UNIVERSITI PUTRA MALAYSIA

IMPACT OF BOARD CHARACTERISTICS ON FIRMS' TECHNICAL EFFICIENCY OF FAMILY OWNED AND NON-FAMILY OWNED BUSINESS

WONG WAI WAH

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By

WONG WAI WAH

Thesis Submitted to the Putra Business School in Fulfilment of the Requirements for the Degree of Doctor of Philosophy

April 2020

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DEDICATION

TO MY BELOVED FAMILY

Lai Chooi Yoke, Elessee
Wong Wai Kong
Wong Lee Peng
Jeffery Tan
Wong Wai Ming
Liu Lin Yit

...Thank you for your unconditional love and support...

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirements for the degree of Doctor of Philosophy

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April 2020

Chairman : Associate Professor Bany Ariffin bin Amin Noordin, PhD
Faculty : Putra Business School

Family-owned business (FOB) forms the core of the economic activities in most countries. It is estimated that 65%-80% of worldwide businesses are owned by families (Gersick et al., 1997). The fact that they have been able to survive, as far as the recorded history has manifested, prove that they have the resilience to endure historical economic and political ups and downs. They have also proven that they are the master of survival as the businesses can be passed down generations after generations. To do so, these firms need to have superior firm performance to meet the families' economic demands. Past studies on firm performance were usually conducted by using Return on Asset (ROA), Return on Equity (ROE), and Tobin's Q as proxies for firm performance, which are proven to have inconsistent results. Hence, the first objective of this research is to examine, compare and determine who is more superior based on firm efficiency (technical efficiency) as a proxy for the firm performance of both family-owned business (FOB) and non-family owned business (non-FOB). By using Data Envelopment Analysis (DEA), firms' efficiency ratios for five ASEAN countries (Malaysia, Singapore, Indonesia, Philippines, and Thailand) are calculated and subjected to two samples t-test to determine whether FOB or non-FOB is more efficient. The second objective is to examine the influence of board characteristics (education level, experience level, composition, and size) on firm efficiency in the context of Family-Owned Business (FOB) and Non-Family Owned Business (non-FOB). Panel regression analysis is applied to test the board characteristics' influence based on a sample of firms from five ASEAN countries. The third objective is to determine if the board experience level (EXP) is the most influential determinant and meanwhile, board size (SIZE) is the least for both FOB and non-FOB. Firms' and countries' data are collected for ten years period, starting from 2007 till 2016. The first stage analysis' findings for the first objective did not document FOB is significantly more efficient than non-FOB for all the five countries. Meanwhile, the second stage findings for the second objective did not document the consistent significant influence

of the four board characteristics on firm efficiency for all the five countries. Although inconsistent the characteristics did influence the firms' efficiency both positively and negatively. Hence, a more pertinent question arises, is there an optimum value or size for the board characteristics with firm efficiency? The findings also document weak evidence, EXP is the most influential board characteristics in determining firm performance. EXP is significant for FOB Philippines and Thailand. These findings are essential for the board of directors (BOD), senior management of the firms, researchers, policymakers, academics, and the general public. 1) Ceteris paribus, both FOB and non-FOB should operate at the same efficiency and ability to generate similar returns for their shareholders. Hence, the findings contribute to the debated firm efficiency in both FOB and non-FOB by providing evidence both are equally efficient in the five ASEAN countries. 2) There is no conclusive evidence documenting all the four BOD's characteristics positively influencing the firm performance 3) provide weak evidence, EXP is the most influential board characteristic in the ASEAN region.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

IMPAK CIRI-CIRI LEMBAGA PENGARAH KE ATAS KECEKAPAN TEKNIKAL FIRMA UNTUK PERNIAGAAN MILIK KELUARGA DAN BUKAN MILIK KELUARGA

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Perniagaan milik keluarga (FOB) membentuk teras kegiatan ekonomi di kebanyakan negara. Dianggarkan 65% -80% perniagaan di seluruh dunia dimiliki oleh keluarga (Gersick et al., 1997). Mereka telah dapat berkembang dan bertahan, sejak tercatitnya sejarah, telah membuktikan bahawa mereka mempunyai daya bersaing untuk mengharungi perubahan ekonomi dan politik. Mereka juga telah membuktikan bahawa mereka adalah pakar dalam persaingan perniagaan kerana mereka telah berjaya mewariskan firma mereka dari generasi ke generasi. Untuk berbuat demikian, firma-firma ini perlu mempunyai prestasi firma yang lebih baik untuk memenuhi keperluan ekonomi keluarga. Kajian terdahulu mengenai prestasi firma biasanya dilakukan dengan menggunakan Pulangan Aset (ROA), Pulangan Ekuiti (ROE) dan Tobin's Q sebagai proksi untuk prestasi firma yang memberikan keputusan yang tidak konsisten. Oleh itu, dalam objektif pertama dalam kajian ini adalah memeriksa, membandingkan dan menentukan siapa yang lebih unggul berdasarkan kecekapan firma (kecekapan teknikal) sebagai proksi untuk prestasi firma perniagaan milik keluarga (FOB) dan perniagaan bukan keluarga (bukan FOB). Dengan menggunakan Data Envelopment Analysis (DEA), nisbah kecekapan syarikat untuk lima negara ASEAN (Malaysia, Singapura, Indonesia, Filipina dan Thailand) dihitung dan dikenakan dua sampel ujian-t untuk menentukan sama ada FOB atau bukan FOB lebih efisien. Objektif kedua adalah untuk mengkaji pengaruh ciri-ciri lembaga pengarah (tahap pendidikan, tahap pengalaman, komposisi dan saiz) terhadap kecekapan firma dalam konteks Perniagaan Milik Keluarga (FOB) dan Perniagaan Bukan Keluarga (bukan FOB). Objektif ketiga adalah untuk menentukan sama ada pengalaman lembaga pengarah (EXP) adalah penentu yang paling berpengaruh dan sementara itu, saiz lembaga pengarah (SIZE) adalah yang paling kurang berpengaruh untuk FOB dan bukan FOB. Analisis regresi panel diterapkan untuk menguji pengaruh ciri-ciri lembaga pengarah berdasarkan sampel data dari lima negara ASEAN. Data firma dan negara dikumpulkan selama sepuluh tahun, bermula dari tahun 2007 hingga 2016.

