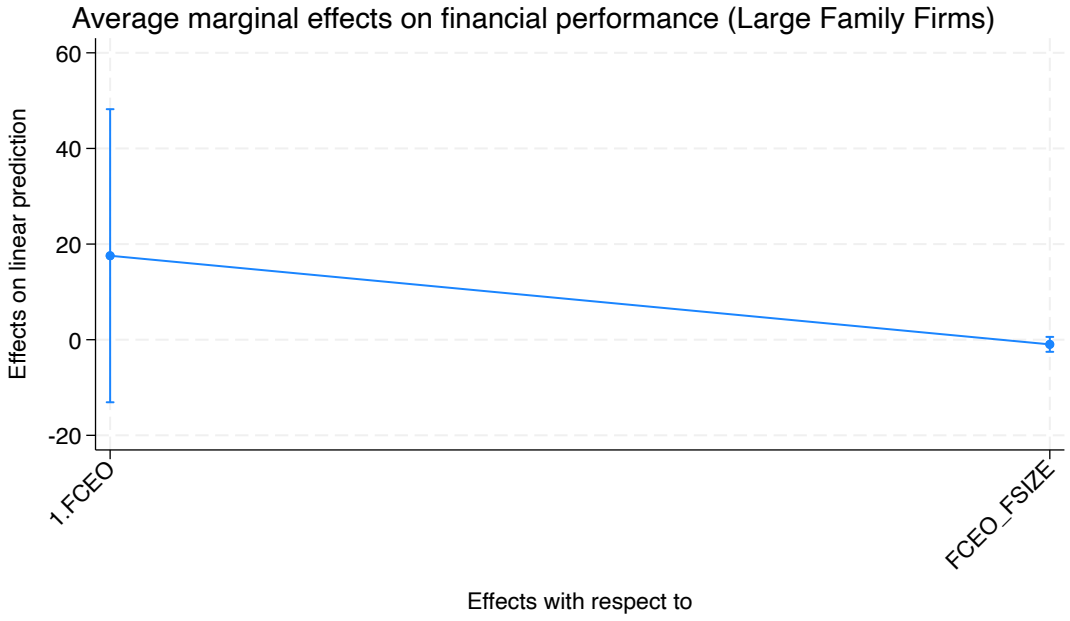

Figure 5-6 Average Marginal Effects With Respect to Family CEO in Large-sized Listed Family Firms

In addition, to mitigate the potential effect of a pandemic (i.e., COVID-19) on large listed FFs' financial performance, the same model estimations were repeated, but this time without the two years of the observation period (i.e., 2020 and 2021). Table 5-9 presents the modelling results on large listed FFs' financial performance before the pandemic. Family

ownership ('FSHARE') was observed to be positively and significantly associated with financial performance ('f_ROA' and 'f2_ROA') in Model 10 and Model 11 respectively (coeff.=0.086, $p<0.001$; coeff.=0.085, $p<0.001$). The regression analysis results suggest that large FFs with greater family ownership were better performers before COVID-19 occured. 'FCEO' was also found to be significantly but negatively associated with ROA in Model 10 and Model 11 respectively (coeff.=-1.806, $p<0.05$; coeff.=-2.306, $p<0.01$). In other words, before the pandemic, the family CEO presence ('FCEO') played a significant but negative role in large listed FFs' financial performance. As a result, consistent results were achieved, which shows that the pandemic did not pose a significant negative impact on large listed FFs.

Table 5-9 Random-effects GLS Regression on Large-sized Listed Family Firms' Financial Performance Before the COVID-19

Random-effects GLS regression for Financial performance (before COVID19)			
Variable	Model 9	Model 10	Model 11
	f_ROA	f_ROA	f2_ROA
FSHARE		0.086***	0.085***
		(0.021)	(0.023)
FCEO		-1.806*	-2.306**
		(0.718)	(0.789)
AGE	-0.127*	-0.037	0.011
	(0.058)	(0.062)	(0.069)
FSIZE	-3.356***	-1.579**	-2.721***
	(0.414)	(0.455)	(0.550)
FCOUP	-0.226	-0.267	-0.878
	(0.609)	(0.637)	(0.724)
RDratio	-0.104	-0.003	0.043
	(0.062)	(0.065)	(0.080)
SINO	0.432	3.865	4.586
	(1.848)	(2.187)	(2.806)
MANU	0.908	0.782	1.003
	(0.676)	(0.685)	(0.778)
GDONG	-1.011	-1.537*	-1.921*
	(0.755)	(0.784)	(0.881)
YB2012	-2.359***	-2.009**	-0.398
	(0.675)	(0.654)	(0.721)
Constant	75.796***	36.636***	57.143***
	(7.487)	(8.550)	(10.273)
Observations	2599	1956	1954
Wald chi2	158.64***	56.50***	50.35***
R-squared	0.1323	0.0649	0.0859

Notes: +,*, **, *** *denote significance at the 10%, 5%, 1% and 0.1% level respectively; This analysis is based on panel data running a random-effect GLS regression.*

With respect to Table 5-9 above, Model 9 reports a baseline model with control variables only and then Models 10-11 include the two main independent variables, i.e., family ownership 'FSHARE' and family control 'FCEO'. From Models 9-11, the regression on samples of large listed FFs were run by after deleting the observation period from 2020 to 2021. The significant Wald test results in Models 9-11 showed that adding the two independent variables, including 'FSHARE' and 'FCEO', were collectively significant for

the model fit at 99.99% confidence level. In the baseline model, it can be seen that the estimated coefficients for 'AGE' and 'FSIZE' were all significantly but negatively associated with 'ROA' (coeff.=-0.127, $p<0.05$; coeff.=-3.356, $p<0.001$ respectively), which was consistent with the prior modelling results.

Table 5-10 presents the modelling results of random-effects GLS regression on large listed FFs' financial performance before the pandemic, i.e., COVID-19. The result suggests that the firm size ('FSIZE') played an insignificant moderating effect on the association between family involvement (i.e., family ownership and family CEOs) and financial performance ('f_ROA' and 'f2_ROA'), which is also consistent with the prior result on the role of firm size in large listed FFs' financial performance.

Table 5-10 Random-effects GLS Regression on Large-sized Listed Family Firms' Financial Performance Before the COVID-19

Random-effects GLS regression for large FFs' financial performance before pandemic-the moderating effect of firm size before the pandemic		
Variable	Model 12	Model 13
	f_ROA	f2_ROA
FSHARE	0.324	0.034
	(0.465)	(0.635)
FCEO	19.539	33.174
	(16.346)	(19.380)
FSHARE_FSIZE	-0.012	0.003
	(0.024)	(0.032)
FCEO_FSIZE	-1.069	-1.779
	(0.833)	(0.987)
AGE	-0.033	0.015
	(0.062)	(0.069)
FSIZE	-0.690	-1.815*
	(0.678)	(0.936)
FCOUP	-0.254	-0.834
	(0.637)	(0.721)
RDratio	0.010	0.060
	(0.066)	(0.084)
SINO	3.813	4.402
	(2.181)	(2.806)
MANU	0.797	1.041
	(0.681)	(0.775)
GDONG	-1.596*	-2.034*
	(0.779)	(0.870)
YB2012	-1.897**	-0.299
	(0.664)	(0.727)
Constant	18.563	38.665*
	(13.290)	(18.478)
Observations	1956	1954
Wald chi2	63.23***	54.37***
R-squared	0.0597	0.0844

Notes: +,*, **, *** *denote significance at the 10%, 5%, 1% and 0.1% level respectively; This analysis is based on panel data running a random-effect GLS regression.*

With respect to Table 5-10 above, the significant Wald test results in Models 12-13 showed that adding the two moderating variables, including 'FSHARE_FSIZE' and 'FCEO_FSIZE',

were collectively significant for the model fit at 99.99% confidence level. Model 12 and Model 13 display the moderating effects of firm size on the relationship between family involvement and large-sized listed FFs' financial performance with the value forward one year and two years, respectively.

5.2 R&D Investment Strategy

5.2.1 Descriptive Statistics

Table 5-11 presents pairwise correlations on all variables. Notably, it shows that family ownership ('FSHARE') is insignificantly but negatively correlated to the R&D ratio ('RDratio'). In contrast, family control ('FCEO') was significantly but positively correlated with the R&D ratio ('RDratio'), thus, the observed insignificant correlation between family involvement and R&D ratio motivates to further investigate the role of family involvement in large listed FFs' R&D investment strategy. It was also found that firm size ('FSIZE') was significantly and negatively correlated to family ownership ('FSHARE') (coeff.=-0.18, $p<0.001$) and also significantly and negatively related to family control ('FCEO') (coeff.=-0.11, $p<0.001$). On balance, all variables' correlations were relatively low, which could mitigate multicollinearity problems in the following modelling analyses.

Table 5-11 R&D Investment Strategy-Pairwise Correlation Analysis for Large Listed Family Firms

No.	Variables	1	2	3	4	5	6	7	8	9
1	RDratio	1								
2	FSHARE	-0.0242	1							
3	FCEO	0.0218	0.17***	1						
4	AGE	-0.0241	-0.05**	0.0156	1					
5	FSIZE	-0.12***	-0.18***	-0.11***	0.27***	1				
6	FCOUP	0.05**	0.06***	0.0106	-0.0277	-0.08***	1			
7	SINO	0.0134	-0.04*	0.10***	-0.0209	0.0267	0.07***	1		
8	MANU	-0.11***	0.0164	-0.0016	-0.0269	-0.0032	0.0122	-0.0015	1	
9	GDONG	0.005	0.12***	0.003	0.08***	-0.04*	0.03*	-0.04**	0.004	1

Notes: +,*, **, *** *denote significance at the 10%, 5%, 1% and 0.1% level respectively; Table 5-11 shows pairwise correlation analysis results for large-sized listed family firms in China. This pairwise correlation analysis results suggest that 'FSIZE' and 'MANU' are significant but negatively correlated with large-sized listed family firms' R&D investment; and 'FCOUP' is significant and positively correlated with large-sized listed family firms' R&D investment.*

Prior to the regression analyses, the following fit plots for large FFs' R&D investment, and the effect of family involvement (i.e., family shareholding and CEO) and the moderating effect of firm size on predicted R&D investment were created, forward 1 year and 2 years respectively .

Figure 5-7 illustrates the fit plot that showcases yearly changes in the R&D spend of listed FFs and large-sized listed FFs from 2012 to 2022. The varying performances of listed FFs and large-sized listed FFs in terms of R&D spending need a focused examination of these entities.

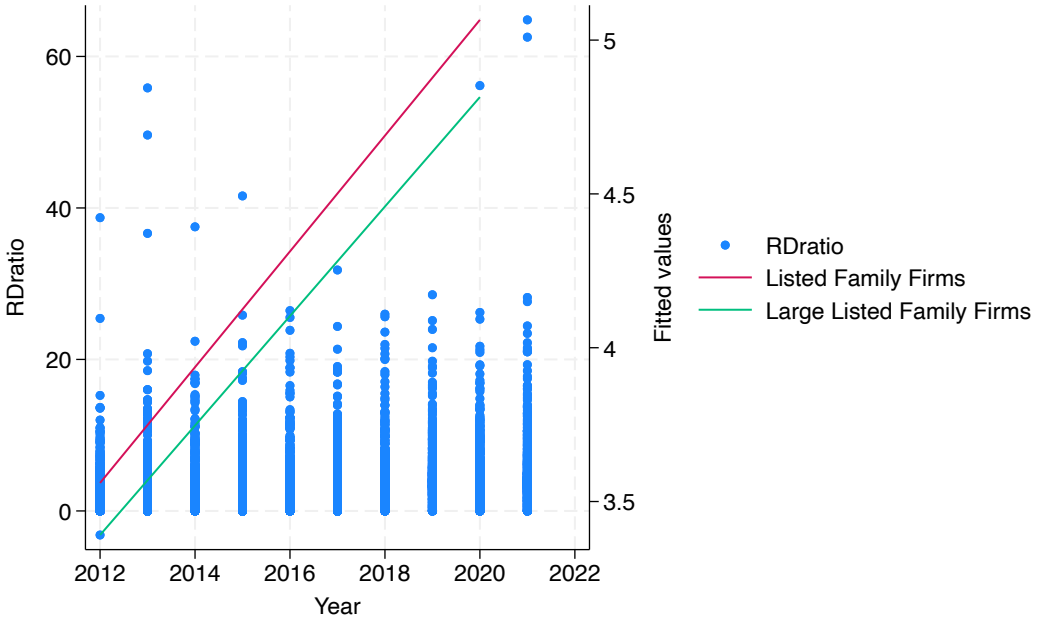

Figure 5-7 Fit Plot Between All Listed FFs and Large Listed FFs on R&D Investment

Figure 5-8 displays the fit plot on the impact of family ownership on listed FFs' and large-sized listed FFs' R&D spending respectively. This shows there was a negative relationship between family ownership and large FFs' R&D spending, which suggests that family ownership was negatively correlated with large FFs' R&D spending.

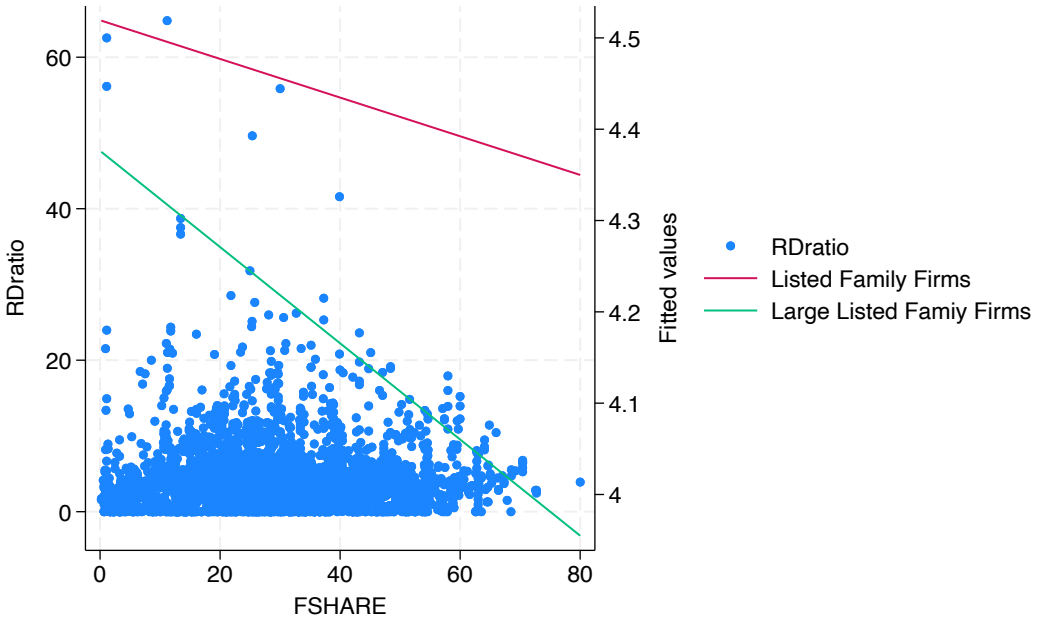

Figure 5-8 Fit Plot about the Impact of Family Ownership on Listed and Large-sized Listed Family Firms' R&D Investment

Figure 5-9 presents the relationship between family CEOs and R&D spending of listed FFs and large-sized listed FFs, respectively. This suggests that the effect of family CEO was positively correlated with the R&D spending of both listed FFs and large-sized listed FFs.

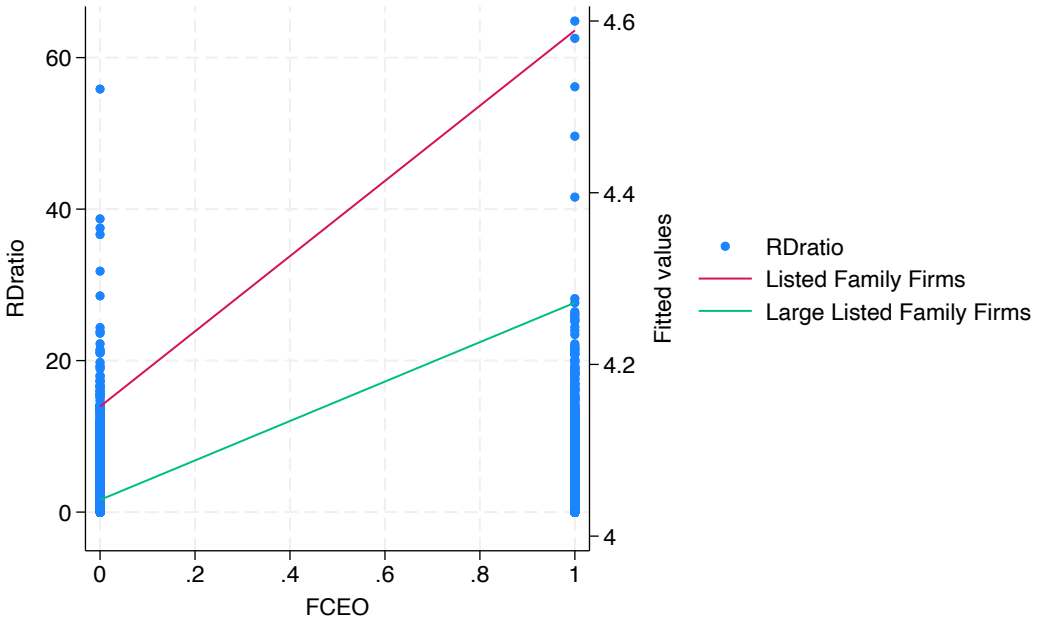

Figure 5-9 Fit Plot about the Effect of Family CEO in All Listed Family Firms' and Large Listed Family Firms' R&D Investment

Figure 5-10 shows a fit plot on the association between firm size (i.e., total assets) and listed

FFs' (including large-sized FFs) R&D spending, which suggests that firm size played a negative role in large-sized listed FFs' R&D spending.

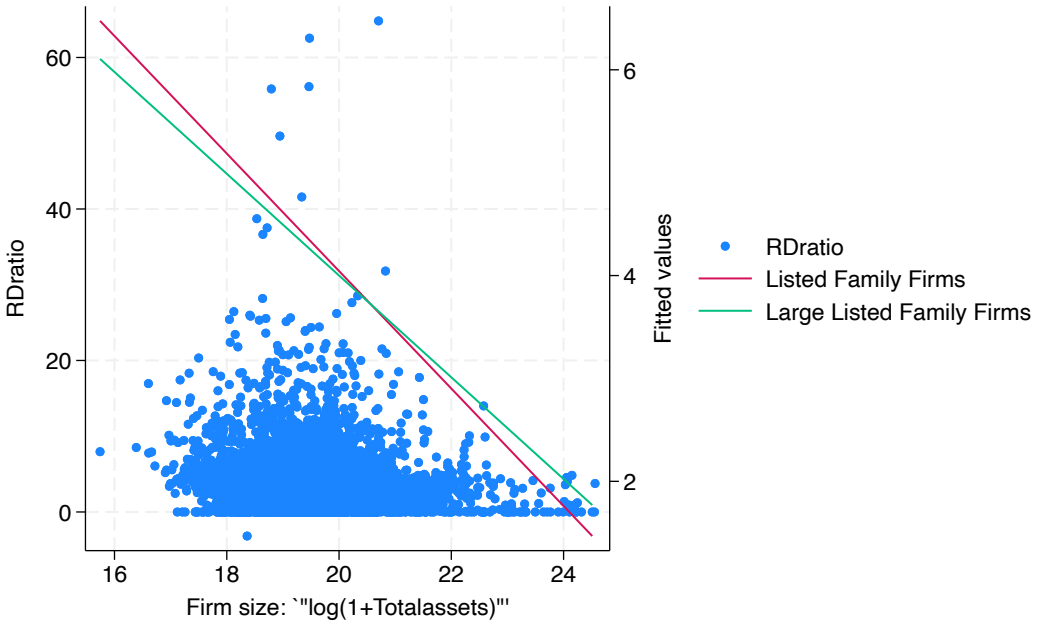

Figure 5-10 Fit Plot about the Effect of Firm Size on Listed Family Firms' and Large-sized Listed Family Firms' R&D Spending

To sum up, the statistical analyses above highlight the need to explore the potential causality between the level of family involvement (i.e., family ownership and control) and large FFs' R&D investment strategy.

5.2.2 Regression Analysis

Table 5-12 presents the preliminary analysis results for studying large listed FFs' heterogeneous effect on R&D investment. Model 14 adds all relevant variables except for the 'LFF' (large listed FFs); Models 15-16 add 'LFF' but with the dependent variables 'f_ROA' (forward 1 year) and 'f2_ROA' (forward 2 years) respectively. The Wald chi-square results in Models 14-16 are 37.23, 37.35, and 38.24 at 99.99% confidence level, which indicates that the variable 'LFF' is statistically significant to that model fit. In other words, among *all* listed FFs in China, large listed FFs are a diverse sub-group when studying their R&D investment strategy. In Models 15-16, it can be seen that the estimated coefficients for

'LFF' were insignificantly but negatively associated with 'f_RDratio' and 'f2_RDratio) (coeff.=-0.293, p>0.10; coeff.=-0.309, p>0.10 respectively). This reveals that Chinese large-sized listed FFs were less likely to invest in R&D. Later, this can motivate to explore the role of family ownership and control in large listed FFs' R&D investment strategy.

Table 5-12 Preliminary Analysis of Large Listed Family Firms' R&D Investment

Random-effects GLS regression for testing the effect of large-sized family firms in R&D investment			
Variable	Model 14	Model 15	Model 16
	f_RDratio	f_RDratio	f2_RDratio
LFF		-0.293	-0.309
		(0.293)	(0.255)
FSHARE	-0.024*	-0.024*	-0.024*
	(0.010)	(0.010)	(0.011)
FCEO	0.123	0.124	0.264
	(0.293)	(0.293)	(0.324)
AGE	0.091*	0.090*	0.094**
	(0.036)	(0.036)	(0.035)
FSIZE	-0.283	-0.227	0.053
	(0.192)	(0.203)	(0.224)
FCOUP	0.621	0.624	0.641*
	(0.327)	(0.327)	(0.330)
SINO	1.656	1.600	1.067
	(1.169)	(1.147)	(1.223)
MANU	-0.243	-0.260	-0.281
	(0.396)	(0.390)	(0.393)
GDONG	-0.172	-0.132	0.013
	(0.337)	(0.333)	(0.347)
YB2012	-1.111**	-1.110**	-1.306**
	(0.363)	(0.364)	(0.375)
Constant	9.612*	8.724*	3.238
	(3.732)	(3.895)	(4.351)
Observations	3281	3269	2744
Wald chi2	37.23***	37.35***	38.24***
R-squared	0.0149	0.015	0.0273

Notes: *+, *, **, *** denote significance at the 10%, 5%, 1% and 0.1% level respectively; This analysis is based on panel data running a random-effect GLS regression.*

Table 5-13 displays the outcomes of random-effects GLS regressions on large listed FFs'

R&D investment (see Appendix Section-4, Table A-M9, A-M10 for the same regressions applied all listed family firms and non-large listed FFs for further comparison*).* Models 17-19 show results for only large-sized listed FFs, where Model 17 is the baseline model, and Models 18-19 add the two main independent variables, i.e. family ownership ('FSHARE') and family control ('FCEO'). The Wald test shows a better model fit from Model 18 to Model 19 after adding the two main independent variables (34.85, $p<0.001$; 32.70, $p<0.001$; 27.92, $p<0.001$, respectively).

In Model 17, it was found that firm age ('AGE') was significantly and positively related to 'f_RDratio' (coeff.=0.107, $p<0.001$). In Models 18 and 19, the control variable (i.e. 'AGE') was still significantly and positively associated with 'f_RDratio' and 'f2_RDratio' respectively (coeff.=0.094, $p<0.001$; coeff.=0.060, $p<0.05$ respectively). Thus, these results suggest that older large listed FFs tended to invest more in R&D.

As can be seen from Table 5-13, it was found that family ownership ('FSHARE') in Models 18 and 19 was significantly but negatively associated with firms' R&D expenses in the following first year ('f_RDratio') and second year ('f2_RDratio') (coeff.=-0.023, $p<0.05$; coeff.=-0.025, $p<0.05$ respectively). Again, both Model 18 and Model 19 show that family control ('FCEO') was insignificantly and positively associated with firms' R&D spending in the following first year (f_Rdratio) and second year (f2_RDratio) (coeff.=0.036, $p>0.10$; coeff.=0.081, $p>0.10$ respectively). Such results reveal that large FFs in China holding greater family ownership were less likely to invest in R&D, but the effect of the family CEO presence became irrelevant to large listed FFs' R&D investment.

Table 5-13 Random-effects GLS Regression on Large Family Firms' R&D Investment

Random-effects GLS regression for testing the impact of family involvement on large-sized family firms' R&D investment			
Variable	Model 17	Model 18	Model 19
FSHARE		-0.023*	-0.025*
		(0.012)	(0.011)
FCEO		0.036	0.081
		(0.357)	(0.385)
AGE	0.107***	0.094***	0.060*
	(0.023)	(0.026)	(0.027)
FSIZE	0.095	-0.158	0.176
	(0.136)	(0.210)	(0.265)
FCOUP	0.176	0.246	0.286
	(0.339)	(0.347)	(0.358)
SINO	0.959	-0.141	-0.312
	(0.919)	(0.669)	(0.685)
MANU	-0.605	-0.639	-0.829
	(0.431)	(0.427)	(0.438)
GDONG	-0.077	0.156	0.260
	(0.382)	(0.394)	(0.381)
YB2012	-1.004*	-1.067**	-1.433**
	(0.392)	(0.409)	(0.436)
Constant	1.352	7.279	1.649
	(2.581)	(4.401)	(5.337)
Observations	2993	2348	1958
Wald chi2	34.85***	32.70***	27.92***
R-squared	0.0427	0.0282	0.0309

Notes: *+,*, **, *** denote significance at the 10%, 5%, 1% and 0.1% level respectively; This analysis is based on panel data running a random-effect GLS regression.*

With respect to Table 5-13 above, the significant Wald test results in Models 17-19 showed that adding the two independent variables, including 'FSHARE' and 'FCEO', were collectively significant for the model fit at 99.99% confidence level. Models 17-19 show the variable 'YB2012' is significantly but negatively associated with 'RDratio' (coeff.=-1.004, $p<0.05$;coeff.=-1.067, $p<0.01$; coeff.=-1.433, $p<0.01$, respectively). This means that large-sized listed family firms that were listed after 2012 had more likelihood of investing in R&D.

Table 5-14 reports the average marginal effects of family ownership and control on large

listed FFs' R&D investment. The result suggests that an increase of 1% in family ownership for public FFs results in a reduction of 2.3% in 'f_RDratio' and 2.5% in 'f2_RDratio'.

Table 5-14 Average marginal effects on R&D investment for large listed family firms

Variables	Marginal-Model 18	Marginal-Model 19
FSHARE	-0.023* (p=0.054)	-0.025* (p=0.031)
FCEO	0.036 (p=0.919)	0.081 (p=0.834)

Notes: *+,*, **, *** denote significance at the 10%, 5%, 1% and 0.1% level respectively; This analysis is based on panel data running a random-effect GLS regression.*

Robustness test

The VIF test was introduced a robustness check, to test the potential multicollinearity issue. Table 5-15 presented that the VIF value for each variable is significantly less than 2. This means that there are fewer multicollinearity issues in the GLS regression analysis on large listed FFs' R&D investment. In addition, to mitigate endogeneity problems, the forward one-year and two-year values of 'RDratio' were created as dependent variables, respectively, in Models 18-19 (as Table 5-14 shows above). Thus, this robustness check provided consistent results concerning the impact of family involvement (i.e., family ownership and control) on large FFs' R&D investment.

Table 5-15 VIF for Testing the Effect of Family Ownership and Control on Large-sized Family Firms' R&D Investment

Variable	VIF	1/VIF
FSHARE	1.18	0.844123
FCEO	1.06	0.947549
AGE	1.03	0.972437
FSIZE	1.21	0.828895
FCOUP	1.02	0.982557
SINO	1.02	0.984946
MANU	1.01	0.985965
GDONG	1.02	0.980881

This further supports the significant but negative impact of family ownership on large FFs' decision-making on R&D investment activity, and t**herefore, the H5 can be significantly supported, but H7 can be significantly rejected.**

Table 5-16 presents explorative findings from Models 20-21 on the moderating effects of firm size (i.e., total assets) between family involvement (i.e., family ownership and control) and large listed FFs' R&D investment (see Appendix Section 4, Table A-M7 and A-M8 for detailed estimations for all listed FFs and non-large listed FFs). In Models 20-21, a significant and positive moderating effect of firm size between family CEO and large FF R&D investment was indeed found. Specifically, the results show that the coefficients of 'FCEO-FSISE' were 0.741 (p value<0.10) and 1.243 (p value<0.01). This suggests that the firm size had a significant and positive moderating effect on the association between family CEO presence and large FF R&D investment, which reveals that family CEO played a significant positive role in large FFs' R&D investment as firm size further increased. In addition, it was found that 'FSHARE_ASSET' was insignificant and negatively associated with large FFs' R&D investment, indicating that firm size played a negative but insignificant moderating role in large FFs' R&D investment. As such, ***both H6 and H8 can be rejected***.

Table 5-16 Random-effects GLS regression for Testing the Scale Effects on Large Listed Family Firms' R&D Investment

Random-effects GLS regression for large listed family firms' R&D investment for testing scale effects		
Variable	Model 20	Model 21
FSHARE	0.045	0.106
	(0.240)	(0.293)
FCEO	-14.814+	-24.744**
	(7.862)	(9.320)
FSHARE_FSIZE	-0.003	-0.007
	(0.012)	(0.015)
FCEO_FSIZE	0.741+	1.243**
	(0.390)	(0.467)
AGE	0.094***	0.057*
	(0.026)	(0.027)
FSIZE	-0.499	-0.370
	(0.542)	(0.547)
FCOUP	0.227	0.242
	(0.349)	(0.362)
SINO	-0.069	-0.147
	(0.669)	(0.679)
MANU	-0.655	-0.852*
	(0.427)	(0.437)
GDONG	0.198	0.343
	(0.392)	(0.380)
YB2012	-1.074**	-1.453**
	(0.403)	(0.422)
Constant	14.195	12.741
	(11.057)	(11.024)
Observations	2348	1958
Wald chi2	34.79***	35.00***
R-squared	0.0339	0.0484

Notes: *+, *, **, *** denote significance at the 10%, 5%, 1% and 0.1% level respectively;*

Table 5-17 displays the average marginal effects of the moderating effects of firm size on the relationship between family involvement and large-sized listed FFs' R&D investment with the value forward one year and two years, respectively. The result suggests that 'FSIZE' has a significant moderating effect on the linkage between family members as CEOs and large listed FFs' R&D investment at a confidence level of 90% and 99.99%, respectively.

