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Differentiation Strategy and Cost Leadership Strategy: Their Contribution to Achieving Sustainable Financial Performance

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Abstract This research aims to study the influence of differentiation and cost-leadership strategy on sustainable financial performance with innovation as the moderator variable. This research uses the last 5 years financial report of go-public companies in South-East Asia, with a total of 250 firm years. In the early stage of the research, the companies are grouped into their respective strategy. From that grouping, each strategy is then measured. The researcher uses 5 measurements to test the strategies, 2 for differentiation strategy and 3 for cost-leadership strategy. The finding of this research is that differentiation positively influences sustainable financial performance, with innovation as the moderator variable. However, these findings are not proved in cost leadership strategy. Innovation shows partially influences to the achievement of sustainable financial performance. This research contributes to adding the innovation factor that strengthens the relationship between the successes of a strategy with the sustainable financial performance so that the result can be more consistent.

Keywords Strategy · Differentiation · Cost-leadership · Financial performance · Sustainable financial performance · Innovation

1 Introduction

Both differentiation and cost-leadership strategies have their respective roles in a company's success for sustainability. The success of the strategy chosen by the company is also influenced by innovation. The innovation factor is important in choosing between the two strategies, especially for companies that implement the differentiation strategy. In a differentiation strategy, innovation is a crucial factor for higher performance (Hull and Rothenberg 2008; Miller 1983; Porter 1990). This is due to the fast-paced globalization that causes increasingly fierce competition, which encourages companies to innovate their products, services, and corporate

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image with new and different processes that are difficult for competitors to imitate (Zehir et al. 2015). The advantage of the differentiation strategy, which makes products and services difficult to imitate by competitors, is that it increases the chance for the company to be sustainable (Grant 1991). Although innovation is very important in differentiation strategy, this does not mean that cost-leadership strategy does not also require innovation. To benefit from a cost-leadership strategy, companies need to emphasize minimizing costs and undertaking a process of innovation (Frohwein and Hansjurgens 2005). The innovation process is concerned with all of the company's operational activities by improving the quality of offerings and efficient delivery methods than competitors to achieve a competitive advantage (O'Sullivan and Dooley 2009). In addition, the innovation process also allows companies to achieve economies of scale, reduce costs and gain market share (Qin 2007). Thus, innovation is needed in a cost-leadership strategy to achieve cost reduction, larger market share, and better efficiency than competitors (Hilman and Kaliappen 2014).

The company implements strategies to achieve long-term goals, where these strategies influence long-term financial performance. However, the results of previous studies regarding the choice of strategy and financial performance show mixed results. Banker et al. (2014) found that differentiation strategies have an impact on long-term financial performance as measured by future ROA, each using the next 5 years as a function of the company's current performance. This measure refers to the success or persistence of ROA, that is, the extent to which current ROA can be maintained in future periods. Meanwhile, other research results show a relationship between differentiation strategies and financial performance as measured by ROI, ROE, and other financial measures, such as budget variance analysis, working capital ratio, divisional profit, cash flow return on investment, and shareholder value. added (Asdemir et al. 2013; Spencer et al. 2009; Teeratansirikool et al. 2013; Yamin et al. 1999; Yeung et al. 2006). Several other researchers did not find a relationship between differentiation strategies and sustainable financial performance (Altuntas et al. 2014; Oyewobi et al. 2016; Wong et al. 2016). Inconsistency in research results also occurs in research on cost-leadership strategies. Several researchers have proven that cost-leadership strategies are related to short-term financial performance (Hilman and Kaliappen 2014; Kaliappen and Hilman 2013; Nandakumar et al. 2010), however, Li and Li 2008; Banker et al. 2014) did not find a relationship between cost leadership strategies and sustainable financial performance.

The results of previous studies are still not solid, one reason is that these studies have not considered the innovation factor. The changing business environment, changing customer needs and expectations, increasing competition, and rapid technological developments make companies need to innovate to stay ahead of competitors (Bhatt et al. 2010; Chen et al. 2009; Uzkurt et al. 2013; Zaefarian et al. 2017). Research on the effect of innovation on company performance shows positive results (Agarwal et al. 2003; Han et al. 1998). This shows that innovation is an important factor for company growth and sustainability (Han et al. 1998; Kiron et al. 2013). This study adds innovation as a moderating variable for the relationship between differentiation strategies and cost leadership and sustainable financial performance.

Innovation is one of the main sources of achieving competitive advantage (Díaz-Díaz and Saá-Pérez 2014), and is a transformative force that improves the sustainability and economic performance of companies (Cavaleri and Shabana 2018). Innovation is needed by companies in facing the increasing pressure of globalization, changing customer expectations, increasing competition, and rapid technological developments in a changing business environment. Innovation is an important driver of competitiveness and company success in a changing business environment (Chen et al. 2009; Uzkurt et al. 2013; Zaefarian et al. 2017).

