Measuring Efficiency Of Family And Non-Family Firm Amidst Covid-19 Times: Do They Perform Differently?

Hadi Wibowo[1], Adler Haymans Manurung [2], Roy Sembel [3], Erika Pritasari Wybawa [4]
[1)]School of Business, IPB University, Indonesia
Email: [1)] nghadiwibowo@apps.ipb.ac.id,

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ABSTRACT

The outbreak of COVID-19 pandemic in early 2020 has inflicted serious financial distresses for most firms in multi-sectoral industries. Each of them was enforced to deal with the economic downturns by working more efficiently. In this case, family and non-family firms might perform differently to protect themselves from bankruptcy. This research aims to measure firm efficiency by employing a total of 52 entities listed on Indonesia Stock Exchange (IDX), 26 entities for each type of firms from 2019 to 2022, reflecting the times before, during, and after the pandemic. At the first stage, date envelopment analysis (DEA) with constant return-to-scale (CRS) input-oriented approach is employed to generate deterministic efficiency scores of each sample which the bias is then corrected using Simar and Wilson's bootstrap technique. At the second stage, hypothesis testing is conducted to examine whether the difference in efficiency score between both types of firms is significant. The result shows that family and non-family firms do not perform differently during a 4-year of research period (p-value=0.136). Nevertheless, family firms exhibit a significant drop in 2020 (p-value=0.0061), where this condition reversed with a significant increase in 2021 (p-value=0.0002). Non-family firms perform more stably throughout the research years. Finally this research may contribute to the development of organization-related science, business, and strategic management. The way most family firms operate might reflect the socio-cultural attributes of a nation. There is no other similar study found since COVID-19 pandemic is still considered as a relatively new global health crisis.

INTRODUCTION

A global health crises called coronavirus disease-19 (COVID-19) has caused massive economic shocks evenly at all level of entity, starting from small to giant business across the world. The confirmed positive case of COVID-19 was officially announced on March 3, 2020. Since then, the government has restricted major human activities, affecting most industrial operations.

Each industry has different survival rate that depends on the duration of the crisis (Bartik et al., 2022). In order to portray the severity of COVID-19 pandemic for the Indonesian economy, Dekker (2020) observed agriculture and mining as two essential sectors that generate massive yearly income for the nation. It is reported that the pandemic is responsible to the sharp decline of Indonesian palm oil export due to the consumption drop in the food and hospitality industry particularly in Asian market. The study also denoted that at least 30% national tin production decreased by reason of the sudden cessation of demand for mining raw materials from China. The global regulation to implement social and physical distancing has tightly delimited human encounters to prevent the widespread of viruses vastly. This mandatory practice affects services-related much more than goods-related industries. By employing the secondary data from Indonesia Stock Exchange, Wybawa (2023) examined the efficiency score of tourism and recreation sector COVID-19 times dropped by 20.42% in 2020. It just slightly increased of 2.39% in 2021. This study also reveals a positive correlation between the efficiency score and stock price, which indicates a drop in efficiency score in line with a drop in stock price of related listed company.

Dealing with inevitable global economic downturns at that moment, all business entities shall work with resources at minimum cost, adapting to their lower revenue. Great number of workers are furloughed and laid off that mostly come from middle-low income group where labor force usually takes the largest portion of company's operating costs apart from cost of the raw material (Antipova, 2020, 2021; Petterson et al., 2020). Besides the unemployment issue, most companies also implement cutting marketing expenditure, particularly to purchase traditional advertisement. Instead, investing in low budget online and social media marketing is more preferable during and post pandemic times (Nikbin et al., 2021). Amidst company's hardship to finance internal operating cost, the obligation to pay off maturing debts as well as its inherent financial cost has also become a problematic issue to resolve. Damayanti et al. (2022) lots companies demand for a debt restructuring during and post COVID-19 times which turn the banks as lender into a serious risk in facing great numbers of non-performing loan. At this stage, many companies have experienced severe financial distress.