Table 5-17 Average Marginal Effects of the Moderating Effects of Firm Size on Large-sized Listed Family Firms' R&D Investment

Sample	**Large FF**	**Large FF**
Model	Model 20	Model 21
R&D Investment	Forward 1 Year	Forward 2 Years
FSHARE_ASSET	**-0.003 (p=0.774)**	**-0.007 (p=0.652)**
FCEO_ASSET	**0.741+** (p=0.058)	**1.243**** (p=0.008)

Notes: +, *, **, *** *denote significance at the 10%, 5%, 1% and 0.1% level respectively;*

Figure 5-11 and Figure 5-12 show the average marginal effects of family involvement (i.e., family ownership and family CEO) and the moderating effect of firm size (i.e., total assets) on large listed FFs' R&D investment. It clearly presents that firm size played a positive moderating role in the linkage between family CEO presence and large listed FFs' R&D investment, and but insignificant negative moderating role in the association between family ownership and listed FFs' R&D investment strategy.

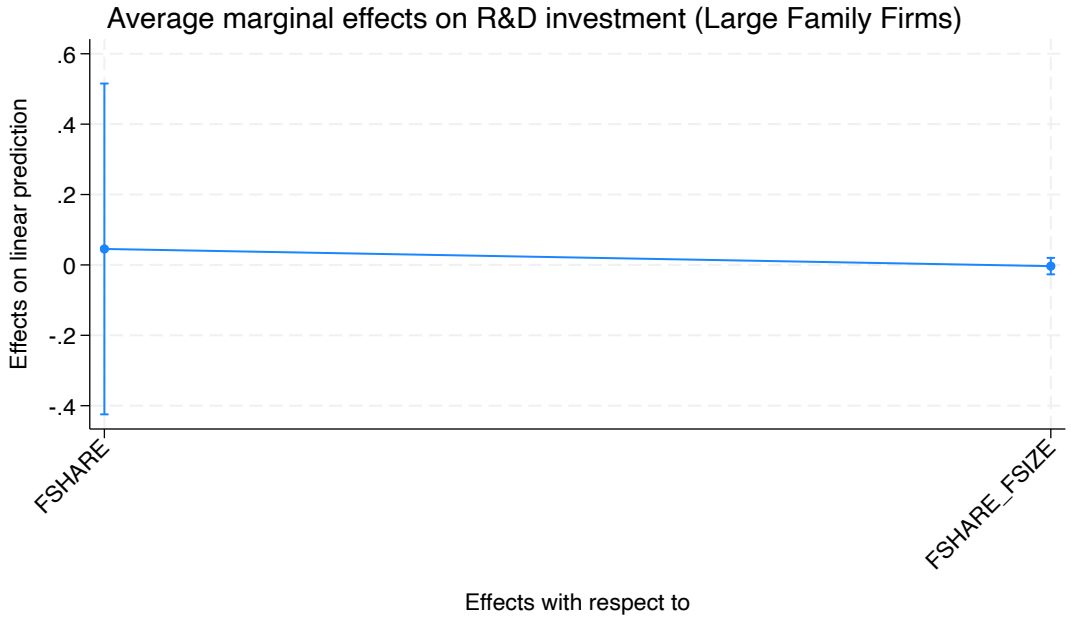

Figure 5-11 Average Marginal Effects with Respect to Family Ownership in Large-sized Family Firms

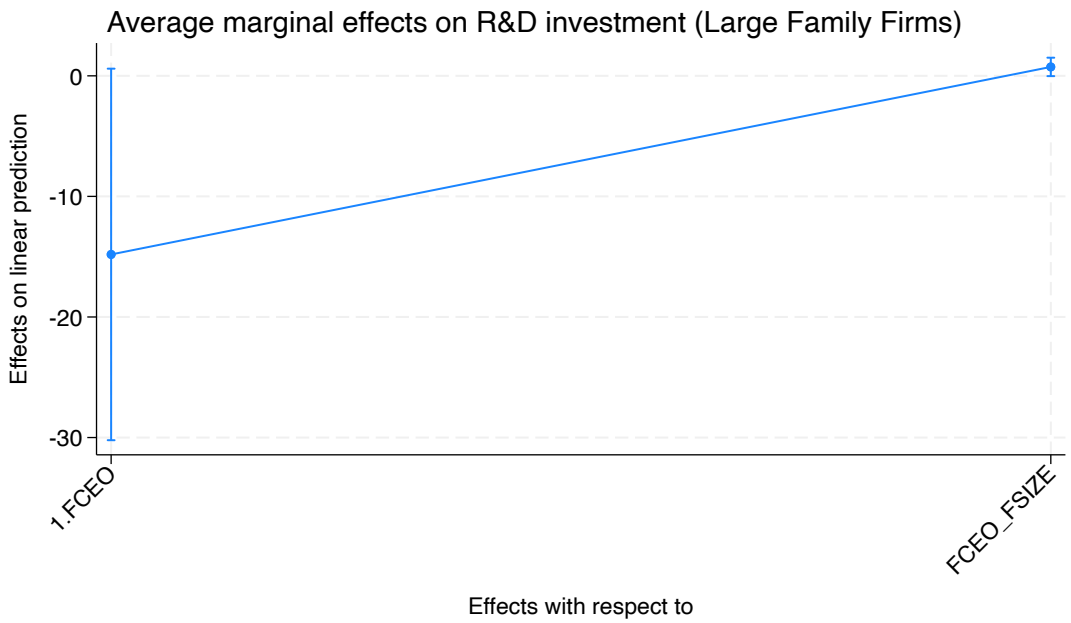

Figure 5-12 Average Marginal Effects With Respect to Family CEO Presence in Large-sized Family Firms

Additionally, to mitigate the potential effect of a pandemic on large FFs' R&D investment, the same model estimations were conducted for the pre-pandemic period, i.e., from 2012 to 2019 (*see results in Table 5-18*), which also constituted a robustness test. The family ownership ('FSHARE') was observed to be significantly but negatively associated with R&D invesment ('f_RDratio' and 'f2_RDratio') in Model 23 and Model 24 respectively (coeff.=-0.025, $p<0.05$; coeff.=-0.025, $p<0.05$). The regression analysis results suggest that large FFs with greater family ownership were less likely to invest in R&D before COVID-19 occured. In addition, 'FCEO' was also found to be insignificantly associated with ROA in Model 23 and Model 24 respectively (coeff.=-0.034, $p>0.10$; coeff.=0.081, $p>0.10$). In other words, before the pandemic, the impact of family CEO presence ('FCEO') on large listed FFs' R&D investment was not significant. On the whole, the results were observed to be consistent, and thus the aforementioned estimations can be considered to be robust.

Table 5-18 Random-effects GLS regression on Large-sized Listed Family Firms' R&D Investment Before the COVID-19

Random-effects GLS regression for R&D investment (before COVID19)			
Variable	Model 22	Model 23	Model 24
FSHARE		-0.025*	-0.025*
		(0.012)	(0.011)
FCEO		-0.034	0.081
		(0.338)	(0.385)
AGE	0.100***	0.087***	0.060*
	(0.022)	(0.024)	(0.027)
FSIZE	0.032	-0.311	0.176
	(0.152)	(0.244)	(0.265)
FCOUP	0.166	0.209	0.286
	(0.339)	(0.348)	(0.358)
SINO	0.989	-0.125	-0.312
	(0.921)	(0.710)	(0.685)
MANU	-0.615	-0.630	-0.829
	(0.428)	(0.419)	(0.438)
GDONG	-0.052	0.195	0.260
	(0.386)	(0.404)	(0.381)
YB2012	-0.870*	-0.911*	-1.433**
	(0.403)	(0.410)	(0.436)
Constant	2.630	10.451*	1.649
	(2.889)	(5.119)	(5.337)
Observations	2601	1958	1958
Wald chi2	34.88***	35.77***	27.92***
R-squared	0.0377	0.0254	0.0309

Notes: +,*, **, *** *denote significance at the 10%, 5%, 1% and 0.1% level respectively; This analysis is based on panel data running a random-effect GLS regression.*

With respect to Figure 5-21, Model 22 reports a baseline model with control variables only and then Models 23-24 include the two main independent variables, i.e., family ownership 'FSHARE' and family control 'FCEO'. From Models 22-24, the regression was run on samples of large listed FFs, deleting the observation period from 2020 to 2021. The significant Wald test results in Models 22-24 showed that adding the two independent variables, including 'FSHARE' and 'FCEO', were collectively significant for the model fit at 99.99% confidence level (34.88, $p<0.001$; 35.77, $p<0.001$; 27.92,$p<0.001$ respectively). From Models 22-24, it can be seen that the estimated coefficients for 'AGE' were all

significantly and positively associated with 'ROA' (coeff.=0.100, p<0.001; coeff.=0.087, p<0.001; coeff.=0.060, p<0.05 respectively), which was consistent with the prior modelling results.

Table 5-19 presents the modelling results of random-effects GLS regression on large listed FFs' R&D investment before the pandemic, i.e., COVID-19. The results suggest that the firm size ('FSIZE') played an insignificant moderating effect on the association between family ownership and R&D investment ('f_RDratio' and 'f2_RDratio'), which is also consistent with the prior modelling results. Model 26 shows that the firm size ('FSIZE') played a significant and positive moderating effect on the association between family CEO presence ('FCEO') and R&D investment ('f2_RDratio'), which is also consistent with the prior modelling result and further supports the prior modellings' robustness.

Table 5-19 Random-effects GLS Regression on Large-sized Listed Family Firms' R&D Investment Before the COVID-19-Scale Effects

Random-effects GLS regression for large FFs' R&D investment-for testing the moderating effect of firm size before the pandemic		
Variable	Model 25	Model 26
	f_RDratio	f2_RDratio
FSHARE	-0.105	0.106
	(0.241)	(0.293)
FCEO	-13.732	-24.744**
	(8.695)	(9.320)
FSHARE_FSIZE	0.004	-0.007
	(0.012)	(0.015)
FCEO_FSIZE	0.685	1.243**
	(0.431)	(0.467)
AGE	0.085**	0.057*
	(0.025)	(0.027)
FSIZE	-0.822	-0.370
	(0.623)	(0.547)
FCOUP	0.189	0.242
	(0.348)	(0.362)
SINO	-0.065	-0.147
	(0.704)	(0.679)
MANU	-0.642	-0.851*
	(0.418)	(0.437)
GDONG	0.235	0.343
	(0.403)	(0.380)
YB2012	-0.931*	-1.453**
	(0.401)	(0.422)
Constant	20.786	12.741
	(12.771)	(11.024)
Observations	1958	1958
Wald chi2	41.32***	35.00***
R-squared	0.0317	0.0484

Notes: +, *, **, *** *denote significance at the 10%, 5%, 1% and 0.1% level respectively; This analysis is based on panel data running a random-effect GLS regression.*

With respect to Table 5-19 above, the significant Wald test results in Models 25-26 showed that adding the two moderating variables, including 'FSHARE_FSIZE' and 'FCEO_FSIZE', were collectively significant for the model fit at 99.99% confidence level (coeff.=41.32,

p<0.001; coeff.=35.00, p<0.001, respectively). Model 25 and Model 26 display the moderating effects of firm size on the relationship between family involvement and large-sized listed FFs' R&D investment with the value forward one year and two years, respectively.

5.3 Summary

As in Table 5-20 below, the above findings may be summarized. From the short-term performance of large listed FFs, family ownership was significantly and positively associated with financial performance, but within the sample, firm size had no significant moderating effect on the relationship; secondly, family CEO presence was significantly negatively associated with the financial performance of large listed FFs, while firm size presented an insignificant negative moderating effect on the relationship between family CEO presence and financial performance.

In terms of the long-term strategic performance of large listed FFs, family ownership was significantly and negatively associated with the firm's risky R&D investment, and firm size had an insignificant negative moderating effect on the relationship between family ownership and the firm's R&D investment; furthermore, family CEO presence was insignificantly and positively associated with large FFs' R&D investment, and firm size had a significant and positive moderating effect on the relationship between the family CEO presence and the firms' R&D investment.

Overall, these findings imply that Chinese large listed FFs' financial performance depended more on the strategic participation of all family owners (e.g., collective wisdom, family trading network) than on the operational involvement of a single member as CEO. In contrast, the presence of the family CEO significantly but negatively determined large listed FFs' financial performance. Notably, the impacts of family ownership and the family CEO presence on large FFs' financial performance were not significant when the firm size further expanded. Further, when the firm size expanded, the impact of the family ownership on large FFs' R&D investment became insignificant either; by contrast, the family CEO presence had

a significant and positive influence on R&D investment strategy while the firm size was growing.

Additionally, these findings suggest that firm age was significantly and negatively associated with large listed FF financial performance but significantly positively determined their R&D investment strategy. In other words, younger Chinese large FFs tended to perform better in terms of ROA, and older large FFs were more active in R&D investment. What is more, in terms of business type, these results reveal that large Chinese FFs established through Sino-foreign joint investment tended to perform better on ROA. The above findings stimulate possible explanations and more explorative analyses in the following chapter, Chapter 6.

Table 5-20 Summary of Results

Hypothesis	Financial performance	R&D investment
Hypothesis 1: **Family ownership** is significantly and negatively associated with large FF financial performance	**Significant and Positive; H1 rejected;**	
Hypothesis 2**: Firm size** significantly and negatively moderates the association between family ownership and large FF financial performance	Insignificant and Positive; H2 rejected	
Hypothesis 3**: Family control** is significantly and negatively associated with large FF financial performance	**Significant but negative; H3 supported**	
Hypothesis 4**: Firm size** significantly and negatively moderates the association between family control and large FF financial performance	Insignificant but Negative; H4 rejected*	
Hypothesis 5: **Family ownership** is significantly and negatively associated with large FF R&D investments		**Significant but Negative; H5 supported**
Hypothesis 6**:** Firm size significantly and negatively moderates the association between family ownership and large FF R&D investments		Insignificant but negative; H6 rejected
Hypothesis 7**:** Family control is significantly and negatively associated with large FF R&D investments		Insignificant and Positive; H7 rejected
Hypothesis 8**:** Firm size significantly and negatively moderates the association between family control and large FF R&D investment		**Significant and positive; H8 rejected**

Notes: *H4 was conditionally supported* at 10% *confidence level when predict 'ROA' with forward 2 years*

The next chapter will discuss the main research findings above with respect to the relevant extant literature, and summarizes the research contribution and practical implications.

Chapter 6 Discussion

The aim of this chapter is to discuss the distinctive features of the thesis by highlighting the four key research findings and comparing them with the extant empirical literature. To be specific, first of all, several distinctive features of this study are highlighted based on the research findings reported in Chapter 5, and these are compared with the related empirical literature and the contribution to the family business literature on firms' financial performance is then discussed. The contributions to the extant literature on FFs' R&D investment strategy are then discussed, and the chapter concludes by providing a short research summary, outlining the contributions made to the extant literature concerning family business.

6.1 Distinctive Features

There are four distinctive features arising from the findings as follows. A clear, comprehensive definition of "large FFs" in China was used as criteria for data selection for the main dataset. Existing studies that have focused on "large" FFs refer to **all** publicly listed and traded FFs, regardless of size (e.g., Anderson and Reeb, 2003; Jiang and Peng, 2011; Peng et al., 2018) or FFs defined by financial capital (Chang, Zare and Ramadani, 2022). However, not all publicly listed FFs from Western or Eastern countries may be considered to be large in this study's context. Based on a unique database of all listed FFs in China, all **large** listed FFs were selected for inclusion in this study according to the official classification criteria of the National Bureau of Statistics of China, i.e., the number of employees, turnover, and total assets in different industrial sectors (see Chapter 4 and Appendix Section-1 Table A-1 'Statistical Classification of Large, Small, Medium and Micro Enterprise (2017)). For instance, large-sized firms in the transport sector should reach the threshold: (1) the number of practitioners should be greater than 1000; (2) the operating income should be greater than 300 million RMB (around 32.9 million pounds[4]). As a

[4] The calculation is based on the current exchange rate. Available from: https://www.currency.me.uk/convert/cny/gbp (Accessed: 26 March, 2024)

consequence, with the exclusion of non-large listed FFs, taking advantage of official Chinese criteria, the data set comprised 654 listed FFs, with 490 large-sized listed FFs in 2021, thus the statistical findings of this research might be considered to be more authoritative than prior studies.

Prior studies examining the "family effect" on performance have compared the performance of FF with non-FF businesses (e.g., Anderson and Reeb, 2003; Andres, 2008; Dyer, 2018; Martinez, Stohr and Quiroga, 2007). In this research, in contrast with prior research on FFs, the focus was on variations within large, publicly listed FFs, without comparisons with non-FFs, i.e. family ownership and control within large listed FFs were analysed in terms of their impact on short-term financial performance and strategy in the longer term. Specifically, large listed FF performance was analysed in terms of: financial performance (i.e., *return on assets*) , and R&D investment strategy (i.e., *the ratio of R&D expenses to operating revenue*)

The findings of this study provided some clear insights concerning how large listed FFs survive and grow in China, through revealing that large publicly traded FFs, with a greater proportion of family ownership, exhibited superior financial performance (i.e. return on assets) but less likelihood of investing in R&D. This implies that Chinese large listed FFs, when a significant portion of ownership was retained within the family, may be more effective in utilizing their assets to generate financial returns compared to firms with lower family ownership. Such findings, however, highlight a potential trade-off between financial performance and R&D investment. Large listed FFs with a greater focus on preserving family ownership may prioritize short-term financial gains over long-term R&D investments. As the size of the firm increased, the effect of family ownership on both financial performance and R&D investment became insignificant. Arguably, this indicates that, at greater scales, large FFs with greater family ownership became reluctant to allocate resources to R&D investment.

The findings for this study also revealed a possible deficiency in professional business competence among family members serving as CEOs, thereby negatively impacting the

financial performance of large listed FFs, specifically in terms of ROA. As the size of firms increased, the adverse effect of family members as CEOs on ROA became less relevant, thereby exacerbating governance challenges. In addition, family CEOs were more likely to invest in R&D when the firm size further expanded, which may suggest that these Chinese first-generation entrepreneurs exhibited risk-taking entrepreneurial spirits.

As large FFs further grew, this contrast between the family CEO's negative association with ROA but positive association with R&D spending is puzzling. It could be explained by the possibility that higher R&D spending could be caused by a waste of financial resources by CEOs trying to protect their long-term positions. It may also indicate that family members serving as CEOs in large listed FFs may exhibit a deficiency in professional business competence. This also suggests that the challenges associated with family CEOs may have become more significant as the complexity and scale of the business grew. In short, family CEOs in large FFs may tend to advocate excessive R&D, with family support, beyond a value-maximizing level when the firm size further expands.

This chapter is designed to discuss these four distinctive research findings with reference to the extant literature, including the hypotheses developed in this thesis from the literature.

6.2 Family Involvement and Financial Performance

In this section the findings presented in Chapter 5 are discussed with respect to other empirical studies published in the family business literature. In general, the current family business literature review, including a number of meta-analyses of the impact of family involvement on FFs' financial performance, has still not reached a consensus, because this impact may vary significantly depending on the country and firms studied, the type of family involvement and performance measurements (O'Boyle Jr., 2012; Pindado and Requejo, 2015; Taras et al., 2018). In this chapter a comparative analysis is undertaken concerning the relative merits of the results found in the present study compared with the extant literature.

6.2.1 Family Ownership and Financial Performance

There are inconsistent reports in the literature regarding the role of family ownership on firms' financial performance, especially when comparing the effect between listed firms in general and listed FFs in particular. Based on an empirical study of 1,672 non-financial firms from 13 Western European countries[5], Maury (2006) found that family ownership (i.e., the ratio of cash-flow rights held by the largest shareholder) also played an insignificant effect on firms' financial performance (e.g., ROA). From an analysis of firms from one single developed nation, Poutziouris, Savva and Hadjielias (2015) found that family ownership played a significant positive role in the performance of 107 UK listed firms in terms of ROA. Thus, the extant literature predominantly investigates the impact of family involvement on the performance of listed FFs versus non-FFs in developed countries (e.g., Anderson and Reeb, 2003; Andres, 2008; Maury, 2006), but provides little knowledge about the impact of family involvement on the performance of FFs within more developed-countries.

By contrast, according to a meta-analysis of FFs from emerging markets, the potential linkages between family ownership and listed firms' performance are contingent upon time and different nations (Wang and Shailer, 2017). For example, in studying Vietnamese firms, Ha et al. (2022) found that family ownership had a U-shaped effect on listed firms' ROA. Gupta and Nashier (2017) also found a U-shaped effect of family ownership on the financial performance (ROA and Tobin's Q) of Indian listed firms from 2007 to 2014. Based on top Indian listed firms between 2002 and 2012, Bhatt and Bhattacharya (2017) found that higher family ownership and family CEOs did not show a significant impact on the FF performance (i.e., ROE, Tobin Q). Similarly, the impact of family ownership was found to be insignificant on financial performance in listed firms in Thailand (AI Farooque et al., 2020).

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[5] The countries are Austria, Belgium, Finland, France, Germany, Ireland, Italy, Norway, Portugal, Spain, Sweden, Switzerland, and the UK (Maury, 2006:324).

As for the performance of Chinese listed FFs, Amit et al. (2015) found that in 2007 Chinese listed FFs demonstrated better financial performance (i.e., ROA) than non-FFs. In other words, the extant literature suggests that family ownership can be seen as a significant positive determinant of Chinese listed firms' financial performance (e.g., Amit et al., 2015). Therefore, in the present study, the heterogeneities among all large listed FFs in China were investigated, exploring the role of family ownership among them. It found that large listed FFs in China with greater family ownership performed better on ROA than other large FFs with less family ownership, which is consistent with Chu (2011)'s findings on listed FFs in Taiwan. Specifically, using 786 publicly listed FFs in Taiwan, 2002-2007, Chu (2011) found that family ownership positively and significantly determined listed FF financial performance (i.e., ROA), and such results are consistent with the present findings on Chinese mainland large-sized FFs.

In summary, in contrast with the inconsistent findings in the extant literature, the present findings revealed a significant positive association between family ownership and financial success in Chinese large listed FFs, indicating that family members, as large shareholders, enhanced financial performance.

6.2.2 Family CEOs and Financial Performance

Extant literature suggests that family control within publicly listed firms has both positive and negative impacts (e.g., Anderson and Reeb, 2003; Ashraf, Li and Ryan Jr., 2020; Purkayastha, Veliyath and George, 2022; Villalonga and Amit, 2006). For example, Ashraf, Li and Ryan Jr (2020) argued that one benefit is that family control helps to alleviate conflicts of interest between shareholders and actual managers of the company, as well as distributes ownership among the shareholders, however, family control generates new tensions between family members and non-family shareholders (outsider shareholders), who may derive private benefits from their control. To illustrate, the founding family presence seems to have

a positive impact on those large firms (i.e., in the S&P 500 index or the Fortune 500 index) (Ashraf et al., 2020). Notably, Anderson et al. (2009) found that family control is only negatively associated with the firm value of those largest and most transparent firms.

McConaughy (2000) found that CEOs who are members of the founding family possess strong motivations to maximize the company's value, and if this is the case then agency costs would be lower when the goals of principals and their agents are aligned, and may even be zero when the principals are also the agents (e.g., family CEOs) (Anderson and Reeb, 2003; Dyer, 2018). Family members as CEOs would however, negatively influence corporate performance, since they may seek to pursue leisure activities more than professional CEOs (Bandiera et al., 2018), and they may also be weaker in managing capabilities (Bloom and Van Reen, 2007). Nevertheless, as discussed above, if listed firms are from one single developed nation, the extant literature provides inconsistent results on the impact of family CEO presence on listed firms' financial performance (i.e., ROA). For example, based on an empirical study of 275 German listed firms from 1998 to 2004, Andres (2008) found that listed FFs with founder as CEO had better performance (e.g., ROA) than other listed firms. Similarly, the family CEO was also found to play a positive and significant role in the UK listed firms' ROA (Poutziouris, Savva and Hadjielias, 2015). Minichilli et al. (2010) also found that a family CEO presence significantly and positively determined Italian family-controlled firms' financial performance, i.e., ROA. Miralles-Marcelo et al. (2014), however, empirically found that family CEOs had a significant but negative impact on both Portugal and Spain's listed firms' ROA.

Bhatt and Bhattacharya (2017), on the contrary, found that for firms from emerging markets, with higher family ownership and family CEOs, did not show a significant impact on the Indian listed FF performance (i.e., ROE, Tobin Q). In China, Cai et al. (2012) observed 351 Chinese listed FFs from 2004 to 2007 and found that the presence of a family CEO was positively associated with Chinese listed FFs' performance (i.e., ROA). The results in Chapter 5 however are based on very large dataset consisting of Chinese listed FFs from 2012 to 2021, provided inconsistent results: namely, that family CEO presence was

significant but negatively associated with financial performance, which is in accordance with findings on Portugal and Spain's listed firms by Miralles-Marcelo et al. (2014). This could be because the periods 2004-2007 and 2012-2021 represented two different economic environments.

On balance, the present findings therefore echo the findings of Tsao et al. (2021) that evidence the inconsistent impacts of family ownership and family control on the performance of listed FFs in Taiwan.

6.2.3 The Moderating Effect of Firm Size

The scale of family businesses exhibits significant variation, spanning from small entrepreneurial endeavours to large multinational conglomerates (Moreno-Menendez and Casillas, 2021). As a result firm size was introduced as a variable to moderate the relationship between family involvement (i.e., ownership and CEO presence) and large FFs' financial performance. Larger FFs may be more capable of recruiting professional managers and leveraging financial resources to support business expansion. With the greater complexity of larger firms, however, insider relationships within the firms and associated transaction costs may increase as the business expands (Li and Zhu, 2015). For firms in developed nations, Miralles-Marcelo et al. (2014) found empirical evidence that both smaller-sized Portugal's and Spain's listed FFs perform financially better than non-family listed firms. By contrast, according to a survey of 2,098 Chinese private firms in 2010, Li and Zhu (2015) found that family involvement negatively influenced Chinese firms' business performance (i.e., return on equity, ROE) when firms expand. In a study of listed FFs in Taiwan, Chu (2011) found that a positive association between family ownership and firm performance was stronger in smaller sized FFs. In Chu's (2011) study, smaller sized FFs family members were usually more likely to be directly and more closely involved in the operation and management of the business, including long-term development, as the success of the business is directly related to their family's wealth and future.

When firm size further expanded, however, the findings of the present study suggest that large listed FFs became less effective than governance by outside shareholders. This also implies that the significant positive impact that family ownership had on financial performance overall became less relevant as these large FFs grew. Therefore the scale and complexity may have gradually negated the positive association between family ownership and financial performance. This may reflect the presence of scale effects or large-scale networking in China, as larger FFs typically require more resources and complex management involving more stakeholders and decision-makers. In this case, the positive impact of family shareholding may no longer be as pronounced as other factors, such as the corporate governance structure and market competition, which may begin to play a greater role.

In addition, as the size of the firm increased, the present findings suggest that family members as CEOs did not positively improve the financial performance of large FFs further. This may reflect the fact that the leadership and decision-making needs of family members in large FFs were more complex and required more specialized experience and resources, and family members as CEOs may be less adaptable or effective.

6.3 Family Involvement and R&D Investment Strategy

FFs differ from non-FFs not only in terms of agency costs but also in terms of the resources generated by family involvement, which requires consideration when analyzing innovation (Matzler et al., 2015). According to the extant literature, there is evidence that family control (via voting rights) played a negative but insignificant impact on German listed FFs' R&D intensity compared with non-FFs (e.g., Schmid et al., 2014). However, little is known about the impact of heterogeneities in family ownership and control on large FFs' R&D investment strategies. In the present study, the approach of Ashwin et al. (2015) was therefore followed and the association between family involvement and large FFs' R&D investments was

further analysed. As regards Chinese listed FFs' R&D investment, Wang et al. (2022) found that family involvement in management (i.e., number of family members on the board) plays a negative role. In this study, the role of specific types of family involvement (i.e., family ownership and family members appointed as CEOs within large listed FFs' R&D investment were further examined.

6.3.1 Family Ownership and R&D Investment Strategy

Similar to the effect of family ownership on financial performance, the extant literature again shows inconsistent findings about its effect on listed FFs' R&D investment strategy. For example, existing studies show that no significant impact of family ownership was found on large German listed FFs investing in R&D compared with other listed firms (Matzler et al., 2015). Based on 154 large listed American firms in the S&P 500, Block (2012) reported a negative relationship between family ownership and firms' R&D investment. By contrast, for firms from emerging countries, Agnihotri and Bhattacharya (2022) found an inverted U-shaped relationship between family ownership concentration and Indian FFs' R&D investment.

In China, a significant negative impact of family ownership on firms' R&D investment was also found for 44 Chinese listed FFs over the period between 2010 and 2018 by Islam et al. (2022). Notably, based on large listed FFs in China over the period from 2012 to 2021, the present findings also established a significant negative relationship between family ownership and FFs' R&D investment, which may reflect the fact that, in some cases, large FF owners (shareholders) may be more focused on current financial soundness and cash flow and less willing to take on high levels of R&D expenditure. Such findings may also suggest that large FFs with greater family ownership may lack the relevant technical capacities to promote risky R&D investment.

Given the inconsistent impact on ROA, it may suggest that large FFs with greater family

ownership tend to prioritize short-term financial performance (i.e., ROA) over long-term investments such as R&D investment. This could be due to a pursuit for immediate financial returns or concerns about the dilution of family control. It may also suggest that large FFs with greater family ownership excel in operational efficiency and resource allocation, leading to positive ROA. This efficiency may however, come at the expense of R&D investment because they may prefer conservative strategies or investments with quicker returns.

6.3.2 Family CEOs and R&D Investment Strategy

Existing literature suggests that type II agency conflicts (i.e., family shareholders vs minority/outsider shareholders) arise due to various dimensions of different views, including risky acquisitions, international expansion, R&D investment and so forth (Purkayastha et al., 2022; Young et al., 2008).

Ashwin et al. (2015) confirmed a significant and positive relationship between family CEO presence and the R&D investments of 172 Indian firms (including non-FFs) in the pharmaceutical industry, however, the results may be subject to the specific sector that Indian firms are involved in, as the pharmaceutical industry is seen as the largest investor in R&D (Ashwin et al., 2015). Based on a dynamic observation of large FFs in China, the present findings discovered an insignificant positive association between family members as CEOs and investment in R&D, which may reflect the fact that family members as executives may suffer more challenges when investing in R&D to drive long-term sustainable growth. Further, given the significant but negative impact of family CEOs on financial performance found in this study, these findings on R&D spending may reveal that family CEOs may have over-invested in R&D without the necessary technical skills, resulting in a decrease in financial performance (ROA).