Hasil analisis pertama tidak mendokumentasikan FOB jauh lebih unggul daripada bukan FOB untuk kelima-lima buah negara. Sementara itu, penemuan analisis kedua tidak mendokumentasikan pengaruh yang signifikan secara konsisten dari empat ciri lembaga pengarah dengan kecekapan teknikal syarikat untuk kelima-lima negara. Walaupun tidak konsisten ciri-ciri lembaga pengarah ada mempengaruhi kecekapan syarikat baik secara positif dan negatif. Oleh itu, timbul persoalan yang lebih relevan, apakah nilai atau ukuran optimum untuk ciri-ciri lembaga pengarah yang berkaitan dengan kecekapan syarikat? Hasil kajian objektif ketiga menyumbangkan bukti yang lemah, EXP adalah ciri lembaga pengarah yang paling berpengaruh di rantau ASEAN. EXP merupakan ciri lembaga pengarah yang signifikan untuk FOB Filipina dan Thailand. Hasil kajian ini penting bagi lembaga pengarah (BOD), pengurusan kanan firma, penyelidik, pembuat dasar, akademik, dan masyarakat umum, 1) Ceteris paribus, kedua-dua FOB dan bukan FOB harus beroperasi pada kecekapan yang sama dan keupayaan untuk menghasilkan pulangan yang sama untuk pemegang saham mereka. Justeru, kajian ini menemukakan hasil kajian kepada persoalan yang sering didebatkan iaitu kedua-dua, FOB dan bukan FOB beroperasi sama cekap di rantau ASEAN. 2) Hasil kajian juga menunjukan tiada bukti yang signifikan hubungan positif diantara empat ciri lembaga pengarah dengan prestasi firma 3) EXP adalah ciri lembaga pengarah yang paling berpengaruh di rantau ASEAN.

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I certify that a Thesis Examination Committee has met on 23rd April 2020 to conduct the final examination of Wong Wai Wah on his thesis entitled "Impact of Board Characteristics on Firms' Technical Efficiency of Family Owned and Non-Family Owned Business" in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The Committee recommends that the student be awarded the Doctor of Philosophy.

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This is to confirm that:

- the research conducted and the writing of this thesis was under our supervision;
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LIST OF ABBREVIATIONS

BOD	Board of Directors
BP	Breusch-Pagan
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CLRM	Classical Linear Regression Model
COMP	Board of Director Composition
CPI	Consumer Price Index
CTO	Chief Technology Officer
DEA	Data Envelopment Analysis
DMU	Decision-Making Unit
DW	Durbin-Watson
EBIT	Earnings Before Interest and Taxes
EBITA	Earnings Before Interest Taxes and Amortisation
EDU	Board of Director Education Level
EPS	Earning Per Share
EXP	Board of Director Experience
FEM	Fixed Effect Method
FDI	Foreign Direct Investment
FOB	Family Owned Business
FPERF	Firm Performance
FTSE	Financial Times Stock Exchange
GDP	Gross Domestic Product
GLS	Generalised Least Square
LM	Langrangian Multiplier
LSDV	Least Square Dummy Variable
MBA	Master of Business Administration

MTI	Ministry of Trade Singapore
NBPT	Net Profit Before Tax
Non-FOB	Non-Family Owned Business
OFW	Overseas Foreign Workers
OLS	Ordinary Least Square
OVB	Omitted Variables Bias
PhD	Doctor of Philosophy
PSE	Philippines Stock Exchange
RDT	Resource Dependency Theory
REM	Random Effect Method
ROA	Return on Assets
ROE	Return on Equity
ROI	Return on Investment
ROIC	Return on Invested Capital
SE	Stock Exchange
SD	Standard Deviation
SET	Stock Exchange of Thailand
SFA	Stochastic Frontier Analysis
SIZE	Board of Director Size
STI	Straits Times Indexes
TE	Technical Efficiency
WDI	World Development Indicator
WEO	World Economic Outlook
WG	Within-Group

CHAPTER 1

INTRODUCTION

1.1 Background of Study

The main objectives of this research are first, to examine, compare and determine who is more superior based on firm efficiency (technical efficiency) as a proxy for the firm performance of both family-owned business (FOB) and non-family owned business (non-FOB). Secondly to examine the impact of board (BOD) characteristics on firm efficiency in the context of Family-owned Business (FOB) and Non-Family Owned Business (non-FOB) and lastly, to determine the most and least influential board characteristics in the relation with firm efficiency.

Malaysian local corporations' history can be traced way back to our pre-independence era especially during the Dutch occupancy period in Melaka. When the Dutch took over Melaka from the Portuguese, they introduced for the very first time a legal business entity which was the Dutch East India Company and governed the state of Melaka till 1825 when the British via their own East India Company took over. Early business entities or firms were mainly owned by our colonial masters, for example, Sime, Darby, and Co. Limited founded in 1910, by William Sime and Henry Darby. Meanwhile, Guthrie, founded by Alexander Guthrie in 1821 and Golden Hope, founded by Harrisons and Crosfield in 1905. Their main business activities were in plantations, mining, and trading (Gomez, 2009).