2 Literature Review

2.1 Strategy and Innovation

The differentiation strategy is a strategy that involves the addition of a significant aspect from a product and service that are superior, hard to imitate, unique, and of higher quality than the competitors, thus, the resulting additional value can be felt by the customers and creates a competitive advantage (Banker et al. 2014; Green et al. 1993; Porter 1980, 1997; Prajogo 2007). Moreover, the advantage of the differentiation strategy is that customers will be able to customize the product, which depends on the company's rapport with its customers (Banker et al. 2014). An exclusive relationship between a company and its customers becomes a competitive advantage that is hard for competitors to imitate, which enables the company to have a sustainable competitive advantage (Banker et al. 2014; Barney 1986; Ghemawat 1995). Innovations have a central role in the companies that use the differentiation strategy to compete with their competitors (Herzallah et al. 2017). Innovations have to be done continuously to leave no chance for the competitors to imitate the products (Amoako-Gyampah and Acquaah 2008; Asdemir et al. 2013; Banker et al. 2014; Zehir et al. 2015). When a company innovates, its competitors will need time to match the products and services provided by the company because the competitors need to do the research and development phase first. At the time the competitors do their research, the company has already made another innovation (Asdemir et al. 2013). A company's innovation will be reflected in the appearance and technology of high quality and innovative product with a high design or brand image (Banker et al. 2014; Crema et al. 2014; Frambach et al. 2003; Hutchinson et al. 2007; Porter 1980). Because of this, the companies set a high price (Banker et al. 2014; Crema et al. 2014; Frambach et al. 2003; Hutchinson et al. 2007; Porter 1980). The customers of the differentiation strategy are not sensitive to price as long as they receive the value of the product or service. This is the advantage of the differentiation strategy (Black et al. 2000; Green et al. 1993; Prajogo 2007; Porter 1997). On the other hand, the differentiation strategy needs high initial capital, operational costs, and investments to develop the products and services (Banker et al. 2014).

To identify whether a company uses the differentiator strategy or not, previous studies use the survey method (Amoako-Gyampah and Acquaah 2008; Nandakumar et al. 2010; Parnel and Brady 2019; Parnell et al. 2012). This methodology may cause bias because the respondents are influenced by consistency, social desire, and the lack of knowledge, thus this research does not use it (Podsakoff and Organ 1986; Miller and Roth 1994). Other researchers, such as Selling and Stickney (1989), Banker et al. (2011, 2013), Wu et al. (2015), measures the profit margin, which is the sum of adding operating income with R&D expenditure, divided by sales.

In cost-leadership strategy, operational efficiency becomes the foundation of the achievement of this strategy (Banker et al. 2014; De Castro and Chrisman 1995; Porter 1997). This efficiency is conducted by controlling the production costs, increasing capacity, and minimizing other costs (Banker et al. 2014; Prajogo 2007). Thus, this strategy can strive for an average return above its competitors because it uses lower prices (Prajogo 2007). The low cost can be used as a company's main advantage to compete with its competitors (Banker et al. 2014; Teeratansirikool et al. 2013) and will have a positive influence on the company's financial performance (Herzallah et al. 2017).

Companies that apply the cost-leadership strategy also need to innovate to be superior in the competition (Frohwein and Hansjurgens 2005; Seaden and Manseau 2001). Innovation in the cost-leadership strategy can be cone through the application and development of new technology and procedure because it can significantly improve the company's structure and cost efficiency (Francesco, 2014; Seaden and Manseau 2001). Innovation can also safe companies from unhealthy competition from the cost-relationship strategy: the application of a very low price that is irrational and disturbing the company's financial performance (Gunday et al. 2011; Hilman and Kaliappen 2014; Hilmi et al. 2010; Nandakumar et al. 2011; Parnell 2011).

To measure the cost-leadership strategy, Selling and Stickney (1989), Banker et al., (2011, 2013), Wu et al. (2015) use ATO (Asset Turnover) as a measurement tool. However, this research uses three types of ratio used by Asdemir et al., (2013), Hulsam et al., (2011), Banker et al., (2014). These three ratios can detect a company's efficiency in its capital utilization (David et al. 2002) because the customers of cost-leadership strategy buy a company's products that are cheaper than its competitors and the company's profits are gained through minimizing costs and assets per unit output (Hambrick 1983b). The first ratio is SALES/CAPEX (Formula 3)—the net sales that are measured with the company's capital expenditure used to buy properties, plants, or equipment. The high value of this ratio shows that the company applies the cost-leadership strategy (Banker et al. 2014). The second ratio is SALES/P&E (Formula 4), which is a ratio between net sales and the net book value of plant and equipment. A higher value shows more efficient use of the company's assets, which shows that the company uses the cost-leadership strategy (Berman et al. 1999; Hambrick 1983a, b; Kotha and Nair 1995; Miller and Dess 1993). The last ratio used by the researcher in this cost-leadership strategy is EMPL/ASSETS (Formula 5), which is the ratio between the number of employees and total assets (Hambrick 1983a, b; Kotha and Nair 1995; Nair and Filer 2002). A higher value of this ratio shows the company uses the cost-leadership strategy (Banker et al. 2014).