6.3.3 The Moderating Effect of Firm Size

When FFs get larger, there may be insufficient qualified family members to take proper management roles, and their capacities may be lacking to address the family business's increasing demands (Sonfield and Lussier, 2008). Likewise, Chittoor and Das (2007) argued that FFs have more likelihood of becoming more professional and establishing formal mechanisms for managing agency costs. Firm size can also influence how FFs make decisions about professional managers prioritising economic or noneconomic interests (Fang et al., 2016). In terms of firm size, an insignificant but negative moderating role of firm size on the relationship between family ownership and large listed FFs' R&D investment was found in the present study. As noted above, the presence of family CEOs was not significantly but positively associated with the Chinese large listed FFs' R&D investment. Nonetheless, as firm size increased, the positive association became significant. This implies that while family CEOs may initially drive R&D efforts, the influence is more impactful as firms become larger. This finding may further suggest that when family members assumed the CEO role and especially when the firm size further expanded, family CEOs tended to exhibit higher levels of loyalty and dedication towards the organization, e.g., spending more on R&D in spite of declining financial performance.

6.4 Research Empirical Summary

In this chapter the associations between family ownership, and the involvement of family members as CEOs, and the financial performance and R&D investments of Chinese large listed FFs have been critically examined. Additionally the changing associations brought about by increases in firm size have been addressed. As a result, these findings contribute to the extant literature on FFs as follows:

The findings of a comprehensive bibliometric overview covering thirty years of research in family business journals suggest that future research should first be directed to investigate the heterogeneity of family businesses (Rovelli, Ferasso, De Massis and Kraus, 2022). The present study therefore encompassed all listed FFs, with a particular focus on those large-

sized listed FFs with direct comparison with non-large listed FFs.

These findings echo Chang et al. (2022) who suggested that a larger FF tends to behave more professionally, and more like a traditional non-FF, over time. This may be partly because family and non-family enterprises are required to function in accordance with various institutional requirements by means of legal and informal institutional frameworks (North, 1990; Soleimanof, Rutherford, and Webb, 2018). If they do not, these companies risk losing their institutional legitimacy and their ability to compete for resources when bigger multinational enterprises exert pressure on them, both in their home markets and when they seek to expand internationally. In order to accomplish certain objectives and alleviate worries about legitimacy, therefore, a larger FF may submit to institutional pressures and begin acting in a non-family manner (Chang et al., 2022). Existing studies reveal that larger FFs tend to employ non-family managers to professionally operate the business (Chang et al., 2022; Dyer, 2006). The present study's findings also provide evidence to support that family owners prioritize trust in their relationships, exhibit altruistic behaviour towards one another, and make efforts to ensure the long-term sustainability of the FF, which is highly consistent with extant literature (e.g., Madison et al., 2016).

Existing literature examining the impact of family involvement on listed firms' financial performance has predominantly focused on comparative studies between FFs and non-FFs within developed and emerging countries and suggests there were no consistent results regarding the role of family ownership and control in firms' financial performance, i.e., ROA (e.g., Anderson and Reeb, 2003; Andres, 2008; Martinez et al., 2007; Miralles-Marcelo et al., 2014; Poutziouris, Savva and Hadjielias, 2015). However, these findings provide further research insight into studying the heterogeneities within FFs by adopting an official definition to define large-sized FFs.

Poutziouris et al. (2015) found that family ownership significantly and positively affects UK listed firms' ROA, which is consistent with this study providing the significant and positive role of family ownership in Chinese large listed FFs. The extant literature also found that the

family CEO presence significantly and positively influenced developed-country listed firms' performance in terms of ROA than other listed firms, with supportive empirical evidence from German listed firms (Andres, 2008) and UK listed firms (Poutziouris, Savva and Hadjielias, 2015). Notably, the analytical focus of the present study on large listed FFs in China found that family CEO presence played a significant but negative role in large listed FFs' ROA. Thus, the effects of family shareholdings and family CEO presence on large Chinese FFs' financial performance were examined, and short-term ROA from R&D investment strategy for the long term distinguished. Such findings further reveal that family shareholdings and a family CEO's presence can provide both benefits and limitations for FFs, which contribute to the extant literature on FFs, especially with a focus on their corporate governance and strategy issues.

Across all listed FFs and large listed FFs, no significant differences in financial performance and R&D investment were found attributable to family ownership or the presence of family members as CEOs. A further detailed analysis of large listed FFs, however, revealed divergent outcomes as these firms grow in size. Specifically, as listed FFs further expanded, an insignificant but negative impact of family ownership and family CEOs was found on solely large listed FFs' ROA, while for all listed FFs, family ownership played an insignificant but positive, and family CEOs had a significant but negative impact. Compared with the effect of family CEOs on the R&D investment of listed FFs in general, a more significant positive impact was also found on those large-sized FFs as they grew in size. This finding implies that the leadership of family members in top executive roles may foster a more conducive environment for R&D investment activities, particularly in larger FFs. Hence, this study not only provides new insights into listed FFs' performance in terms of ROA and R&D investment but also contributes to a better and more dynamic understanding of the impacts of family ownership and control as the FFs expand their size.

The next chapter provides a comprehensive synthesis of this research's theoretical and practical contributions, outlines its limitations and suggests insights for future investigation.

Chapter 7 Conclusions

There were several motivations for this study: it was motivated by the anomaly of a large number of Chinese listed FFs that seemed to defy the pessimistic predictions of western agency theory; it used the official criteria to collect and examine a large set of large Chinese FFs; it focused on investigating the heterogeneity among family involvement effects (i.e., family ownership and control) on large FFs in relation to financial performance and R&D investment strategy. In this chapter the key findings of this project, its main claimed theoretical and practical contributions, and its unavoidable research limitations are summarized and presented. These limitations have significant implications for future research questions.

7.1 Summary of Research Findings

In essence, family ownership involves the family's equity stake in the firm, while family members' executive control involves family members' managerial positions and power within the firm. According to the prior empirical modelling analyses on 654 listed FFs, it was found that those large-sized listed FFs performed better in terms of ROA than other non-large-sized listed ones, which drove the further investigation of family ownership and control in determining large-sized listed FFs' financial performance and R&D investment strategy.

It was found that family ownership was significantly and positively associated with financial performance but had a significant but negative association with R&D investment in large listed FFs (H1 was rejected, and H5 was accepted). In terms of associations with family ownership and ROA, it, therefore, echoes the assertion of Peng and Jiang (2010) that family ownership can be beneficial to firm value or can play a crucial role in sustaining the firm value and defies the usual pessimistic prediction of agency theory (see H1 in Chapter 3).

It was further revealed that family members as CEOs had a significant negative effect on financial performance (H3 was accepted), which may reflect the fact that family members

as CEOs invested more in R&D, or, as Peng and Jiang (2010) argued, pro-family altruism may result in more agency problems due to the complex family relations and agency conflicts so that family squabbles also can increase agency costs.

It was found that for large listed FFs' R&D investment with long-term impact, family ownership played a significant but negative role, and family CEO presence had an insignificant positive impact (H7 was rejected). It is suggested that there are two possible reasons for the observed effects on R&D investment in large publicly listed FFs. First, the significant negative role of family ownership might stem from a preference for risk aversion. Family owners, possibly due to their desire to preserve wealth and maintain control over the firm, might prioritize short-term financial stability over the uncertain returns associated with long-term R&D investments. The findings in the present study provide such empirical evidence. Second, the insignificant positive impact of a family CEO on R&D investment could indicate that while family CEOs are somewhat more inclined toward investing in R&D, perhaps due to a longer-term vision for the company's growth or legacy considerations, their influence is not strong enough to counteract the overall risk-averse tendencies of the family ownership or to significantly change the firm's investment strategy in a statistically measurable way. This scenario suggests a complex interplay between the desire to invest for the future and the inherent caution in jeopardizing existing family wealth.

As firm size increased, neither family ownership nor family CEO presence significantly impacted large FFs' financial performance (H2 and H4 were rejected), but family CEO presence significantly and positively determined large FFs' R&D investment (H8 was rejected), so family members as CEOs may have further impaired financial performance. Such findings therefore suggest that when family members serve as CEOs, it could lead to decisions that might not immediately benefit the financial performance of the company but show a preference for investing in R&D. As the firm size increased, the lack of significant impact from family ownership or family CEO presence on the financial performance suggests that the scale of the company might dilute the influence of family-specific management practices on immediate financial outcomes. The significant and positive

association linkage between family CEO presence and R&D investment, however, indicates a distinct strategic focus by family CEOs towards long-term growth while the firm size further expanded, even at the possible expense of short-term financial performance. This inclination towards R&D investment by family CEOs could be driven by a desire to secure the firm's long-term competitiveness and legacy, reflecting a vision that transcends immediate financial returns. Such strategic prioritization might not yield immediate financial benefits and could explain the potential impairment to financial performance in the short term. Essentially, this finding highlights a trade-off that large FFs' family CEOs might be willing to make while the firm size is further enlarged, namely sacrificing short-term financial gains for what they perceive as vital long-term R&D investments in the company's future growth potential.

To illustrate, BYD, a family-owned enterprise with its founder Wang Chuanfu serving as the CEO, has exhibited a consistent annual increase in both profitability and market scale within its respective industry. Moreover, the company's commitment to investing in product research and development (R&D) has shown a continual upward trend, escalating from 6.27 billion RMB (around 689 million pounds) in 2017 to 10.63 billion RMB (11.85 billion pounds) in 2021. Notably, Wang Chuanfu's personal ownership level has decreased from 24.24% in 2012 to 17.64% in 2021. Therefore, the BYD family enterprise notably conforms to the expected outcomes of this study's research modellings.

On balance, the present findings may suggest that in large FFs in China, family ownership, firm size, and a family member as CEO all have complex effects on financial performance and R&D investment that vary by firm size and management structure. Chinese large listed FFs with greater family ownership seemed to be more focused on financial performance, and those with family members as CEOs were also willing to increase R&D investment. As FFs expanded, the impact of family ownership and family members as CEOs on large FFs' financial performance became less relevant, but only those large FFs with a family CEO presence were more likely to invest in R&D.

7.2 Summary of Theoretical Implications

Prior literature has shown that different theoretical perspectives on analyzing emerging-economy enterprises' strategies can have insightful implications (Hoskisson et al., 2000). This findings of the present study of large Chinese listed FFs may contribute to the '*theory of Chinese management*' (Barney and Zhang, 2009), i.e. the un-modified western agency theory may lack relevance.

7.2.1 Financial Performance Research and Theoretical Implications

In the extant FF literature, regional differences and detailed research design can also make significant differences, which may promote future research (Taras et al., 2018). As such, Bruton et al. (2022: 1057) suggested that existing theories lack realism and relevance when analyzing firms in different contexts, and therefore, unique theories may be needed to help provide a better understanding of large FF behaviour. The present findings mainly contribute to four theories: agency theory, social-emotional wealth, stewardship theory, and institution-based view as evidenced in the following sections.

7.2.1.1 Claimed Theoretical Contributions to Agency Theory

The application of agency theory to FFs places more emphasis on the investigation of how family involvement determines firms' performance (Chua et al., 2003). The present research findings therefore contribute to the application of agency theory to analyzing large FFs' financial performance. Most agency theory perceives family ownership and control as a 'bad thing' as firms grow (Peng and Jiang, 2010), however, Jensen and Meckling (1976) emphasized that agency problems arise where there is a misalignment of interests between the agent (manager) and the principal (shareholder). The agent is usually entrusted with the management of the company but may not always work in the best interest of the shareholders as they have their own interests and motives. In the case of FFs, principals and agents coincide.

Thus, drawn from agency theory, FFs with larger family ownership may also be “good” for firm value (Peng and Jiang, 2010). The significant positive association between family ownership and large FFs’ ROA found in the present study supports these arguments that family members as shareholders have an incentive to drive the firm to achieve better financial performance because their wealth is directly related to the firm's value. This finding emphasizes the role of family ownership in large FFs in China as enhancing the performance of large FFs, but this influence weakens as large firms expand further.

Lubatkin et al. (2005) however, posits the existence of a negative aspect pertaining to familial bonds within the organisation. Lubatkin et al. contend that this is because family enterprises are theoretically different from private firms due to the significant impact of family links on agency relationships, and that this influence can potentially hinder the owner-managers' ability to exercise self-control over time. The presence of family members within the top management teams of family-controlled enterprises has the capacity to increase agency risks rather than diminish them and undermine the CEO's altruistic intentions for their own personal gain.

The concept of separation of ownership and control proposed by Fama and Jensen (1983) also implies the assumptions that resources within the firm are limited, that their allocation affects the firm's performance, and that firms would have to allocate resources carefully to maximize firm value. This study's findings show that the effect of family ownership on ROA diminishes as the size of the FF increases, which reveals that family ownership may be “bad” for firm value (Peng and Jiang, 2010). Based on agency theory (Fama and Jensen, 1983) however, if family owners are the largest shareholders holding large stakes, they have more motivation to improve firm value. As such, as the firm size expands, the present study’s findings on large FFs reveals the need to consider other non-financial factors that negatively determine large FFs’ financial performance, which, therefore, requires the need to consider the SEW theory.

7.2.1.2 Theoretical Contributions to Social-Emotional Wealth (SEW)

Currently, scholars also place significant emphasis on the influence of non-economic factors in the governance of family enterprises, including family control, identity, social status, etc. (Berrone et al., 2012; Chen et al., 2022). The SEW theory emphasizes the importance of FFs' focus on SEW, i.e., family members' emotional ties (Kepner, 1983), family values and traditions (Handler, 1990), and so forth, in addition to the pursuit of financial performance. The results of the present study are consistent with some of the hypotheses of the SEW theory. The positive association between large FFs' family ownership and ROA suggests that families were more concerned with maintaining the financial performance of the firm, which is consistent with the SEW theory regarding the emotional investment of family members in the firm. The SEW theory emphasizes the importance of family member's contribution to the family's culture and affective wealth, but the results of this study suggest that large FFs with greater family ownership were less likely to invest in R&D, and the presence of a family member as the CEO had a significantly negative impact on financial performance. This emphasizes the need to better balance the relationship between family emotional wealth and financial performance in practice for large FFs in China.

7.2.1.3 Theoretical Contributions to Stewardship Theory

Hernandez (2012:174) defined stewardship as "*the extent to which an individual willingly subjugates his or her personal interests to act in protection of others' long-term welfare*". The findings of the present study further contribute to the ongoing discussion regarding the role of family CEOs and add to prior controversial findings. Stewardship theory has been seen as a common alternative to agency theory while studying the governance of an FF (Chrisman, 2019). One crucial contribution that stewardship theory can make is that it suggests that money does not represent the whole motivational factor for individuals, but that achieving organizational goals does. Stewardship theory emphasizes that managers, as stewards, view the firm as their own property and are guided by the best interests of the firm (Azizi et al., 2022; Breton-Miller and Miller, 2009), even in situations when the steward's

self-interests are in direct opposition to the objectives of the organization (Chen et al., 2016), thus contrasting with the self-interested agent assumption of agency theory (Breton-Miller and Miller, 2009). This may imply that family stewards would not only consider family interests but also the interests of non-family shareholders and other stakeholders. Hernandez (2008:122) stressed that stewardship behaviors indicate "*the long-term best interests of a group ahead of personal goals that serve an individual's self-interests*". These findings support stewardship theory in that family members as shareholders were more inclined to prioritize the firm's short-term financial performance in large listed FFs, realized in the positive correlation between family ownership and ROA.

Eddleston and Kellermanns (2007) argued that the concept of altruism may clarify why family members in FFs are willing to cooperate with each other managing business. Zahra (2003) contended that the most evident characteristic for stewardship behavior is altruism. FFs that exhibit altruistic characteristics may possess a competitive advantage due to the alignment of individuals' interests with the success of the family business (Azizi, Bidgoli, Maley and Dabic, 2022). Azizi et al. (2022) believed that higher levels of altruism can facilitate stewardship behaviours that support firms' long-term organizational pursuits. Namely, family members with higher levels of altruism tend to encourage R&D investment with long-term effects on firms' growth. In the present study it was found that the presence of a family CEO significantly and positively determined large listed FFs' R&D investment as the firm size expanded. This suggests that family CEOs in Chinese large listed FFs tend to have higher levels of altruism and are regarded as the stewards of the firms.

When family managers take the role of agents inside FFs, as opposed to being stewards, small privately owned firms could adopt strategies to minimize agency costs, leading to improved performance (Chrisman et al., 2007). As firm size increases, the present analysis found that the effect of family ownership diminished, suggesting that stewardship was diluted to some extent by size and complexity. This result highlights the importance of firm size in influencing large FF performance and family member behaviour and reflects the sensitivity of stewardship theory to firm size. While stewardship theory emphasizes that

managers should be more concerned with the long-term interests of the firm, the results of this study suggest that the family CEO presence was significantly negatively associated with financial performance in large listed FFs; and especially when firms expanded, the family CEO presence played a significant positive role in large FFs' R&D investment. This may reflect the fact that family members acted as executives with long-term interests in mind, but then short-term financial interests were undermined by problems in terms of business competence. This finding provides a modification of stewardship theory by highlighting the impact of executive roles and time dimensions on stewards' behaviour.

Two theories are relevant to the role that managers play in a business organization, namely agency theory and stewardship theory (Wasserman, 2006). The findings of the present study also go some way towards explicating the conflicting predictions of agency and stewardship theories regarding large listed family businesses. As Le Breton-Miller and Miller (2009) suggested, agency theory and stewardship theory contradict each other in a direct way. The agency perspective, rooted in the field of economics, posits that families prioritise their own utility at the expense of their public shareholders. In contrast, advocates of stewardship, who argue from a psychological standpoint, propose that family owners make substantial investments in their business, ultimately benefiting everyone involved. The findings of the present study support that a family CEO is significantly and negatively associated with large FFs' financial performance, but is also more likely to play a significant and positive role in R&D investment when the firm size further expands. This reveals that family CEOs in Chinese large FFs tend to behave in the firm's best interest regardless of ownership, i.e., investing R&D at the expense of jeopardizing the financial performance, which is consistent with the arguments put forward by the proponents of stewardship theory (e.g., Davis et al., 1997).

7.2.1.4 Theoretical Contributions to Institution-based View (IBV)

The hypothesis proposed by Berle and Means (1932) regarding the evolution of large family

enterprises towards the separation of ownership and control has been extensively documented and supported in the majority of large firms in the United States and the United Kingdom (Chandler, 1990). The institution-based view, as proposed by Berle and Means (1932), however can also explain the absence of the anticipated evolution of family enterprises in many other nations (Carney et al., 2009; Liu et al., 2012).

An alternative rationale for the existence of FFs is that in nations with inadequate legal systems, familial ties function as a secondary solution in which trust among family members can compensate for the absence of effective governance and regulatory oversight (Bertrand and Schoar, 2006). The institution-based view emphasizes the influence of both formal and informal institutions in shaping firms' behaviour and strategic decisions (Peng et al., 2009; 2018). In emerging market contexts with institutional voids, the internal corporate governance mechanisms can act as substitutes to establish the 'rules of the game' and guide and motivate firms' managerial behaviour (Purkayastha, Veliyath and George, 2022). Thus, the results of this study also significantly contribute to Peng's institution-based view. These findings contribute to the institution-based view by implying the impact of familial structures inside the corporate governance framework on business performance and behaviours, exploring how these structures can both conform to and deviate from institutional norms and expectations.

Specifically, the positive association between family ownership and financial performance highlights the potential advantages of family participation in governance, which is consistent with the institutional viewpoint that emphasises the effectiveness of familial governance in specific cultural and economic settings. The results of this study contribute to the institution-based view by emphasizing the role of familial governance structures in leveraging institutional norms to improve firm performance. When formal institutions, and particularly legal ones, may fail to protect lenders, and customers, family alliances in networks may act as substitutes for the law. Thus, these findings also echo Peng et al. (2018), which emphasized the significance of integrating the institution-based view with the above SEW arguments while studying large FFs.

The observed diminishing significance of family ownership and the presence of a family CEO on financial performance as the firm size increased, along with the significant impact of family CEO presence on R&D investment in larger-sized FFs, suggests a change in the influence of familial effects depending on the size of the firm. The study results indicate that the impact of family governance on large FF strategy is not static but rather evolves with the firm's growth or expansion. This supports the pessimistic predictions of most agency theory and challenges the institution-based perspective by highlighting the need to acknowledge the dynamic nature of how FFs adapt to institutional pressures and opportunities. Furthermore, the study's findings provide valuable insights into the varying impacts of family ownership and management structure as firms grow on financial performance and R&D investment. These insights extend the institution-based view by demonstrating that the alignment or conflict between institutional norms and familial governance can result in distinct strategic outcomes. This highlights the need to take into account the firm's size and governance structure when evaluating the impact of institutional frameworks on organisational performance and behaviour.

7.2.2 R&D Investment Research and Theoretical Implications

Allocating financial resources to R&D is a crucial strategic behaviour in large firms that may affect firms' financial performance (e.g., Lin, Lee, and Hung, 2006). Thus, the findings of the impact of family ownership and the CEO presence on large FFs' R&D investment strategy can also have theoretical implications. Specifically, the findings suggest that family ownership significantly but negatively affected large FFs' R&D investment, and family CEO presence played a positive but insignificant impact. As firm size further expanded, the role of family ownership in large FFs' R&D investment became irrelevant, but the family member as a CEO played a more significant and positive role. Such effects of family involvement on large FFs' R&D investment can therefore be claimed to contribute to the three theories, i.e., agency, social-emotional wealth, and stewardship theories.

7.2.2.1 Theoretical Contributions to Agency Theory

Jensen and Meckling (1976) emphasized that the managerial agent is usually entrusted with the management of the company, but they may not always work in the best interests of the shareholders as they have their own interests and motives. According to 154 S&P 500 FFs in 2003, Block (2012) found that family ownership is significantly associated with lower levels of R&D investment. In the present study, the observed significant but negative link between family ownership and R&D investment may also illustrate this agency problem. In line with this view, it is argued here from the viewpoint of agency theory that family members as shareholders would be more concerned with short-term economic benefits for the family and, therefore, may be more inclined to limit R&D expenditures in order to increase short-term financial profits. This phenomenon may be particularly evident in large FFs, as this study's results found that those larger FFs with greater family ownership were less likely to invest in R&D, and meanwhile, those with greater family ownership had better ROA. As the firm size further expanded, the impact of family CEO presence on R&D investment started to become more significant and positive. Drawing from agency theory, family CEOs may undertake investment policies that benefit their families even if they may be under-qualified (Peng and Jiang, 2010). As such, the present findings reveal that the plausibility of applied research on an agency theory for large FFs is also contingent on the firm size.

7.2.2.2 Theoretical Contribution to Social-Emotional Wealth Theory

The SEW theory emphasizes the need for family firms to weigh up the conflicting relationship between the pursuit of financial performance and SEW (e.g., Chen et al., 2022; Gomez-Mejia et al., 2007). The present research results support this theoretical perspective, particularly in terms of the significant negative relationship between large FFs' family ownership and R&D investment. This suggests that large FFs may trade off the relationship

between financial performance and SEW by limiting R&D expenditures in order to improve financial performance. As firms increase in size, the present results suggest that large FFs with a family member as CEO focused more on R&D investment and namely emphasize SEW more. This suggests that in larger FFs, management may be more inclined to pursue SEW (i.e., R&D investment) rather than overemphasize financial performance, which is consistent with the trade-off that is central to SEW theory. Furthermore, it may reveal that large Chinese listed FFs have concerns about their public reputation, e.g. in terms of R&D investment. For instance, drawn from SEW theory, Deephouse and Jaskiewicz (2013) found that large firms' corporate reputation is significantly associated with firms' family ownership level.

In addition, it was found that the family CEO presence was positively associated with large FFs' R&D investment, especially after the firm had increased in size. This may reflect family members' willingness to increase their investment R&D as they were more focused on building long-term SEW from their leadership positions in the large FFs. This finding emphasises the positive role of family members as executives in R&D and SEW, in line with the emphasis on family culture and values in SEW theory. Thus, these findins also address the current 'grand' question in family business research (i.e., *who develops SEW*) (Kammerlander, 2022).

7.2.2.3 Theoretical Contribution to Stewardship Theory

Prior literature found that stewardship is substantially more prevalent in FFs in Iran (Azizi et al., 2022). Stewardship scholars suggest that family managers tend to act like stewards to protect the firm's long-term welfare (Davis et al., 1997). The present results support the stewardship theory, especially in the case of family members as CEOs, who were more connected to the firm and were associated with more R&D investment, thus achieving a positive association linkage between the family CEO presence and R&D investment for larger FFs. This result may imply that stewardship theory is influenced to some extent by

scale effects. Following that, more resources were needed to support R&D activities so that investment could increase, however, once a certain size was reached, further scaling significantly affected R&D investment for those large FFs with a family member as CEO, reflecting the focus on resources and control in stewardship theory.

7.2.2.4 Theoretical Contribution to Institution-based View (IBV)

Empirical studies also show that there are some alternative governance mechanisms that rely on individual reputation or relationships to support the development of private businesses in China, although the legal protection and financing channels are weaker (Allen, Qian and Qian, 2005). Thus, the present research findings provide several specific theoretical contributions to the IBV.

This study has shed light on the impact of family ownership on R&D investment within large listed FFs. The significant negative role of family ownership suggests that familial control can impede the allocation of resources towards R&D endeavors. This insight enhances our understanding of how family ownership dynamics intersect with informal institutional factors to shape organizational decision-making processes withing large listed FFs.

The present study highlights the influence of family CEO presence on R&D investment in large FFs. Despite initially showing an insignificant positive impact, the increasing significance and positivity of family CEO presence on R&D investment as the firm size grows underscore the evolving nature of CEO influence within familial, organizational structures. This observation contributes to the comprehension of how family CEO characteristics interact with informal institutional contexts to affect firms' strategic choices, particularly regarding long-term investments.

These findings also underscore the importance of firm size in moderating the relationship between family CEO presence and R&D investment. The growing positive association

between family CEO presence and R&D investment as firm size expands suggests a strategic shift towards prioritizing long-term growth objectives. This demonstrates the adaptability of family-led firms within institutional environments, wherein they may adjust their strategic focus in response to changing organizational scales and market conditions.

This study therefore offers valuable insights into the dynamics of R&D investment decisions within large listed FFs from the perspective of the IBV. By explicating the interplay between family ownership, family CEO presence, and firm size, the study contributes to a deeper understanding of how informal institutional factors shape strategic behaviour and resource allocation strategies in familial, organizational settings.

7.2.3 Summary of Theoretical Implications

Agency and stewardship theories embody contradictory positions, whereby much agency theory suggests that families may prioritize their own interests at the expense of their non-family shareholders, and the stewardship perspective suggests family ownership would exhibit a strong commitment to their firm, taking all stakeholders' interests into consideration (Chrisman et al., 2007; Le Breton-Miller and Miller, 2009). These findings may address the conflicting perspectives of pessimistic agency and stewardship theories: specifically, it was found that family members as CEOs had a significant negative effect on financial performance, which may be linked to the fact that family members as CEOs invested more in R&D, perhaps over-investing.

The contribution of this study to agency theory is to provide empirical evidence that supports the equity incentive hypothesis in agency theory and highlights the complexity of agency problems across different scales and time dimensions. This helps FF managers to better understand how to balance short-term and long-term goals and how to optimize R&D investments to achieve further sustainable growth objectives. These findings also contribute to the stewardship theory that family members may play the role of steward in large publicly

traded FFs, focusing on the long-term interests of the firm, e.g. through R&D investment.

This study also provides some empirical support for the SEW theory, especially regarding the positive impact of family shareholdings on large FF financial performance.The findings highlight the heterogeneity of large FFs across different sizes and time dimensions and the need to consider multiple factors when weighing SEW (i.e., R&D investment) and financial performance. This contributes to a deeper understanding of the operation and governance of large FFs in order to achieve a balance between SEW and financial performance.

In addition, the present findings also suggest that executive roles and firm size may have complex effects on stewards' behaviours, and more in-depth research is needed to understand the specific mechanisms and conditions of these effects. This could help to further develop and refine stewardship theory to better explain the phenomenon of large FF operation and governance. On that account, these findings may support stewardship theory in that family members as CEOs may be more inclined to play an active steward role and focus on the firm's long-term interests. Subsequently, these findings indicated that scale effects and the time dimension may have an impact on stewards' behaviour. This will help to further refine stewardship theory to better explain the business and governance behaviour of large FFs.

7.3 Summary of Implications for Practitioners

Above all, the findings of this research emphasize the complexity of management and decision-making in large FFs and the need to fully consider the impact of family ownership, family CEO presence and firm size on financial performance and R&D investment. These findings may suggest that large FFs may be able to achieve better performance and sustainable growth by balancing these factors, focusing on a long-term R&D investment strategy. These practical recommendations may help large FFs achieve success in different contexts. Large FFs can achieve better financial performance by crafting strategies, developing the leadership potential of family members, focusing on long-term R&D

investment strategy, strengthening governance mechanisms, and customizing tactics. These practical suggestions may help large FFs remain competitive and successful in the long term in a competitive marketplace.

FFs do not exist in a vacuum. In contrast, reducing conflicts between owners and managers would not necessarily be a problem if laws and regulatory institutions to protect investors were more developed and ownership structures were more fragmented. With more developed regulatory institutions, external non-family managers may be more effectively monitored and disciplined (Peng and Jiang, 2010), and then the market would be more inclined to balance family priorities with non-family interests. In such a case, the present findings may suggest that family managers may have to play a more active role in large FFs from emerging economies with less effectively regulated markets.

7.3.1 Practitioner Implications and Financial Performance

The results of this research suggest a number of practical insights or implications for the practice of large FFs as follows:

Large FFs need to weigh up the relationship between family ownership and firm size. While family ownership had a positive impact on the financial performance of large FFs, this impact may diminish as firm size increases. Large FFs need to therefore, carefully consider family members' shareholdings at different growth stages to ensure that they have a positive impact on the long-term success of the firm. Practitioners may wish to consider the following suggestions.

First, to evaluate family ownership arrangements on a regular basis, they may wish to check whether they are consistent with the firm's current size because the impact of family ownership on FFs' financial performance became insignificant when firm size expanded. This could entail altering the family's shareholdings to improve governance and performance.

Second, they may consider establishing robust governance mechanisms that may strike a balance between family control and professional management, which may contribute to the beneficial impact of family ownership while limiting the hazards associated with expanding firm size. Third, they may consult with external stakeholders, such as non-family investors and consultants, to acquire a range of opinions on the best family ownership level for different growth stages. This can provide useful information for making sound decisions. By focusing on these areas, practitioners may increase the positive impact of family ownership, ensuring that it contributes to long-term financial performance and for large FFs.

