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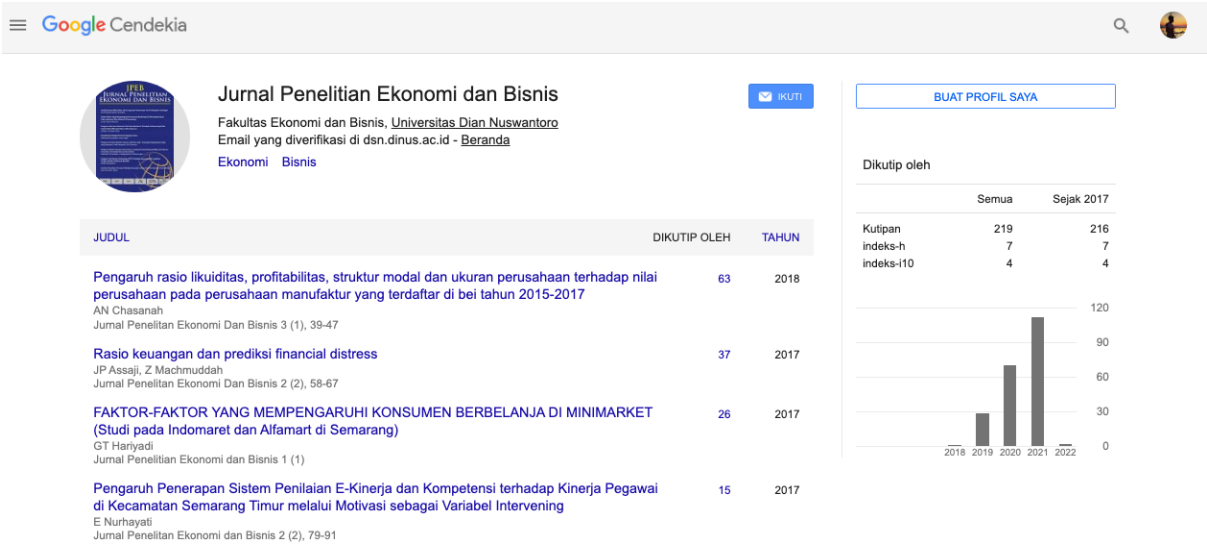

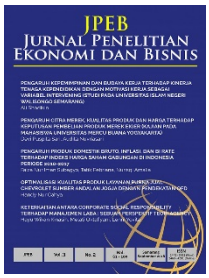

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Six Sigma Analysis as an Approach to Improve Quality of Corrugated Zinc Sheet Product

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Abstract

Every manufacturing company will strive to create the best quality products. This is also done by PT. CMSM, a steel company, is producing corrugated zinc products. In several production periods, the defective product values were still found that exceeded the tolerance limit value set at 0.5% in corrugated zinc products. These problems are, of course, very detrimental to the company, so it's essential to control the quality of corrugated zinc products. This study aimed to determine the factors that cause product defects, propose plans to improve product quality, and provide managerial recommendations based on Six Sigma analysis. Data collection techniques are carried out through observation, interviews, and documentation. Based on the study results, it is known that DPO is 0.000885 and DPMO is 884.6028. At this time, the company is at the level of 4.64 sigma with CTQ (Critical to Quality) folded zinc sheet, cut size is not according to standard, thickness is not according to standard, uneven coating layer and perforated zinc sheet. Based on the analysis, five factors cause product defects: humans, machines, methods, materials, and the environment. To improve quality, the company should improve their quality control through 5W + 1H analysis, namely by providing training to employees, periodic machine maintenance and ensuring that the SOPs that have been made are implemented correctly and adequately.

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INTRODUCTION

Product quality is one of the benchmarks for improving product purchasing decisions (Schmuck & Benke, 2020). So, companies must constantly make innovations to improve the quality of the products produced (GUAN et al., 2009), through manufacturing, using high-quality material, or even by regularly doing innovation (Prendeville & Bocken, 2017). Quality products will increase customer satisfaction (Suresh & Vasantha, 2021) so repeat purchases will occur (Hsu et al., 2015; Kunamaneni et al., 2019) and create long-term cooperative relationships that can increase profits for the company (Navío-Marco et al., 2019; Tremblay et al., 2019). To create quality products, companies are required to be able to optimize the use of their resources (Lyu et al., 2020) efficiently by using effective methods so that companies can create quality products by optimizing the use of their resources without having to spend a lot of money to buy additional resources (Herron & Hicks, 2008; Pyzdek & Keller, 2013; Romdony et al., 2018).