2.2 Sustainable Financial Perfromance

Financial performance is the company's financial condition during certain periods that includes modal adequacy, liquidity, solvability, efficiency, leverage, and profitability. Financial performance shows a company's capability in managing and controlling its resources (Fatihudin et al. 2018). To support a company's sustainability, good financial performance in not only the short-term but also the long term is expected. Companies can achieve a sustainable financial performance if they use resources that can encourage the creation of value in the companies' operational in the present and future (Banker et al. 2014). If the companies create future values by using present resources, they can also create a sustainable competitive advantage. With this, companies can have a financial performance that can survive in the long-term (Mohammadi et al. 2019).

In measuring sustainable financial performance, Banker et al., (2014) use future ROA, and Juniarti (2020) uses earning persistence. From the previous studies' measurements, this research will use Earnings Persistence (EP) as a measurement tool to show sustainable earning (Francis et al. 2004; Penman and Zhang 2002). Earning Persistence is a time-series parameter to measure the size of the influence of earnings obtained repeatedly without a loss that the company expects in the future (Aguguom et al. 2019; Pimentel and Aguiar 2016). A high earning persistence shows a strong and sustainable earning, while low earning persistence shows weak, temporary, or unsustainable earning (Ashley and Yang 2004; Francis et al. 2004; Juniarti 2020). This Earning Persistence follows Francis et al., (2004) measurement that uses the autoregressive model of order one (AR1) by observing the earnings in the past 5 years:

$$X_{j,t} = f_{0,j} + f_{1,j} X_{j,t-1} + v_{j,t}$$

Notes:

$X_{j,t}$ A company's net earnings before the extraordinary items in year t is divided by the weighted average of shares outstanding in year t.

$\phi_{1,j}$ Earning persistence as the estimated slope coefficient. Approaching 1 implies very persistent earnings, approaching 0 implies huge temporary earnings.

$v_{j,t}$ J company's specific residue in year t.

2.3 A Subsection Sample

A differentiation strategy involves offering products and services that are different from competitors, that is, offering unique and quality products and services by investing in various activities such as advertising, promotion, customer service, product distribution, and other related activities (Banker et al. 2014; De Castro and Chrisman 1995; Jermias 2008; Liu and Atuahene-Gima 2018; Prajogo 2007).

This makes the company more effective than its competitors, creates higher value for customers, and achieves higher performance and profits (Awwad et al. 2013; Hosseini and Sheikhi 2012; Leonidou et al. 2015; Mathenge 2013; Murray et al. 2011; Tan and Sousa 2015; Yao and Qin 2016). Grant (1991) argues that with this uniqueness, the benefits obtained from a differentiation strategy are more sustainable because the products and services offered by the company are not easily imitated by competitors. Differentiation strategies usually also involve innovation in certain products and adjustments to marketing campaigns that are impossible to imitate quickly (Asdemir et al. 2013). The longer it takes a competitor to respond to a certain comparative advantage, the greater the opportunity for the company to take advantage of a sustainable advantage (Banker et al. 2014). Companies that can withstand the efforts of competitors in imitating their products and services can maintain their competitive advantage, thus enabling the company to have superior performance in the long term (Ghemawat 1995).

On the other hand, the cost-leadership strategy emphasizes operational efficiency through the development of new processes and technologies, economies of scale, and experience (Banker et al. 2014). Kim et al. 2004 argued that companies that implement a cost-leadership strategy are easily trapped into continuously reducing prices because technology tends to be based on a cost structure with low variable costs and high fixed costs. This gives rise to a competitive advantage that is only temporary and makes it impossible to achieve long-term financial performance (Eisenhardt and Martin 2000; Kim et al. 2004), because operational efficiency can be imitated by competitors or cannot be operated due to the emergence of new sources and better (D'Aveni 1994; Hamel 2000). Murray (2011) also argues that imitation by competitors cannot be avoided if the company uses a cost-leadership strategy. Another argument suggests that companies that focus solely on cost-leadership strategies are no longer suitable to meet the different needs and demands of customers in the era of globalization (Baines and Langfield-Smith 2003; Kotha and Vadlamani 1995; Perera et al. 1997).

From the results discussed above, the following hypothesis is formulated in this study.

H1a: The differentiation strategy influences sustainable financial performance.

H1b: The cost-leadership strategy influences sustainable financial performance.

Innovation generally has a positive relationship to performance and is important for companies to maintain their survival (Brown and Eisenhardt 1995; Covin and Miles 1999; Christensen and Bower 1996; Clark and Fujimoto 1991; Han et al. 1998; Hamel and Prahalad 1994; O'Reilly and Tushman 2004; Peters 1990, 1991; Teece et al. 1997; Turulja and Bajgoric 2019; Zahra and Covin 1995). Innovation needs to be done so that companies can explore opportunities and markets as a source of excellence, especially in today's business environment where the business is very complex and changing (Chen et al. 2009; Duane Ireland and Webb 2007; Madhavan and Grover 1998; Miller and Friesen 1983; Montes et al. 2004; Turulja and Bajgoric 2019; Urbancova 2013; Uzkurt et al. 2013; Zaefarian et al. 2017). Therefore, new products and services, new processes, and new ways of organizing work in the company are very important for future success, given that novelty is