Additionally, large FFs need to put in place strengthened governance and oversight mechanisms to ensure that senior management, including family members, are able to fulfil their responsibilities effectively. These mechanisms can help family members of large FFs to better manage the business when they are CEOs, while also maintaining transparency and accountability as family shareholdings and the size of the business increase.

7.3.2 Practitioner Implications and R&D Investment

The results of this study yield some practical implications for large FFs, particularly in relation to family shareholdings, family members as CEOs, and the impact of R&D investments. The following are some possible practical implications and recommendations:

The results found that family ownership had a significantly positive impact on large FFs' ROA, while the presence of a family CEO had a significantly negative impact. As the firm's size expanded, neither family ownership nor the presence of a family CEO became relevant to large FFs' ROA. This means that more complex challenges in terms of corporate governance occur for large listed FFs when firm size increased. Practitioners might consider the following activities to address these complexities:

First, as an FF grows, it may be critical to diversify its leadership team. This could entail

hiring professional, non-family executives with specialised skills and expertise to supplement the capabilities of family members. A diversified leadership team may more effectively negotiate the complexity of a larger organisation. Second, strong corporate governance structures may be needed that include independent board members, defined roles and duties, and open decision-making processes. This will help reduce the potential detrimental influence of family CEOs and provide effective oversight. Third, it may be needed to provide regular leadership development and training opportunities for both family and non-family executives. This may enable them to face the specific challenges of managing a large, publicly traded FF and ensure a smooth transfer as the firm expands. As such, practitioners can better handle the corporate governance issues that develop as a company grows. Finally, the positive influence of family ownership may suggest that there is no need to admit external shareholders, with their potential for acting as strategic investors. These suggestions may ensure that the benefits of family ownership are preserved while limiting the possible drawbacks of having a family CEO, eventually promoting the long-term success of large family businesses.

In addition, the results show that family ownership had a significant but negative role on large FFs' R&D investment, but family CEOs had an insignificant positive impact. As firm size expanded, the family ownership became insignificant, but the family CEOs significantly and positively determined large FFs' R&D investment. Thus, large FFs may need to focus on long-term R&D investment strategy, not just short-term financial performance, i.e. practitioners in large FFs may need to take the following steps to ensure long-term success. First, the significant positive role of family CEOs on larger-sized FFs' R&D investment strategy may suggest the necessity of creating a clear and appealing vision for R&D that is consistent with the large FF's long-term objectives. In that case, family CEOs may need to ensure that this vision is shared with all stakeholders to ensure support throughout the organisation. The second step is suggested to ensure that R&D efforts receive enough resources, including financial investment and talent recruitment. This could include allocating a specified percentage of revenues to R&D initiatives and forming professional teams to nurture innovation. The third step for practitioners is the suggestion to create an

environment that promotes creativity and innovation. This could involve offering staff training and development chances to improve their skills and expertise in areas vital to the company's R&D operations. Finally, practitioners may also be suggested to regularly explain the significance and progress of R&D investments to family members, employees, and external stakeholders. Because transparency in long-term strategies can strengthen trust and support for ongoing R&D activities. By focusing on these areas, practitioners may ensure that large family businesses not only benefit from the favourable impact of family members in leadership roles but also achieve long-term growth and financial performance through careful R&D expenditures.

Overall, each large FF has unique characteristics and challenges and, therefore, requires customized R&D investment strategies. These strategies may be tailored to the firm's industry, competitive environment, and family culture in order to maximize the benefits of family shareholdings and family members as CEOs and maintain R&D investment momentum as the firm scales up.

7.4 Limitations and Future Research

Given the ongoing significant influence of family-owned and controlled businesses in the global economy, it is critical that the fundamental determinants that shape FFs' strategies and decision-making processes are thoroughly understood (Chen et al., 2022). Inevitably, this study has also limitations, which may nevertheless suggest insights and value for future research.

This analysis relied solely on data from large publicly traded FFs, thus, these results regarding the behaviour of FFs may be relevant only to listed FFs in China. Large FFs are also largely business groups in terms of their organizational structure, in which family members may run different affiliated businesses (Wilkinson, 1996), and business groups have displayed their prevalence in emerging economies (Peng et al., 2005; Shi et al., 2022).

On that account, further research can be developed to identify the business group affiliations among these large FFs in China and explore the role of business group affiliation on their financial performance or R&D investment strategy.

Large FFs were selected for this research following the official criteria of definitions and investigated their family involvement associations within all publically traded FFs.
For example, the extent of influence a family exerts on a firm cannot be solely determined by its ownership percentage. A family with a minority ownership stake may still have a considerable impact by means of special voting privileges or representation on the board of directors. As for the latter, while a family member may not have an executive role, they might nonetheless exert significant influence by virtue of their ownership stake and/or board membership, which may make this variable fail to account for the specific circumstances of this case. Future research could therefor also be directed to study the impact of family members as board members on large listed FFs' financial performance and R&D investment strategy.

In this research, a dataset of 1,165 Chinese listed FFs was initially selected, including 654 listed FFs with direct ownership by family members and 511 listed FFs with indirect control through a pyramidal ownership structure. Gonzalez et al. (2012) found that both direct and indirect ownership control by family members have significant and positive impacts on Colombian firms' performance, hence, future research can be also directed to comparatively examine the influence of direct and indirect family ownership on Chinese large listed FFs' financial performance and R&D investment strategy.

Listed firms are subject to more regulatory control other than unlisted firms, and listing status can affect the families that exert influence on FFs' financial performance (Minichilli, Corbetta and MacMillan, 2010). Thus, future research can investigate this in various categories of organizations (e.g., public and private) to determine the family's priorities and its specific involvement in the business.

In terms of FFs' birth mode (i.e., indirectly established or directly established) for listed FFs in China, Zulfiqar et al. (2022) found that indirectly established FFs are more likely to invest in R&D than directly established ones. In the future, research can be developed to comparatively examine the role of family involvement in the R&D strategies of large FFs between directly established and indirectly established ones.

Jiang et al. (2020) found that a family member as chair of the board can significantly affect the FFs' reputation and then FFs' financial performance, i.e., stock price valuations. Furthermore, existing studies show that boards of directors in listed firms can be regarded as alternative solutions to deal with agency problems (i.e., the separation of ownership and control) (e.g., Hermalin and Weisback, 1998; Bhatt and Bhattacharya, 2017; Kang, Cheng, and Gray, 2007; Lefort and Urzua, 2008; Liu et al., 2015; Schulze et al., 2001; Villalonga et al., 2015). Chinese FFs have often involved family members who take management positions or board membership (Liu, Luo and Tian, 2015). However, in this study, family involvement only relates to two forms, ownership and control (i.e., CEO position). Thus, future research could be further directed to explore the effect of family involvement as the board chair on large FFs' financial performance and R&D investment. The identify of the CEO can also be categorized into three forms, including the founder CEO, the descendant CEO, and the professional CEO (Cheng, 2014). In short, the influence of CEO identify types on large FFs' financial performance and R&D investment could be studied further.

Existing studies suggest that family involvement refers to family ownership, family management, or both (Miller et al., 2007). Future research might be directed to study the role of interplay between family ownership and family management/control on large listed FFs' performance and R&D investment strategies. Eisenhardt (1989) presented a strategic framework for formulating theories applicable to emerging markets through the analysis of case studies, therefore, multiple case studies could be employed to provide an in-depth exploration of family involvement effects within Chinese large listed family businesses.

The dataset for this research was taken from an emerging market and a single nation with its

unique features, culture, legislation, and hazards, though cross-national analyses on FFs have increasingly received attention (Bornhausen, 2022; Jiang and Peng, 2011; Peng and Jiang, 2010; Peng et al., 2018). In the future, a multi-country study could be undertaken to get more general conclusions, but this would require uniform definitions of large firms. Given the significance of studying the interaction between family values and outside institutions within a country (Bertrand and Schoar, 2006), future research may also be directed to study the moderating role of domestic institutions in the relationship between family involvement and large FFs' financial performance and R&D investment. Without this research, the mechanisms behind the results can only be speculated upon.

Existing studies have done much on the role of institutions in Chinese FFs' performance (e.g., Banalieva et al., 2015; Liang et al., 2023; Peng and Jiang, 2010). As such, future research could be developed to study the mediating impact of institutions on these really large Chinese FFs' performance. Another limitation of this present study is the lack of concrete measurement regarding the home-country varying institutions that may influence the involvement of family members in the financial performance and R&D investment decisions of large publicly listed FFs. The study primarily relied on observational data spanning from 2012 to 2021 from Chinese large publicly listed FFs to examine the effects of family ownership and family members serving as CEOs on financial performance and R&D investment. To address this limitation, future research could select a few representative large publicly listed FFs from the current sample and employ a multiple case study approach. By adopting a longitudinal research perspective, researchers can dynamically analyze how external institutional environments affect family members' ownership and their roles as CEOs in affecting financial performance and R&D investment decisions. This approach would provide a deeper understanding of the interplay between institutional factors and the behaviour of FFs over time.

Miroshnychenko et al. (2021) argued that the crucial role of familial influence on the growth of firms is, to a greater extent, overlooked. Subsequently, apart from the academic contributions mentioned above, it is necessary to map out future research directions,

especially with regard to the 1165 Chinese listed FFs that are the subject of the present study, which includes 490 large-scale listed family enterprises (based on the measure evaluated in 2021). In addition to the clearly defined scholarly contributions, there is an increasing need to investigate the changing environment of corporate social responsibility (CSR) in these huge family businesses (e.g., Ma et al., 2022). In future, studies should focus on how these big family businesses function in the Environmental, Social, and Governance (ESG) domains, summarising their contributions to environmental sustainability and supporting sustainable development. Prior studies suggest that private businesses have been increasingly seen as one significant contributor for the economic development and employment in Chian (e.g., Ding, Zhang and Zhang, 2008). The scrutiny of corporate behaviour by global stakeholders through an ESG lens is growing, and it is critical to comprehend how large family enterprises perform and interact in these areas. In addition, clarifying the ways in which these organisations manage the complex interactions of family histories, corporate governance frameworks, and ESG requirements represents a critical line of investigation. Such studies not only deepen the corporate understanding of the complex aspects of family business dynamics but also provide guidance for managerial strategies and regulatory actions intended to promote ethical business practices. In conclusion, further studies are likely to investigate the growing importance of big family businesses in the field of ESG. This will enhance academic discussion and help stakeholders involved in sustainable business practices make well-informed decisions.

Appendix

Section 1

1. Introduction to the Three Stock Exchanges in China

1.1 Shanghai Stock Exchange

The establishment and commencement of the Shanghai Stock Exchange (SSE) began on 26 November 1990, and on the 19 December of the same year, the SSE began operating under the oversight and administration of the China Securities Regulatory Commission (CSRC). This legal company now operates on a membership-based model and offers venues and facilities for centralized securities trading. It is mainly responsible for organizing and overseeing securities trading activities, as well as implementing self-regulation measures.

The primary role of the SSE comprises a number of responsibilities. These include facilitating the central trading of securities through the provision of venues, facilities, and services. Additionally, the SSE is responsible for formulating and revising its business rules. It also reviews and approves applications for the listing of public offerings of securities in accordance with the regulations set forth by the State Council and the Securities and Securities Regulatory Commission (CSRC). Furthermore, the SSE is tasked with reviewing and arranging the listing and trading of securities, as well as making decisions regarding the termination or relisting of securities. The SSE also offers services for the transfer of privately issued securities, organizes and oversees the trading of securities, implements innovations in transaction types and trading methods, and supervises and monitors its members.

The regulatory body is responsible for overseeing various aspects of the trading industry, including the development of innovative trading methods, the supervision of members, the oversight of companies engaged in the listing and trading of securities and their obligations to provide relevant information, the establishment of websites to ensure compliance with legal requirements for information disclosure, the supervision of securities service organizations in facilitating the issuance, listing, and trading of securities, the establishment or involvement in the establishment of securities registries and clearing institutions, the management and publication of market information, and the implementation of investor education and protection measures. The CSRC has the authority to license, authorize, or assign such functions as

specified by laws and administrative rules.

After over three decades of rapid expansion, the SSE has evolved into a stock exchange that offers four primary categories of securities trading: stocks, bonds, funds, and derivatives. It also possesses a comprehensive market structure, a trading system, and basic communication facilities that facilitate the efficient and stable functioning of the Shanghai securities market. Additionally, SSE has implemented a self-regulatory system to ensure the standardized and orderly operation of Shanghai's securities market, achieving remarkable effectiveness. The scale of Shanghai's securities market and investor base is seeing significant growth, further leveraging these advantages.

At the conclusion of 2022, Shanghai had a total of 2,174 listed businesses, with a combined market capitalization of RMB 46.4 trillion (around 5.17 trillion pounds). The cumulative turnover of stocks in 2022 amounted to RMB 96.3 trillion (around 10.74 trillion pounds), and the total funds raised in the stock market reached RMB 847.7 billion (around 72.5 billion pounds). Following almost three decades of growth, the SSE has emerged as the third largest stock exchange globally and ranks among the most dynamic stock exchanges worldwide. In terms of total stock market capitalization and IPO fundraising, SSE achieved third and first positions globally by the conclusion of 2022.

Notes: source from http://www.sse.com.cn/aboutus/sseintroduction/introduction/; The original text is in Chinese and has been translated and processed (Accessed: 30th March, 2024)

1.2 Shenzhen Stock Exchange

The Shenzhen Stock Exchange (SZSE), established on December 1, 1990, is a national securities trading platform that has received approval from the State Council. It operates under the oversight and administration of the China Securities Regulatory Commission (CSRC). The SZSE carries out market organization, market supervision, and market services in compliance with the Securities Law, the Measures for the Administration of Securities Exchanges, and the Articles of Association of the Shenzhen Stock Exchange. These duties primarily involve providing venues, facilities, and services for the centralized trading of securities, reviewing and approving applications for the issuance and listing of securities in accordance with the law, organizing and supervising the trading of securities, supervising its members, listed companies, and for other obligation holders, and conducting investor education and

protection. They also make provision for education and the safeguarding of investors, among other things.

The SZSE operates in alignment with the unified deployment of the CSRC. Its primary objective is to contribute to the real economy and enhance the quality of life for its constituents. This is achieved through its role as the primary conduit for direct financing and its function in optimizing resource allocation. Additionally, the SZSE supports the reform of state-owned enterprises, fosters the growth of the private economy, facilitates the transformation and advancement of traditional industries, and facilitates the rapid development of innovative capital. After over three decades of persistent effort, a market system has been successfully established that possesses excellent fundamental operations, unique board attributes, standardized and transparent oversight, secure and dependable functioning, and comprehensive and efficient services. This has resulted in the formation of a market structure known as "Main Board + ChiNext", which not only provides support to established blue-chip enterprises and emerging innovative and entrepreneurial ventures, but also caters to diverse types of investors. Consequently, the SZSE has emerged as a dominant force in the direct financing industry. The platform provides support to both established blue-chip firms and emerging innovative and entrepreneurial enterprises. It caters to a diverse range of investors, making it a crucial tool for implementing an innovation-driven development strategy and fostering high-quality economic growth.

In recent times, the South African Stock Exchange (SASE) has emerged as a highly dynamic emerging market on a global scale. This is evident through its diverse range of products, expanding market size, ongoing improvements in market operations, and growing appeal and impact. Several indicators have positioned the SASE among the top global markets. In 2022, the SASE achieved the third, second, first, and sixth positions globally in terms of stock turnover, capital raised, number of IPOs, and total market value of stocks， respectively. Additionally, it ranked, first, second, third and sixth globally in terms of the UN valuation. According to the United Nations Sustainable Exchange Initiative, in terms of statistical rating of carbon emissions among major G20 exchanges, the SASE demonstrates superior performance.

Notes: source from http://www.szse.cn/aboutus/sse/introduction/index.html; The original text is in Chinese and has been translated and processed (Accessed: 30th March, 2024)

1.3 Beijing Stock Exchange

The establishment of the Beijing Stock Exchange (BSE) took place on September 3, 2021, marking its status as China's initial corporate stock exchange that received approval from the State Council. It operates under the oversight and administration of the China Securities Regulatory Commission (CSRC). The primary objective of the firm is to offer venues and facilities for centralized securities trading, as well as to coordinate and oversee securities trading and securities market management services in compliance with legal requirements.

The principles that will be prioritized throughout the construction of the Beijing Stock Exchange are as follows (as directly translated from the Chinese by the author of the present study):

The concept of adherence to "One Positioning", ensures that the BSE will strictly adhere to the market positioning of catering to creative small and medium-sized enterprises (SMEs) while also respecting their development legislation and growth stage. Additionally, the exchange will tend to improve the system's inclusivity and accuracy.

Effectively manage "two relationships". Initially, the BSE will use a phased approach to its development and establish connections with the Shanghai and Shenzhen stock exchanges, as well as regional equities markets. This will enable the exchange to effectively facilitate the transfer of its listing to a new board. Furthermore, it is imperative for the Beijing Stock Exchange, along with the established innovation layer and foundation layer of the New Third Board, to prioritize coordination and system linkage in order to uphold a well-balanced market structure.

Attainment of "three objectives". In order to enhance the capacity of the multi-level capital market to foster inclusive finance, it is imperative to establish a comprehensive framework of fundamental institutional arrangements that encompass various aspects such as issuance and listing, trading, delisting, continuous supervision, and investor suitability management. These arrangements should align with the distinctive characteristics of innovative small and medium-sized enterprises. Additionally, the objective is to enhance the interconnectedness of the BSE within the multi-level capital market, thereby establishing a direct avenue for funding the growth of SMEs that mutually reinforce and advance one another. Furthermore, it is important to foster a multitude of exceptional and inventive SMEs and to establish a

favourable market environment characterized by a strong drive for innovation and entrepreneurship, active involvement of competent investors, and the reinstatement of intermediaries in their roles and duties.

Notes: source from https://www.bse.cn/company/introduce.html; The original text is in Chinese and has been translated and processed (Accessed: 30th March, 2024)

Table A-1 Listing Requirements for Chinese Enterprises in Mainland China.

Shanghai Stock Exchange (SSE)	Shenzhen Stock Exchange		Beijing Stock Exchange
	the Main Board	**The SME Board**	
When a domestic issuer applies for listing on the Exchange, the market capitalization and financial indicators shall meet at least one of the following criteria: (a) Positive net profit for the last three years, and the aggregate net profit for the last three years shall not be less than **RMB 150 million**, the net profit for the last year shall not be less than **RMB 60 million**, and the aggregate net cash flow from operating activities for the last three years shall not be less than **RMB 100 million** or the aggregate operating income shall not be less than **RMB 1 billion**;	The net profit for the last 3 fiscal years is positive and the net profit exceeds **RMB 30 million** in aggregate, and the net profit is calculated on the basis of the lower of the net profit before and after deducting non-recurring gains and losses. (a) Net cash flow from operating activities in the most recent 3 fiscal years exceeds **RMB 50 million** in aggregate; or operating income in the most recent 3 fiscal years exceeds	If the issuer is a domestic enterprise and there is no voting rights differential arrangement, the market capitalization and financial indicators should meet at least one of the following criteria: (a) positive net profit for the last two years and cumulative net profit of not less than **RMB 50 million**; (b) estimated market capitalization of not less than **RMB 1 billion**, positive net profit for the last year and operating income of not less than **RMB 100 million**;	When an issuer applies for a public offering and listing, the market capitalization and financial indicators should meet at least one of the following criteria: (a) The estimated market capitalization is not less than **RMB 200 million**, the net profit of the last two years is not less than **RMB 15 million** and the weighted average return on net assets is not less than 8% on average, or the net

(b) Estimated market capitalization of not less than **RMB 5 billion** with positive net profit for the most recent year, operating income of not less than **RMB 600 million** for the most recent year, and net cash flow from operating activities of not less than **RMB 150 million** in aggregate for the most recent three years; (c) Estimated market capitalization of not less than **RMB 8 billion**, with positive net profit for the most recent year and operating income of not less than **RMB 800 million** for the most recent year.	**RMB 300 million** in aggregate. (b) The total amount of share capital before issuance is not less than **RMB 30 million**; the ratio of intangible assets to net assets at the end of the most recent period is not more than 20%; and there is no unrecovered loss at the end of the most recent period. (c) Internal control is effective in all material respects, accounting fundamentals are standardized, and there are no false entries in the financial accounting report. (d) There are no circumstances	(c) estimated market capitalization of not less than **RMB 5 billion** and operating income of not less than **RMB 300 million** for the last year	profit of the last year is not less than **RMB 25 million** and the weighted average return on net assets is not less than 8%; (b) The estimated market capitalization is not less than **RMB 400 million**, the average operating income of the last two years is not less than **RMB 100 million**, and the growth rate of operating income of the last year is not less than 30%, and the net cash flow from operating activities of the last year is positive; (c) The estimated market

	affecting the issuer's sustainable profitability.		capitalization is not less than **RMB 800 million**, the operating income in the latest year is not less than **RMB 200 million**, and the combined R&D investment in the latest two years accounts for not less than 8% of the combined operating income in the latest two years; (d) The estimated market capitalization is not less than **RMB 1.5 billion**, and the total R&D investment in the recent two years is not less than **RMB 50 million**.

Notes: 1.00 Chinese Yuan RMB equals 0.1097 British Pounds based on the recent exchange, available from

https://www.xe.com/currencyconverter/convert/?Amount=1&From=CNY&To=GBP (Accessed: 30th March 2024); Direct transaction from Chinese to English. Source: Shanghai Stock Exchange: http://www.sse.com.cn/services/listingwithsse/regulations/main/; Shenzhen Stock Exchange: https://www.szse.cn/ipo/guide/requirements/index.html; Beijing Stock Exchange: https://www.bse.cn/cxjg_list/200010908.html

Section 2

Personal Research Motivation and Experiences

I started my PhD research journey in October 2020. The domain of family enterprises has consistently captured my interest, cultivated by my father's entrepreneurial heritage and my personal involvement in overseeing a small-sized enterprise. This thesis outlines my exploration of conducting research on large family firms, examining their motives, problems, and methodological changes.

Motivated by the complex interaction between familial relations and corporate governance, I undertook an endeavour to comprehend the complexities inherent in family enterprises. Given the inherent challenges associated with data collection for small to medium-sized family businesses, my research was directed to examining larger-sized enterprises. My initial research purpose was to compare their operational practices with those seen in the United States and Europe.

I began my research adventure by conducting a thorough examination of the literature on family business, which involved searching for more than 2000 journal papers using keywords linked to family enterprises. During this immersive experience, I found a gap in the existing research, which motivated me to further study the topic of internal governance and growth trajectories inside family enterprises. With the help of my mentors, I realized the need to study governance and strategic matters in large family businesses, especially in China's developing institutional environment.

At the starting point, the research design proposed a multi-case study methodology to examine representative family enterprises. Nevertheless, the outbreak of the COVID-19 pandemic in 2020 presented considerable obstacles, making conventional approaches like interviews and field surveys unfeasible. Following this, my supervisors agreed that I should shift my focus towards utilizing secondary data for the purpose of doing quantitative analysis with a reliance on related databases, so enhancing the strength and reliability of my research technique.

A crucial point in my research process was the recognition that previous studies frequently failed to

consider subtle distinctions in characterizing large family firms, mostly relying on listing status as a determining factor. This observation motivated me to further investigate and utilize the classification criteria established by the National Bureau of Statistics, thus enabling a more detailed categorization of large-scale family firms that are listed on the stock exchange.

In order to enhance the process of empirical research, I made an intensive effort to create an extensive dataset covering a period of ten years, specifically from 2012 to 2021. Although the initial database collected fundamental data like the percentage of family ownership and the present ties among executives, however, it did not provide the level of detail necessary to examine yearly changes in ownership. In order to overcome this constraint, I diligently obtained supplementary data from platforms such as eastmoney.com, from which I manually gathering ownership percentages and CEO roles for every family firm that was mentioned.

To sum up, although it may seem challenging to capture the full research process in this whole journey, it highlights the crucial importance of persistence, flexibility in methodology adjustments, and guidance from supervisors. As I engaged in the examination of large family businesses, I maintained a commitment to making valid and reliable empirical contributions to the academic conversation within this field.

I am deeply grateful to my two supervisors for their consistent counsel and encouragement, as well as to my own persistent determination.

Section 3

Descriptive Statistics on Listed Family Firms-Financial Performance Research

Table A-D1 Descriptive Statistics on All Listed Family Firms

Variable	Observation	Mean	Standard Deviation	Min	Max
ROA	6,046	6.76	9.81	-97.564	78.215
FSHARE	4,807	29.18	13.68	0.21	80.01
FCEO	4,939	0.63	0.48	0	1
AGE	6,540	16.44	5.70	0	41
FSIZE	6,052	19.57	1.08	15.74262	24.56121
FCOUP	6,540	0.48	0.50	0	1
RDratio	4,883	4.26	4.23	-3.173	64.829
SINO	6,540	0.02	0.13	0	1
MANU	6,540	0.68	0.47	0	1
GDONG	6,540	0.22	0.42	0	1

Notes: *Table A-D1 reports all variables' means, standard deviations, and minimum and maximum values for all publicly listed FFs. Among all listed FFs, the average family ownership stake is 29.18%. Family CEOs control 63% of listed FFs, and the average age of listed FFs is over 16. Interestingly, 48% of all listed FFs are owned by a couple. In terms of ownership structure, 20% of all listed FFs are attached to Sino-foreign joint ventures. To be more specific, 68% of all listed FFs are involved in the manufacturing sector, and 22% of all listed FFs originally started in Guangdong Province, China.*

Table A-D2 Pairwise Correlation Analysis for All Listed Family Firms

No.		1	2	3	4	5	6	7	8	9	10
1	ROA	1									
2	FSHARE	0.19***	1								
3	FCEO	-0.008	0.16***	1							
4	AGE	-0.18***	-0.04**	-0.020	1						
5	FSIZE	-0.25***	-0.22***	-0.10***	0.27***	1					
6	FCOUP	0.03**	0.05***	0.03*	-0.021	-0.06***	1				
7	RDratio	-0.06***	-0.0137	0.04**	-0.0107	-0.14***	0.07***	1			
8	SINO	0.003	-0.03*	0.08***	-0.03*	-0.0063	0.07***	0.07***	1		
9	MANU	0.04***	0.04*	0.0083	-0.024	-0.09***	0.0227	-0.02	0.02	1	
10	GDONG	-0.03*	0.08***	0.0144	0.09***	-0.01	0.0145	0.0011	-0.019	0.0016	1

Notes: +, *, **, *** *denote significance at the 10%, 5%, 1% and 0.1% level respectively; Table A-D2 displays pairwise correlation analysis for all related variables. As clearly seen from Table A-D2, the 'FSHARE' is significantly and positively correlated with 'ROA' (p<0.001), but 'FCEO' is negatively but insignificantly correlated with 'ROA' (p>0.10). In addition, it can be observed that 'AGE', "FSIZE', 'FCOUP', 'RDratio', 'MANU', and 'GDONG' are all significantly correlated with 'ROA'. More importantly, the correlations between these variables are all relatively lower, which means there will be fewer multicollinearity issues in the following modelling regressions*

Modelling Regression Analyses on Listed Family Firms' Financial Performance

Table A-M1- Random-effects GLS Regression on Listed Family Firms' Financial Performance

Random-effects GLS regression-Listed FFs-Financial Performance			
Variable	A-Model 1	A-Model 2	A-Model 3
	f_ROA	f_ROA	f2_ROA
FSHARE		0.095***	0.086***
		(0.018)	(0.020)
FCEO		-1.752**	-1.745*
		(0.608)	(0.682)
AGE	-0.239***	-0.116*	-0.065
	(0.047)	(0.047)	(0.053)
FSIZE	-3.261***	-1.364***	-1.783***
	(0.350)	(0.362)	(0.436)
FCOUP	0.278	0.477	0.307
	(0.550)	(0.552)	(0.613)
RDratio	-0.202***	-0.117*	-0.039
	(0.054)	(0.057)	(0.055)
SINO	-0.112	1.049	0.832
	(2.233)	(2.683)	(3.075)
MANU	0.381	0.662	0.738
	(0.634)	(0.621)	(0.680)
GDONG	-0.611	-1.297	-1.551*
	(0.680)	(0.691)	(0.782)
YB2012	-2.332***	-1.668**	-0.984
	(0.652)	(0.616)	(0.655)
Constant	75.363***	32.619***	39.040***
	(6.349)	(6.831)	(8.210)
Observations	4346	3276	2750
Wald chi2	277.51***	73.07***	52.22***

R-squared	0.1563	0.0635	0.0703

Notes: +, *, **, *** *denote significance at the 10%, 5%, 1% and 0.1% level respectively; The A-Model (AM) 1 represents a baseline model with control variables only and then a model including two main independent variables, i.e., family ownership 'FSHARE' and family control 'FCEO' (AM2 and AM3). From Models AMs1-3, I ran the regression on all samples of publicly listed FFs. The significant Wald test results in Models AMs 1-3 at 99.99% confidence level showed that the two independent variables, including 'FSHARE' and 'FCEO', were statistically significant to the model fit (277.51, 73.07, and 52.22). Concerning the main independent variables, it can be observed that family ownership ('FSHARE') was positively and significantly associated with financial performance ('ROA') in AM2 and AM3 (coeff.=0.095, p<0.001; coeff.=0.086, p<0.001 respectively). According to Model AM2, the result suggests that an increase of 1% in family ownership for listed FFs results in a rise of 9.5% in 'f_ROA'. Moreover, the 'FCEO' in Model AM2 and AM3 was significantly but negatively associated with FF's financial performance (i.e., 'f_ROA' and 'f2_ROA' respectively). This means that the family CEO presence played a significant but negative role in all listed FFs' financial performance in terms of ROA. In addition, 'FSIZE' was found to be significantly and negatively associated with listed FFs' financial performance from AM1 to AM3. It suggests that smaller-sized listed FFs perform better in terms of ROA.*

Table A-M2 Random-effects GLS Regression Analysis on Non-large Listed Family Firms' Financial Performance