During the late 19th and early 20th century, the British encouraged massive migration of Indians and Chinese from India and China respectively to fulfil the labour needs in the rubber plantations and tin mines in Malaya (Malaysia was known as Malaya prior the formation of Malaysia in 1963), where these migrants usually were without any formal education. They migrated to Malaysia to escape the harsh living conditions in their home countries and looked for a better future for them and their subsequent generations. They were very prudent and thrive, saving whatever they earned for their families' future. Those with enough savings would start their own business and hence the beginning of the proliferation of small-scale businesses which most of them were owned by families. Along the way, some of these small-time businesses had grown into larger corporations and a few of them had grown into large conglomerates such as Genting Group, YTL, IOI, Oriental Group, and Lee Rubber to name a few (Gomez, 2009).

According to Amran & Ahmad (2010); Mosbah, Serief & Abd Wahab, (2017); Villalonga, & Amit, (2020), 70% of the firms listed on Bursa Malaysia are family-owned[1]. Globally, most businesses started as family-owned. It was estimated that 65%

[1] The classifications of family-owned business are based on Churchill & Hatten, (1997) and Global Family Index, (2015).

to 80% of the worldwide business entities are family-owned. In the United States alone, the family-owned business contributed approximately 62% of the country's gross domestic product (GDP) and employed 64% of the total workforce (Familybusinesscenter.com, 2019). From the early 19th till the 20th century, the world economy was dominated by family-owned businesses. Only during the interwar period, with the growing interest of separation of ownership and management, then only scholars and practitioners differentiated the family-owned business from other categories (Colli & Rose, 2008). Hence, without a doubt, family-owned businesses are the economic pillar for most of the countries.

What happened in Malaysia was replicated in other ASEAN countries such as Indonesia, Thailand, the Philippines, and Singapore. The migration of the Chinese from Southern China had produced a similar economical effect to these countries. For example in Thailand, the Charoen PokPhand Group (CP Group) founded by immigrant brothers Chia Ek Chor and Chia Siew Whooy in 1921. In Thailand, CP Group is the largest privately-owned company. The CP Group has 300,000 employees and three core business pillars, which are agribusiness and food, retailing, and distribution, thus, making it one of the largest if not the largest conglomerate in the world (Weidenbaum & Hughes, 1996).

Meanwhile in Indonesia, the Salim Group, which was founded by Lim Sioe Liong (aka Sudono Salim) in 1972. A penniless, Lim Sioe Liong left China in 1936 to Indonesia to join his brother and brother in law in Medan. They started peanut oil and clove trading before supplying medical supplies to the Indonesia revolution army where he met the future President of Indonesia, General Suharto. Their friendship strengthens and after the Indonesia independence, Lim Sioe Liong was awarded several big projects by the new Indonesian government and the rest was history (Siregar, & Widya, 1989). Similarly, another immigrant from Fujian China, Liem Seeng Tee, left his homeland in 1898 together with his father and sister bound for Surabaya, Indonesia. They briefly stopped at Singapore where his sister was adopted by another Chinese family. Upon reaching Surabaya, Seeng Tee’s father was ill and he was quickly adopted by another Chinese family in Bojonegoro as his father was facing imminent death. A young Seeng Tee started work at 11 years old by hawking food at the railways. After saving enough money and together with his wife’s saving, Seeng Tee bought a large quantity of blended tobacco from a bankrupt trader and that was the beginning of the Sampoerna cigarettes industry (Annual Report, PT Sampoerna HM TBK, 1994). Today, the Sampoerna brand is one of the largest cigarette brands since its merger with Philipps Morris in 2005.

One of the Singapore richest men - Mr. Wee Cho Yaw who is the Chairman of United Overseas Bank (UOB), is the third generation of the Wee family. The bank was founded by his father, Wee Kheng Chiang who was a Sarawakian in 1935. The senior Wee was born in Sarawak in 1890 to a migrant father, Wee Tee Yah (Kheung, 2012). Today, UOB is the third largest bank in Singapore in terms of total assets (USD231.6 billion) with 500 offices across 19 countries (Forbes.com, 2015).

Meanwhile in the Philippines, the Cojuangco family and Gokongwei family are two of the many influential families in the corporate Philippines. Both families have investments in banks, telecommunications, airlines, retail, and manufacturing. The Cojuangco family is also involved in the Philippines politic with Corazon Aquino (nee Cojuangco) the 11th President and Benigno (Nonoy) Aquino Jr. the 15th President. The family descended from Ko Yu Hwan or commonly known as Koo Guan Goo, who was a Fujian and he migrated to the Philippines in 1861. The family name Cojuangco is the hispanicised name of Koo Guan Goo (The Original, 2009).

Meanwhile for Gokongwei, led by John Gokongwei, who is the founder of JG Summit Holding has a net worth of USD 5 billion. John Gokongwei is the second richest person in the Philippines behind another Chinese migrant, Henry Sy, the founder of Shoe Mart and SM Mall (Gokongwei, 2018). Mr. Gokongwei was born in China, in 1926 to a Chinese -Filipino father. Although he was born into a wealthy family, the family fortune was lost when his wealthy father died. Mr. Gokongwei started his business in Cebu, Philippines at the age of 13 by conducting small-time trading. His big break came after the second world war, where he started a company called Amasia which predominately importing old clothing, magazines, and textiles from the United States before branching out to invest in other business sectors (Forbes.com, 2015).