The manufacturing process consists of 3 stages (Gaspersz, 2005; Malviya, 2021), namely Input, Process, and Output. There are often problems with products that do not meet good quality product standards (defects). Products that do not pass the quality test will undoubtedly cause a lot of harm to the company because these products must be recycled or destroyed. Defective products can cause additional production costs (Jirasukprasert et al., 2015; Younge & Tong, 2018), so that the number of defective products as much as possible must be reduced to near zero value so that the company can minimize additional production costs.

According to data in the Indonesian Ministry of Industry, 316 industries have been registered (Kementrian Perindustrian Indonesia, 2020). Based on The World Steel Association, it was noted that in 2019 Indonesia was in the 26th position in the world for processing raw steel products with a total production of 6.4 million tons. The processed steel products also range from zinc-coated steel, lightweight steel roof trusses, iron pipes, frame beams, and so on (World Steel Association, 2019). PT. CMSM is a company engaged in the light steel processing sector, which has been operating since 2011 and started producing commercial products in 2014, It has 80 employees in the production sector with a 3-shift work system and 22 employees in the managerial sector, located on Cikarang, Bekasi, West Java. There are two types of products made: corrugated zinc sheet steel 0.20 x 762 and plain zinc steel 0.20 x 914. The optimal production capacity for corrugated zinc is 4,000 tons/month and produces 800,000 pcs / month.

Based on the data obtained along with observation, it shows that the corrugated zinc product defects are still above the reasonable threshold set by the company of 0.5%, so this study is carried out to understand what this causes. Products that do not pass the quality control check cannot be further processed for packaging at the warehouse, so they must be melted back to be reproduced (recycled). Based on the data collected, the number of defect products in several production periods still exceeded the maximum allowable limit, the data could be seen in Table 1.

Based on data on defect products in October, November, and December 2019, the highest number of defect products was in October 2019, with an average value of 0.5393%, while in November 2019 was 0.3666%. Followed by December 2019 was 0, 3977% tends to be stable below the tolerance threshold that the company of 0.5% has set. We use late 2019 production data in this study, as the company keeps the last-one-year-production data confidential, so the shareable data is the 2019 production recap.

According to Render & Heizer (Heizer, Jay., 2017), several methods can be used to overcome defect product problems, including Continuous Improvement, Kaizen, and Six Sigma. Continuous Improvement and Kaizen methods overcome quality problems by taking continuous improvement actions on production parts that are not yet optimal to reduce the number of defective products (Render & Heizer, 2001). The Continuous Improvement and Kaizen will be efficiently applied if the factors causing the appearance of defective products are known (Prendeville & Bocken, 2017; Tjiptono, F., dan Diana, 2012; Tjiptono, 2003), so that the focus of improvement can be optimized on the causes of defect products.

Six Sigma methodology can diagnose the root of the problem, both in quality improvement and processing time efficiency (Desai, 2017; Jirasukprasert et al., 2015). Six Sigma is a methodology that focuses on eliminating the causes of variations or defects in a product or production process (Martin, 2008). In today's dynamic industry, quality alone is not enough to achieve customer satisfaction (Ferreira et al., 2015), however, supply of good quality goods must be delivered consistently according to the delivery schedule (Desai, 2017; Lyu et al., 2020). According to De Mast (Marques & Matthé, 2017)

the production process has reached perfection based on six sigma if it only produces no more than 3.4 defects out of 1,000,000 opportunities (defects per million opportunities). However, this is undoubtedly very difficult to achieve. So, company tend to focus to minimize defective product to near zero (zero defects).