One of the most determining factors in shaping business performance during the crises is the center actor, further classified into family and non-family firm (Gomez-Mejıa et al., 2007). According to Basco (2013), family firm is generally defined as a type of enterprise with the intense involvement of family member in running the business. Harms (2014) and Chua et al. (1999) delineate three dimension of family firm term, namely 1) Ownership as a significant portion of firm's capital is held by one or more families; 2) Management as family members hold a strategic position to establish organizational identity and develop its goals; and 3) Vision as transferring company success for the future generations. While encountering crises, van Essen et al. (2015) reported that family firms usually are more resilient, reflecting lower possibility to downsize or execute employment layoff in both crises and pre-crises periods. Family firm appreciates employee-related investment more than non-family firm (Kappes & Schmid, 2013). It is highlighted that many family firms were able to survive throughout the 2008 global financial crisis, sacrificing their mere profits to save the workers (Arrondo-García et al., 2016). In this sense, Amato et al. (2023) found that family firm has lower propensity to downsize business scale during the crises, making family firm is likely to be less efficient than non-family firm. Family firm is considered to have stronger non-financial motives, such as reputation, moral obligation, and long-term orientation (Bjuggren, 2015; Block, 2010).

During COVID-19 times, terms of efficient can be described as a firm operates at the lowest possible cost in situations where revenue and profit can no longer be optimized (Wybawa, 2023). Current advancement in statistical method has allowed researchers to use several outputs and inputs to obtain one elaborate efficiency score. Conversely, the conventional way only adopts single output (e.g. revenue) and single input (e.g. total operating cost) to institute a comparison of some firm's efficiency scores (Coelli et al., 2005). The usage of efficiency in this study refers to

input-oriented technical efficiency, which represents a proportional reduction of inputs at a certain level of outputs. The smaller the input value used to produce the same output, the more efficient is the operational performance (Jelic et al., 2018). In particular, this research employs a mathematical programming technique called data envelopment analysis (DEA) to measure efficiency sore as a ratio between multiple output and input variables (Charnes et al., 1978). DEA is widely applied in various types of industrial sectors (goods or service-related), involving a sample group known as decision making units (DMUs) (Coelli et al., 2005).

In this study, efficiency score of family and non-family firm is measured using DEA method from 2019 to 2022, reflecting a period of COVID-19 times. There are some considerations to adopt DEA over other methods of performance measurement: 1) DEA is able to include many inputs and outputs in determining efficiency score of DMUs without requiring assumption to define the shape of production frontier line; 2) DEA, as a non-parametric method, does not require a normal distribution and correlation with regard to the samples examined. As a relative measurement method, DEA evaluates the efficiency of a company compared to other companies that have the best performance in the similar industry. A frontier line is thus configured from the efficient DMUs, enveloping other inefficient DMUs below the line (Fried et al., 2008; Peykani et al., 2020). Nevertheless, due to the later consideration, DEA does still possess some bias score if uncorrected. This bias score might be less likely to represent the actual population. Therefore, a complementary method called bootstrap procedures by Simar and Wilson (2007) is added to correct the bias in the efficiency score that is previously obtained from conventional DEA measurement. In the following step, hypothesis testing is employed using t-test to examine a statistical significance between the means in two non-normally distributed sample groups.

With regard to the unaccountable impact on business performances by reason of COVID-19 pandemic, this study aims to measure the efficiency of multi-sectoral family and non-family firms in Indonesia from 2019 to 2022 on 55 (fifty-five) IDX-listed entities employing an input-oriented DEA CRS (constant return-to-scale) method (Charnes et al., 1978) with bootstrap procedures to correct the bias score (Simar & Wilson, 2007). Several financial variables collected from entities' published financial statements are selected to generate the calculation of bias-corrected efficiency score. There is no similar study found in connection with COVID-19 as a current health pandemic across the globe, considering a novelty to this research. It is expected that this research may contribute to the development of organization-related science, business, and strategic management, as well as be useful in sharing information with foreign investors since major type of firm (family or non-family) might reflect the social and cultural attributes of a nation. Concerning COVID-19 pandemic as a relatively new global health crisis, no other similar studies have been found. Hence, this research can be considered as a novelty.