1.2 Family Owned Business

The term 'Family Owned Business' has various definitions developed based on the issues been investigated. The definitions can be based on intergenerational transition, strategic control, financial commitment, and ownership (Colli & Rose, 2008). Meanwhile, researchers such as Barry (1975), Lansberg (1988) defined family-owned business based on the percentage of ownership and/or management by family members. Others such as Davis (1983), Beckhard & Dyer (1983), defined the concept of family business based on the percentage of involvement of the family. In addition, the generation transfer concept as a family-owned business was opined by researchers such as Ward (2016) and Churchill & Hattern (1997).

In 2015, the Global Family Business Index redefined the family-owned business by using the percentage of voting rights. A private firm will be considered as a family-owned if the family has 50% voting rights in the said firm. As for public firms, the family must have a minimum of 32% voting rights. Many more definitions of a family-owned business are depicted in Table 1.1. However, this research will define a business is family-owned if it meets any of the following criteria:

a) Founder or his descendent is the CEO or Chairman of the board (Churchill & Hattern, 1997).
b) If one of the board members is from the founder's family member (Churchill & Hattern, 1997).
c) Having 32% of voting rights (Global Family Business Index, 2015).

Table 1.1 : Alternative Definitions of Family Business

Author	Definition
Alcorn, (1982, p. 23)	"A profit-making concern that is either a proprietorship, a partnership, or a corporation. If part of the stock is publicly owned, the family must also operate the business."
Barry, (1975, p. 42)	"An enterprise, which, in practice, is controlled by the members of a single-family."
Barnes & Hershon, (1976, p. 106)	"Controlling ownership [is] rested in the hands of an individual or the members of a single-family."
Dyer, (1986, p. xiv)	"A family firm is an organization in which decisions regarding its ownership or management are influenced by a relationship to a family (or families)."
Lansberg, (1988, p. 2)	"A business in which the members of a family have legal control over ownership."
Stern, (1986, p. xxi)	"A business owned and run by members of one or two families."
Beckhard & Dyer, (1983, p. 6)	"The subsystems in the family firm system . . . include (1) the business as a (family involvement in the entity, (2) the family as an entity, (3) the founder as an entity, and (4) such (business) linking organizations as the board of directors."
Davis, (1986, p. 47)	"It is the interaction between two sets of organization, family, and business, that establishes the basic character of the family business and defines its uniqueness."
Churchill & Hatten, (1997, p. 52)	Generational transfer "What is usually meant by 'family business' . . . is either the occurrence or the anticipation that a younger family member has or will assume control of the business from an elder."

The family-owned business is unique because it touches two of the most important things in a person's life, which are work and family. Hence, extra attention needs to be given by researchers, practitioners, academicians, investors, and regulators when they are dealing with the compelling power of the organization that combining both issues. The family issue requires special treatment. For example, members of the BOD usually consist of the founding parents' offsprings will sit down for dinner together after a heated Board of Director's (BOD) meeting which will not happen commonly in a non-family business firm. Meanwhile, the CEO's function might be different if his Chief Financial Officer (CFO) or Chief Technology Officer (CTO) is his younger sibling sitting in the next room on the same floor. This uniqueness gives rise to both positive and negative attributes to the firm. For example, the communication closeness among the family members will allow major decisions and ideas to be decided in a much faster and easier manner. Even some decisions can be made during the family dinner or when the founding father has an after-dinner chat with his offsprings. Agency issues can also be minimized as all members of the family will work together for the betterment of the family firm; hence profit expropriation is minimized. When family members work well hand in hand, it will bring a level of commitment, long term investment, quick action for problem-solving and long-term love for the firm which non-family owned business yearning for but cannot achieve (PWC, 2016).

1.3 Firm Performance

As passing down the business to the subsequent generations is an important process in the survival of the family-owned business, most founders and subsequent family members in the management will grow the firm in terms of value and performance, so it can be passed down to the next generation with higher firm value. In Malaysia, studies conducted by Amran & Ahmad (2010); Mosbah, Serief & Abd Wahab, (2017), using Tobin's Q as a proxy for firm performance and Ibrahim & Samad (2010), using Return on Equity (ROE) showed that family-owned business indeed had a better firm performance comparing to non-family owned. However, Ibrahim & Samad found the opposite, family-owned business firm performance was lower compared to non-family owned business if they used Tobin's Q as a proxy. The different results were consistent with the research conducted by Mohd Sehat & Abdul Rahman (2005) that family-owned businesses invested a majority share in their assets in a specific firm and cash out subsequently to invest in lower risk and lower returns firm where the return is less profitable.

Other similar studies in different parts of the world have also provided inconsistent and mixed results. For example, Martinez, et al., (2007) in Chile, Delmas & Gergoud, (2014) in the United States, Lauterbach & Vaninsky, (1999) in Israel, Miller, et al., (2008) in Europe and Surdej & Wach (2012), in Poland. With such inconsistency from the past studies (usually using ROA, ROE, and Tobin's Q), this research proposed to deploy an alternative method to measure firm performance, which is to measure its technical efficiency (TE).

The common methods to measure efficiency are regression analysis and stochastic frontier analysis (SFA). However, the two techniques are proven to be insufficient and poor because of the various multiple inputs and outputs that are related to different resources, environmental factors, and activities (Bhagavath, 2006). Hence, a more proven and accurate method, that is the Data Envelopment Analysis (DEA) will be utilized in this research.

Firm efficiency has been an interesting subject ever since Farrell (1957) published his classical paper on production efficiency where he quoted the following:

''The problem of measuring the productive efficiency of an industry is important to both the economic theorist and the economic policymaker. If the theoretical arguments as to the relative efficiency of different economic systems are to be subjected to empirical testing, it is essential to be able to make some actual measurements of efficiency. Equally, if economic planning is to concern itself with particular industries, it is important to know how far a given industry can be expected to increase its output by simply increasing its efficiency, without absorbing further resources.''