one of the attractions of the company (Duane Ireland and Webb 2007; Racela and Thoumrungroje 2019). Companies that are still able to survive and innovate in the future can create advantages in terms of competition, are efficient in their operational activities, and can run their business even though they are in an environment with limited resources (Porter 1990; Simpson et al. 2006; Ren et al. 2010). From this innovation activity, companies have the opportunity to get profits, sales revenue, return on investment, and high market share (Saliba de Oliveira et al. 2018; Turulja and Bajgoric 2019). If innovation is carried out continuously, the company can maintain a competitive advantage and have long-term financial performance (Agarwal et al. 2003; Cavalry and Shabana 2018; Duane Ireland and Webb 2007; Han et al. 1998; Hull and Rothenberg 2008; Madhavan and Grover 1998; Miller and Friesen 1983; Montes et al. 2004; Porter 1990; Simpson et al. 2006; Racela and Thoumrungroje 2019; Ren, 2009; Turulja and Bajgoric 2019).

From the results discussed above, the following hypothesis is formulated in this study.

H2: Innovation has a positive influence on sustainable financial performance.

The ability of a company to innovate is also one of the factors that characterize its sustainability and growth potential (O'Reilly et al. 1991). Therefore, innovation is an important thing to implement in strategy, both differentiation and cost-leadership (Cavaleri and Shabana 2018). Companies with a differentiation strategy tend to develop many R and D activities to increase their innovative strength and increase the company's ability to compete with innovations made by competitors (Miller 1987). This company needs innovation based on features that are difficult for competitors to imita (Amoako-Gyampah and Acquaah 2008). Innovation by companies is important for differentiation strategies and also for achieving higher performance (Hull and Rothenberg 2008; Miller 1983; Porter 1990). In addition to a differentiation strategy, a cost-leadership strategy also requires innovation to be competitive even though this strategy focuses on efficiency and low costs. Companies must emphasize cost minimization and engage with process innovation to gain the advantage of this strategy (Frohwein and Hansjurgens 2008). The aim of implementing innovation in a cost-leadership strategy is to achieve cost reduction, larger market share, and better efficiency than competitors that drive corporate sustainability (Hilman and Kaliappen 2014). Thus, innovation is important to be applied to each strategy, because companies that do not innovate will find it difficult to sustain even though the company has implemented the right strategy (Cavaleri and Shabana 2018; Najafi-Tavani et al. 2018; Prajogo 2016).

From the results discussed above, the following hypothesis is formulated in this study.

H3a: Innovation moderates the relationship between differentiation strategy and sustainable financial performance.

H3b: Innovation moderates the relationship between cost-leadership strategy and sustainable financial performance.

3 Research Method

3.1 Sample

This research uses secondary data from the companies' annual financial report in 2015–2019 from Bloomberg. The population of this research is 5.169 go-public companies in South East Asia from all sectors. The researcher did a reselection to the population to obtain the selected samples when the companies have complete financial report data during the research period. The sample criteria of this research are:

1. Companies listed in the Stock Exchange of each country in South East Asia in 2015–2019.
2. Have their earnings data from 2010–2019. This data is required to measure earnings persistence, which is an indicator of sustainable financial performance.
3. Companies that have R&D data from 2015–2019.

The definition of this research's operational variables can be seen in the Table 1.

3.2 Model Analysis

To evaluate the hypothesis of this research, the analysis model used is as follows:

$$\begin{aligned} EP = {} & \beta_0 + \beta_1 STRDIF_{i,t-1} + \beta_2 STRCL_{i,t-1} + \beta_3 INV_{i,t-1} + \beta_4 INV * STRDIF_{i,t-1} \\ & + \beta_5 INV * STRCL_{i,t-1} + \beta_6 SIZE_{i,t-1} + \beta_7 LEV_{i,t-1} \\ & + \beta_8 CI_{i,t-1} + \beta_9 MS_{i,t-1} + \beta_{10} AGE_{i,t-1} + \varepsilon i, t \end{aligned}$$

Notes:

$EP_{i,t-1}$	i company's earning persistence in t period.
$STRDIF_{i,t-1}$	i company's differentiation strategy in t − 1 period.
$STRCL_{i,t-1}$	i company's cost-leadership strategy in t − 1 period.
$INV_{i,t-1}$	i company's innovation in t − 1 period.
$INV*STRDIF_{i,t-1}$	Innovation moderates i company's differentiation strategy in t − 1 period.
$INV*STRCL_{i,t-1}$	Innovation moderates i company's cost-leadership strategy in t − 1 period.
$SIZE_{i,t-1}$	t − 1. i company's size in t − 1 period.
$LEV_{i,t-1}$	i company's leverage in t − 1 period.
$CI_{i,t-1}$	i company's competition intensity in t − 1 period.
$MS_{i,t-1}$	i company's market share in t − 1 period.
$AGE_{i,t-1}$	i company's age strategy in t − 1 period.
$\varepsilon_{i,t}$	i company's error in t period.