LITERATURE REVIEW

Socioemotional wealth as distinctive element of family firms

Socioemotional wealth as one of essential factors possessed by family firms has a profound contribution in producing strategic decisions of family business, distinguishing them from another type of organizations called non-family firms (Gomez-Meija et al., 2011). Besides the firm economic goal, the owners of family firms also search for preservation of socioemotional wealth as non-economic reward from their business (Glover & Reay, 2015). Dieguez-Soto et al. (2021) and Berrone et al. (2012) stated that socioemotional wealth is considered as a unique differentiator that might explain non-identical characteristics of most family firms, exhibiting non-similar behavior and interests. It allows incorporation between firm and family that unfold fundamentals in strategic decision-making (Araya-Castillo et al., 2021). Gomez-Meija et al. (2011) mentioned socioemotional wealth as a distinctive feature of family firm that is critical to their business management. A model of behavioral agency (Chrisman & Patel, 2012) explained that family firms tend to integrates three aspects, namely family, personal,

and organizational goals, which potentially conflict with one another (Franco & Prata, 2019; Llanos-Contreras & Alonso-Dos-Santos, 2018).

In family firms, family members share emotional attachment, greatly identifying with family firms that are often considered as the extension of the family. Those feelings and emotions might enhance opportunities search amidst risky environments. The way the successors involve in the business to appreciate the rewards obtained by their predecessors determine the succession in family firms (Kallmuenzer et al., 2018; Wang et al., 2018). Therefore, socioemotional wealth has become a relevant topic to explain behaviors of family firms to preserve their business continuity (Araya-Castillo et al., 2021; Hernandez-Perlines et al., 2021). Continuity, control, community, and connections are renowned as four dimensions of socioemotional wealth proposed by Miller and Le Breton-Miller (2005). Meanwhile, five dimensions of socioemotional wealth are identified by Berrone et al. (2012), namely binding social ties, emotional attachment of family members, family control and influence, identification of family members with the firm, and renewal of family bonds to the firm through dynastic succession. These perspectives believe that socioemotional wealth is the most essential non-economic advantages of a family firm. However, the concept of socioemotional wealth is oppositely considered sometimes unfavorable for the family business (Miller & Le Breton-Miller, 2014). Schepers et al. (2014) found that socioemotional wealth limits the relationship in business performances of family firms.

Family firms in dealing with financial failures

Judged from a business perspective, failures can be defined in various ways, such as deviations from desired goals, operation discontinuance, shutdown or termination to avoid further losses, and formal bankruptcy (Kucher et al. 2020). According to Lukason and Hoffman (2014), amidst the financial downturns, firms usually operates through a process of negative developments before a declaration a bankruptcy at the moment a firm is unable to cover its fixed costs at all, depending in its size and peculiarity. In dealing with crises, some characteristics of family firms might negatively affect thus forcing them into a serious business downturn (Chirico et al., 2018). Conflicts over family members might exacerbate when a certain process shall be decided and taken promptly during the crisis times (Kellermanns et al., 2012).

While dealing with any crisis, including recent COVID-19 pandemic, lots of entities are facing a resembling risk of bankruptcy. With regard to family firms, family members usually sit in top management positions, govern and control the business, and are thus associated with nepotism (Stewart & Hitt, 2012; Miller et al., 2015). Advancing the blood-related privileges, long-tenured family members are often less qualified and competent to lead the firm. They become intolerant to new challenges and ideas from non-family members (Bloom & van Reenen, 2007; Miller & Le Breton-Miller, 2005). Berrone et al. (2012) stated that emotional attachment among family members might potentially affect decision-makings and often regarded as equally essential as economic consideration which can damage the business development. Senftlechner and Hiebl (2015) added that family firms, usually the smaller ones, allocate less attention on accounting planning and management to assist in detecting early adverse developments. Those inner characteristic of family firms might likely drag them into bankruptcy when the economic slowdowns and competitive pressure occur in the market (Mitter et al., 2022). Immature decision-makings of incapable family members often dispose the firm into over-leveraged business (Schweizer & Nienhaus, 2017) or over-indebted customers (Garcia Lara et al., 2009) that cause financial distress of the operating cash flow. According to the arguments above, this research hypothesizes that: H1: Family firms perform less efficiently than non-family firms during COVID-19 times.