It was proven difficult to solve the above problem because of the failure to put together the measurements of multiple inputs into a satisfactory output efficiency measurement. An example is to form average productivity for a single input (ignore all other inputs) and to build an index of efficiency where a weighted average of inputs is compared with the outputs. With regard to these inadequacies of separate indices of capital, labour efficiency, etc., Farrell (1957) proposed a new approach based on activity analysis that could be more precise or adequate dealing with the issue. The solution was meant to be applicable to any productive entity; in short, ‘‘from a small workshop to a whole economy.” However, his solution approach was meant for a single output situation.

The solution for the shortfall of Farrell’s approach which was to address the need for relative efficiencies of multi-input multi-output production units was resolved by Charnes, et al. in 1978. They introduced a new methodology named Data Envelopment Analysis (DEA) whereby, in a nutshell, the decision-making units (DMUs) that showed the best practice could be identified, and thus, forming an efficient frontier. In addition, this method will also allow the measuring of the efficiency level of non-frontier units, and to identify the benchmarks level used against it where such inefficient units can be compared.

In DEA, the decision-making unit (DMU) is a set of peer entities that are used for performance evaluation by converting multiple inputs into multiple outputs. The most efficient producers will determine the function. It is different from the Ordinary Least Squares (OLS) technique which is based on comparisons relative to an average producer. If a firm can produce a certain level of output from a specific level of inputs, similar firms of equal scale should be able to perform the same. Therefore it is just like Stochastic Frontier Analysis (SFA), DEA will be able to identify an ‘efficient frontier’. Furthermore, ‘composite producers’ can be formed by the most ‘efficient producers', thus allowing the computation of an efficient solution for every level of input or output. However, ‘virtual producers’ are identified if cannot find an actual corresponding firm to make the comparisons (Berg, 2010).

In DEA, firms’ efficiency is computed relatively with other firms to observe the best practice. However, for this research, firms’ technical efficiency will be investigated. Technical efficiency (TE) is the most common efficiency among the different concepts of efficiency which include allocative efficiency and cost-efficiency. In a nutshell, TE can be defined as the conversion of inputs (example capital and labour) into outputs (example products) relative to firms’ best practice.Hence, given the current technology and knowledge, there will be no input wastage to produce the desired quantity of outputs. Hence, a firm can operate with 100% technically efficiency if it operates at the best practice level. Any operation efficiency below the best practice level is deemed as inefficient and is expressed as a percentage of best practice (Bhagavath, 2006). More recently, DEA is used for a variety of applications such as evaluating the different types of entities of their performance such as in hospitals, business firms, universities, courts, and even cities (Cooper, Seiford & Zhu, 2011).

1.4 Problem Statement

Most of the family-owned businesses are small and medium-sized entities and will not be able to survive in the long run. Worldwide statistics show an estimation, only 30% survived to the second generation, and only 12% last till the third generation (Familybusinesscenter.com, 2019). However, in the United States, one third (35% to be exact) of the fortune 500 listed firms are family-owned businesses (Familybusiensscenter.com, 2019). Some of the firms are the largest in the United States' corporate history, for example, DuPont, Ford Motor, Levi Strauss, and Colgate-Palmolive. Some of the largest technology companies are also family-owned. For example, Alphabet, Facebook, Oracle, and Tesla (CSRI, 2017). Meanwhile, across the Atlantic, the Europeans too have many such large family-owned businesses. For example, Fiat in Italy, Heineken in the Netherlands, Michelin in France, Swire Group in the United Kingdom, Marshall Group in the United Kingdom, and the Wallenberg Group in Sweden. One common trait is that all those traditional brick and mortar firms are into managerial management and have more than one hundred years of history

Like the Americans and Europeans, ASEAN countries' corporations are also dominated by family-owned businesses. Although some of them have grown into large conglomerates, their histories are not as long as their Americans or European counterparts. Most of these firms are founded after the second world war, hence having a shorter history and likely most of them are still managed by the second generation. Some of them might just only begin to transform into a managerial management organization to fulfil each local stock-exchange requirement and regulatory.

Although, many studies in the past were conducted by Americans (for example, Gersick, et al. 1997, Delmas & Gergoud, 2014) and Europeans (for example, Colli & Rose, 1999; Surdej & Wach, 2012; Corbetta & Salvato, 2004), limited studies were conducted in Malaysia and ASEAN region (Amran & Ahmad, 2010; Mosbah, Serief, & Abd Wahab, 2017). With many family-owned businesses that are still managed by family members instead of professional managers like those in the United States or Europe, it will be interesting to compare and analyze the findings later. Some of the examples of large corporations run by the family have already been discussed in earlier paragraphs. These firms have not only survived through multi-generations but also exhibited sustainable business trends as they had survived through multiple economies or financial crisis such as the mid-1970s oil crisis, 1980s economy recession, the 1997/98 Asian financial crisis and the more recent, the United States' subprime crisis. Hence, the family-owned business will have among others is superior firm performance.