Random-effects GLS regression for financial performance of non-large listed family firms			
Variable	A-Model 4	A-Model 5	A-Model 6
	f_ROA	f_ROA	f2_ROA
FSHARE		0.093**	0.101**
		(0.030)	(0.032)
FCEO		-1.562	-0.829
		(1.148)	(1.156)
AGE	-0.368**	-0.193*	-0.161*
	(0.110)	(0.093)	(0.083)
FSIZE	-4.948***	-2.656*	-1.712
	(0.876)	(1.193)	(1.019)
FCOUP	0.238	1.302	1.839
	(1.017)	(1.080)	(1.067)
RDratio	-0.188*	-0.201*	-0.150
	(0.092)	(0.098)	(0.106)
SINO	-0.495	-0.916	-1.770
	(3.322)	(3.589)	(3.720)
MANU	-0.259	1.543	2.116
	(1.645)	(1.711)	(1.626)
GDONG	-1.806	-2.087	-2.223
	(1.384)	(1.504)	(1.415)
YB2012	-3.885**	-2.4780212	-2.664*
	(1.412)	(1.352)	(1.286)
Constant	108.535***	56.719*	36.003
	(15.431)	(22.548)	(19.309)
Observations	1356	931	796
Wald chi2	172.61***	44.70***	27.38**

R-squared	0.1779	0.0656	0.0382

Notes: +, *, **, *** *denote significance at the 10%, 5%, 1% and 0.1% level respectively; Table A-M2 presents the results of random-effects GLS model regression analysis on non-large listed FFs' financial performance. Model AM4 only includes all control variables without adding the two main independent variables (i.e., family ownership and family CEO). Models AM 5-6 present modelling results on the effect of family ownership and family CEO on non-large listed family firms' financial performance with forwarded 1 year and 2 years, respectively. The significant Wald test results in Models AMs 4-6 at 99.99% confidence level showed that the two independent variables, including 'FSHARE' and 'FCEO', were statistically significant to the model fit (172.61, 44.70, and 27.38). Concerning the main independent variables, it can observed that family ownership ('FSHARE') was positively and significantly associated with non-large listed FFs' financial performance ('ROA') in AM5 and AM6 (coeff.=0.093, p<0.001; coeff.=0.101, p<0.001 respectively). However, the family CEO presence ('FCEO') was found to be insignificantly negatively associated with non-large listed FFs' financial performance. This suggests that the effect of family CEO presence on non-large listed FFs' financial performance became irrelevant. Moreover, the firm age 'AGE' was observed to be significantly but negatively associated with non-large listed FFs' financial performance from AM4 to AM6 (coeff.=-0.368, p<0.01; coeff.=-0.193, p<0.05; coeff.=-0.161, p<0.05 respectively). This means that younger non-large listed FFs tended to perform better in terms of ROA.*

Table A-M3 Random-effects GLS Regression about the Moderating Effects of Firm Size on Listed Family Firms' Financial Performance

Random-effects GLS regression for listed family firms' performance-scale effects		
Variable	A-Model 7	A-Model 8
	f_ROA	f2_ROA
FSHARE	-0.229	-0.273
	(0.401)	(0.474)
FCEO	18.421	35.185*
	(12.672)	(15.442)
FSHARE_FSIZE	0.017	0.018
	(0.021)	(0.024)
FCEO_FSIZE	-1.021	-1.874*
	(0.654)	(0.797)
AGE	-0.111*	-0.056
	(0.048)	(0.054)
FSIZE	-1.241*	-1.243
	(0.625)	(0.734)
FCOUP	0.480	0.320
	(0.551)	(0.612)
RDratio	-0.112*	-0.029
	(0.058)	(0.055)
SINO	1.120	0.851
	(2.626)	(2.944)
MANU	0.660	0.727
	(0.618)	(0.674)
GDONG	-1.392*	-1.699*
	(0.685)	(0.773)
YB2012	-1.659**	-0.947
	(0.616)	(0.658)

Constant	30.012*	28.017*
	(12.009)	(14.267)
Observations	3276	2750
Wald chi2	77.18***	55.86***
R-squared	0.0622	0.0697

Notes: +, *, **, *** *denote significance at the 10%, 5%, 1% and 0.1% level respectively*; *Table A-M3 provides the explorative findings from Models AM:7-8 on the moderating effects of firm size (i.e., total assets) between family involvement (i.e., family ownership and control) and all listed FF financial performance. The significant Wald test results in Models AMs 7-8 at 99.99% confidence level showed that the two independent variables, including 'FSHARE' and 'FCEO', were statistically significant to the model fit (77.18 and 55.86). In Model AM-7, it can be observed that variable 'FSHARE_FSIZE' was positively but insignificantly associated with listed FFs' ROA with forward 1-year and forward 2-years (coeff.=0.017, p>0.10; coeff.=0.018, p>0.10 respectively). Further, the results show that the coefficients of 'FCEO-FSIZE' were -1.021 (p value>0.001) in AM7, -1.874 (p value<0.05) in AM8). It can therefore be concluded that firm size played a significant but negative moderating effect on the association between family CEO presence and listed FF financial performance in the second following year, which further reveals that family CEO presence was negatively associated with listed FF financial performance as firm size further increased.*

Table A-M4 Random-effects GLS Regression Analysis about the Moderating Effects of Firm Size on Non-large Listed Family Firms' Financial Performance

Random-effects GLS regression for non-large listed FFs' financial performance-scale effects		
Variable	A-Model 9	A-Model 10
	f_ROA	f2_ROA
FSHARE	-1.959	-0.978
	(1.224)	(1.049)
FCEO	42.149	64.028
	(43.614)	(39.447)
FSHARE_FSIZE	0.107	0.057
	(0.064)	(0.055)
FCEO_FSIZE	-2.289	-3.392
	(2.299)	(2.083)
AGE	-0.189*	-0.154
	(0.095)	(0.086)
FSIZE	-4.345	-1.390
	(2.508)	(1.719)
FCOUP	1.256	1.806
	(1.077)	(1.049)
RDratio	-0.194*	-0.137
	(0.098)	(0.100)
SINO	-0.560	-1.489
	(3.711)	(3.664)
MANU	1.306	2.042
	(1.731)	(1.596)
GDONG	-2.437	-2.464
	(1.505)	(1.394)
YB2012	-2.359	-2.718*
	(1.372)	(1.263)

Constant	89.236	29.562
	(47.480)	(32.901)
Observations	931	796
Wald chi2	44.52***	30.32**
R-squared	0.0703	0.0335

Notes: +, *, **, *** *denote significance at the 10%, 5%, 1% and 0.1% level respectively; Table A-M4 provides explorative findings from Models AM:9-10 on the moderating effects of firm size (i.e., total assets) between family involvement (i.e., family ownership and control) and non-large listed FF financial performance, i.e., ROA. The significant Wald test results in Models AMs 7-8 at 99.99% confidence level showed that the two independent variables, including 'FSHARE' and 'FCEO', were statistically significant to the model fit (44.52 and 30.32). In Models AM 9-10, it can be seen that variable 'FSHARE_FSIZE' was positively but insignificantly associated with non-large listed FFs' ROA with forward 1-year and forward 2-years (coeff.=0.107, p>0.10; coeff.=0.057, p>0.10 respectively). Further, the results show that the coefficients of 'FCEO-FSIZE' were -2.289 (p value>0.001) in AM9, -3.392 (p value<0.05) in AM10). As such, it can be concluded that firm size played an insignificant moderating effect on the association between family involvement (i.e., family ownership and CEO presence) and non-large listed FF financial performance, which further reveals that the effect of family involvement became irrelevant for non-large listed FFs financial performance as firm size further increased.*

Figure A-1 and Figure A-2 clearly show the average marginal effects of family involvement (i.e., family ownership and family CEO) and the moderating effect of firm size (i.e., total assets) on listed FFs' financial performance. This indicates that firm size played a positive moderating role in the linkage between family shareholding and listed FFs' financial performance and a negative moderating role in the association between the family CEO presence and large FFs' financial performance.

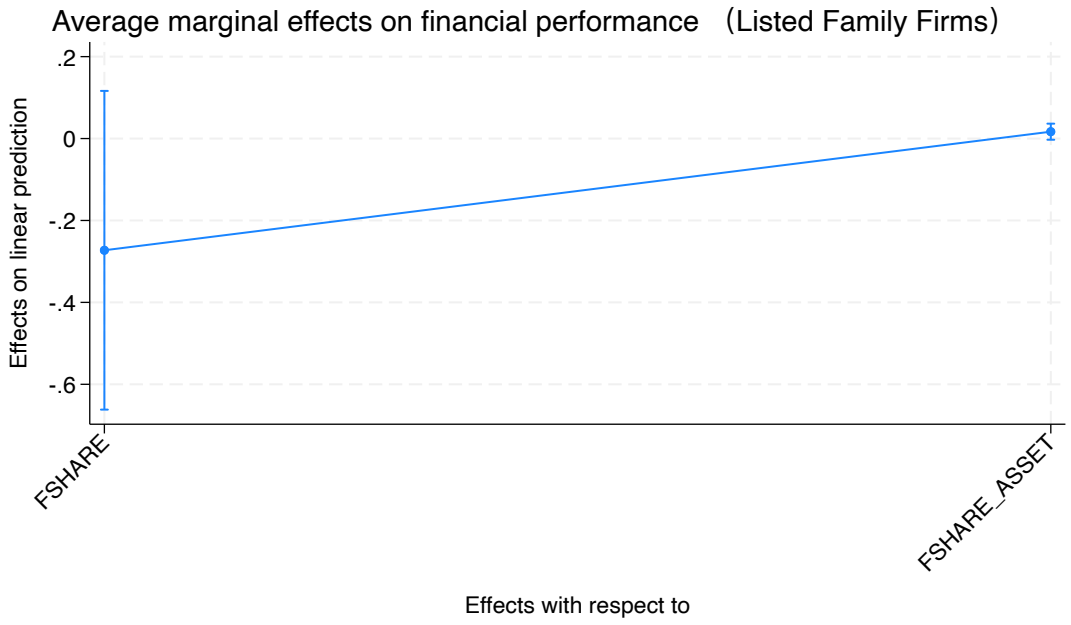

Figure A-1 Mean Marginal Effects of Family Ownership/Shareholding in Listed Family Firms on Financial Performance

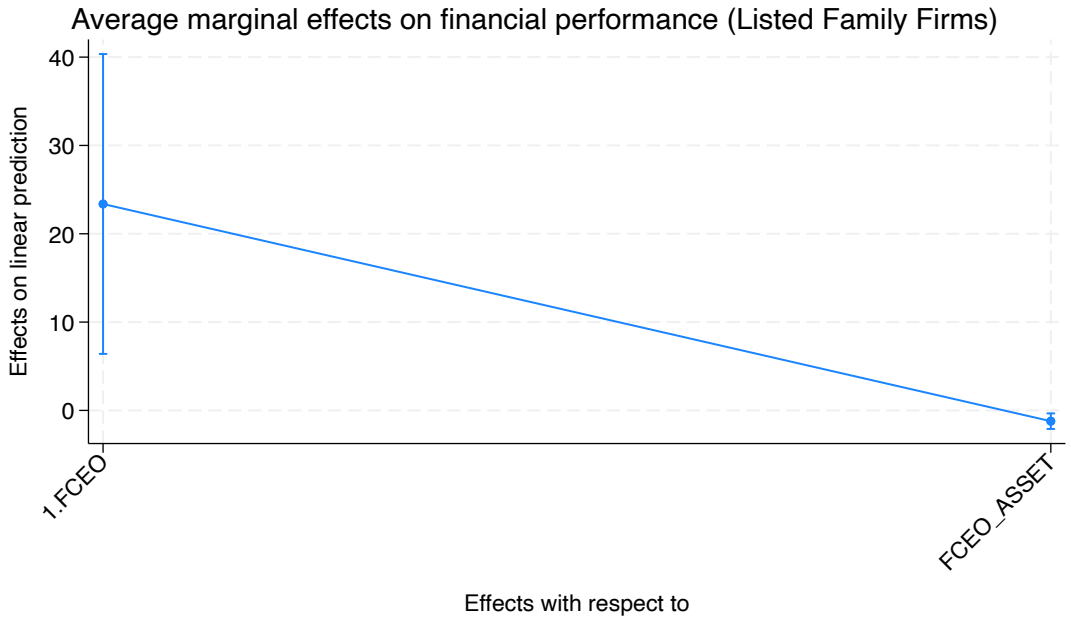

Figure A-2 Average Marginal Effects of Family CEO in Listed Family Firms on Financial Performance

Notes: *Figures A-1 and A-2 show the average marginal effects of family involvement (i.e., family shareholdings, and family CEO) and the moderating effect of firm size (i.e., total assets) on listed FFs' financial performance. On balance, firm size played a positive moderating role in the linkage between family shareholding and listed FFs' financial performance and a significant but negative moderating role in the association between family CEO presence and listed FFs' financial performance.*

Table A-M5 Random-effects GLS Regression Analysis for Large Listed Family Firms' Financial Performance-Robust Check for Sample Selection Error

Random-effects GLS regression-Robust analysis-Financial Performance (robustness check for sample selection error)		
Variable	A-Model R1	A-Model R2
FSHARE	0.088***	0.080**
	(0.021)	(0.023)
FCEO	-1.757*	-2.078**
	(0.696)	(0.794)
AGE	-0.036	0.043
	(0.060)	(0.070)
FSIZE	-2.302***	-3.288***
	(0.450)	(0.561)
FCOUP	0.471	-0.074
	(0.649)	(0.751)
RDratio	-0.042	0.042
	(0.072)	(0.079)
SINO	4.260*	4.171
	(1.763)	(2.270)
MANU	1.053	1.187
	(0.693)	(0.792)
GDONG	-1.999*	-2.306*
	(0.777)	(0.900)
YB2012	-2.375**	-1.478
	(0.766)	(0.859)
lambda	-21.060**	-24.189**
	(6.793)	(8.084)
Constant	63.894***	83.295***
	(10.360)	(12.814)

Observations	2345	1954
Wald chi2	80.79***	60.91***
R-squared	0.0664	0.0885

Notes: +,*, **, *** *denote significance at the 10%, 5%, 1% and 0.1% level respectively; Table A-M5 provides explorative findings from Models AR:1-2 on the relationship between family involvement (i.e., family ownership and control) and large listed FF financial performance, i.e., ROA. The significant Wald test results in Models ARs 1-2 at 99.99% confidence level showed that the two independent variables, including 'FSHARE' and 'FCEO', were statistically significant to the model fit (80.79 and 60.91). In Models AR 1-2, it can be seen that variable 'FSHARE' was significantly and positively associated with large listed FFs' ROA with forward 1-year and forward 2-years (coeff.=0.088, p<0.001; coeff.=0.080, p<0.01 respectively). Further, the results show that the coefficients of 'FCEO' were -1.757 (p value<0.05) in AR1, -2.078 (p value<0.01) in AR2). As such, it can be concluded that family ownership played a significant and positive effect on the association between family ownership and large listed FF financial performance, the family CEO presence significantly but negatively determined large listed FF financial performance.*

Table A-M6 Random-effects GLS Regression Analysis about the Moderating Effects of Firm Size on Large Listed Family Firms' Financial Performance-Robust Check for Sample Selection Error

Random-effects GLS regression-Robust analysis-Financial Performance-scale effects		
Variable	A-Model R3	A-Model R4
	f_ROA	f2_ROA
FSHARE	0.048	0.004
	(0.498)	(0.627)
FCEO	16.711	31.742
	(15.625)	(19.281)
FSHARE_FSIZE	0.002	0.004
	(0.025)	(0.032)
FCEO_FSIZE	-0.924	-1.697
	(0.796)	(0.983)
AGE	-0.034	0.046
	(0.060)	(0.070)
FSIZE	-1.845*	-2.439*
	(0.732)	(0.981)
FCOUP	0.473	-0.060
	(0.648)	(0.748)
RDratio	-0.033	0.058
	(0.073)	(0.084)
SINO	4.211*	4.005
	(1.788)	(2.291)
MANU	1.074	1.216
	(0.695)	(0.789)
GDONG	-2.048**	-2.401**
	(0.773)	(0.887)
YB2012	-2.308**	-1.349
	(0.775)	(0.873)

lambda	-20.690**	-23.313**
	(6.805)	(8.115)
Constant	54.323**	65.438**
	(15.946)	(21.688)
Observations	2345	1945
Wald chi2	85.95***	64.96***
R-squared	0.065	0.0878

Notes: +,*, **, *** *denote significance at the 10%, 5%, 1% and 0.1% level respectively; Table A-M6 provides explorative findings from Models AR:3-4 on the moderating effects of firm size (i.e., total assets) between family involvement (i.e., family ownership and control) and large listed FF financial performance, i.e., ROA. The significant Wald test results in Models ARs 3-4 at 99.99% confidence level showed that the two independent variables, including 'FSHARE_FSIZE' and 'FCEO_FSIZE', were statistically significant to the model fit (85.95 and 64.96). In Models ARs3-4, it can be seen that variable 'FSHARE_FSIZE' was positively but insignificantly associated with large listed FFs' ROA with forward 1-year and forward 2-years (coeff.=0.002, p>0.10; coeff.=0.004, p>0.10 respectively). Further, the results show that the coefficients of 'FCEO-FSIZE' were -0.924 (p value>0.1) in AR3, -1.697 (p value>0.10) in AR4). As such, it can be concluded that firm size played an insignificant moderating effect on the association between family involvement (i.e., family ownership and CEO presence) and large listed FF financial performance, which further reveals that the effect of family involvement became irrelevant for large listed FFs financial performance as firm size further increased.*

Table A-M7 Random-effects GLS Regression Analysis on Large Listed Family Firms' Financial Performance-Robust Check for Dependent Variable

Random-effects GLS regression-for testing large family firms' ROE		
Variable	A-Model R5	A-Model R6
	f_ROE	f2_ROE
FSHARE	0.172**	0.166**
	(0.059)	(0.063)
FCEO	-3.323+	-3.705+
	(1.793)	(2.124)
AGE	-0.101	-0.045
	(0.154)	(0.192)
FSIZE	-1.549	-2.695*
	(1.022)	(1.175)
FCOUP	-2.419	-3.520+
	(1.779)	(2.164)
RDratio	0.099	0.095
	(0.175)	(0.163)
SINO	11.064***	11.042**
	(2.778)	(3.989)
MANU	3.141+	3.683
	(1.921)	(2.318)
GDONG	-5.133*	-6.549*
	(2.422)	(2.996)
YB2012	-1.964	-1.052
	(1.771)	(2.153)
Constant	35.742+	56.544*
	(20.343)	(22.858)
Observations	2340	1946
Wald chi2	43.18***	28.17**

R-squared	0.0239	0.0231

Notes: +,*, **, *** *denote significance at the 10%, 5%, 1% and 0.1% level respectively; Table A-M7 provides explorative findings from Models AR:5-6 on the moderating effects of firm size (i.e., total assets) between family involvement (i.e., family ownership and control) and large listed FF return on equity (ROE). The significant Wald test results in Models ARs5-6 at 99.99% confidence level showed that the two independent variables, including 'FSHARE' and 'FCEO', were statistically significant to the model fit (43.18 and 28.17). In Models ARs5-6, it can be seen that variable 'FSHARE' was significantly and positively associated with large listed FFs' ROE with forward 1-year and forward 2-years (coeff.=0.172, p<0.01; coeff.=0.166, p<0.01 respectively). Further, the results show that the coefficients of 'FCEO' were -3.323 (p value<0.10) in AR5, -3.705 (p value<0.10) in AR6). As such, it can be concluded that family involvement (i.e., family ownership and CEO presence) significantly determined large listed FF financial performance in terms of ROE.*

Table A-M8 Random-effects GLS Regression Analysis about the Moderating Effects of Firm Size on Large Listed Family Firms' Financial Performance-Robust Check for Dependent Variable

Random-effects GLS regression-for testing large family firms' ROE-scale effects		
Variable	A-Model R7	A-Model R8
	f_ROE	f2_ROE
FSHARE	-0.198	0.319
	(1.515)	(1.526)
FCEO	52.818	45.474
	(44.176)	(45.530)
FSHARE_FSIZE	0.019	-0.007
	(0.077)	(0.078)
FCEO_FSIZE	-2.802	-2.462
	(2.248)	(2.337)
AGE	-0.100	-0.041
	(0.152)	(0.190)
FSIZE	-0.605	-1.239
	(2.111)	(2.367)
FCOUP	-2.385	-3.484
	(1.782)	(2.165)
RDratio	0.122	0.119
	(0.180)	(0.168)
SINO	10.860***	10.820**
	(2.831)	(4.016)
MANU	3.209+	3.730
	(1.928)	(2.314)
GDONG	-5.301*	-6.693*
	(2.438)	(3.039)
YB2012	-1.763	-0.797
	(1.830)	(2.244)

Constant	16.287	26.825
	(42.039)	(46.636)
Observations	2340	1946
Wald chi2	44.35***	32.43**
R-squared	0.025	0.0212

Notes: +, *, **, *** *denote significance at the 10%, 5%, 1% and 0.1% level respectively; Table A-M8 provides explorative findings from Models AR:7-8 on the moderating effects of firm size (i.e., total assets) between family involvement (i.e., family ownership and control) and non-large listed FF financial performance, i.e., ROE. The significant Wald test results in Models ARs 7-8 at 99.99% confidence level showed that the two independent variables, including 'FSHARE_FSIZE' and 'FCEO_FSIZE', were statistically significant to the model fit (44.35 and 32.43). In Models ARs 7-8, it can be seen that variable 'FSHARE_FSIZE' was positively but insignificantly associated with large listed FFs' ROE with forward 1-year and forward 2-years (coeff.=0.019, p>0.10; coeff.=-0.007, p>0.10 respectively). Further, the results show that the coefficients of 'FCEO-FSIZE' were -2.802 (p value>0.001) in AR7, -2.462 (p value<0.05) in AR8). As such, it can be concluded that firm size played an insignificant moderating effect on the association between family involvement (i.e., family ownership and CEO presence) and large listed FF ROE, which further reveals that the effect of family involvement became irrelevant for large listed FFs ROE as firm size further increased.*

Section 4

Table A-D3 Descriptive Analyses on Family Firms' R&D Investment

No.	Variables	1	2	3	4	5	6	7	8	9
1	RDratio	1								
2	FSHARE	-0.014	1							
3	FCEO	0.04**	0.16***	1						
4	AGE	-0.0107	-0.04**	-0.0196	1					
5	FSIZE	-0.14***	-0.22***	-0.10***	0.27***	1				
6	FCOUP	0.07***	0.05***	0.03*	-0.0208	-0.06***	1			
7	SINO	0.07***	-0.03*	0.08***	-0.03*	-0.0063	0.07***	1		
8	MANU	-0.0198	0.0352*	0.0083	-0.0237	-0.09***	0.0227	0.0208	1	
9	GDONG	0.0011	0.08***	0.0144	0.09***	-0.0066	0.0145	-0.019	0.0016	1

Notes: **, **, *** denote significance at the 5%, 1% and 0.1% level respectively; Table A-D3 displays pairwise correlation analysis for all related variables while studying family involvement effects on large listed family firms' R&D investment. As clearly seen from Table A-D3, 'FCEO' is significantly and positively correlated with 'RDratio' ($p<0.01$); but 'FSHARE' is insignificantly and negatively correlated with 'RDratio' ($p>0.10$). In addition, it can be observed that "FSIZE', 'FCOUP', and 'SINO' are all significantly correlated with 'RDratio'. More importantly, the correlations between these variables are all relatively lower, which means there will be fewer multicollinearity issues in the following modelling regressions.*

Modelling Regression Analyses on Listed Family Firms' R&D Investment Strategy

Table A-M9 Random-effects GLS Regression on All Listed Family Firms' R&D Investment Strategy

Random-effects GLS regression for listed FFs' R&D investment			
Variable	A-Model 11	A-Model 12	A-Model 13
	f_RDratio	f_RDratio	f2_RDratio
FSHARE		-0.024*	-0.024*
		(0.010)	(0.011)
FCEO		0.123	0.272
		(0.293)	(0.325)
AGE	0.117***	0.091*	0.094**
	(0.033)	(0.036)	(0.035)
FSIZE	0.026	-0.283	-0.007
	(0.146)	(0.192)	(0.217)
FCOUP	0.456	0.621	0.637*
	(0.313)	(0.327)	(0.330)
SINO	1.871	1.656	1.107
	(1.165)	(1.169)	(1.243)
MANU	-0.217	-0.243	-0.262
	(0.389)	(0.396)	(0.399)
GDONG	-0.308	-0.172	-0.034
	(0.329)	(0.337)	(0.348)
YB2012	-0.973**	-1.111**	-1.307**
	(0.363)	(0.363)	(0.376)
Constant	2.324	9.612*	4.211
	(2.467)	(3.732)	(4.225)
Observations	4351	3281	2755
Wald chi2	43.41***	37.23***	36.00***
R-squared	0.0303	0.0149	0.0271

Notes: +, *, **, *** *denote significance at the 10%, 5%, 1% and 0.1% level respectively; Table A-M9*

provides explorative findings from Models AM:11-13 investigating the association between family involvement (i.e., family ownership and control) and all listed FF R&D investment. The significant Wald test results in Models AMs 11-13 at 99.99% confidence level showed that the two independent variables, including 'FSHARE' and 'FCEO', were statistically significant to the model fit (43.41, 37.23 and 36.00). In Models AMs 12-13, it can be seen that variable 'FSHARE' was significantly but negatively associated with listed FFs' 'RDratio' with forward 1-year and forward 2-years (coeff.=-0.024, p<0.05; coeff.=-0.024, p<0.05 respectively). Further, the results show that the coefficients of 'FCEO' were 0.123 (p value>0.001) in AM12, 0.272 (p value<0.10) in AM13). As such, it can be concluded that family ownership significantly but negatively determined listed FF R&D investment, while the effect of family CEO presence became insignificant but positive.

Table A-M10 Random-effects GLS Regression Analysis for Non-large Listed Family Firms

Random-effects GLS regression for testing the family involvement effect on non-large FFs' R&D investment			
Variable	A-Model 14	A-Model 15	A-Model 16
	f_RDratio	f_RDratio	f2_RDratio
FSHARE		-0.023	-0.014
		(0.019)	(0.022)
FCEO		0.587	0.696
		(0.539)	(0.552)
AGE	0.078	0.063	0.102
	(0.056)	(0.064)	(0.064)
FSIZE	-0.041	-0.424	-0.024
	(0.244)	(0.294)	(0.305)
FCOUP	0.841	1.316*	1.271*
	(0.467)	(0.547)	(0.534)
SINO	2.034	3.166	1.497
	(1.542)	(1.742)	(1.733)
MANU	1.453**	1.506*	1.617**
	(0.534)	(0.619)	(0.616)
GDONG	-0.559	-0.560	-0.012
	(0.562)	(0.631)	(0.696)
YB2012	-0.802	-1.067*	-0.92616037
	(0.556)	(0.541)	(0.514)
Constant	3.044	11.023	2.209
	(4.239)	(5.749)	(6.116)
Observations	1358	933	797
Wald chi2	27.24***	38.21***	28.69***
R-squared	0.0395	0.0761	0.0673

Notes: +, *, **, *** *denote significance at the 10%, 5%, 1% and 0.1% level respectively; Table A-M10 provides explorative findings from Models AM:14-16 investigating the association between family*

involvement (i.e., family ownership and control) and non-listed FF R&D investment. The significant Wald test results in Models AMs 14-16 at 99.99% confidence level showed that the two independent variables, including 'FSHARE' and 'FCEO', were statistically significant to the model fit (27.24, 38.21 and 28.69). In Models AMs 15-16, it can be seen that variable 'FSHARE' was insignificantly and negatively associated with listed FFs' 'RDratio' with forward 1-year and forward 2-years (coeff.=-0.024, p>0.10; coeff.=-0.014, p>0.10 respectively). Further, the results show that the coefficients of 'FCEO' were 0.587 (p value>0.001) in AM15, 0.696 (p value>0.10) in AM16). As such, it can be concluded that family ownership and family CEO presence insignificantly determined non-large listed FF R&D investment.

Figure A-3 and Figure A-4 present the average marginal effects of family involvement (i.e., family ownership and family CEO) and the moderating effect of firm size (i.e., total assets) on all listed FFs' R&D investment. It is clearly shown that firm size played a positive moderating role in the linkage between family CEO presence and large listed FFs' R&D investment but an insignificant negative moderating role in the association between family ownership and listed FFs' R&D investment strategy.