METHODS

Both non-parametric and parametric approaches are adopted in this research to measure efficiency score and compare its statistical significance between family and non-family firms amidst COVID-19 times. A non-parametric data envelopment analysis (DEA) is selected to profile production frontiers from the perfectly efficient DMUs as a boundary line to be referred and targeted by rest of inefficient DMUs in the same sample group to improve. All DMUs with an efficient score equal to one ($\theta=1$) precisely fall on the frontier line, assuming that they operate at a full technical efficiency, generating maximum output from a fixed level of inputs or utilizing minimum inputs for a fixed level of outputs. Meanwhile, efficiency score of inefficient DMUs ranges between 0 and 1 ($0<\theta<1$) (Coelli et al., 2015). A DMU with an efficiency score closer to one performs more efficiently compared to other less efficient DMUs. Referring to the production frontier line, inefficient DMUS might potentially reduce the use of inputs or elevate gain of the outputs to perform more efficiently.

Without an intention to observe firm's scale in relation to relative efficiency, DEA method with a constant return-to-scale (CRS) is preferably employed in this study (Charnes et al., 1978). Banker et al. (1984) introduced scale efficiency to measure the involvement of organization size in determining efficiency score with a variable return-to-scale (VRS) approach in order to expand or downsize the existing business. With an assumption that any business is not likely to develop during COVID-19 times, input-oriented model is selected to address a minimum use of input to produce at a fixed level of output. The mathematical formulation of input-oriented DEA CRS model to estimate each DMU's efficiency score is given below.

$$Min\theta + \varepsilon\left[\sum_{i=1}^{m} s_i^- + \sum_{r=1}^{s} s_r^+\right]$$

$$s.t. \sum_{j=1}^{n} x_{ij}\lambda_j = \theta x_{io} - s_i^-, i = 1,2, ...,m;$$

$$\sum_{j=1}^{n} y_{rj}\lambda_j = y_{ro} + s_r^+, r = 1,2, ...,s;$$

$$\sum_{j=1}^{n} \lambda_j = 1 , j = 1, ...,n$$

$$\lambda_j, s_i^-, s_r^+ \geq 0$$

Where, n denotes the number of samples or DMUs that produce s different outputs by utilizing m different inputs. The observed amount of output r is symbolized by yr, while xi symbolizes the observed amount of input i. The λj are weights applied across n samples and θ express the score efficiency. The constraints given above have to be fulfilled n times, once for each sample, to acquire a full set of efficiency scores.

In the next step, bootstrap technique, according to Simar and Wilson's Algorithm II, is employed to correct the carried-over bias score caused by sampling noises from the conventional DEA method. Nevertheless, left-truncated regression estimating model is not applied in this study since this particular process is not required to fulfill the research aim. In order to calculate bias correction on conventional efficiency score, the samples are iterated 2000 times, using a maximum likelihood approach to mimic distribution of the unrecognized original population.

A full secondary data collection is adopted in this study to compile all DMU's value of each variable required to perform efficiency analysis. Both input and output data of DEA are obtained from Indonesia Stock Exchange (IDX) official website (https://idx.co.id). The annual financial statement of all active entities is openly accessed and downloaded. Another publicly published report named IDX Statistics is also referred to collect some data, such as market cap and stock

price, to assist in screening the sample as well as to ensure that each sample trades actively and never once suspended by the authorities. Referring to some previous studies (Hou & Li, 2018; Neves & Laurenco, 2009; Siew et al., 2018; Soetanto & Fun, 2014; Wybawa 2023, Zhang & Zhang, 2018), Cost of Sales and Revenue, Selling Expenses; General Administrative Expenses; Finance Costs; Fixed Assets; and Total Receivables are selected as input variables. On the other side, Sales and Revenue; Total Profit (Loss); and Total Receivables are selected as output variables. Considering IDX data sources are authentic and correct, reconfirmation is not necessarily required.