The mixed findings from the previous studies using ROA, ROE, and Tobin's Q as proxies were probably due to the proxies used are meant for accounting or financial measurements, particularly for stock valuations which were in-direct measurements for firm efficiency or productivity (Lee, 2004). Proxies for accounting and financial measurements can usually be influenced by other factors such as economic cycles or government policies, protection, and patronage which usually happened in developing countries (Hassan, Kabir Hassan, Mohamad, & Chaw Min, C., 2012). A higher stock valuation due to high ROA, ROE, or Tobin's Q did not explain the root cause of why certain firms performed much better than others even during an economic downturn or recession. Hence, it provides doubtful conclusions of whether ROA, ROE, and Tobin's Q are the correct proxies for firm performance. Till today, there is no consistency in measuring firm performance by using ROA, ROE, and Tobin's Q (Mosbah, Serief, & Abd Wahab, 2017). Hence, prompting this research to find an alternative proxy that may give a better representation and consistency of measurement of firm performance. The lack of empirical evidence to measure firm performance based on efficiency or productivity by using technical efficiency has provided the opportunity to conduct such research. Technical efficiency is the fundamental attribute for a firm to survive, expand, grow, and sustain, regardless of the economic conditions faced by the firm. To do so, firms (regardless of family-owned or non-family owned) will depend on the top management to execute strategic business and operation plans with guidance from the Board of Directors (BOD).

Firm efficiency (technical efficiency) in this context is the ratio between the production of outputs against inputs. In a nutshell is how efficient a firm can convert its given inputs such as financial capital, raw material, labour, and office space into outputs such as sales revenue, profits, or finished goods. As the rule of thumb, the inputs must be minimized and the outputs need to be maximized. For example, for a given fixed financial capital, a firm that can generate more sales revenue is deemed to be more efficient than a firm that generates less. Alternatively, a firm is deemed more efficient if it can produce the same amount of end products by using the least raw material comparing to another firm. Hence, a more efficient firm is more likely to grow and expand its business during an economy uptrend and survive during a recession or economic downtrend.

To measure the productivity of a firm, technical efficiency can be used as a proxy which can be extended to as a proxy for firm performance. To measure technical efficiency, Data Envelopment Analysis (DEA) will be performed for the data collected. DEA is based on linear programming. Although DEA was proposed way back in 1957, the present form of DEA was only introduced in 1978 and quickly recognized by many researchers as an excellent tool for modeling the operational process for performance evaluation (Cooper, Seiford & Zhu, 2011).

According to Cooper, Seiford & Tone (2000), DEA has been utilized and proven to be able to determine new insights and findings into activities (and/or entities) that have been previously evaluated by other methods. For example, they have found and identified numerous inefficiency sources in some of the world's most profitable firms that served as benchmarks to firm profitability.

Although the family-owned business has its settings that may be different from non-family owned, one key element that remains the same is the presence of the Board of Directors (BOD). BOD's main role is to advise, monitor, set policies, and directions for firm management. Past studies conducted by Pearce & Zahra (1991), Corbetta, & Salvato (2004), Williamson, (2008) and Rouyer, (2016) showed BOD's characteristics such as busyness, age, experience, education, composition, and gender had indeed influenced firms' performance. However, family-owned business has a different and unique setting in their BOD (Amran & Ahmad, 2009; Ghee, Ibrahim & Abdul-Halim, 2015). For example, a family-owned business may have a slightly different board composition due to a higher number of family members who are elected to the board. The founding parents will be likely to promote their offsprings to the board because of the reasons for succession planning, altruism, nepotism, protecting the family wealth, and legacies (Gersick et al., 1997; Ghee, Ibrahim & Abdul-Halim, 2015). Given such a unique setting, it is rather important to investigate if the family-owned business' BODs have the same effect or results as compared to non-family business. The current research attempts to investigate the relationship between family-owned businesses and their impact on firm performance against non-family peers. The relationship is hypothesized to be directly influenced by 4 factors, which are BOD's education level, BOD's experience, BOD's composition, and BOD's size.

Furthermore, family-owned business is coupled with the high sense of family relationships that might have a different corporate governance and management mechanism comparing to non-family owned businesses. Hence, this could be another factor explaining why there are differences in terms of firm performance. With this in mind, the regulators, practitioners, analysts, academicians, researchers, and managers need to have special attention to this unique setting (Amran & Ahmad, 2009).

1.5 Motivation

The main criteria for a firm to pass to the next generation is the firm performance. Only firms with superior performance can sustain and endure the ups and downs of the economic cycles which are usually out of the control of business entities' owners. Business sustainability and continuity have become the main focus of the founders. The business entities probably are the only assets that can generate income or wealth to sustain the economic needs of the current and subsequent generations. Studies conducted by Amran & Ahmad (2010); Mosbah, Serief, & Abd Wahab, (2017) on the listed family-owned firms on Bursa showed that indeed there was better firm performance compared to those non-family owned. Meanwhile, Credit Suisse Research Institute reported a similar finding but on a greater scale. Since 2006, world-wide family-owned business out-performed the non-family owned business by 400 basis point (CSRI, 2017). Family-owned businesses through their brands, reputations, knowledge, and values had created a long-term sustainable platform for them to sustain in the ever-changing worldwide economy (Colli & Rose, 2008). These firms are known to practice good corporate governance, corporate social responsibilities and in short, subscribe to corporate sustainability practices to have long-term expansion and survival rather than a short-term gain which might not be sustainable in long run.

The above perspectives are to clarify the opacity of family-owned business, board characteristics, and their relations with the firm performance. Although past studies had addressed some of the pertinent issues, there are still issues needed to be paid more attention to. Attributes to board characteristics in family-owned business are well documented, as well as its relationship with firm performance. However, there is rarely research conducted for using technical efficiency as a proxy for firm performance as part of the research, linking all the aspects such as who is more efficient, family-owned or non-family owned business and its board characteristics (education level, experience, the board size, and board composition) as determinants in the relationship of firm performance in a family-owned business against non-family peers. This research is intended to close the literature deficiency.