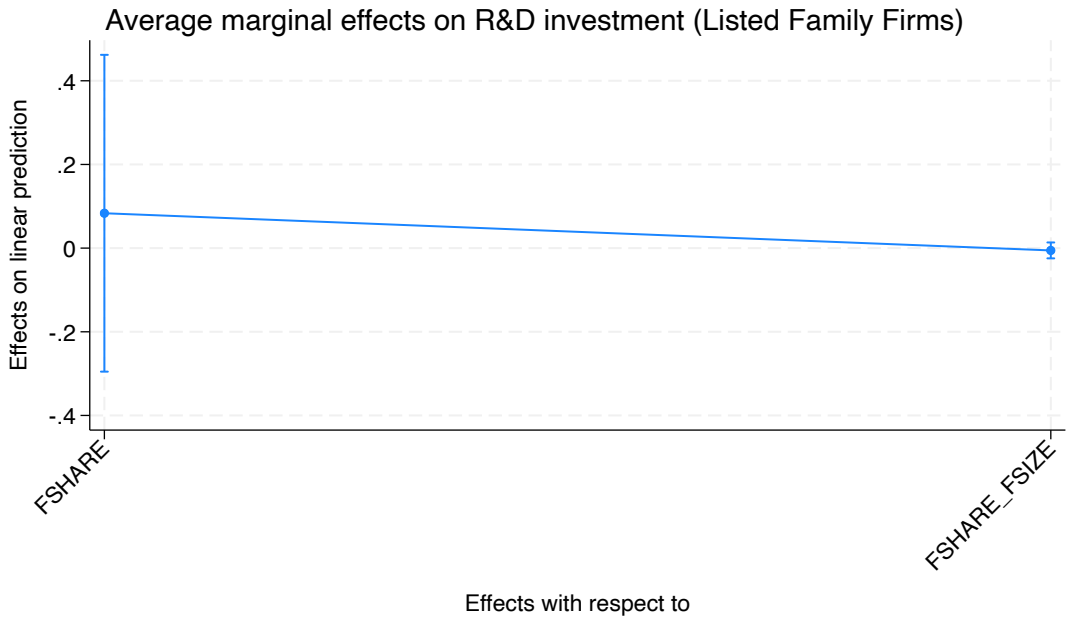

Figure A-3 Average Marginal Effects of Family Shareholding in Listed FFs' R&D Investment

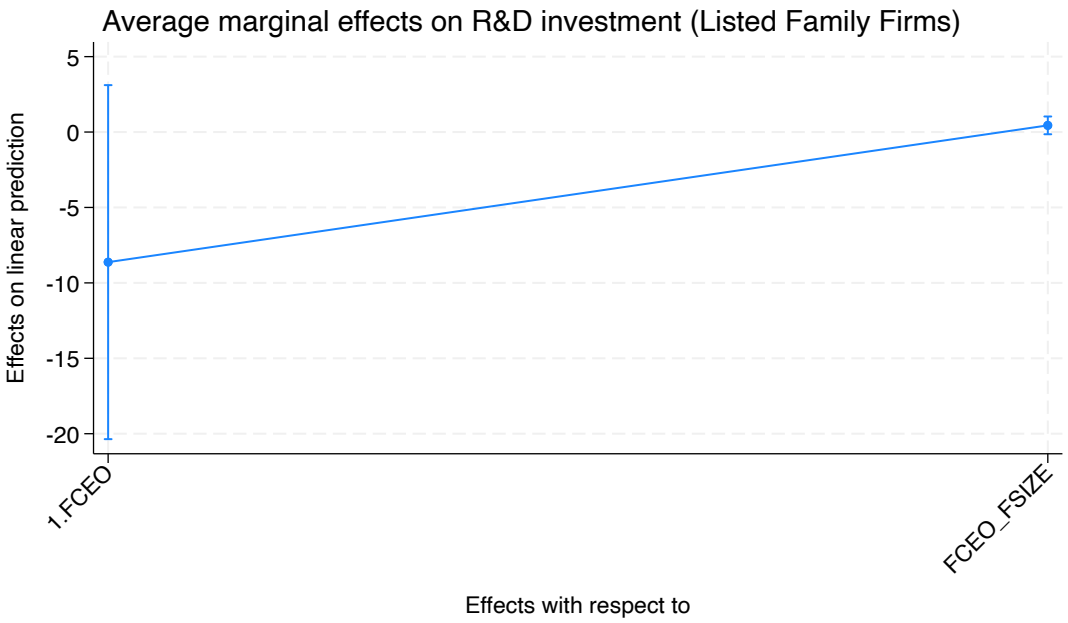

Figure A-4 Average Marginal Effects of Family CEO in Listed FFs' R&D Investment

Notes: *Figures A-3-4 show that the average marginal effects of family involvement (i.e., family shareholding and family CEO) and the moderating effect of firm size (i.e., total assets) on listed FFs' R&D investment. On balance, firm size played a significant and positive moderating role in the linkage between family shareholding and listed FFs' R&D investment and an insignificant moderating role in the association between family CEO presence and listed FFs' R&D investment.*

Table A-M11 Random-effects GLS regression: the Moderating Effect of Firm Size on Listed FFs' R&D Investment Strategy

Random-effects GLS regression for listed FFs' R&D investment-scale effect		
Variable	A-Model 17	A-Model 18
	f_RDratio	f2_RDratio
FSHARE	0.083	0.157
	(0.193)	(0.241)
FCEO	-8.625	-15.698*
	(5.987)	(7.040)
FSHARE_FSIZE	-0.005	-0.009
	(0.010)	(0.012)
FCEO_FSIZE	0.441+	0.808*
	(0.300)	(0.357)
AGE	0.089*	0.091*
	(0.036)	(0.035)
FSIZE	-0.392	-0.221
	(0.396)	(0.411)
FCOUP	0.620	0.631
	(0.328)	(0.331)
SINO	1.630	1.100
	(1.180)	(1.264)
MANU	-0.243	-0.258
	(0.394)	(0.396)
GDONG	-0.134	0.035
	(0.334)	(0.343)
YB2012	-1.114**	-1.315***
	(0.361)	(0.372)
Constant	11.847	8.586
	(7.870)	(8.183)
Observations	3281	2755

Wald chi2	43.51***	41.91***
R-squared	0.0313	0.025

*Notes: +, *, **, *** denote significance at the 10%, 5%, 1% and 0.1% level respectively; Table A-M11 provides explorative findings from Models AM:17-18 on the moderating effects of firm size (i.e., total assets) between family involvement (i.e., family ownership and control) and all listed FF R&D investment. The significant Wald test results in Models AMs 17-18 at 99.99% confidence level showed that the two independent variables, including 'FSHARE' and 'FCEO', were statistically significant to the model fit (43.51 and 41.91). In Models AMs 17-18, it can be seen that variable 'FSHARE_FSIZE' was insignificantly and negatively associated with all listed FFs' RDratio with forward 1-year and forward 2-years (coeff.=-0.005, p>0.10; coeff.=-0.009, p>0.10 respectively). Further, the results show that the coefficients of 'FCEO-FSIZE' were 0.441 (p value<0.10) in AM17, 0.808 (p value<0.05) in AM18). As such, it can be concluded that firm size played an insignificant moderating effect on the association between family ownership and all listed FF R&D investment, but the family CEO presence significantly determined all listed FFs' R&D investment (with the forward 2-yeas) as the firm size further increased.*

Table A-M12 Random-effects GLS Regression Analysis on Non-large Family Firms' R&D Investment Strategy-Scale Effects

Random-effects GLS regression non-large FFs' R&D investment-scale effects		
Variable	A-Model 19	A-Model 20
	f_RDratio	f2_RDratio
FSHARE	0.560	0.595
	(0.431)	(0.581)
FCEO	-16.848	-24.768
	(10.995)	(14.210)
FSHARE_FSIZE	-0.031	-0.032
	(0.022)	(0.031)
FCEO_FSIZE	0.911	1.333
	(0.571)	(0.753)
AGE	0.060	0.098
	(0.063)	(0.062)
FSIZE	-0.091	0.118
	(0.559)	(0.684)
FCOUP	1.331*	1.288*
	(0.543)	(0.531)
SINO	3.010	1.363
	(1.682)	(1.658)
MANU	1.563	1.666**
	(0.616)	(0.620)
GDONG	-0.440	0.108
	(0.623)	(0.669)
YB2012	-1.087*	-0.91814488
	(0.539)	(0.504)
Constant	4.654	-0.431
	(10.853)	(13.545)
Observations	933	797

Wald chi2	50.89***	34.10***
R-squared	0.0898	0.0889

Notes: +, *, **, *** *denote significance at the 10%, 5%, 1% and 0.1% level respectively; The model results are based on a random effects analysis of GLS regression on a panel dataset. Table A-M12 provides explorative findings from Models AM:19-20 on the moderating effects of firm size (i.e., total assets) between family involvement (i.e., family ownership and control) and non-large listed FF R&D investment. The significant Wald test results in Models AMs 19-20 at 99.99% confidence level showed that the two independent variables, including 'FSHARE' and 'FCEO', were statistically significant to the model fit (50.89 and 34.10). In Models AM 19-20, it can be seen that variable 'FSHARE_FSIZE'was insignificantly and negatively associated with non-large listed FFs' RDratio with forward 1-year and forward 2-years (coeff.=-0.031, p>0.10; coeff.=-0.032, p>0.10 respectively). Further, the results show that the coefficients of 'FCEO-FSIZE'were 0.911 (p value>0.10) in AM19, 1.333 (p value>0.10) in AM20). As such, it can be concluded that firm size played an insignificant moderating effect on the association between family involvement (i.e., family ownership and CEO presence) and non-large listed FF R&D investment as firm size further increased.*

Table A-M13 Random-effects GLS Regression Analysis on Large Listed Family Firms' R&D Investment-Robust Check for Sample Selection Error

Random-effects GLS regression-Robust analysis-R&D investment		
Variable	A-Model R9	A-Model R10
FSHARE	-0.023+	-0.024*
	(0.012)	(0.012)
FCEO	0.030	0.035
	(0.364)	(0.394)
AGE	0.093***	0.052*
	(0.027)	(0.027)
FSIZE	-0.147	0.253
	(0.223)	(0.274)
FCOUP	0.213	0.088
	(0.377)	(0.397)
SINO	-0.128	-0.224
	(0.660)	(0.608)
MANU	-0.644	-0.859*
	(0.426)	(0.440)
GDONG	0.171	0.349
	(0.403)	(0.387)
YB2012	-1.013*	-1.129*
	(0.429)	(0.436)
lambda	0.971	5.746
	(3.878)	(3.866)
Constant	6.457	-3.432
	(5.981)	(6.513)
Observations	2348	1958
Wald chi2	33.06***	28.45**
R-squared	0.0282	0.0316

Notes: +, *, **, *** *denote significance at the 10%, 5%, 1% and 0.1% levels respectively; Table A-M13 provides explorative findings from Models AR:9-10 on the investigation of potential linkages between*

family involvement (i.e., family ownership and control) and large listed FF R&D investment through dealing with the sample selection bias. The significant Wald test results in Models ARs 9-10 at 99.99% confidence level showed that the two independent variables, including 'FSHARE' and 'FCEO', were statistically significant to the model fit (33.06 and 28.45). In Models AR 9-10, it can be seen that variable 'FSHARE' was significantly but negatively associated with large listed FFs' RDratio with forward 1-year and forward 2-years (coeff.=-0.023, p<0.10; coeff.=-0.024, p<0.05 respectively). Further, the results show that the coefficients of 'FCEO' were 0.030 (p value>0.10) in AR9, 0.035 (p value<0.10) in AR10). As such, it can be concluded that firm size played a significant but negative moderating effect on the association between family ownership and large listed FF R&D investment, but the effect of family CEO presence on large listed FF R&D investment became irrelevant as firm size further increased.

Table A-M14 Random-effects GLS Regression Analysis about the Moderating Effects of Firm Size on Large Listed Family Firms' R&D Investment-Robust Check for Sample Selection Error

Random-effects GLS regression-Robust analysis-R&D investment-scale effects		
Variable	A-Model R11	A-Model R12
FSHARE	0.046	0.109
	(0.240)	(0.292)
FCEO	-14.798+	-24.564**
	(7.891)	(9.328)
FSHARE_FSIZE	-0.003	-0.007
	(0.012)	(0.015)
FCEO_FSIZE	0.740+	1.232**
	(0.392)	(0.467)
AGE	0.093**	0.051+
	(0.027)	(0.027)
FSIZE	-0.491	-0.294
	(0.555)	(0.556)
FCOUP	0.208	0.069
	(0.379)	(0.401)
SINO	-0.062	-0.071
	(0.667)	(0.617)
MANU	-0.658	-0.878*
	(0.426)	(0.438)
GDONG	0.207	0.420
	(0.400)	(0.386)
YB2012	-1.043*	-1.187**
	(0.424)	(0.427)
lambda	0.566	5.029
	(3.898)	(3.798)
Constant	13.701	8.105
	(12.277)	(11.928)

Observations	2348	1958
Wald chi2	36.12***	36.47***
R-squared	0.0339	0.0491

Notes: +,*, **, *** *denote significance at the 10%, 5%, 1% and 0.1% levels respectively; Table A-M14 provides explorative findings from Models AR:11-12 about the moderating effect of firm size on investigating the potential linkages between family involvement (i.e., family ownership and control) and large listed FF R&D investment through dealing with the sample selection bias. The significant Wald test results in Models ARs 11-12 at 99.99% confidence level showed that the two independent variables, including 'FSHARE' and 'FCEO', were statistically significant to the model fit (36.12 and 36.47). In Models ARs 11-12, it can be seen that variable 'FSHARE_FSIZE' was insignificantly and negatively associated with large listed FFs' RDratio with forward 1-year and forward 2-years (coeff.=-0.003, p>0.10; coeff.=-0.007, p<0.10 respectively). Further, the results show that the coefficients of 'FCEO_Fsize' were 0.740 (p value<0.10) in AR11 and 1.232 (p value<0.01) in AR12). As such, it can be concluded that firm size played an insignificant negative moderating effect on the association between family ownership and large listed FF R&D investment, but the effect of family CEO presence on large listed FF R&D investment became significant and positive as firm size further increased.*

Section 5

Statistical Classification of Large, Small, Medium and Micro Enterprises (2017)

Table D-4 Criteria for the Statistical Classification of Large, Medium-sized, Small and Micro-enterprises (Translation version)

Industry	Indicator	Unit	Large-scale	Medium-sized	Small-sized	Micro-sized
Agriculture, forestry, animal husbandry and	Operating income (Y)	RMB: 10,000 Yuan	Y≥20000	500≤Y < 20000	50≤Y < 500	Y < 50
Industry*	Practitioner(X)	A single person	X≥1000	300≤X < 1000	20≤X < 300	X < 20
	Operating income (Y)	RMB: 10,000 Yuan	Y≥40000	2000≤Y < 40000	300≤Y < 2000	Y < 300
Building industry	Operating income (Y)	RMB: 10,000 Yuan	Y≥80000	6000≤Y < 80000	300≤Y < 6000	Y < 300
	Total assets (Z)	RMB: 10,000 Yuan	Z≥80000	5000≤Z < 80000	300≤Z < 5000	Z < 300
Wholesale trade	Practitioner(X)	A single person	X≥200	20≤X < 200	5≤X < 20	X < 5
	Operating income (Y)	RMB: 10,000 Yuan	Y≥40000	5000≤Y < 40000	1000≤Y < 5000	Y < 1000
Retail trade	Practitioner(X)	A single person	X≥300	50≤X < 300	10≤X < 50	X < 10
	Operating income (Y)	RMB: 10,000 Yuan	Y≥20000	500≤Y < 20000	100≤Y < 500	Y < 100
	Practitioner(X)	A single person	X≥1000	300≤X < 1000	20≤X < 300	X < 20

Transport sector*	Operating income (Y)	RMB: 10,000 Yuan	Y≥30000	3000≤Y < 30000	200≤Y < 3000	Y < 200
Warehousing industry *	Practitioner(X)	A single person	X≥200	100≤X < 200	20≤X < 100	X < 20
	Operating income (Y)	RMB: 10,000 Yuan	Y≥30000	1000≤Y < 30000	100≤Y < 1000	Y < 100
Postal industry	Practitioner(X)	A single person	X≥1000	300≤X < 1000	20≤X < 300	X < 20
	Operating income (Y)	RMB: 10,000 Yuan	Y≥30000	2000≤Y < 30000	100≤Y < 2000	Y < 100
Accommodation industry	Practitioner(X)	A single person	X≥300	100≤X < 300	10≤X < 100	X < 10
	Operating income (Y)	RMB: 10,000 Yuan	Y≥10000	2000≤Y < 10000	100≤Y < 2000	Y < 100
Catering industry	Practitioner(X)	A single person	X≥300	100≤X < 300	10≤X < 100	X < 10
	Operating income (Y)	RMB: 10,000 Yuan	Y≥10000	2000≤Y < 10000	100≤Y < 2000	Y < 100
Information transmission	Practitioner(X)	A single person	X≥2000	100≤X < 2000	10≤X < 100	X < 10
	Operating income (Y)	RMB: 10,000 Yuan	Y≥100000	1000≤Y < 100000	100≤Y < 1000	Y < 100
Software and information technology services	Practitioner(X)	A single person	X≥300	100≤X < 300	10≤X < 100	X < 10
	Operating income (Y)	RMB: 10,000 Yuan	Y≥10000	1000≤Y < 10000	50≤Y < 1000	Y < 50
Property development and operation	Operating income (Y)	RMB: 10,000 Yuan	Y≥200000	1000≤Y < 200000	100≤Y < 1000	Y < 100
	Total assets (Z)	RMB: 10,000 Yuan	Z≥10000	5000≤Z < 10000	2000≤Z < 5000	Z < 2000
	Practitioner(X)	A single person	X≥1000	300≤X < 1000	100≤X < 300	X < 100

Estate management	Operating income (Y)	RMB: 10,000 Yuan	Y≥5000	1000≤Y < 5000	500≤Y < 1000	Y < 500
Leasing and business services	Practitioner(X)	A single person	X≥300	100≤X < 300	10≤X < 100	X < 10
	Total assets (Z)	RMB: 10,000 Yuan	Z≥120000	8000≤Z < 120000	100≤Z < 8000	Z < 100
Other industries not	Practitioner(X)	A single person	X≥300	100≤X < 300	10≤X < 100	X < 10

Notes:

1. Large, medium-sized and small enterprises are required to meet the lower limit of the listed indicators at the same time, or else they will be classified one notch down; microenterprises are required to meet only one of the listed indicators.

2. The scope of each industry in the attached table is based on the National Economic Industry Classification (GB/T4754-2017). The items with * are industry combination categories, of which industry includes mining, manufacturing, electricity, heat, gas and water production and supply; transport industry includes road transport, water transport, air transport, pipeline transport, multimodal transport and transport agency industry, loading and unloading, excluding railway transport; warehousing industry includes general warehousing, low-temperature warehousing, warehousing of hazardous materials, warehousing of agricultural products such as grains, cotton warehousing, Chinese herbal medicine warehousing and other warehousing industries; information transmission industry including telecommunications, radio and television and satellite transmission services, the Internet and related services; other unspecified industries including scientific research and technical services, water conservancy, environment and public facilities management, residential services, repair and other services, social work, culture, sports and entertainment, as well as real estate intermediary services, and other real estate industry, excluding the Owned real estate business activities.

3. Indicators for the division of enterprises are based on the current statistical system. (1) Employees, refers to the number of employees at the end of the period. If there is no number of employees at the end of the period, the average number of employees for the whole year is used instead. (2) Business revenue, for industry,

construction, wholesale and retail trade above the quota, accommodation and catering above the quota, and other industries with main business revenue indicators, main business revenue is used; for enterprises of wholesale and retail trade below the quota, merchandise sales are used instead; for enterprises of accommodation and catering below the quota, turnover is used instead; for enterprises of agriculture, forestry, animal husbandry and fishery, total business revenue is used instead; and for other industries with no main business revenue indicators, total business revenue is used instead; and for other industries with no main business revenue indicators, the average number of employees for the year is used instead. For other industries that do not set main business income, the indicator of business income is used. (3) Total assets, instead of total assets.

4. Source: National Bureau of Statistics; available at: http://www.stats.gov.cn/sj/tjbz/gjtjbz/202302/t20230213_1902763.html; accessed: 11th October, 2023).

Section 6

Historical Review of the Development of China's Private Economy

With the guidance of the general policy of reform and opening up, China's private economy has developed from scratch. The development of China's private economy has undergone three main stages.

Stage 1, from 1978 to 1992, the private economy became a supplementary force in the socialist economy.

In 1978, the Third Plenary Session of the Eleventh Central Committee of the Communist Party of China (CPC) opened a new period of reform and opening up, and in 1982, the Twelfth National Congress of the CPC proposed to encourage the development of individual labours' economy "*as a necessary and useful supplement to the publicly owned economy*", which was then appropriately developed. At the Thirteenth Party Congress in 1987, it was proposed that the private economy "*is also a necessary and useful supplement to the public economy*".

In 1992, the 14th CPC National Congress clarified that the goal of China's economic reform was to set up a socialist market economy and stated that "*In terms of ownership structure, the public ownership system, including the economy owned by the whole people and the collective ownership system, shall be the mainstay, with the individual economy, private economy and foreign-funded economy as supplements, and with a variety of economic components co-existing and developing together in the long term*".

Stage 2, from 1992 to 2002, the private economy became an important part of the socialist market economy.

From the 14th CPC National Congress in 1992 to the 16th CPC National Congress in 2002, the development of China's private economy was fast tracked and truly integrated into the process of socialist modernization. The 15th CPC National Congress in 1997 established public ownership as the mainstay of China's socialist economy and the common development of multiple ownerships as one of the basic economic systems of China's socialist primary phase, and clearly stated that the non-public economy is an important component of the socialist market economy. The constitutional amendment adopted at the

Second Session of the Ninth National People's Congress in 1999 stipulates that "*the non-publicly owned economy, such as the individual economy and the private economy, within the scope of the law, is an important part of the socialist market economy*."

Stage 3, 2002-2009; a new pattern of equal competition and mutual promotion among all kinds of ownership systems began to take shape, along with the development of the private economy.

The 16th CPC National Congress clearly put forward that "*we will unswervingly consolidate and develop the publicly owned economy, and unswervingly encourage, support and guide the development of the non-publicly owned economy*".

The 17th CPC National Congress proposed "*equal protection of property rights and the formation of a new pattern of equal competition and mutual promotion among all types of economic ownership*"; and "*promoting fair access, breaking down institutional barriers, and facilitating the development of the individual and private economy*".

The amendments to the Constitution of the People's Republic of China adopted at the second session of the tenth session of the National People's Congress in 2004 stipulate that: "*The State protects the lawful rights and interests of the non-publicly owned economy, such as the individual economy and the private economy. The State encourages, supports and guides the development of the non-publicly owned economy, and supervises and manages the non-publicly owned economy in accordance with the law*."

In 2005, the State Council promulgated several opinions on encouraging, supporting and guiding the development of the individual, private and other non-publicly owned economies, which was the first policy document to comprehensively promote the development of the non-publicly owned economy since the founding of China. Then, the Party and the State basically developed a system of guidelines, policies, laws, and regulations to promote the development of the non-publicly owned economy.

Source from: http://www.reformdata.org/2009/1105/8066.shtml (Accessed: 27th March 2024).

Section 7

Representative Cases: Chinese Large Family Firms-Build Your Dreams (BYD)

BYD is a technology-driven corporation dedicated to advancing technical advancements to enhance quality of life. BYD was created in February 1995 and has experienced rapid expansion for almost two decades. Over the years, the business has successfully established more than 30 industrial parks globally and has had a substantial impact in areas such as electronics, autos, new energy, and rail transit. BYD is committed to offering energy solutions that are free from emissions, encompassing energy generation, storage, and various uses. The company BYD is publicly traded on both the Hong Kong and Shenzhen Stock Exchanges. (Information: corporate website, https://www.bydglobal.com/cn/en/BYD_ENAboutByd/CompanyIntro_mob.html Accessed: 29th March, 2024)

BYD, a family-owned enterprise with its founder Wang Chuanfu serving as the CEO, has exhibited a consistent annual increase in both profitability and market scale within its respective industry. Moreover, the company's commitment to investing in product research and development (R&D) has shown a continual upward trend, escalating from 6.27 billion RMB (*around 689 million pounds*) in 2017 to 10.63 billion RMB (*11.85 billion pounds*) in 2021. Notably, Wang Chuanfu's personal ownership level has decreased from 24.24% in 2012 to 17.64% in 2021. The BYD family enterprise therefore, notably conforms to the expected outcomes of the present research model. The specific evolution of the company's products and its innovative R&D can be outlined across the following phases:

Introduction: Electrification of Road Infrastructure

Within the dynamic sector of automotive innovation, only a select few businesses have embarked on a trajectory as extraordinary as BYD. BYD, established in 1995, has transformed from a maker of rechargeable batteries into a dominant force in the worldwide electric vehicle (EV) industry.

The Initial Stages Inception: Transitioning from Batteries to Automobiles

The narrative of BYD commences in the vibrant urban centre of Shenzhen, China, when its visionary founder, Wang Chuanfu, founded the enterprise with the primary objective of producing rechargeable batteries. BYD's foray into the automotive business was facilitated by the groundwork established in the

battery industry.

The BYD F3: An Innovative Opening

BYD made its initial foray into the automobile industry in 2003 with the introduction of the BYD F3, a compact saloon that rapidly garnered significant attention and acclaim within the Chinese market. The initial indications of BYD's dedication to innovation and accessibility were demonstrated by the F3's affordability and fuel economy.

Electric Mobility: A Worldwide Transformation

China's inaugural plug-in hybrid, the F3DM

In 2008, BYD gained significant attention by introducing the F3DM, which was China's first plug-in hybrid vehicle released on a large scale. This revolutionary accomplishment initiated BYD's drive towards electric mobility, a pivotal change that will shape its future.

Embracing Electric Taxis: The BYD e6

The e6, introduced in 2010, was specifically engineered to cater to the needs of ride-hailing services. The cab's roomy interior and utilisation of an electric powertrain rendered it a favoured option among taxi operators both domestically in China and internationally. This action exemplified BYD's capacity to adapt and effectively tackle the issues associated with urban mobility.

The BYD Tang: Power and Fashion

In 2015, BYD launched the Tang, a midsize SUV with a robust plug-in hybrid system, as the electric car market progressed. The Tang exemplified BYD's dedication to integrating state-of-the-art technology with fashion, effectively integrating performance and environmental sustainability.

The phenomenon of the Electric Revolution

A Name of Dynasty: The BYD Qin

The Qin, which was introduced in 2013, served as a homage to the historical Qin Dynasty of China and represented a significant milestone in the realm of electrified transportation. The tiny automobile showcased a hybrid powertrain, so exemplifying BYD's dedication to enhancing the accessibility of environmentally friendly technologies to a wide range of individuals.

The BYD Han is a groundbreaking electric sedan.

In 2020, BYD introduced the Han, establishing it as a prominent electric sedan for the worldwide market. The Han provided a remarkable driving distance, state-of-the-art technology, and a sophisticated design, establishing BYD's dominance in the global electric vehicle industry.

The BYD Blade Battery: A Revolutionary Innovation

In the year 2020, BYD launched the Blade Battery, a revolutionary battery technology based on lithium iron phosphate (LiFePO4). The Blade Battery has significantly transformed the electric car market by introducing improved safety features and increased energy density, thereby establishing novel benchmarks for electric vehicle safety and performance.

Source: information available from https://www.silverstoneleasing.com/the-history-of-byd (Accessed: 29th March, 2024).

Bibliography

Agnihotri, A. and Bhattacharya, S. (2022). Family firms and innovation: a revisit to SEW perspective. *Technology Analysis & Strategic Management*, v(ahead-of-print), 1-13.

Al Farooque, O., Buachoom, W. and Sun, L. (2020). Board, audit committee, ownership and financial performance – emerging trends from Thailand. *Pacific Accounting Review*, 32(1), 54-81.

Alharahsheh, H. H. and Pius, A. (2020). A review of key paradigms: Positivism VS interpretivism. *Global Academic Journal of Humanities and Social Sciences*, 2(3), 39-43.

Alberti, F. G. and Pizzurno, E. (2013). Technology, innovation and performance in family firms. *International Journal of Entrepreneurship and Innovation Management*, 17(1/2/3), 142-161.

Allen, F., Qian, J., and Qian, M. (2005). Law, finance, and economic growth in China. *Journal of Financial Economics*, 77(1), 57-116.

Alonso, A. D., Kok, S., and O'Shea, M. (2019). The family business, adversity and change: A dynamic capabilities and knowledge-based approach. *Journal of General Management*, 44(2), 96–109.

Amin, Q. A., and Liu, J. (2020). Shareholders' control rights, family ownership and the firm's leverage decisions. *International Review of Financial Analysis*, 72(6), 101591.

Amit, R., Ding, Y., Villalonga, B. and Zhang, H. (2015). The role of institutional development in the prevalence and performance of entrepreneur and family-controlled firms. *Journal of Corporate Finance*, 31(4), 284-305.

Anderson, R. and Reeb, D. (2003). Founding-family ownership and firm value: evidence from the S&P 500. *Journal of Finance*, 58(3), 1301–28.

Anderson, R. C., Duru, A., and Reeb, D. M. (2009). Founders, heirs, and corporate opacity in the United States. *Journal of Financial Economics*, 92(2), 205-222.

Andres, C. (2008). Large shareholders and firm performance empirical examination of founding-family ownership. *Journal of Corporate Finance*, 14(4), 431-445.

Araya-Castillo, L., Hernández-Perlines, F., Moraga, H., and Ariza-Montes, A. (2021). scientometric analysis of research on socioemotional wealth. *Sustainability*, 13(7), 3742.

Arellano, M. and Bond, S. (1991). Some tests of specification for panel data: Monte Carlo

evidence and an application to employment equations. *Review of Economic Studies*, 58(2), 277-297.

Arregle, J. L., Duran, P., Hitt, M. A., and van Essen, M. (2017). Why is family firms' internationalization unique? A meta-analysis. *Entrepreneurship Theory and Practice*, 41(5), 801–831.

Ashraf, R., Li, H. and Ryan, H. E. (2020). Dual agency problems in family firms: evidence from director elections. *Journal of Corporate Finance*, 62(80), 101556.

Ashwin, A. S., Krishnan, R. T., and George, R. (2015). Family firms in India: family involvement, innovation and agency and stewardship behaviours. *Asia Pacific Journal of Management,* 32(4), 869-900.

Azizi, M., Bidgoli, M. S., Maley, J. F. and Dabic, M. (2022). A stewardship perspective in family firms: a new perspective for altruism and social capital. *Journal of Business Research*, 144(5), 764-775.

Backman, M. (1999). Asian eclipse: *exposing the dark side of business in Asia*. Singapore: Wiley.

Bai, M., Cai, J. and Qin, Y. (2021). Ownership discrimination and private firms financing in China. *Research in International Business and Finance*, 57(3), 101406.

Bammens, Y., Voordeckers, W. and Van Gils, A. (2011). Board of directors in family businesses: a literature review and research agenda. *International Journal of Management Reviews*, 13(2), 134-152.

Banalieva, E. R., Eddleston, K. A. and Zellweger, T. M. (2015). When do family firms have an advantage in transitioning economies? Toward a dynamic institution-based view. *Strategic Management Journal*, 36(9), 1358-1377.

Bandiera, O., Lemos, R., Prat, A. and Sadun, R. (2018). Managing the family firm. *The Review of Financial Studies*, 31(5), 1605-1653.

Baert, P. (2004). Pragmatism as a philosophy of the social science. *European Journal of Social Theory*, 7(3), 355-369.

Barney, J. B. and Zhang, S. (2009). The future of Chinese management research: a theory of Chinese management versus a Chinese theory of management. *Management and Organization Review*, 5(1), 15-28.

Baù, M., Pittino, D., Sieger, P., and Eddleston, K. A. (2020). Careers in family business: New

avenues for careers and family business research in the 21st century. *Journal of Family Business Strategy*, 11(3), 100379.

Becerra, M., Cruz, C. and Graves, C. (2020). Innovation in family firms: the relative effects of wealth concentration versus family-centered goals. *Family Business Review*, 33(4), 372-392.

Bennedsen, M., Lu, Y. C. and Mehrotra, V. (2022). A survey of Asian family business research. *Asia-Pacific Journal of Financial Studies*, 51(1), 7-43.

Berle, A. and Means, G. (1932). *The modern corporation and private property*. Transaction Publishers.

Baron, J. N. (1984). Organizational Perspectives on Stratification. *Annual Review of Sociology*, 10, 37–69.

Berle, A. A., and Means, G. C. (1932). *The modern corporation and private property*. New York: Harcourt.

Berrone, P., Cruz, C., and G´omez-Mejía, L. R. (2012). Socioemotional wealth in family firms: Theoretical dimensions, assessment approaches, and agenda for future research. *Family Business Review*, 25(3), 258–279.

Bertrand, M. and Schoar, A. (2003). Managing with style: the effect of managers on firm policies. *The Quarterly Journal of Economics*, 118(4), 1169-1208.

Bertrand, M. and Schoar, A. (2006). The role of family in family firms. *Journal of Economic Perspectives*, 20(2), 73-96.

Bertrand, M., Mehta, P., and Mullainathan, S. (2002). Ferreting out tunneling: an application to Indian business groups. *Quarterly Journal of Economics*, 117(1), 121–148.