Several requirements in screening process to select the samples are applied: 1) DMU operates in manufacturing goods from multi-sectoral industries, services sectors (e.g. banking and tourism) are excluded; 2) DMU's stocks are actively traded on the stock exchange during research period; 3) DMU's market cap is not less than IDR 150 Billion; 4) DMU can be either a private or state-owned enterprise. A total of 32 (thirty-two) family firms and 23 (twenty three) non-family firms are selected to undergo a 4-year research period, 2019 to 2022, reflecting the times before, during, and after COVID-19 pandemic. The DMUs represent some industrial sectors, e.g. energy, basic material, construction, consumer goods, healthcare, technology, and infrastructures. Most non-family firms listed on IDX are Indonesian State-Owned Enterprises.

With regard to the research purpose to determine whether the efficiency of family firms is significantly different to the non-family firms, hypothesis testing is conducted using t-test procedures for non-normally distributed samples. Mann-Whitney's independent sample t-test is preferred to examine the statistical significance of two means from of two unrelated groups (Sainani, 2012) in a particular research year. Meanwhile, Wilcoxon's paired sample t-test is employed to examine the statistical significance between two adjacent years, i.e. 2019-2020, 2020-2021, and 2021-2022. This method is preferred to compares the mean of two related groups, examined at two different points in time (Sainani, 2012).

RESULTS

According to the research period, this study covers times before and after COVID-19 discovered. Efficiency score in 2019 depicts firm's pre-crisis performance, while 2020 and 2021 are regarded as years of crisis. Post-crisis performance is represented by firm's efficiency score in 2022. Changes in average bias-corrected efficiency score of family and non-family firms from 2019 to 2022 is illustrated in Figure 1.

Figure 1. Average Bias-Corrected Efficiency Score of Family and Non-Family Firms, 2018-2022
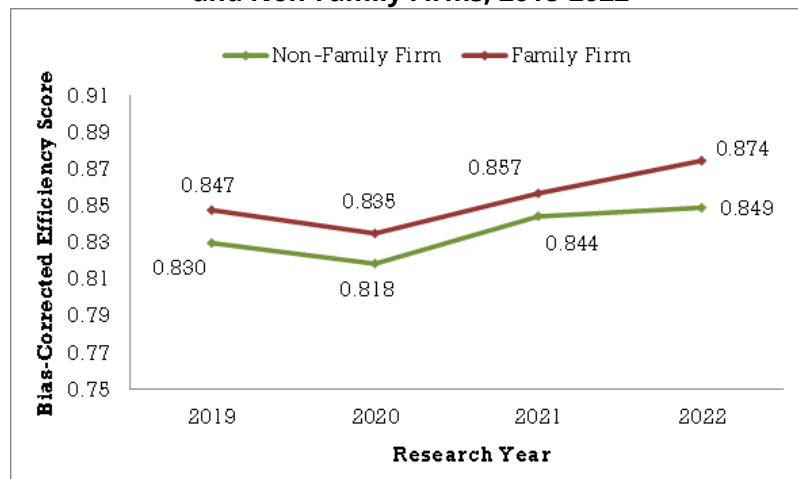
More comprehensively, Table 1 displays both types of efficiency score with an additional test to examine statistical significance between those two sample groups in a particular year, subjected only to the bias-corrected ones. The Mann-Whitney U Test, also known as the Wilcoxon Rank Sum Test, is adopted due to the presence of non-normally distributed data from two independent sample groups arranged in this study. According to the preliminary Saphiro-Wilk test for normality (Hanusz et al., 2016), the obtained p-value = 0.0000, or p-value less than 0.05, denotes that the dataset is not normally distributed. The result on Table 1 shows that there is no such a single research year that indicates significantly different efficiency score between family and non-family firm, accepting null hypothesis (H0) which states that means are statistically same between those two groups of firm. Hence, H1 in this study is rejected.

Table 1. Average Efficiency Score of Family and Non-Family Firms, 2019-2022

Observation Year	Conventional Efficiency Score		Bias-Corrected Efficiency Score		Mann Whitney U Test of BC Efficiency Score* (α=0.05)	
	Family Firm	Non-Family Firm	Family Firm	Non-Family Firm	Two-tailed p-Value	Sig
2019	0.873	0.860	0.847	0.830	0.5309	Not-sig
2020	0.859	0.847	0.835	0.818	0.4618	Not-sig
2021	0.884	0.875	0.857	0.844	0.5797	Not-sig
2022	0.907	0.887	0.874	0.849	0.4957	Not-sig
Average	0.881	0.867	0.853	0.835	0.1360	Not-sig

* In accordance with the p-value = 0.0000 (< 0.05) obtained from Spahiro-Wilk test for normality.