The Chinese believe wealth will not pass down beyond three generations (Amran & Ahmad, 2010). The first generations started the business, typically from a small-scale enterprise, and over the years, organically grow the business before the business is passed to the next generation after the retirement or passing on by the founder. The second generation will continue to grow or at least maintaining the business. Most of the time, new ideas or development will be incorporated in the business with the changes in time and economy climate where the businesses were operating. The second generations mostly will share the same philosophy of their founding fathers. This is because of loyalty, commitment, and being brought up strictly adhering to their families' values (Colli & Rose, 2008).

The third generations, which are usually brought up in a far better off living standard and environment usually do not have the same philosophy as their parents or grandparents. Typically, the third generation has received overseas tertiary education and brought up in a rather easy and pampered environment. They have not experienced the hardship of life and everything is given on a silver platter. Hence, their goals and objectives in life are vastly different from the previous two generations. They will make life easy and tend to enjoy life to the fullest. Hence, the Chinese believe that this is the generation that will squander the family business and assets away to sustain their lavish lifestyle.

This belief might be a sheer coincidence, many Asian family firms tend to experience this phenomenon (Ngui, 2002). Wong (1985) argued that a typical Chinese family-owned business seldom last more than three generations because of the third generations would take their propensity for granted and lack of motivation to sustain the firm. Usually, this phenomenon happened in family firms that are still very much managed by the family members. Key positions including Chief Executive Officer and the C level positions are given to family members. There are cases, the manager level is also populated by extended family members such as the cousins, nephews, and nieces. Hence, with such phenomena and unique settings, it is important to investigate the long-term firm performance among the family-owned ones.

The main difference between the successful firms (those listed on the stock exchange currently) and unsuccessful firms (those already ceased operation or gone bankrupt) is the successful ones have evolved into managerial corporations. Incorporating professional managers to manage family firms are slowly gaining traction. One of the earliest family firm that practiced it is the Lee Rubber – OCBC Banking Group. The group was founded by the late Tan Sri Dato Dr. Lee Kong Chian between 1927 and 1932. Professional managers began to manage the Group since the 1940s and 1950s. Today, the group is entirely managed by professional managers and the Lee family has 2 seats at the board level (Azman & Ahmad, 2010). The same goes for the Public Bank where the bank was founded by Tan Sri Teh Hong Piow in 1966 and today it is still managed by Tan Sri Teh with his capable team of professional managers. All the children of Tan Sri Teh have no direct involvement in the daily operation of the bank. It is also a similar case for our local telecommunication, media, and gaming tycoon, Tan Sri Ananda Krishnan who owns the mobile phone operator Maxis, satellite TV, Astro, and the gaming company Da Ma Cai. Today, Tan Sri Ananda Krishnan is not running the day to day operation of his companies. He has entrusted the daily operation to his capable management team. His only son has no interest to inherit his father's business as he has devoted his time to be a Buddhist monk. His two daughters also have not much involvement in his business empire (Forbes.com, 2015). These are the example of successful firms that are governed by effective boards which have specific characteristics to ensure its effectiveness which ought to be investigated further to determine the influence of the chosen characteristics.

The board of directors characteristics such as education level, experience, the board size, and board composition as determinants in the relation of the family-owned businesses and firm performance is documented in studies conducted by Amran & Ahmad (2009), Corbetta & Salvato (2004) and Bettinelli (2011). However, these studies are usually from the corporate governance perspective which is usually based on the separation of owner and management which was proposed by Berle and Means in their book ‘The Modern Corporation and Private Property’ which was published in 1937. Based on the current literature, there are limited studies or statistics on family-owned business firm performance based on the direct impact of board characteristics in Malaysia (Mosbah, Serief, & Abd Wahab, 2017). What more so if the study conducted based on firm productivity by using technical efficiency as a proxy to firm performance. In addition to that, to the best knowledge, there is no study conducted to determine which BOD characteristic is most impactful or influential and which is the least with the relation to firm performance. Furthermore, this study is conducted for five ASEAN countries, therefore the studies will fill in the literature deficiency in these areas.

From the above problem statements and motivations, the research derives the research questions, research objectives, and hypotheses as depicted in the next paragraph below.

1.6 Research Questions, Objectives and Hypotheses

In this current research, the first research question is ‘Does family-owned business outperforms the non-family owned business?’ To address the question, the main objective of this research is to investigate the relationship between family-owned business and their firm performance as compared with non-family owned. Firm efficiency (technical efficiency) is used as the proxy for firm performance instead of the traditional proxies used by past researchers such as ROA, ROE, Tobin's Q, and sales growth which gave mixed and inconsistent results. Based on family-owned business has unique and different settings such longer CEO's tenure, protecting family assets, legacies, reputations and fewer agency issues (Martinez, et al., 2007, Shukeri, et al., 2012, Amran & Ahmad, 2009 and Ghee, Ibrahim & Abdul-Halim, 2015), this research hypothesized:

H1: Family owned business will have a better firm performance than non-family owned business.

The second question is 'Do board characteristics influence the relationship between the family-owned business and firm performance?' Hence, the second objective is to investigate the influence of the board of directors' characteristics on the firm performance of the family-owned business against non-family peers. Past studies conducted by Pearce & Zahra (1991), Corbetta, & Salvato (2004), Williamson, (2008) and Rouyer, (2016) showed BOD's characteristics such as busyness, age, experience, education, composition, and gender had indeed influenced firms' performance. However, a family-owned business may have a slightly different board composition due to a higher number of family members who are elected to the board. The founding parents will be likely to promote their offsprings to the board because of the reasons for succession planning, altruism, nepotism, protecting the family wealth, and legacies. Given such a unique setting, it is essential to investigate if the family-owned business' BODs have the same effect or results as compared to non-family businesses. Thus, the hypotheses are:

H2a: The BOD's education level has a positive influence on the relationship between family-owned business and firm performance.