Bhaskar, R. (1986). *Scientific realism and human emancipation*. London: Verso.

Bhatt, R. R. and Bhattacharya, S. (2017). Family firms, board structure and firm performance: evidence from top Indian firms. *International Journal of Law and Management*, 59(5), 699-717.

Bird, M. and Wennberg, K. (2014). Regional influences on the prevalence of family versus non-family start-ups. *Journal of Business Venturing*, 29(3), 421–436.

Birdthistle, N. and Hales, R. (2023) The meaning of being a family business in the 21st century, in *N. Birdthistle, and R. Hales,* (ed.) Attaining the 2030 sustainable development goal of responsible consumption and production (family businesses on a mission), Emerald Publishing Limited, Bingley, pp. 11-20.

Blanco-Mazagatos, V. and Castrillo, L. A. (2007). The trade-off wetween financial resources and agency costs in the family business: an exploratory study. *Family Business Review, 20(3), 185-268*.

Blanco-Mazagatos, V., Quevedo-Puente, E., and Delgado-Garcia, J. B. (2016). How agency conflict between family managers and family owners affects performance in wholly family-owned firms: a generational perspective. *Journal of Family Business Strategy*, 7(3), 167-177.

Block, J. H. (2012). R&D investments in family and founder firms: an agency perspective. *Journal of Business Venturing*, 27(2), 248-265.

Block, J., Hansen, C., and Steinmetz, H. (2023). Are family firms doing more innovation output with less innovation input? A replication and extension. *Entrepreneurship Theory and Practice*, 47(4), 1496-1520.

Block, J., Miller, D., Jaskiewicz, P. and Spiegel, F. (2013). Economic and technological importance of innovations in a large family and founder firms: an analysis of patent data. *Family Business Review*, 26(2), 180-199.

Block, J. H., Jaskiewicz, P., and Miller, D. (2011). Ownership versus management effects on performance in family and founder companies: A Bayesian reconciliation. *Journal of Family Business Strategy*, 2(4), 232–245.

Bloom, N. and Van Reenen, J. (2007). Measuring and explaining management practices across firms and countries. *The Quarterly Journal of Economics*, 122(4), 1351-1408.

Blundell, R. and Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data model. *Journal of Econometrics*, 87(1), 111-143.

Bornhausen, A. M. (2022). Conceptualizing cross-country analyses of family firms: a systematic review and future research agenda. *International Business Review*, 31(4), 101924.

Burkart, M., Panunzi, F., and Shleifer, A. (2003). Family Firms. *Journal of Finance*, 58(5), 2167-2201.

Bruton, G. D., Zahra, S., Van de Ven, A., and Hitt, M. (2022). Indigenous theory uses, abuses, and future. *Journal of Management Studies*, 59(4), 1057-1073.

Bryman, A. and Bell, E. (2015). *Business Research Methods*. New York: Oxford University Press.

BVD (2023). Orbis: *Overview*. [Online] Available at: https://www.bvdinfo.com/en-gb/our-products/data/international/orbis (Accessed: 30th August, 2023).

Cai, D., Luo, J., and Wan, D. (2012). Family CEOs: do they benefit firm performance in China? *Asia Pacific Journal of Management*, 29(4), 923-947.

Calabro, A., Vecchiarini, M., Gast, G., Campopiano, G., De Massis, A. and Kraus, S. (2019). Innovation in family firms: a systematic literature review and guidance for future research. *International Journal of Management Reviews*, 21(3), 317-355.

Campa, J. M. and Kedia, S. (2002). Explaining the diversification discount. *Journal of Finance*, 57(4), 1731-1762.

Cao, J., Cumming, D., and Wang, X. (2015). One-child policy and family firms in China. *Journal of Corporate Finance*, 33(4), 317-329.

Carpenter, J. N. and Whitelaw, R. F. (2017). The development of China's stock market and stakes for the global economy. *Annual Review of Financial Economics*, 9(1), 233-257.

Carney, M. (2005). Corporate Governance and Competitive Advantage in Family–Controlled Firms. *Entrepreneurship Theory and Practice*, 29(3), 249-265.

Carney, M., Gedajlovic, E., and Yang, X. (2009). The varieties of Asian capitalism: Toward an institutional theory of Asian enterprise. *Asia Pacific Journal of Management*, 26(3), 361–380.

Caselli, F. and Gennaioli, N. (2013). Dynastic management. *Economic Inquiry*, 51(1), 971-996.

Casula, M., Rangarajan, N. and Shields, P. (2021). The potential of working hypotheses for deductive exploratory research. *Quality & Quantity*, 55(5), 1703-1725.

Chandler, A. (1990). *Scale and scope*. Cambridge, MA: Harvard University Press.

Chang, E. P. C., Zare, S. and Ramadani, V. (2022). How a larger family business is different from a non-family one? *Journal of Business Research*, 139(1), 292-302.

Chang, S. J. and Choi, U. (1988). Strategy, structure, and performance of Korean business group: a transaction cost approach. *Journal of Industrial Economics*, 37(2), 141-158.

Chee, H. K., Hooy, C. W., and Ooi, C. A. (2016). The influence of ultimate ownership concentration on leverage. *Jurnal Pengurusan* (UKM Journal of Management), 47(5), 55-65.

Chen, X. (2019). 'Family-culture' and Chinese politeness: an emancipatory pragmatic account. *Acta Linguistica Academica*, 66(2), 251-270.

Chen, H. L. and Hsu, W. T. (2009). Family ownership, board independence, and R&D

investment. *Family Business Review*, 22(4), 347-362.

Chen, H. L. and Huang, Y. S. (2006). Employee stock ownership and corporate R&D expenditures: evidence from Taiwan's information-technology industry. *Asia Pacific Journal of Management*, 23(3), 369-384.

Chen, M., Xiao, J. Z., and Zhao, Y. (2021). Confucianism, successor choice, and firm performance in family firms: Evidence from China. *Journal of Corporate Finance*, 69(4), 102023.

Chen, W., Zhou, A. J., Zhou, S. S., Hofman, P. S. and Yang, X. (2022). Deconstructing socioemotional wealth: social wealth and emotional wealth as core properties of family firms. *Management and Organization Review*, 18(2), 223-250.

Chen, L., Zhu, J. A., and Fang, H. (2021). Family business in China: a *historical perspective*. Switzerland: Palgrave Macmillan.

Chen, Y. M., Liu, H. H., Yang, Y. K. and Chen, W. H. (2016). CEO succession in family firms: stewardship perspective in the pre-succession context. *Journal of Business Research*, 69(11), 5111-5116.

Chen, W., Zhou, A. J., Zhou, S. S., Hofman, P. S. and Yang, X. (2022). Deconstructing socioemotional wealth: social wealth and emotional wealth as core properties of family firms. *Management and Organization Review*, 18(2), 223-250.

Cheng, Q. (2014). Family firm research - a review. *China Journal of Accounting Research*, 7(3), 149-163.

China Briefing (2023). Doing business in China: *why invest in China*. [Online] Available at: https://www.china-briefing.com/doing-business-guide/china/why-china (Accessed: 14th December, 2023).

Chittoor, R. and Das, R. (2007). Professionalization of management and succession performance-a vital linkage. *Family Business Review*, 20(1), 65-79.

Chrisman, J. J. (2019). Stewardship theory: realism, relevance, and family firm governance. *Entrepreneurship Theory and Practice,* 43(6), 1051-1066.

Chua, J. H., Chrisman, J. J., and Sharma, P. (1999). Defining the family business by behavior. *Entrepreneurship Theory and Practice,* 23(4), 19-39.

Chrisman, J. J., Chua, J. H., Kellermanns, F., and Chang, E. (2007). Are family managers agents or stewards? an exploratory study in privately held family firms. *Journal of Business*

Research, 60(10), 1030–1038.

Chrisman, J. J., Chua, J. H., and Litz, R. A. (2004). Comparing the agency costs of family and non–family firms: conceptual issues and exploratory evidence. *Entrepreneurship Theory and Practice*, 28(4), 335-354.

Christenson, C. (1983). The methodology of positive accounting. *The Accounting Review*, 58(1), 1-22.

Chua, W. (1986). Radical developments in accounting thought. *The Accounting Review*, 61(4), 601-632.

Chua, J. H., Chrisman, J. J., and Bergiel, E. B. (2009). An agency theoretic analysis of the professionalized family firm. *Entrepreneurship Theory and Practice*, 33(2), 355-372.

Chrisman, J. J., Steier, L. P., and Chua, J. H. (2008). Toward a theoretical basis for understanding the dynamics of strategic performance in family firms. *Entrepreneurship Theory and Practice*, 32(6), 935-947.

Chrisman, J. J., Kellermanns, F. W., Chan, K. C., and Liano, K. (2010). Intellectual foundations of current research in family business: An identification and review of 25 influential articles. *Family Business Review*, 23(1), 9-26.

Chrisman, J. J., Memili, E., and Misra, K. (2014). Nonfamily managers, family firms, and the winner's curse: the influence of noneconomic goals and bounded rationality. *Entrepreneurship Theory and Practice*, 38(5), 1-25.

Chrisman, J. J. and Patel, P. C. (2012). Variations in R&D investments of family and nonfamily firms: behavioral agency and myopic loss aversion perspectives. *Academy of Management Journal*, 55(4), 976-997.

Christenson, C. (1983). The methodology of positive accounting. *The Accounting Review*, 58(1), 1-22.

Chu, W. (2011). Family ownership and firm performance: influence of family management, family ownership, and firm value. *Asia Pacific Journal of Management*, 28(4), 833-851.

Chua, W. F. (1986). Radical developments in accounting thought. *The Accounting Review*, 61(4), 601-632.

Chua, J. H., Chrisman, J. J., and Bergiel, E. B. (2009). An agency theoretic analysis of the professionalized family firm. *Entrepreneurship Theory and Practice*, 33(2), 355-372.

Chua, J. H., Chrisman, J. J. and Steier, L. P. (2003). Extending the theoretical horizons of

family business research. *Entrepreneurship Theory and Practice*, 27(4), 331-338.

Chua, J. H., Chrisman, J. J. and Sharma, P. (1999). Defining the family business by behavior. *Entrepreneurship Theory and Practice*, 23(4), 19-39.

Ciani, A., Hyland, M. C., Karalashvili, N., Keller, J. L., Ragoussis, A. and Tran, T. T. (2020). Making it big: *why developing countries need more large firms*. Washington, DC: World Bank Group.

Claessens, S., Feijen, E. and Laeven, L. (2008). Political connections and preferential access to finance: the role of campaign contributions. *Journal of Financial Economics*, 88(3), 554-580.

Corbetta, G. and Salvato, C. A. (2004a). The board of directors in family firms: one size fits all? *Family Business Review*, 17(2), 119-134.

Corbetta, G. and Salvato, C. (2004b). Self–serving or self–actualizing? models of man and agency costs in different types of family firms: a commentary on "comparing the agency costs of family and non–family firms: conceptual issues and exploratory evidence". *Entrepreneurship Theory and Practice*, 28(4), 355-362.

Crotty, M. (1998). *The foundations of social research: meaning and perspective in the research process*. London: Sage.

Daily, C. M. and Dalton, D. R. (1992). Financial value of founder-managed versus professionally managed corporations. *Journal of Small Business Management*, 30(2), 25–34.

Daily, C. M. and Dollinger, M. J. (1992). An empirical examination of ownership structure in family and professionally managed firms. *Family Business Review*, 5(2), 117-136.

Dalton, D. R., Hitt, M. A., Certo, S. T. and Dalton, C, M. (2007). The fundamental agency problem and its mitigation: independence, equity, and the market for corporate control. *Academy of Management Annals,* 1(1), 1-64.

Davis, J. H., Schoorman, F. D., and Donaldson, L. (1997). Toward a stewardship theory of management. *The Academy of Management Review*, 22(1), 20–47.

Dekker, J., Lybaert, N., Stejvers, T., and Depaire, B. (2013). The effect of family business professionalization as a multidimensional construct on firm performance. *Journal of Small Business Strategies*, 53(2), 516–538.

Deephouse, D. L. and Jaskiewicz, P. (2013). Do family firms have better reputations than non-family firms? an integration of socioemotional wealth and social identity theories.

Journal of Management Studies, 50(3), 337-360.

Demsetz, H. and Lehn, K. (1985). The structure of corporate ownership: causes and consequences. *Journal of Political Economy*, 93(6), 1155–77.

De Massis, A., Audretsch, D., Uhlaner, L., and Kammerlander, N. (2018). Innovation with limited resources: management lessons from the German mittelstand. *Journal of Product Innovation Management*, 35(1), 125–146.

De Massis, A., Ding, S., Kotlar, J. and Wu, Z. (2018). Family involvement and R&D expenses in the context of weak property rights protection: an examination of non-state-owned listed companies in China. *The European Journal of Finance*, 24(16), 1506-1527.

De Massis, A., Frattini, F. and Lichtenthaler, U. (2012). Research on technological innovation in family firms: present debates and future directions. *Family Business Review*, 26(1), 10-31.

Deng, X., Liang, L., Wu,F., Wang, Z. and He, S. (2022). A review of the balance of regional development in China from the perspective of development geography. *Journal of Geographical Sciences*, 32(1), 3-22.

Dharwadkar, R., George, G., and Brandes, P. (2000). Privatization in emerging economies: an agency theory perspective. *The Academy of Management Review*, 25(3), 650–669.

Ding, Y., Zhang, H. and Zhang, J. (2008). The financial and operating performance of Chinese family-owned listed firms. *Management International Review*, 48(3), 297-318.

Donaldson, L. (1997). Derek Pugh: scientific revolutionary in organization studies, in *T. Clark*. Essays in honour of Derek Pugh, Aldershot: Ashgate, pp. 23-43.

Donaldson, L., and Davis, J. H. (1991). Stewardship theory or agency theory: CEO governance and shareholder returns. *Australian Journal of Management*, 16(1), 49-64.

Dougherty, S., Herd, R., & He, P. (2007). Has a private sector emerged in China's industry? evidence from a quarter of a million Chinese firms. *China Economic Review*, 18(3), 309-334.

Du, X. (2015). Is corporate philanthropy used as environmental misconduct dressing? Evidence from Chinese family-owned firms. *Journal of Business Ethics*, 129(2), 341-3611.

Dunn, B. (1996). Family enterprises in the UK: a special sector? *Family Business Review*, 9(2), 139-155.

Dyer, W. G. (2006). Examining the “family effect” on firm performance. *Family Business*

Review, 19(4), 253–273.

Dyer, W. G. (2018). Are family firms really better? Reexamining "examining the 'family effect' on firm performance". *Family Business Review*, 31(2), 240-248.

Eddleston, K. A., and Kellermanns, F. W. (2007). Destructive and productive family relationships: A stewardship theory perspective. *Journal of Business Venturing*, 22(4), 545–565.

Eddleston, K. A., Kellermanns, F. W. and Sarathy, R. (2008). Resource configuration in family firms: linking resources, strategic planning and technological opportunities to performance. *Journal of Management Studies*, 45(1), 26-50.

Eddleston, K. A., and Kidwell, R. E. (2012). Parent–child relationships: Planting the seeds of deviant behavior in the family firm. *Entrepreneurship Theory and Practice*, 36(2), 369–386.

Eddleston, K. A., Jaskiewicz, P., and Wright, M. (2020). Family firms and internationalization in the Asia-Pacific: the need for multi-level perspectives. *Asia Pacific Journal of Management*, 37(2), 345–361.

Eddleston, K. A., Otondo, R. F. and Kellermanns, F. W. (2008). Conflict, participative decision-making, and generational ownership dispersion: a multilevel analysis. *Journal of Small Business Management*, 46(3), 456-484.

Eng, L. L., Fang, H., Tian, X. and Yu, T. R. (2021). Path dependence and resource availability: process of innovation activities in Chinese family and non-family firms. *Emerging Markets Review*, 49(4), 100779.

Eng, L. L., Fang, H., Tian, X., Yu, T, R., and Zhang, H. (2019). Fiancial crisis and real earnings management in family firms: a comparison between China and the United States. *Journal of International Financial Markets, Institutions & Money,* 59(2), 184-201.

Eisenhardt, K. M. (1989). Agency theory: an assessment and review. *The Academy of Management Review*, 14(1), 57–74.

Eisenhardt, K. M. and Martin, J. A. (2000). Dynamic capabilities: what are they? *Strategic Management Journal*, 21(10/11), 1105–1121.

Elkjaer, B. and Simpson, B. (2011) Pragmatism: a lived and living philosophy. What can it offer to contemporary organization theory? In *H. Tsoukas and R. Chia*. (eds), Philosophy and organization theory, 32. Bradford: Emerald, pp. 55-84.

European Family Business (2023). About European family business: European family business. [Online] Available at: https://europeanfamilybusinesses.eu/about-european-family-businesses/ (Accessed: 9th October, 2023).

Faccio, M., P. Lang, L. H., and Young, L. (2001). Dividends and Expropriation. *American Economic Review*, 91(1), 54-78.

Fama, E. F., and Jensen, M. C. (1983). Separation of ownership and control. *Journal of Law and Economics*, 26(2), 301-325.

Fan, J. P., Gu, Q., and Yu, X. (2022). Collectivist cultures and the emergence of family firms. *The Journal of Law and Economics*, 65(S1), S293-S325.

Fanelli, A. and Misangyi, V. F. (2006). Bringing out charisma: CEO charisma and external stakeholders. *Academy of Management Review*, 31(4), 1049–1061.

Fang, H. "Chevy", Randolph, R. V. D. G., Memili, E., and Chrisman, J. J. (2016). Does size matter? the moderating effects of firm size on the employment of nonfamily managers in privately held family SMEs. *Entrepreneurship Theory and Practice*, 40(5), 1017-1039.

Fang, H., Singh, K., Kim, T., Marler, L. and Chrisman, J. J. (2022). Family business research in Asia: review and future directions. *Asia Pacific Journal of Management*, 39(4), 1215-1256.

Finkelstein, S. (1992). Power in top management teams: dimensions, measurement, and validation. *The Academy of Management Journal*, 35(3), 505–538.

Finkelstein, S. and Hambrick, D. C. (1996). Strategic leadership: *top executives and their effects on organizations*. St Paul, MN: West Publishing Company.

Floren, R. H. (1998). The significance of family business in the Netherlands. *Family Business Review*, 11(2), 121-134.

Fox, M., and Hamilton, R. (1994). Ownership and diversification: agency theory or stewardship theory. *Journal of Management Studies*, 31(1), 69–81.

Gallo, M. A. and Vilaseca, A. (1998). A financial perspective on structure, conduct, and performance in the family firm: an empirical study. *Family Business Review*, 11(1), 35-47.

Garnaut, R., Song, L., and Fang, C. (2018). China's 40 Years of Reform and Development: *1978–2018*. ANU Press.

Ge, J., Carney, M., and Kellermanns, F. (2019). Who fills institutional voids? entrepreneurs' utilization of political and family ties in emerging markets. *Entrepreneurship Theory and*

Practice, 43(6), 1124-1147.

Gedajlovic, E. and Carney, M. (2010). Markets, hierarchies, and families: toward a transaction cost theory of the family firm. *Entrepreneurship Theory and Practice*, 34(6), 1145–1172.

Ghauri, P., Gronhaug, K. and Strange, R. (2020). *Research methods in business studies*. (5th edition). Cambridge: Cambridge University Press.

Gill, A., Biger, N., Sharma, S. P. and Shah, C. (2014). Gender differences and the factors that affect family business growth in Canada. *International Journal of Entrepreneurship and Small Business*, 21(1), 115–131.

Glyptis, L., Hadjielias, E., Christofi, M., Kvasova, O., and Vrontis, D. (2021). Dynamic familiness capabilities and family business growth: a longitudinal perspective framed within management accounting. *Journal of Business Research*, 127(4), 346-363.

Goel, S., He, X., and Karri, R. (2011). Family involvement in a hierarchical culture: effect of dispersion of family ownership and family member tenure on firm performance in Chinese family owned firms. *Journal of Family Business Strategy*, 2(4), 199-206.

Gomez-Mejia, L. R., Cruz, C., Berrone, P., and De Castro, J. (2011). The bind that ties: socioemotional wealth preservation in family firms. *Academy of Management Annals*, 5(1), 653–707.

Gomez-Mejia, L., Haynes, K. T., Nickel, M., Jacobson, K. J. L., and Moyano-Fuentes, J. (2007). Socioemotional wealth and business risks in family-controlled firms: Evidence from Spanish olive oil mills. *Administrative Science Quarterly*, 52(1), 106–137.

Gómez-Mejía, L. R., Haynes, K. T., Núnez-Nickel, M., Jacobson, K. J. L., and Moyano-Fuentes, J. (2007). Socioemotional wealth and business risks in family-controlled firms: Evidence from Spanish olive oil mills. *Administrative Science Quarterly,* 52(1), 106–137.

Gomez-Mejia, L. R., Larraza-Kintana, M., & Makri, M. (2003). The Determinants of Executive Compensation in Family-Controlled Public Corporations. *The Academy of Management Journal*, 46(2), 226–237.

Gomez-Mejia, L. R., Patel, P. C., and Zellweger, T. M. (2018). In the horns of the dilemma: socioemotional wealth, financial wealth, and acquisitions in family firms. *Journal of Management*, 44(4), 1369-1397.

González, M., Guzmán, A., Pombo, C., and Trujillo, M. (2012). Family firms and financial

performance: the cost of growing. *Emerging Markets Review*, 13(4), 626-649.

Goodman, D. S. G. (1997). *China's provinces in reform: class, community, and political culture*. London: Routledge.

Graves, C., Shi, H. X., and Barbera, F. (2022). Family-centred non-economic goals and the internationalization of family firms: evidence from Australia. *International Business Review*, 31(4), 101974.

Greene, W. H. 2003. *Econometric analysis*. Upper Saddle River: Prentice Hall.

Gretz, R. T. and Malshe, A. (2019). Rejoinder to "endogeneity bias in marketing research: problem, causes and remedies". *Industrial Marketing Management*, 77(2), 57-62.

Gregorič, A., Rapp, M. S. and Requejo, I. (2022). Listed family firms in Europe: *relevance, characteristics and performance*. Studien, Stiftung Familienunternehmen/ Foundation for Family Businesses, Germany.

Guba, E. and Lincoln, Y. (1981). Effective evaluation: *improving the usefulness of evaluation results through responsive and naturalistic approaches*. San Francisco: Jossey-Bass.

Gupta, A. and Nashier, T. (2017). Family ownership and firm performance: evidence from India. *Quarterly Journal of Finance and Accounting*, 55(3–4), 37–68.

Gupta, V. and Levenburg, N. (2010). A thematic analysis of cultural variations in family businesses: The CASE project. *Family Business Review*, 23(2), 155-169.

Ha, N. M., Do, B. N. and Ngo, T. T. (2022). The impact of family ownership on firm performance: a study on Vietnam. *Cogent Economics & Finance*, 10(1), 2038417

Habbershon, T. and Williams, M. (1999). A resource-based framework for assessing the strategic advantage of family firms. *Family Business Review*, 12(1), 1–25.

Habbershon, T. G., Williams, M. and MacMillan, I. C. (2003). A unified systems perspective of family firm performance. *Journal of Business Venturing*, 18(4), 451-465.

Hall, B. H. (2002). The financing of research and development. *Oxford Review of Economic Policy*, 18(1), 35-51.

Hambrick, D. C., and Mason, P. A. (1984). Upper echelons: the organization as a reflection of its top managers. *The Academy of Management Review*, 9(2), 193–206.

Handler, W. C. (1990). Succession in family firms: a mutual role adjustment between entrepreneur and next-generation family members. *Entrepreneurship Theory and Practice*, 15(1), 37-52.

He, Q., Ma, L. and Gan, Q. (2022) Do chinese family values inhibit entrepreneurship? —an analytical perspective based on hofstede's cultural dimension. *Open Journal of Social Sciences*, 10(13), 353-383.

He, X. and Liu, J. (2022). Between legitimacy and socioemotional wealth: family ownership and the party branches building of Chinese private enterprises. *Management and Organization Review*, 18(2), 251-278.

Hermalin, B. E. and Weisbach, M. S. (1998). Endogenously Chosen Boards of Directors and Their Monitoring of the CEO. *American Economic Review,* 88(1), 96-118.

Hernandez, M. (2008). Promoting Stewardship Behavior in Organizations: A Leadership Model. *Journal of Business Ethics*, 80(1), 121–128.

Hernandez, M. (2012). Toward an understanding of the psychology of stewardship. *Academy of Management Review*, 37(2), 172–193.

Herrero, I. (2018). How familial is family social capital? analyzing bonding social capital in family and nonfamily firms. *Family Business Review*, *31*(4), 441–459.

Heugens, P., van Essen, M. and van Oosterhout, J. (2009). Meta-analyzing ownership concentration and firm performance in Asia: towards a more fine-grained understanding. *Asia Pacific Journal of Management*, 26(3), 481–512.

Hillman, A. J., Keim, G. D., and Schuler, D. (2004). Corporate political activity: A review and research agenda. *Journal of Management*, 30(6), 837–857.

Hofsrede, G. (1991). Cultures and organizations: *software of the mind*. London: McGraw-Hill.

Hofstede, G. (2023). *The 6-D model of national culture*. [Online] Available at: https://geerthofstede.com/culture-geert-hofstede-gert-jan-hofstede/6d-model-of-national-culture/ (Accessed: 10th December, 2023).

Hoskisson, R., Eden, L., Lau, C., and Wright, M. (2000). Strategy in emerging economies. *Academy of Management Journal*, 43(3), 249–267.

Huang, Y. (2008). Capitalism with Chinese Characteristics: *Entrepreneurship and the State*. Cambridge: Cambridge University Press.

Huang, C. and Sharif, N. (2009). Manufacturing dynamics and spillovers: *The case of Guangdong Province and Hong Kong, Macau, and Taiwan (HKMT). Research Policy*, 38(5), 813-828.

Huang, W., Li, J., and Zhang, Q. (2019). Information asymmetry, legal environment, and family firm governance: evidence from IPO underpricing in China. *Pacific-Basin Finance Journal*, 57(81), 101109.

Ingram, A. E., Lewis, M. W., Barton, S. and Gartner, W. B. (2016). Paradoxes and innovation in family firms: the role of paradoxical thinking. *Entrepreneurship Theory and Practice*, 40(1), 161–176.

Islam, M. R., Khan, N. A., and Baikady, R. (2022). *Principles of social research methodology*. Springer Nature, Singapore Pte Ltd.

Islam, N., Wang, Q., Marinakis, Y., and Walsh, S. (2022). Family enterprise and technological innovation. *Journal of Business Research*, 147(8), 208-221.

Khanna, T. and Yafeh, Y. (2007). Business groups in emerging markets: paragons or parasites? *Journal of Economic Literature*, 45(2), 331–372.

James, A. E., Jennings, J. E., and Jennings, P. D. (2017). Is it better to govern managers via agency or stewardship? Examining asymmetries by family versus nonfamily affiliation. *Family Business Review*, 30(3), 262–283.

Jensen, M. C. (1994). Self-interest, altruism, incentives, and agency theory. *Journal of Applied Corporate Finance*, 7(2), 40-45.

Jensen, M. C. and Meckling, W. H. (1976). Theory of the firm: managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305–360.

Jiang, F., Shi, W. and Zheng, X. (2020). Board chairs and R&D investment: evidence from Chinese family-controlled firms. *Journal of Business Research*, 112(5), 109-118.

Jiang, F., and Kim, K. A. (2015). Corporate governance in China: A modern perspective. *Journal of Corporate Finance*, 32(3), 190-216.

Jiang, Y. and Peng, M. W. (2011). Are family ownership and control in large firms good, bad, or irrelevant? *Asia Pacific Journal of Management*, 28(1), 15-39.

Jiang, F., Cai, X., Nofsinger, J. R., and Zheng, X. (2020). Can reputation concern restrain bad news hoarding in family firms? *Journal of Banking & Finance*, 114(5), 105808.

Joshi, A. W. (2016). When does customer orientation hinder (help) radical product innovation? the role of organizational rewards. *Journal of Product Innovation Management*, 33(4), 435-454.

Kammerlander, N. (2022). Family business and business family questions in the 21st century:

who develops SEW, how do family members create value, and who belongs to the family. *Journal of Family Business Strategy*, 13(2), 100470.

Kammerlander, N., Patzelt, H., Behrens, J., and Rohm, C. (2020). Organizational ambidexterity in family-managed firms: the role of family involvement in top management. *Family Business Review*, 33(4), 393-423.

Kang, H., Cheng, M., and Gray, S. J. (2007). Corporate Governance and Board Composition: Diversity and independence of Australian boards. *Corporate Governance: An International Review*, 15(2), 194-207.

Kang, H. C. and Kim, J. (2016). Why do family firms switch between family CEOs and non-family professional CEO? evidence from Korean Chaebols. *Review of Accounting and Finance*, 15 (1), 45-64.

Karra, N., Tracey, P., and Phillips, N. (2006). Altruism and agency in the family firm: exploring the role of family, kinship, and ethnicity. *Entrepreneurship Theory and Practice,* 30(6), 861-877.

Kaushik, V. and Walsh, C. A. (2019). Pragmatism as a research paradigm and its implications for social work research. *Social Sciences*, 8(9), 255.

Kennedy, P. (1998). *A guide to econometrics*. Cambridge: MIT Press.

Kepner, E. (1983). The family and the firm: a coevolutionary perspective. *Organizational Dynamics*, 12(1), 57-70.

Khanna, T. and Rivkin, J. W. (2001). Estimating the performance effects of business groups in emerging markets. *Strategic Management Journal*, 22(1), 45-74.

Khanna, T., & Yafeh, Y. (2007). Business Groups in Emerging Markets: Paragons or Parasites? *Journal of Economic Literature*, 45(2), 331–372.

Kim, C., Pantzalis, C. and Park, J. C. (2014). Do family owners use firm hedging policy to hedge personal undiversified wealth risk? *Financial Management*, 43(2), 415-444.

Kim, Y. and Gao, F. Y. (2013). Does family involvement increase business performance? Family-longevity goals' moderating role in Chinese family firms. *Journal of Business Research*, 66(2), 265-274.

Kraiczy, N. D., Hack, A. and Kellermanns, F. W. (2015). What makes a family firm innovative? CEO risk-taking propensity and the organization context of family firms. *Journal of Product Innovation Management*, 32(3), 334-348.

Kutner, M. H., Nachtsheim, C. J., and Neter, J. (2004). *Applied linear regression models*. (4th edition). McGraw-Hill Irwin.