Table 1 Operational variable definition

Variable	Operational definition	Scale
Differentiation strategy	This variable is measured with two measurement tools: SG&A/SALES (Formula 1) and SALES/COGS (Formula 2). The high result of these two formulas shows that the companies are focusing on the differentiation strategy (Banker et al 2014; Kotha and Nair 1995; Nair and Filer 2002)	Ratio
Cost-leadership strategy	This variable is measured with three measurement tools: SALES/CAPEX (Formula 3), SALES/P&E (Formula 4), and EMPL/ASSETS (Formula 5). The high result of these three ratios shows that the companies are using the cost-leadership strategy (Banker et al 2014; Berman et al. 1999; Hambrick 1983a, b; Kotha and Nair 1995; Miller and Dess 1993)	Ratio
Earning persistence	Measured with earning persistence by using the autoregressive model of order one (AR1). If $X_{j,t}$ approaches 1, then the earning is very persistent. If $X_{j,t}$ approaches 0, it implies a huge temporary earning (Francis et al. 2004)	Ratio
Innovation	Measured with the R&D expenditures on total sales ratio (R&D/SALES) (Ameer and Othman 2012; Alshwer and Levitas 2014)	Ratio
Firm size	*Firm size* is measured with *i* company's log total asset in year t (Jermias 2008)	Ratio
Leverage	The use of debt is measured by dividing total debt by the total asset (Dimitrov and Jain 2008; Mercer 2004)	Ratio
Competition intensity	The competition intensity between companies is measured by using the Herfindahl Index (HHI) (Formula 6). The lower index value shows a higher competition intensity (Li et al. 2008; Naldi and Flamini 2018)	Ratio
Market share	Measured by dividing the company's total sales with the industry's total sales (Edeling and Himme 2018). A higher value shows a higher market share (Connolly et al. 1986; Li and Li 2008)	Ratio
Firm age	*Firm age* is measured with the log of a company's age from its foundation until the research year (Hariyanto and Juniarti 2014)	Ratio

Source Authors' own research

3.3 Data Analysis and Technique

The data analysis technique for the panel data regression model is conducted by choosing the best model out of the following: Pooled Least Squared (PLS), Fixed Effect Model, and Random Effect Model. To choose the best panel data model, several tests are conducted: the Chow Test, Hausman Test, and Lagrange Multiplier Test.

Based on the sample selection, the final number of this research's sample is 50 companies, where there is a total of 250 firm-years that are go-public companies in the South East Asia region (Table 2).

The sample includes all sectors and countries in South East Asia. The sample profile covers all sectors and 5 countries in South East Asia: Indonesia, Malaysia, Singapore, Philippines, and Thailand. 5 other South East Asian countries are not listed in the country-based sample profile because the data do not fulfill the sample criteria. As can be seen, the most dominant samples are in the industrial sector, 12 samples. While the least number of sample is in the electronic components and telecommunications and media sectors, with only 1 sample each. For country-based sample profile, Malaysia has the biggest number of samples with 20, and Thailand has the smallest number of the sample with 1. Thailand is not representative in this research sample (Table 2).

The average of EP does not approach 1, which means that the researched companies' earning persistence is not too persistent. STRDIF1 also has a value far below 1, which means the companies are also not reflecting the implementation of the

Table 2 Sample profile

Panel A: based on sectors

No.	**Sectors**	**Sample**	**(%)**
1.	Consumer discretionary, products and services, staples	7	1400
2.	Electronic components	1	200
3.	Health care	3	600
4.	Holding firms	2	400
5.	Industrial	12	2400
6.	Plantation	4	800
7.	Property, real estate, construction	2	400
8.	Services	6	1200
9.	Technology	10	2000
10.	Telecommunications and media	1	200
11.	Utilities	2	400
	Total	50	10,000

Panel B: based on nations

No.	**Nation**	**Sample**	**(%)**
1.	Indonesia	9	1800
2.	Malaysia	20	4000
3.	Singapura	12	2400
4.	Filipina	8	1600
5.	Thailand	1	200
	Total	50	10,000

Source Authors' own research

differentiation strategy when they are measured with formula 1. On the other hand, the average of STRDIF2 has a value above 1, companies with the differentiation strategy that uses the formula 2 have a higher sales average than the cost of goods sold and very much reflect companies with differentiation strategy if measured with formula 2. STRCL 1 has a value far below 1, which means that the companies are not reflecting the use of the cost-leadership strategy if measured with formula 3. STRCL2 has a value far above 1, which means the companies' strategy very much reflects the implementation of the cost-leadership program if measured with formula 4. INV only has a value of 0.04, which means that innovation does not really influence sustainable financial performance.

The average value of SIZE is far above 1, which is 12.68, with a value on the financial report of 35.144.023.277.527. This means that the total asset owned and borrowed by the company is huge. LEV has a value less than 1, 0.18, which means that the companies have a high debt risk. The CI value is only 0.02, far below 1, which means that the companies are not capable enough of facing tight competition. This can hinder the companies in achieving sustainability. MS has a value far below 1, this means that the companies have a small market share and thus do not have a high rate of return. AGE has an average value far above 1, this means that the companies are quite old and have more experience.