H2b: The higher percentage ratio level of independent directors has a positive influence on the relationship between family-owned business and firm performance.

H2c: The BOD's experience level has a positive influence on the relationship between family-owned business and firm performance.

H2d: The BOD's size has a positive influence on the relationship between family-owned business and firm performance.

The third research question is 'Does board experience has the highest level of influence for firm performance and meanwhile, size has the lowest?' The research final objective is to determine if the board experience has the highest impact or influence on firm performance and education level has the lowest impact or influence.

The hypotheses are developed based on the current understanding that no study to the best knowledge was conducted to determine the most and least impactful or influential board characteristic with the relation to firm performance. However, BOD's experience seems to be more likely to be the main determinant based on past findings by Wiliamson, (2008); Jermias, & Gani, (2014) and Sitthipongpanich, & Polsiri, (2015). Meanwhile, scholars such as O'connell, & Cramer, (2010); Yahya, & Shukeri, (2014); Johl, Kaur, & Cooper, (2015) documented BOD size has no relation or inversely related to firm performance. Thus, the hypotheses are:

H3a: Board experience has the highest influence on firm performance in the family-owned business

H3b: Board size has the lowest influence on firm performance in the family-owned business

The above hypotheses formulations and derivations will be explained in great details in chapter 3, Conceptual Framework and Hypotheses Development

1.7 Significant and Contribution of the Research

Although research for firm performance in family-owned businesses was conducted by many scholars such as Amran & Ahmad, (2009, 2010); Ibrahim & Samad, (2010); Martinez, et al., (2007); Corbetta & Salvato, (2004), Bettinelli, (2011), Ghee, Ibrahim & Abdul-Halim, (2015) and Mosbah, Serief, & Abd Wahab, (2017) but unfortunately most of the studies were using the traditional proxies such as ROA, ROE, Tobin's Q and sales growth, which had proven to give mixed and inconsistent results. This research's approach here, by using technical efficiency as a proxy is intended to provide a much more consistent result for firm performance, regardless of family-owned business or non-family owned in five ASEAN countries. Currently, there is a minimal firms' technical efficiency literature based on a multi-country context as most of the firms 'technical efficiency studies have been conducted in the context of a single country (Charoenrat et al., 2013 and Demirbag et al., 2016). Hence, the findings of this research will provide future researchers a better understanding of the underlining factors that attribute to firm high performance rather than based upon circumstantial economic cycles, political policies, cronyism and patronage economies

Secondly, the board of directors' characteristics such as education level, experience, the board size, and board composition will contribute to the literature deficiency in each of its areas. Due to the uniqueness of the family-owned business, such knowledge is important for the future family-owned business' shareholders to appoint the most capable candidates to their board. Whether an internal or external appointment to the board, a capable and experienced director with good business acumen and network will certainly be beneficial to all firms, whether family-owned or non-family owned. This is even more profound if the director has financial, accounting, or operation background. (Williamson, 2008). Thus, the effectiveness of the board to govern and monitor senior management is based on board characteristics.

The findings of this research based on data collected from five ASEAN countries will contribute to the literature deficiency for academics and practitioners not only for the ASEAN region but also for global participants who are interested to conduct future studies or utilize the findings to enhance their knowledge capital. It contributes to the debated firm efficiency in both FOB and non-FOB which is influenced by the four BOD's characteristics by providing evidence who is more efficient and which BOD's characteristics have the most and least influence in the five ASEAN countries.

1.8 Structure and Organization of the Research

Chapter 1 will discuss the background of the research, historical background of Malaysia and ASEAN family-owned business, its significance in the region corporate scenes, and Board of Directors' characteristics in relation to firm performance. It also discusses the problem statement, motivation for the research, significance, and contributions of the research to the academy world, practitioners, analysts, and investors. Chapter 2 will discuss the comprehensive literature review of past researches that will cover the topics of the family-owned business, the board of directors' characteristics, and its relationship with firms' performance. It also discusses the relevant theories used in this research. Chapter 3 will cover the conceptual framework of the research where hypotheses formulations and derivations are discussed in detail. Meanwhile, chapter 4 will discuss the econometric model specifications to address the research objectives and hypotheses derived, methodology, data source, and collection. An explanation of each variable will also be discussed. Chapter 5 will discuss in length of data analysis and its findings. Lastly, chapter 6 is for discussions, conclusions, limitations, and recommendations for future research.

1.9 Chapter Summary

Chapter 1 begins with a short introduction and background of family-owned businesses especially in the context of the ASEAN region. It gives a summary of the successful family-owned business in each of the five ASEAN countries that this research is investigating, Malaysia, Singapore, Thailand, Indonesia, and the Philippines. In this chapter, the various definitions of the family-owned business are also discussed. Meanwhile, the 4 board's characteristics variables; BOD's education level, BOD's experience, BOD's composition, and BOD's size are also discussed in brief. The chapter also discusses this research objectives and problem statement which the findings will be able to fill the current literature gap. DEA is introduced as an alternative method to study firm performance by using firms' technical efficiency as a proxy. Lastly, the chapter concludes with a short discussion of the significance of the research contribution and the organization of the entire thesis

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LIST OF PUBLICATIONS

Wong, W. W., Yahya, M. H., Bany-Ariffin, N. A., & Ong, T. S., (pending). Firms' technical efficiency, a comparison study for family and non-family owned businesses in Southeast Asia countries.

Wong, W. W., Bany-Ariffin, N. A., Yahya, M. H., & Ong, T. S., (pending). The impact of board of directors' characteristics to firms' technical efficiency: A comparison study for Malaysia and Singapore family owned and non-family owned business

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