Landau, C., Karna, A., Richter, A. and Uhlenbruck, K. (2016). Institutional leverage capability: Creating and using institutional advantage for internationalization. *Global Strategy Journal*, 6(1), 50–68.

La Porta, R., Florencio Lopez-De-Silanes, Shleifer, A., and Vishny, R. W. (1997). Legal determinants of external finance. *The Journal of Finance*, 52(3), 1131–1150.

La Porta, R., Lopez-de-Silanes, F., and Shleifer, A. (1999). Corporate ownership around the world. *The Journal of Finance*, 54 (2), 471–517.

Lee, T. (2019). Management ties and firm performance: influence of family governance. *Journal of Family Business Strategy*, 10(2), 105-118.

Lefort, F., & Urzúa, F. (2008). Board independence, firm performance and ownership concentration: evidence from Chile. *Journal of Business Research*, 61(6), 615-622.

Leszczensky, L. and Wolbring, T. (2022). How to deal with reverse causality using panel data? recommendations for researchers based on a simulation study. *Sociological Methods & Research*, 51(2), 837-865.

Levers, M. J. D. (2013). Philosophical paradigms, grounded theory, and perspectives on emergence. *SAGE Open*, 3(4).

Le Breton–Miller, I. and Miller, D. (2006). Why do some family businesses out–compete? governance, long–term orientations, and sustainable capability. *Entrepreneurship Theory and Practice*, 30(6), 731–746.

Le Breton-Miller, I. and Miller, D. (2009). Agency vs. stewardship in public family firms: a social embeddedness reconciliation. *Entrepreneurship Theory and Practice*, 33(6), 1169-1191.

Le Breton-Miller, I. and Miller, D. (2011). Commentary: family firms and the advantage of multitemporality. *Entrepreneurship Theory and Practice,* 35(6), 1171-1177.

Lee, S. C. (1953). China's traditional family, its characteristics and disintegration. *American Sociological Review*, 18(3), 272-280.

Lee, K., Peng, M. W., & Lee, K. (2008). From diversification premium to diversification discount during institutional transitions. *Journal of World Business*, 43(1), 47-65.

Li, Q., Hu, D. and Li, T. (2022). The innovation of family firms in China: new evidence from

the China employer-employee survey. *China Economic Review*, 72(2), 101754.

Li, L. and Zhu, B. (2015). Family involvement, firm size, and performance of private-owned enterprises. *The Journal of Chinese Sociology*, 2(1), 1-18.

Liden, R. C. (2012). Leadership research in Asia: a brief assessment and suggestions for the future. *Asia Pacific Journal of Management,* 29(2), 205–212.

Li, X. C., Chen, L., Chua, J. H., Kirkman, B. L., Rynes-Weller, S., and Gomez-Mejia, L. (2015). Research on Chinese family businesses: perspectives. *Management and Organization Review*, 11(4), 579-597.

Liang, Q., Huang, X., Xu, Y. and Wang, B. (2023). Family governance and strategic orientation of family firms in China: an institutional logics perspective. *Asia Pacific Business Review*, 29(4), 1036-1058.

Liang, X., Wang, L. and Cui, Z. (2014). Chinese private firms and internationalization: effects of family involvement in management and family ownership. *Family Business Review*, 27(2), 126-141.

Lichtenthaler, U. and Muethel, M. (2012). Retracted: the impact of family involvement on dynamic innovation capabilities: evidence from German manufacturing firms. *Entrepreneurship Theory and Practice*, 36(6), 1235-1253.

Lin, B. W., Lee, Y., and Hung, S. C. (2006). R&D intensity and commercialization orientation effects on financial performance. *Journal of Business Research*, 59(6), 679-685.

Liu, Y., Liao, R., and Wang, T. (2022). A Study on Guangdong Province Foreign Trade Business Environment Evaluation and Optimization Research. *Proceedings of Business and Economic Studies*, 5(4), 66-72.

Liu, Y., Miletkov, M. K., Wei, Z., and Yang, T. (2015). Board independence and firm performance in China. *Journal of Corporate Finance*, 30(1), 223-244.

Liu, Q., Luo, T. and Tian, G. G. (2015). Family control and corporate cash holdings: evidence from China. *Journal of Corporate Finance*, 31(2), 220-245.

Liu, W., Heugens, P. P. M. A. R., Wijen, F., and van Essen, M. (2022). Chinese management studies: a matched-samples meta-analysis and focused review of indigenous theories. *Journal of Management*, 48(6), 1778-1828.

Liu, B., Qian, G., Au, K. Y. (2023). Family influence and environmental proactiveness of family firms in China: a mixed gamble perspective. *Management and Organization Review*,

19(2), 348-371.

Liu, W., Yang, H., and Zhang, G. (2012). Does family business excel in firm performance? an institution-based view. *Asia Pacific Journal of Management*, 29(4), 965-987.

Llanos-Contreras, O., Arias, J. and Maquieira, C. (2021). Risk taking behavior in Chilean listed family firms: a socioemotional wealth approach. *International Entrepreneurship and Management Journal*, 17(1), 165-184

Lodh, S., Nandy, M. and Chen, J. (2014). Innovation and family ownership: empirical evidence from India. *Corporate Governance: An International Review*, 22(1), 4-23.

Long, C. X., Xu, L. C., and Yang, J. (2022). The government, private firms, and dual-track private sector development: China's experience in two crucial decades. *Journal of Government and Economics*, 6(2), 100037.

Lubatkin, M. H., Ling, Y., and Schulze, W. S. (2007). An organizational justice-based view of self-control and agency costs in family firms. *Journal of Management Studies*, 44(6), 955-971.

Lubatkin, M. H., Schulze, W. S., Ling, Y., and Dino, R. N. (2005). The effects of parental altruism on the governance of family-managed firms. *Journal of Organizational Behavior*, 26(3), 313–330.

Luo, X. R. and Chung, C. N. (2013). Filling or abusing the institutional void? Ownership and management control of public family businesses in an emerging market. *Organization Science*, 24(2), 591–613.

Lussier, R. N. and Sonfield, M. C. (2006). The effect of family business size as firms grow: a USA-France comparison. *Journal of Small Business and Enterprise Development,* 13(3), 314-325.

Lyman, A. R. (1991). Customer service: does family ownership make a difference? *Family Business Review*, 4(3), 303-324.

Ma, B. (2020). Making culture familiar when collaborating with China. *IE Insights*: Families in Business. [Online] Available at: https://www.ie.edu/insights/articles/making-culture-familiar-when-collaborating-with-china/ (Accessed:10th December, 2023).

Ma, B., Wang, Y., Zhou, Z., Lai, Y., Zhou, Z., and Bashir, M. F. (2022). Can controlling family involvement promote firms to fulfil environmental responsibilities? —evidence from China. *Managerial and Decision Economics*, 43(2), 569-592.

McConnell, J. J., and Servaes, H. (1990). Additional evidence on equity ownership and

corporate value. *Journal of Financial Economics*, 27(2), 595-612.

Madison, K., Holt, D. T., Kellermanns, F. W., and Ranft, A. L. (2016). Viewing family firm behavior and governance through the lens of agency and stewardship theories. *Family Business Review*, 29(1), 65-93.

Majocchi, A., D'Angelo, A., Forlani, E., and Buck, T. (2018). Bifurcation bias and exporting: can foreign work experience be an answer? insight from European family SMEs. *Journal of World Business*, 53(2), 237-247.

Martinez, J. I., Stohr, B. S. and Quiroga, B. F. (2007). Family ownership and firm performance: evidence from public companies in Chile. *Family Business Review*, 20(2), 83-94.

Matzler, K., Veider, V., Hautz, J. and Stadler, C. (2015). The impact of family ownership, management, and governance on innovation. *Journal of Product Innovation Management*, 32(3), 319-333.

Madison, K., Holt, D. T., Kellermanns, F. W., and Ranft, A. L. (2016). Viewing family firm behavior and governance through the lens of agency and stewardship theories. *Family Business Review*, 29(1), 1-29.

Maury, B. (2006). Family ownership and firm performance: Empirical evidence from Western European corporations. *Journal of Corporate Finance*, 12(2), 321-341.

Maylor, H. and Blackmon, K. (2005). *Research business and management*. Basingstoke: Palgrave Macmillan.

McConaughy, D. L. (2000). Family CEOs vs. nonfamily CEOs in the family-controlled firm: an examination of the level and sensitivity of pay to performance. *Family Business Review*, 13(2), 121-131.

McMillan, J. and Woodruff, C. (2002). The central role of entrepreneurs in transition economies. *Journal of Economic Perspectives*, 16(3), 153-170.

Minichilli, A., Corbetta, G., and MacMillan, I. C. (2010). Top Management Teams in Family-Controlled Companies: 'Familiness', 'Faultlines', and Their Impact on Financial Performance. *Journal of Management Studies*, 47(2), 205-222.

Miller, D. and Le Breton-Miller, I. L. (2006). Family governance and firm performance: agency, stewardship, and capabilities. *Family Business Review*, 19(1), 73-87.

Miller, D., Le Breton-Miller, I., Lester, R. and Cannella, A. (2007). Are family firms really

superior performers? *Journal of Corporate Finance*, 13(5), 829–58.

Miller, D., Le Breton-Miller, I., and Scholnick, B. (2008). Stewardship vs. stagnation: An empirical comparison of small family and non-family businesses. *Journal of Management Studies*, 45(1), 51-78.

Miller, D., Lee, J., Chang, S., and Le Breton-Miller, I. (2009). Filling the institutional void: the social behavior and performance of family versus non-family technology firms in emerging markets. *Journal of International Business Studies*, 40(5), 802–817.

Miller, D., Minichilli, A., and Corbetta, G. (2013). Is family leadership always beneficial? *Strategic Management Journal*, 34(5), 553–571.

Minichilli, A., Corbetta, G., and MacMillan, I. C. (2010). Top management teams in family-controlled companies: 'familiness', 'faultlines', and their impact on financial performance. *Journal of Management Studies*, 47(2), 205-222.

Miralles-Marcelo, J. J., Miralles-Quiros, M. D. M. and Lisboa, I. (2014). The impact of family control on firm performance: evidence from Portugal and Spain. *Journal of Family Business Strategy*, 5(2), 156-168.

Miroshnychenko, I., De Massis, A., Miller, D., and Barontini, R. (2021). Family business growth around the world. *Entrepreneurship Theory and Practice*, 45(4), 682-708.

Miroshnychenko, I., Vocalelli, G., De Massis, A., Grassi, S. and Ravazzolo, F. (2023). The COVID-19 pandemic and family business performance. *Small Business Economics*, v(*preprint*).

Mithani, M. A. and Kocoglu, I. (2023). Idea generation in abductive thinking: not one but three approaches. *Academy of Management Review*, In-press.

Mitton, T. (2002). A cross-firm analysis of the impact of corporate governance on the East Asian financial crisis. *Journal of Financial Economics*, 64(2), 215-241.

Morck, R., Daniel Wolfenzon, and Yeung, B. (2005). Corporate governance, economic entrenchment, and growth. *Journal of Economic Literature*, 43(3), 655–720.

Morck, R., Shleifer, A., and Vishny, R. W. (1988). Management ownership and market valuation: An empirical analysis. *Journal of Financial Economics*, 20(1), 293-315.

Morck, R. and Yeung, B. (2003). Agency problems in large family business groups. *Entrepreneurship Theory and Practice*, 27(4), 367–382.

Moreno-Menéndez, A. M. and Casillas, J. C. (2021). How do family businesses grow?

Differences in growth patterns between family and non-family firms. *Journal of Family Business Strategy*, 12(3), 100420.

Morgan, D. L. (2007). Paradigms lost and pragmatism regained: methodological implications of combining qualitative and quantitative methods. *Journal of Mixed Methods Research*, 1(1), 48-76.

Mourdoukoutas, P. (2004). China's challenge. *Barron's*, 84(7), pp.37.

Munoz-Bullon, F. and Sanchez-Bueno, M. J. (2011). The impact of family involvement on the R&D intensity of publicly traded firms. *Family Business Review*, 24(1), 62-70.

Mustakallio, M., Autio, E., and Zahra, S. A. (2002). Relational and contractual governance in family firms: effects on strategic decision making. *Family Business Review*, 15(3), 205-222.

Myers, R. H. (1990). *Classical and Modern Regression with Applications*, 2nd edition, PWS-Kent, Boston, MA.

North, D. C. (1990). *Institutions, institutional change and economic performance*. Cambridge, England: Cambridge University Press.

O'Boyle, E. H., Pollack, J. M., and Rutherford, M. W. (2012). Exploring the relation between family involvement and firms' financial performance: a meta-analysis of main and moderator effects. *Journal of Business Venturing*, 27(1), 1-18.

O'Boyle, E. H., Rutherford, M. W., and Pollack, J. M. (2010). Examining the relation between ethical focus and financial performance in family firms: an exploratory study. *Family Business Review*, 23(4), 310-326.

Odom, D. L., Chang, E. P. C., Chrisman, J. J., Sharma, P. and Steier, L. (2019). The most influential family business articles from 2006 to 2013 using five theoretical perspectives. In *C. Dribell, and E. Memili* (Eds.), The Palgrave handbook of heterogeneity among family firms, pp. 41–67. London: Palgrave-McMillan.

O'Shea, M. and Alonso, A. D. (2022). Human resource management adaptation among family firms operating in Western Australia: an exploratory study. *Journal of Family Business Management*, 12(1), 90-105.

Oxford Economics (2023). The state of the nation: *the UK family business sector 2021-22*. [Online] Available at: https://www.oxfordeconomics.com/wp-content/uploads/2022/12/the-state-of-the-nation-the-uk-family-business-sector-

20212022.pdf?utm_source=website&utm_medium=recent%2520release&utm_campaign=The%2520State%2520of%2520the%2520Nation:%2520The%2520UK%2520Family%2520Business%2520Sector%252 (Accessed: 9th October, 2023).

Park, S. H. and Luo, Y. (2001). Guanxi and organizational dynamics: organizational networking in Chinese firms. *Strategic Management Journal*, 22(5), 455-477.

Pelled, L. H., Eisenhardt, K. M., and Xin, K. R. (1999). Exploring the Black Box: An Analysis of Work Group Diversity, Conflict, and Performance. *Administrative Science Quarterly*, 44(1), 1-28.

Peng, M. W. and Jiang, Yi. (2010). Institutions behind family ownership and control in large firms. *Journal of Management Studies*, 47(2), 253-273.

Peng, M. W., and Heath, P. S. (1996). The Growth of the Firm in Planned Economies in Transition: Institutions, Organizations, and Strategic Choice. *Academy of Management Review*, 21(2), 492-528.

Peng, M. W., Lee, S. H., and Wang, D. Y. L. (2005). What determines the scope of the firm over time? a focus on institutional relatedness. *Academy of Management Review*, 30(3), 622-633.

Peng, M. W., Sun, S. L., Pinkham, B., and Chen, H. (2009). The Institution-Based View as a Third Leg for a Strategy Tripod. *Academy of Management Perspectives*, 23(3), 63-81.

Peng, M. W., Sun, W., Vlas, C., Minichilli, A., and Corbetta, G. (2018). An institution-based view of large family firms: a recap and overview. *Entrepreneurship Theory and Practice*, 42(2), 187-205.

Penrose, E. T. (1959). *The theory of the growth of the firm*. Oxford: Basil Blackwell.

Pindado, J. and Requejo, I. (2015). Family business performance from a governance perspective: a review of empirical research. *International Journal of Management Reviews*, 17(3), 279-311.

Pepper, A., and Gore, J. (2015). Behavioral Agency Theory: New Foundations for Theorizing About Executive Compensation. *Journal of Management*, 41(4), 1045-1068.

Pollak, R. A. (1985). A transaction cost approach to families and households. *Journal of Economic Literature*, 23(2), 581-608.

Poutziouri, P., Savva, C. S., and Hadjielias, E. (2015). Family involvement and firm performance: evidence from UK listed firms. *Journal of Family Business Strategy*, 6(1), 14-

32.

Purkayastha, S., Veliyath, R. and George, R. (2019). The roles of family ownership and family management in the governance of agency conflicts. *Journal of Business Research*, 98(5), 50-64.

Purkayastha, S., Veliyath, R. and George, R. (2022). Type I and type II agency conflicts in family firms: an empirical investigation. *Journal of Business Research*, 153(3), 285-299.

Purnamasari, D. I. (2016). Mixed approach pros and cons of positivism and alternativism: towards the perfection of science development. *International Journal of Management Sciences*, 7(4), 188-194.

PWC (2021). Global family business survey 2021-China report: *from trust to impact*. [Online] Available at: https://www.pwccn.com/en/services/entrepreneurial-and-private-business/private-family-business-services/global-family-business-survey-2021.html (Accessed: 23rd October, 2023).

Qian, C., Cao, Q. and Takeuchi, R. (2013). Top management team functional diversity and organizational innovation in China: the moderating effects of environment. *Strategic Management Journal*, 34(1), 110-120.

Ramaswamy, K., Purkayasths, S. and Petitt, B. S. (2017). How do institutional transitions impact the efficacy of related and unrelated diversification strategies used by business groups? *Journal of Business Research*, 72(3), 1-13.

Renders, A. and Gaeremynck, A. (2012). Corporate governance, principal-principal agency conflicts and firm value in European listed companies. *Corporate Governance: An International Review*, 20(2), 125-143.

Robertsson, H. (2023). *How the largest family enterprises are outstripping global economic growth*. [Online] Available at: https://www.ey.com/en_uk/family-enterprise/family-business-index (Accessed: 9th October, 2023)

Robins, J. and Wiesema, M. F. (1995). A resource-based approach to the multi-business firms: an empirical analysis of portfolio interrelationships and corporate financial performance. *Strategic Management Journal*, 16(4), 277-299.

Rose, A. M. and Peterson, W. A. (1965). Older people and their social world: *the subculture of the ageing*. Philadelphia, PA: Davis.

Ross, S. A. (1973). The economic theory of agency: the principal's problem. *The American*

Economic Review, 63(2), 134-139.

Rovelli, P., Ferasso, M., De Massis, A. and Kraus, S. (2022). Thirty years of research in family business journals: Status quo and future directions. *Journal of Family Business Strategy*, 13(3), 100422.

Safeguard Global. (2023). *Top 10 manufacturing countries in 2023*. [Online] Available at: https://www.safeguardglobal.com/resources/top-10-manufacturing-countries-in-the-world-2023/ (Accessed: 14 December, 2023).

Saidat, Z., Bani-Khalid, T. O., Al-Haddad, L., and Marashdeh, Z. (2020). Does family CEO enhance corporate performance? the case of Jordan. *Economics and Sociology*, 13(2), 43-52.

Sakawa, H. and Watanabel, N. (2019). Family control and ownership monitoring in stakeholder-oriented corporate governance. *Management Decision*, 57(7), 1712-1728.

Saetre, A. S. and Van de ven, A. (2021). Generating theory by abduction. *Academy of Management Review*, 46(4), 684-701.

Saunders, M., Lewis, P. and Thornhill, A. (2009). *Research methods for business students*. 5th edition. England: Pearson Education Limited.

Scharping, T. (2019). Abolishing the one-child policy: stages, issues, and the political process. *Journal of Contemporary China*, 28(117), 327-347.

Schmieder, J. (2014). Innovation in the family business: *succeeding through generations*. New York: Springer.

Schmid, T., Achleitner, A. K., Ampenberger, M., and Kaserer, C. (2014). Family firms and R&D behavior- new evidence from a large-scale survey. *Research Policy*, 43(1), 233-244.

Schulze, W. S., Lubatkin, M. H., Dino, R. N., and Buchholtz, A. K. (2001). Agency Relationships in Family Firms: Theory and Evidence. *Organization Science*, 12(2), 99-116.

Schulze, W. S., Lubatkin, M. H., and Dino, R. N. (2002). Altruism, agency, and the competitiveness of family firms. *Managerial and Decision Economics*, 23(4-5), 247-259.

Schulze, W. S., Lubatkin, M. H., and Dino, R. N. (2003). Toward a theory of agency and altruism in family firms. *Journal of Business Venturing*, 18(4), 473-490.

Schulze, W. S., Lubatkin, M. H., Dino, R. and Buchholtz, A. K. (2001). Agency relationships in family firms: theory and evidence. *Organization Science*, 12(2), 99–116.

Schwandt, T. A. (1997). Qualitative inquiry: *A dictionary of terms*. Sage Publications, Inc.

Shi, X., Williams, C., Sutherland, D. and Rong, K. (2022). Patent- and trademark-seeking

outward foreign direct investment by Chinese firms: the role of business group affiliation. *Industrial and Corporate Change*, 31(3), 838–862.

Siebels, J. F. and Knyphausen-Aufseb (2012). A review of theory in family business research: the implications for corporate governance. *International Journal of Management Reviews*, 14(3), 280-304.

Silva, F. and Majluf, N. (2008). Does family ownership shape performance outcomes? *Journal of Business Research*, 61(6), 609-614.

Soleimanof, S., Rutherford, M. W., and Webb, J. W. (2018). The intersection of family firms and institutional contexts: A review and agenda for future research. *Family Business Review*, 31(1), 32–53.

Sonfield, M. C. and Lussier, R. N. (2008). The influence of family business size on management activities, styles and characteristics. *New England Journal of Entrepreneurship*, 11(2), 47-56.

Song, J. and Ji, Y. (2020). Complexity of Chinese family life: individualism, familism, and gender. *The China Review*, 20(2), 1-17.

Srivastava, A. and Bhatia, S. (2022). Influence of family ownership and governance on performance: evidence from India. *Global Business Review*, 23(5), 1135-1153.

Stebbins, R. A. (2001). *Exploratory research in the social sciences*. Sage, Thousand Oaks.

Steier, L. P., Chrisman, J. J., and Chua, J. H. (2004). Entrepreneurial management and governance in family firms: an introduction. *Entrepreneurship Theory and Practice*, 28(4), 295-303.

Steier, L. P., Chua, J. H., and Chrisman, J. J. (2009). Embeddedness Perspectives of Economic Action within Family Firms. *Entrepreneurship Theory and Practice*, 33(6), 1157-1167.

Stewart, A. (2003). Help one another, use one another: Toward an anthropology of family business. *Entrepreneurship Theory & Practice*, 27(4), 383–396.

Stewart, A., and Hitt, M. A. (2012). Why can't a family business be more like a nonfamily business? modes of professionalization in family firms. *Family Business Review*, 25(1), 58–86.

Stigler, G. J. and Friedland, C. (1971). Profits of Defense Contractors. *The American Economic Review*, 61(4), 692–694.

Strauss, A. and Corbin, J. (1998). *Basics of qualitative research*. 2nd edition. Sage Publications Ltd.

Su, S., Costanzo, L. A., Lange, K., Ghobadian, A., Hitt, M. A. and Ireland, R. D. (2023). How does Guanxi Shape entrepreneurial behaviour? The case of family businesses in China. *British Journal of Management*, 34(4), 1685-2373.

Tang, J., Osmer, E., and Zheng, Y. (2022). Do married couples make better family firm leaders: evidence from China. *Journal of Economics and Business*, 118(1), 106030.

Tang, Y., Ye, S. and Zhou, J. (2013). Political connections, legal environment, and corporate valuation in Chinese public family firms. *The Chinese Economy*, 46(6), 32-49.

Taras, V., Memili, E., Wang, Z. and Harms, H. (2018). Family involvement in publicly traded firms and firm performance: a meta-analysis. *Management Research Review*, 41(2), 225-251.

Teece, D. J., Pisano, G. and Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509–533.

Thompson, S. and Wright, M. (2005). Edith Penrose's contribution to economics and strategy: an overview. *Managerial and Decision Economics*, 26(2), 57-66.

Tsai, W. H., Kuo, Y. C. and Hung, J. H. (2009). Corporate diversification and CEO turnover in family businesses: self-entrenchment or risk reduction? *Small Business Economics*, 32(1), 57–76.

Tsao, C. W., Le Breton-Miller, I., Miller, D. and Chen, S. J. (2021). Firing managers: the benefits of family ownership and costs of family management. *Journal of Family Business Strategy*, 12(3), 100411.

Tsui, A. S. (2006). Contextualization in Chinese management research. *Management and Organization Review*, 2(1), 1-13.

Tsai, K. S. (2007). Capitalism without democracy: *the private sector in contemporary China*. 1st edition. Cornell University Press.

Tsui, A. S., Bian, Y., and Cheng, L. (2014). China's domestic private firms: *multidisciplinary perspectives on management and performance*. New York: Routledge.

Verbeke, A. and Kano, L. (2012). The transaction cost economics theory of the family firm: family–based human asset specificity and the bifurcation bias. *Entrepreneurship Theory and Practice*, 36(6), 1183-1205.

Villalonga, B. and Amit, R. (2006). How do family ownership, control and management affect firm value? *Journal of Financial Economics*, 80(2), 385-417.

Villalonga, B., Amit, R, Trujillo, M. A., and Guzman, A. (2015). Governance of family firms. *Annual Review of Financial Economics,* 7 (December), 635-654.

Wagner, D., Block, J. H., Miller, D., Schwens, C. and Xi, G. (2015). A meta-analysis of the financial performance of family firms: another attempt. *Journal of Family Business Strategy*, 6(1), 3-13.

Wang, D., Ma, G., Song, X. and Liu, Y. (2016). Political connection and business transformation in family firms: evidence from China. *Journal of Family Business Strategy*, 7, 117-130.

Wang, Y., Ahmed, P., and Farquhar, S. (2007). Founders versus descendants: the profitability, growth and efficiency characteristics comparison in the UK small and medium sized family businesses. *The Journal of Entrepreneurship*, 16(2), 173-195.

Wang, W. and Griswold, M. E. (2016). Estimating overall exposure effects for the clustered and censored outcome using random effect Tobit regression models. *Statistics in Medicine*, 35(27), 4948.

Wang, K. T. and Shailer, G. (2017). Family ownership and financial performance relations in emerging markets. *International Review of Economics & Finance*, 51(5), 82-98.

Wang, Y., Pei, R., and Liu, Y. (2014). The evolution of family business in China: an institutional perspective. *International Journal of Management Practice*, 7(2), 89-107.

Wang, M., Xu, M. and He, Q. (2022). The impacts of family involvement on R&D investment intensity in firms: evidence from China. *International Entrepreneurship and Management Journal*, 18(1), 277-294.

Wasserman, N. (2006). Stewards, agents, and the founder discount: executive compensation in new ventures. *Academy of Management Journal*, 49(5), 960-976.

Wen, Y. and Wolla, S. (2017). China's rapid economic rise: a new application of an old recipe. *Social Education,* 81(2), 93-97.

Whyte, M. K. (1996). The Chinese family and economic development: obstacle or engine? *Economic Development and Cultural Change*, 45(1), 1-30.

Wilkinson, B. (1996). Culture, institutions and business in east asia. *Organization Studies*, 17(3), 421-447.

Williamson, O. E. (1981). The Economics of organization: the transaction cost approach. *American Journal of Sociology*, 87(3), 548-577.

Wiseman, R. M. and Gomez-Mejia, L. R. (1998). A behavioral agency model of managerial risk taking. *The Academy of Management Review*, 23(1), 133–153.

Wong, S. (1985). The Chinese family firm: a model. *The British Journal of Sociology*, 36(1), 58-72.

Woods, J. A., Sweida, G., Burley, P., Fang, H. C. and Xu, Z. J. (2022). The impact of family social capital on resource deployment in Chinese entrepreneurial firms. *Journal of Small Business Strategy*, 32(4), 48–62.

Wright, M., Filatotchev, I., Hoskisson, R. E., and Peng, M. W. (2005). Strategy research in emerging economies: challenging the conventional wisdom*. *Journal of Management Studies*, 42(1), 1-33.

Xu, N., Xu, X., and Yuan, Q. (2013). Political connections, financing friction, and corporate investment: evidence from Chinese listed family firms. *European Financial Management*, 19(4), 675-702.

Xu, M., Wang, M. and Han, Y. (2023). Family management, family succession, and R&D investment: an empirical study. *International Entrepreneurship and Management Journal*, 19(1), 293-319.

Yang, J., Ma, J., Zhao, H., Cater, J. and Arnold, M. (2019). Family involvement, environmental turbulence, and R&D investment: evidence from listed Chinese SMEs. *Small Business Economics*, 53(4), 1017-1032.

Young, S. (1989). Policy, practice and the private sector in China. *The Australian Journal of Chinese Affairs*, 21(1), 57-80.

Young, M. N., Peng, M. W., Ahlstrom, D., Bruton, G. D., and Jiang, Y. (2008). Corporate Governance in Emerging Economies: A Review of the Principal–Principal Perspective. *Journal of Management Studies*, 45(1), 196-220.

Zahra, S. A. (2003). International expansion of US manufacturing family businesses: The effect of ownership and involvement. *Journal of Business Venturing*, 18(4), 495–512.

Zahra, S. A., Hayton, J. C., Neubaum, D. O., Dibrell, C., and Craig, J. (2008). Culture of family commitment and strategic flexibility: The moderating effect of stewardship. *Entrepreneurship Theory and Practice*, 32(6), 1035–1054.

Zellweger, T. M., Eddleston, K. A. and Kellermanns, F. W. (2010). Exploring the concept of familiness: introducing family firm identity. *Journal of Family Business Strategy*, 1(1), 54-63.

Zellweger, T. M., Kellermanns, F. W., Chrisman, J. J., and Chua, J. H. (2012). Family control and family firm valuation by family CEOs: the importance of intentions for transgenerational control. *Organization Science*, 23(3), 851–868.

Zhang, Y. (2023). Industrial policy for strategic industry: *the case of China's 5G and supercomputing industries*. CEPR. [Online] Available at: https://cepr.org/voxeu/columns/industrial-policy-strategic-industry-case-chinas-5g-and-supercomputing-industries (Accessed: 24th March, 2024).

Zhang, W., Xiong, X., Wang, G., and Li, C. (2022). Corporate ownership and political connections: evidence from post-IPO long term performance in China. *Research in International Business and Finance*, 59(1), 101561.

Zhou, J., Tam, O. K. and Yu, P. (2013). An investigation of the role of family ownership, control and management in listed Chinese family firms. *Asian Business & Management*, 12(2), 197-225.

Zulfiqar, M., Chen, S., and Yousaf, M. U. (2022). Birth mode of family firms, family entering time and R&D investment: evidence from China. *European Journal of Innovation Management*, 25(5), 1242-1265.

Zyphur, M. J. and Pierides, D. C. (2020). Making quantitative research work: from positivist dogma to actual social scientific inquiry. *Journal of Business Ethics*, 167(1), 49-62.

Zybura, J., Zybura, N., Ahrens, J., and Woywode, M. (2021). Innovation in the post-succession phase of family firms: family CEO successors and leadership constellations as resources. *Journal of Family Business Strategy*, 12(2), 100336.