Another non-parametric t-test is conducted to examine statistical significance of efficiency score between two adjacent years of a specific sample group. Paired t-test between the score in 2019 and 2020, in particular, represents how significant a COVID-19 pandemic affected the firm's efficiency. Therefore, Wilcoxon signed rank exact test is employed to achieve this section's purposes. The comprehensive results are thoroughly displayed in Table 2.

Table 2. Statistical significance of firm efficiency score between two adjacent years

Observation Year	Family Firm		Non-Family Firm	
	p-Value	Significance	p-Value	Significance
2019/2020	0.0061	Sig	0.2270	Not-sig
2020/2021	0.0002	Sig	0.0220	Not-sig
2021/2022	0.9403	Not-sig	0.8613	Not-sig

Referring to Figure 1, COVID-19 pandemic is statistically responsible for a decrease in the efficiency of family firm in 2020 compared to 2019 (p-value = 0.0061 < 0.05). In 2021 compared to 2020, the graph displays an increase in family firm's efficiency which is statistically significant too (p-value = 0.0002 < 0.05). Nevertheless, efficiency of family firm shows stagnancy in 2022 which the score is not significantly different compared to 2021. Not similar to family firm, non-family firm does not exhibit any changes in efficiency during the research years. In other words, non-family firm's efficiency is not triggered by the presence of COVID-19 pandemic. In 2020, non-family firm's efficiency shows a slight drop as well, but the difference is not statistically significant compared to the previous year.

DISCUSSION

In general, COVID-19 has offered different impacts on a broad range of industries. By reason of strict restrictions of human movement to halt the viruses to widespread in the early days of the crisis, lots of industries limited even fully stopped its daily operations. During the pandemic, most people were enforced to experience working using new and advanced technologies as well as digital information to be connected to the world from home. Indeed, the COVID-19 shock has affected the global economy, but its degree, duration, and setback variously different among industrial sectors. Asian Development Bank (2021) reported that the unemployment rate positively related to the sectors with high informality rates, such as accommodation and food service; wholesale and retail trade; construction; and transport and storage. ICT (information and communication technology) and health sectors are found to be the most benefited business, both services and equipment, during COVID-19 times. Major manufacturing sector was also severely affected in a short time until Q3/2020 when the government decided to resume domestic economy, mainly through export activities.

Another research conducted by Google, Temasek, Bain & Co, (2021) stated any business with face-to-face services underwent a sharp decrease in demand. Every nation is hardly pushed to enter a contactless or touchless era, bringing up economies based on market activities through internet. Google et al. (2021) reported that e-commerce, food delivery, and online entertainment media generated the highest highest-income of internet economy sectors during the pandemic. Health services (telemedicine) and education are also regarded as two emerging sectors in internet economy, where their businesses are able to be fully conducted through a virtual system these days.

In order to bear the economic downturn caused by COVID-19 crisis, every business entity shall create a quick adjustment to as much as possible maintain their operating profits amid the condition of continuously decreasing sales. Oikawa et al. (2021) measured firm's business performance during COVID-19 pandemic in relation to the control of holding company. It is stated that the flexible management changes by the owners or founders have a significant positive correlation with firm's performance. The way an owner-managed firm creates a quick adjustment in production plans has proven preserving their business from bankruptcy, maintaining the operation profits from unpredictable descent.

According to ownership status, an entity is classified either as family or non-family firm. Family firm is usually identified with some distinct characteristics, such as a transgenerational livability, strong integrity, emotional attachment, and control desire towards the firm (Mitter et al., 2022). Amann and Jaussaud (2022) stated that a firm that is influenced by a competent entrepreneurial family performs better then unprofessional family firm or non-family firm, particularly in facing a sudden crisis or force majeure. Several studies have revealed that family firm holds a better resilience during and after financial crises or economic downturns (Casillas et al., 2019; Cucculelli & Peruzzi, 2020; Zhou et al., 2017). During the crisis, a full control of family members over the firm enables prompt the making and implementation of important decisions. Berrone et al. (2012) added that family firms often develop a more extensive social relationship with other firms, resulting generous bonds between business partners. This mutualistic situation enables family firms to deal with and pass through the crises better than non-family firms (Mzid et al., 2019). Oppositely, Mitter et al. (2022) explained that amidst a crisis, social ties with customers and other stakeholders, as well as strong identification with the firm might become a