The majority of the processed data has a data variation with normal distributions such as EP, STRDIF1, STRDIF2, INV, SIZE, LEV, CI, MS, AGE as can be seen from the low standard deviation, it means that the data do not really represent the distribution inside of a group (Table 3).

Table 3 Descriptive statistic

		Minimum	Maximum	Mean	Std. deviation
EP	250	−2.795	2.614	0.307	0.659
STRDIF1	206	0.000	1.865	0.251	0.290
STRDIF2	200	1.027	3.146	1.532	0.426
STRCL1	250	−420.9	349.562	−19.72	55.94
STRCL2	250	0.120	1202.645	9.989	76.268
INV	250	0.000	0.936	0.049	0.141
SIZE	250	10.861	14.782	12.683	0.947
LEV	208	0.000	0.895	0.180	0.155
CI	250	0.000	0.121	0.020	0.033
MS	245	0.000	0.304	0.036	0.057
AGE	250	0.845	2.267	1.53	0.291
Valid N (listwise)	160				

Source Authors' own research

4 Results and Discussion

To determine the best panel data model, the researcher uses the Chow Test. The Chow Test is used to choose the best model between Pooled Least Square (PLS) and Fixed Effect. If p-value $< \alpha$, which is 0.05, then the Fixed Effect model is chosen. Otherwise, if p-value > 0.05, the chosen model is PLS. Below are the results of the PLS Test using the GRETL application.

This research is conducted by testing each strategy using the described formulas. Table 4 shows the measurement result from SG&A/SALES with 50 companies tested. Based on the Chow Test result above, it is found that p-value > 0.05, thus, the best model for the differentiation strategy with formulas 1 and 2 (SG&A/SALES) and (COGS/SALES) is PLS. The hypothesis test result shows that STRDIF1 has a significant and negative regression coefficient: −3.97610 with a p-value of 0.0042. Table 5 shows the measurement result of formula 2. The measurement result shows that STRDIF2 has a significant and positive regression coefficient: 0.797698 with a p-value of 0.0293. Thus, these two tables prove that H1a is accepted if measured with formula 2. This means that the differentiation strategy influences long term financial performances and can improve the company's future performance (Tables 6 and 7).

The INV variable on STRDIF1 has a significant and negative regression coefficient of −26.4037 with a p-value of 0.0510, which means that innovation negatively influences sustainable financial performance when it is tested with formula 1. Meanwhile, the result on STRDIF2 shows a non-significant and negative regression coefficient of −1280.16 with a p-value of 0.1140, which shows that innovation does not influence sustainable financial performance if measured with formula 2. These results show that innovation itself without connected with the strategy seem meaningless. However, when we moderate the INV with the STRDIF1 and STRDIF2, it proves that innovation strengthen the benefit of differentiation strategy and resulting a higher sustainable financial performance. The evidence that innovation moderate the relationship of differentiation strategy and sustainable financial performance is

Table 4 STRDIF1 PLS test result

	Coefficient	Std. error	t-ratio	p-value	
Const	−5.41438	4.56222	−1.187	0.2425	
STRDIF1	−3.97610	1.30722	−3.042	0.0042	***
INV	−26.4037	13.1109	−2.014	0.0510	*
STRDIF1*INV	136.411	62.1401	2.195	0.0342	**
SIZE	0.598571	0.444177	1.348	0.1856	
LEV	−1.34600	1.40871	−0.9555	0.3452	
CI	−5.97169	2.85929	−2.089	0.0433	**
MS	1.58130	1.66855	0.9477	0.3491	
AGE	−0.238747	0.704850	−0.3387	0.7366	

Source Authors' own research

Table 5 STRDIF1 chow test result

	Coefficient	Std. error	t-ratio	*p*-value	
Const	−12.5081	7.89412	−1.584	0.1236	
STRDIF1	−0.172589	3.65090	−0.04727	0.9626	
INV	326.604	267.083	1.223	0.2309	
STRDIF1*INV	−1280.16	786.347	−1.628	0.1140	
SIZE	0.919340	0.717797	1.281	0.2101	
LEV	0.629352	2.46043	0.2558	0.7999	
CI	25.1878	38.3372	0.6570	0.5162	
MS	−9.73704	15.1695	−0.6419	0.5258	
AGE	0.993111	1.22603	0.8100	0.4243	

*Joint significance of differing group means: F(9, 30) = 1.46912 with *p-value* 0.2045
Source Authors' own research

Table 6 STRDIF2 PLS test result

	Coefficient	Std. error	t-ratio	*p*-value	
const	−3.58285	3.95691	−0.9055	0.3722	
STRDIF2	0.797698	0.310111	2.572	0.0151	**
INV	−7.59195	29.6858	−0.2557	0.7998	
STRDIF2*INV	4.60044	13.1062	0.3510	0.7280	
SIZE	0.0859230	0.389690	0.2205	0.8269	
LEV	3.08429	1.23056	2.506	0.0177	**
CI	2.37017	2.87081	0.8256	0.4153	
MS	2.53418	1.65797	1.528	0.1365	
AGE	0.363957	0.720138	0.5054	0.6169	