Table 1. Product data that did not pass the quality control for wave type corrugated zinc sheet production for the period of October 2019 to December 2019

Periods	Amount of Production	Amount of Product Defect	Percentage (%)
October			
Oct week 1	142.515	653	0,4584%
Oct week 2	171.018	639	0,3741%
Oct week 3	184.109	1.286	0,699%
Oct week 4	165.048	605	0,367%
Oct week 5	163.934	1.308	0,798%
		average	0,5393%
November			
Nov week 1	0	0	0
Nov week 2	201.697	630	0,3126%
Nov week 3	178.211	512	0,2874%
Nov week 4	188.684	715	0,3794%
Nov week 5	224.245	1092	0,4871%
		average	0,3666%
December			
Dec week 1	219.784	631	0,2874%
Dec week 2	189.647	717	0,3785%
Dec week 3	197.341	961	0,4872%
Dec week 4	213.519	934	0,4378%
Dec week 5	0	0	0
		average	0,3977%

Source: Company weekly production data, 2020.

Pyzdek and Keller (Pyzdek & Keller, 2013) explain the advantages implementing Six Sigma: reduced costs, improved cycle times, elimination of products that do not pass the quality test, increased customer satisfaction and a significant increase in profit. Several previous studies have shown that using the Six Sigma method can significantly reduce product defects. Sharma (Sharma et al., 2018) explains that using the Six Sigma method efficiently increases the sigma value from 2.67 to 4.11 and increases quality products from 87.8% to 99.6% in one production period. This is also supported by research conducted by Punyawan and Rahardjo (Punyawan & Rahardjo, 2015) that product defect percentage rates decreased from 0.11% to 0.073% after the Six Sigma method was applied.

To reduce the number of defective products to be consistently below the fair threshold value set by the company, an analysis is necessary to reduce the number of defective products. As discussed earlier, that Six Sigma can diagnose the root of the problem so that the problem can be resolved in a focused manner at the problematic point. The use of Six Sigma seems promising to help solve the issues currently being faced by the company.

Quality is a dynamic condition that combines products, processes, human resources, services, and the environment to produce a superior value product that exceeds consumers' expectations (Davis, 2010; Pyzdek & Keller, 2013; Slack et al. 2016). Quality is also defined as a form and characteristics of a product in its totality that can show its ability to fulfill clear or hidden consumer needs(Heizer et al., 2017; Martin, 2008).

The company needs to create a strategic system of how the steps should be taken and the essential points when implementing quality control (Choi, 2020). Strategy is needed because the determinants of quality consist raw materials, machines, production equipment, and labor which will cause varied effects on the final quality. So company needs to determine the suitable method in improving quality which can precisely target quality cost savings optimization (Ayhari, 2009; Kumar & Suresh, 2007)

Pande and Roland R. Cavanagh (Pande & Roland R.Cavanagh, 2002; Sharma et al., 2018) explain that Six Sigma is a concept that is almost close to perfection to meet consumer requirements. According to Gaspersz (Gaspersz, 2005) Six Sigma is a vision to improve quality towards a target of 3.4 errors from one million transaction periods for goods and services. So, by adopting the concept of Six Sigma in production process should be able to improve quality and reduce the error rate.

METHOD

There are five stages in implementing quality improvement using the Six Sigma method, namely using the Define, Measure, Analyze, Improve and Control (DMAIC) method (Pete & Holpp, 2002). The Define stage is a step to analyze to determine the target where quality improvement using Six Sigma will be carried out. At this stage an action plan is drawn up and what must be done to improve each step of the process (Gaspersz, 2005). The Measure stage has three essential things that must be carried out: 1. Make a selection to determine the main quality characteristics (Critical to Quality) 2. Develop a plan to collect data 3. Measure the line of work at the output level. In the step of Analyze, things that must be done include 1. Determining the capabilities (capabilities) and stability of the process 2. Determining performance targets and characteristics of key quality (CTQ) 3. Conducting identify the root causes and sources of problems that impede quality.

Followed by Improve stage, this step begins by establishing a plan regarding what actions will be taken to implement the Six Sigma concept on the targets set in the previous step. Quality improvement is also prioritized to reduce the DPMO value to near zero and increase the sigma value closer to the Six Sigma value (Gaspersz 2005). After all, we continue with Control as the last stage in the implementation of Six Sigma.

In this study, the population is the entire production of corrugated zinc steel from January 2019 - December 2019 at observed company. The samples in this study were corrugated zinc steel products that did not pass the quality test taken per week from October 2019 to December 2019.