burden during crisis times of the family firms. Kucher et al. (2020) added that family firms tend to be more inflexible to adapt with a new environment. In other words, turnarounds in business are considered by family members as high risk attempts with uncertain outcomes. They prefer to preserve the outdated business model thus becoming reluctant to a change.

Referring to the statistical results in Table 1, there is no significant difference in yearly-basis average efficiency score between family and non-family firms, including in 2020 as the year of COVID-19 crisis. Only family firms show a significant drop in 2020 compared to 2019. Non-family firms perform more stably during COVID-19 times. However, as the economy resumed in Q3/2020, family firms show a significant increase in 2020. Employing cross-sectional DEA method, both firms exhibit slightly higher efficiency scores in post-crisis times, i.e. 2021 and 2022, although the differences might not be significant compared to the year before crisis, i.e. 2019. This comparative outcome of this study has demonstrated inconsistencies with the arguments generating from other studies presented in the previous paragraph.

It proves that both family and non-family firms perform efficiently amidst COVID-19 times. Although an entity is classified as family firm, it allows external interferences with a certain competence and capability to manage and develop the business. This external roles might also help family owners to subside the sense of responsibility for the firm and business model when the financial situation worsens (Salvato et al., 2010). This study has attested that the family firms responded quickly to the crisis by altering long-term dependencies from their routines and corporate orientation, releasing the status quo to reconcile with unfavorable conditions (Cucculelli & Peruzzi, 2020). In other words, this is a sub-type of family firm that dares to implement necessary changes in time of crisis despite jeopardizing its continual harmony (Salvato et al., 2010). With the presence of external professionals who are not family members, a firm is able to rule out any dependencies and risks resulted from social bonds, such as personal or close stakeholders' relationship, and too strong identification with the firm. Amidst a crisis, external professionals should encourage family owners to execute the necessary and required drastic changes in protecting firms from bankruptcy (Mitter, 2022).

A good governance practices and responsive risk management system shall be applied in order to maintain long term existence of a firm. More often, non-family firms have better awareness on these two systems (Mitter, 2022), This study has revealed that non-family firms perform more stably then family firms during COVID-19 times. A significant difference is not found between two adjacent years throughout the research period, even in 2019/2020 at the moment COVID-19 emerged. Non-family firms are considered to have more professionalized and formalized crisis procedures that make them more resistant from acute downfalls.

COVID-19 pandemic has forced firms from any industrial sectors, not limited to family or non-family firms, to perform more efficiently. Due to the greatly reduced amount of income, firms are required to effectuate drastic retrenchment measures, saving costs as much as possible to let the firm continue to operate. Both family and non-family firms show higher efficiencies in post-crisis times. Initiated from a condition of crisis, cultures to work more effectively, supported by the advancement in technology, digitalization, employee development, and improvement in PPIC (production planning, inventory, and control), are continuously maint

CONCLUSION

Our study has reveals that family firms do not operate differently from non-family firms, in terms of efficiency, during COVID-19 times. Indeed, this global pandemic has reduced the efficiency score of both firms but with an unalike significance. Only family firms show a significant drop in 2020 compared to 2019. Non-family firms perform more stably, showing consistencies in the year of pandemic. Nevertheless, a significant increase is also indicated by family firms in 2021, demonstrating a quick recovery as the economy resumed. With regard to this positive dynamics, it is assumed that family owners have subsided socioemotional attachments to the firm, allowing external interferences, such as competent professionals and consultants to mitigate the risks and direct a drastic maneuver to survive amidst the crisis.

In summary, both family and non-family firms, in relation with this study, have been successful to establish governance practices and implement a risk management system during COVID-19 pandemic. These two systems might support in securing the continued existence of both firms in post-crises times, going through a period of financial recuperation.

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