Source Authors' own research

Table 7 STRDIF2 chow test result

	Coefficient	Std. error	t-ratio	*p*-value	
const	19.2697	13.3960	1.438	0.1646	
STRDIF2	2.69770	1.15729	2.331	0.0293	**
INV	263.976	406.723	0.6490	0.5230	
STRDIF2*INV	−73.8851	232.312	−0.3180	0.7535	
SIZE	−1.91412	1.19628	−1.600	0.1238	
LEV	4.40121	1.61446	2.726	0.0123	**
CI	−85.1690	59.2065	−1.439	0.1644	
MS	41.2871	25.3232	1.630	0.1173	
AGE	−1.24347	1.77103	−0.7021	0.4900	

*Joint significance of differing group means: F(9, 22) = 1.25677 with *p-value* 0.3133
Source Authors' own research

as shown by the regression coefficient of STRDIF1*INV is significant and positive, with a value of 136.411 and a *p*-value of 0.0342, while the regression coefficient of STRDIF2*INV is positive but non-significant, with a value of 4.60044 and *p*-value of 0.7280. Thus, H3a is accepted. This shows that differentiation strategy needs innovations because it can strengthen the achievement of sustainable financial performance (Hull and Rothenberg 2008; Miller 1983; Porter 1990). This finding is also supported by some previous studies that uncovered that differentiation strategy need to develop many R&D activities to increase their innovative strength and increase the company's ability to compete with innovations made by competitors (Miller 1987). The company needs to innovate based on features that are difficult for competitors to imitate (Amoako-Gyampah and Acquaah 2008). Therefore, when combining with the innovation, differentiation strategy will useful in achieving the higher sustainable financial performance (Tables 4, 5, 6, 7, 8, 9, 10 and 11).

Table 8 STRCL1 PLS test result

	Coefficient	Std. Error	t-ratio	*p*-value	
Const	−1.23132	1.15607	−1.065	0.2890	
STRCL1	−0.000308102	0.00206222	−0.1494	0.8815	
INV	0.611420	0.635918	0.9615	0.3382	
STRCL1*INV	−0.0293655	0.0479078	−0.6130	0.5411	
SIZE	0.0827240	0.0939622	0.8804	0.3804	
LEV	−1.28816	0.530789	−2.427	0.0167	**
CI	3.89686	2.30913	1.688	0.0941	*
MS	0.659576	1.36591	0.4829	0.6301	
AGE	0.356184	0.204495	1.742	0.0841	*

Source Authors' own research

Table 9 STRCL1 chow test result

	Coefficient	Std. error	t-ratio	*p*-value	
const	−3.25731	2.61064	−1.28	0.2148	
STRCL1	0.00271993	0.00356167	0.7637	0.4467	
INV	−36.8278	28.4818	−1.293	0.1987	
STRCL1*INV	−0.687822	1.05588	−0.6514	0.5161	
SIZE	0.230486	0.210682	1.094	0.2763	
LEV	−2.85009	0.828360	−3.441	0.0008	***
CI	8.88490	4.07908	2.178	0.0315	**
MS	0.167979	2.24448	0.07484	0.9405	
AGE	0.624490	0.274262	2.277	0.0247	**

*Joint significance of differing group means: F(9, 111) = 1.85454 with *p*-value 0.0663
Source Authors' own research

Table 10 STRCL2 PLS test result

	Coefficient	Std. error	t-ratio	*p*-value	
const	−5.65756	2.76051	−2.049	0.0538	*
STRCL2	0.00458241	0.00848773	0.5399	0.5952	
INV	2.03612	1.03788	1.962	0.0639	*
STRCL2*INV	0.00280943	0.0230811	0.1217	0.9043	
SIZE	0.136524	0.191026	0.7147	0.4831	
LEV	−0.400180	0.658087	−0.6081	0.5500	
CI	7.57690	9.45979	0.8010	0.4326	
MS	3.71669	3.78343	0.9824	0.3377	
AGE	2.79133	0.770914	3.621	0.0017	***

Source Authors' own research

Table 11 STRCL2 test result

	Coefficient	Std. error	t-ratio	*p*-value	
const	4.17939	6.06654	0.6889	0.5051	
STRCL2	0.0134524	0.0089084	1.498	0.1623	
INV	1.33685	0.93763	1.426	0.1816	
STRCL2*INV	−0.00731214	0.0206885	−0.3534	0.7304	
SIZE	−0.137676	0.498398	−0.2762	0.7875	
LEV	−0.764551	0.579221	−1.320	0.2137	
CI	17.9434	24.6456	0.7281	0.4818	
MS	27.3204	10.6480	2.566	0.0262	**
AGE	−2.92422	2.29266	−1.275	0.2284	

*Joint significance of differing group means: F(9, 11) = 2.01413 with *p*-value 0.1362
Source Authors' own research

Based on the Chow Test above (Tables 8, 9), it is known that *p*-value > 0.05, thus the best model for the cost-leadership strategy with formula 1 (SALES/CAPEX) is the PLS model. This PLS model also applies to the cost-leadership strategy with formula 2 (SALES/P&E) that also has a *p*-value > 0.05 (Tables 10, 11). From the hypothesis test using the PLS test, STRCL1 has a negative and non-significant regression coefficient of 0.00458241 with a *p*-value of 0.5952, thus **H1b is rejected.** The INV variable on STRCL2 is positive and significant, with a value of 2.03162 with a *p*-value of 0.0639. This proves that innovation influences sustainable financial performance, but it is not absolute, thus **H2 is accepted**. Following the H2 result of this research, innovation can still be a point of consideration for companies to achieve long-term financial performance because by innovating companies can obtain profits, sales income, the return of investment, and high market share (Saliba de Oliveira et al. 2018; Turulja and Bajgoric 2019). STRCL1INV has a negative and non-significant regression coefficient of −0.687822 with a *p*-value of 0.5161. STRCL2INV has a

positive and non-significant regression coefficient of 0.00280943 and a *p*-value of 0.9043, which means **H3b is rejected**. The cost-leadership strategy with measurement 3, EMPL/ASSETS, is not included in the descriptive statistics and is not used to determine the best panel data model in the hypothesis test because there is no sufficient data.

In achieving competitive advantage, companies need to apply an appropriate strategy (Asdemir et al., 2019). The most commonly used strategies are the ones introduced by Porter (1980), differentiation strategy, and cost-leadership strategy. Differentiation strategy prioritizes innovation, as can be seen from the uniqueness and quality of a product to obtain a long-term superior performance (De Castro and Chrisman 1995; Frambach et al. 2003; Ghemawat 1995; Hutchinson et al. 2007; Jermias 2008; Porter 1980; Prajogo 2007). The more unique a product compared to the competitors, the more superior the company from its competitors. In the cost-leadership strategy, innovation is needed to reduce costs to get ahead of the competitors (Frohwein and Hansjurgens, 2005). By innovating, the reduction of costs, a higher market share, and efficiency can be achieved. Thus, the companies that implement this strategy can be sustainable (Hilman and Kaliappen 2014).

The control variable of this research shows diverse influences, SIZE and MS do not influence sustainable financial performance on both differentiation strategy and cost-leadership strategy in all measurements. The AGE variable has a relationship with a long-term financial performance involving how the long-standing companies are more trusted for the investor, have more experience, and a more skilled workforce, thus it can be assumed that long-standing companies will receive higher earnings than the newly built ones (Hariyanto and JUniarti 2014; Mehmood et al., 2019). The leverages with negative influence have higher risks and cannot sustain their long-term performance (McGuire et al. 1988; Waddock and Graves 1997). The CI variable shows a negative and significant regression coefficient value on STRDIF1 of −5.97169 and a *p*-value of 0.0433. The direction of the regression coefficient that is positive but non-significant is shown on STRDIF2 and STRCL2, of which each has the value of 2.37017 with *p*-value 0.4153 and 7.57690 with a *p*-value of 0.4326 respectively. Meanwhile, on STRCL1, the CI variable shows a regression coefficient direction that is positive and significant, with a value of 3.89686 and a *p*-value of 0.0941. This signifies that competition intensity influences sustainable financial performance only on STRCL1.

5 Conclusion

In this research, the differentiation strategy is found to significantly influence sustainable financial performance on STRDIF2 (H1a is accepted), and cost leadership does not significantly influence sustainable financial performance (H1b is rejected). Innovation is found to have a not so solid influence on sustainable financial performance because it is only proven in the STRCL2 test (H2 is accepted). It means that innovation can still influence a company's future success. Aside from that, innovation

also moderates the relationship between differentiation and sustainable financial performance (H3a is accepted) but does not moderate the relationship between cost-leadership and sustainable financial performance (H3b is rejected). This research result contradicts the research of Altuntas et al., (2014) and Wong et al., (2016) who find that differentiation strategy does not have a significant influence, and Li and Li (2008) do not find any influence. This research is also different from the research of Banker et al., (2014) who find that the differentiation strategy and cost-leadership strategy has a positive influence on performance, but is in line with the context that differentiation strategy is more sustainable than the cost-leadership strategy.

The implication of this research on managers is that the managers need to utilize scarce resources to make it hard for competitors to imitate and to be able to survive in the long-term. Managers can utilize common resources and create a good financial performance, but it will only last in a short term. Furthermore, it is also important for the managers to keep innovating to be able to compete in a dynamic environment and the ever-growing pace of technology development. However, this differentiation strategy is quite risky because it needs huge costs to obtain scarce resources and innovate. Because of that, managers need to be careful in implementing the best and the most suitable strategy for the company.

This research is limited to the samples of go-public companies that are listed on South East Asia's stock exchange. The amount of sample is low because there is a limited number of companies that have 5 consecutive years of R&D data and 10 consecutive years of EPS data. Aside from that, innovation is not an absolute on either differentiation or cost-leadership strategy. The strategy measurement in this research also shows diverse and inconsistent results. Thus, this opportunity can be taken by the next researcher to find the most suitable measurements to calculate the strategies. The research can also use other measurements that can give a more absolute result. The next studies are expected to broaden the research samples to improve the validity of sustainable financial performance measurement. Different moderator variables can also be used to identify the relationship between the strategy and sustainable financial performance.

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