Several methods of data collecting were used, including interviews, observation and documentation to gather a deep understanding of what is going on in the company. The analysis technique in this research is based on the principles of Six Sigma concepts. By using the DMAIC stage in Six Sigma, which are Define, Measure, Analyze, Improve, and Control, we can try to identify the cause of the problem, analyze the data, and formulate some fix to overcome the problem (Pete & Holpp, 2002).

RESULT AND DISCUSSION

Define

This research is carried out by follows the principles of DMAIC in Six Sigma. The very first stage in DMAIC is Define, followed by Measure, Analyze, Improve, and Control. The Define stage is the stage that describes the defect product problems which occurred in the corrugated zinc production. In the Define stage, we used data from the pre-survey, which explains the operational production flow, arranged in a SIPOC diagram in Figure 1.

Based on the interview with the production manager on the production site, Mr. Winarto, there are five types of defect classifications. The first defect category is UCL (Uneven Coating Layer), the second defect category is FZS (Folded Zinc Sheet), the third defect type is PZS (Perforated Zinc Sheet), the fourth defect type is CNFS (Cut Size Does Not Fit the Standard) and Type The last defect is TNFS (Thickness Does Not Appropriate to Standard).

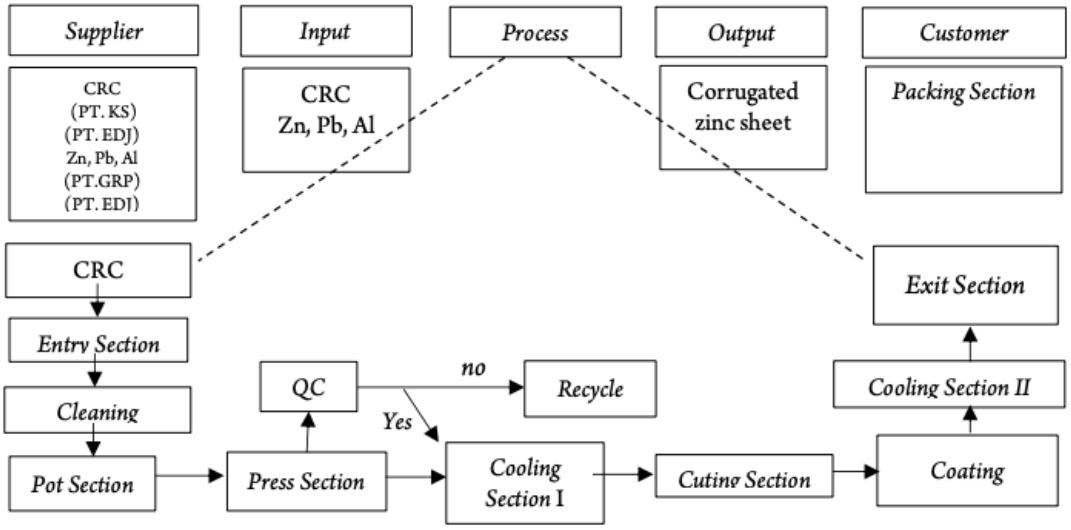

Figure 1. SIPOC Diagram of Zinc Wave Production
Source: Primary data, 2020

Measure

The Measure stage is carried out in two phases. The first stage is to process defect product data for October 2019 - December 2019 with a control chart (p-chart) and in the second stage by calculating the value of Defect per Million Order (DPMO) (Anthony, 2017). The calculation of the control limit (CL), upper control limit (UCL), and lower control limit (LCL) are based on the following applicable formula (Gaspersz, 2005):

Control Limit week one:

$$CL = \bar{p} = \frac{\sum \text{Defect products}}{\sum total\ productions}$$

$$CL = \bar{p} = \frac{10683}{2439752}$$

$$CL = \bar{p} = 0{,}00437872$$

Upper Control Limit week one:

$$UCL = \bar{p} + 3\sqrt{\frac{\bar{P}(1-\bar{P})}{n}}$$

$$UCL = 0{,}0044 + 3\sqrt{\frac{0{,}0044\ (1-0{,}0044)}{142515}}$$

$$UCL = 0{,}00407938$$

Lower Control Limit week one:

$$LCL = \bar{p} - 3\sqrt{\frac{\bar{P}(1-\bar{P})}{n}}$$

$$LCL = 0{,}0039 - 3\sqrt{\frac{0{,}0044\ (1-0{,}0044)}{142515}}$$

$$LCL = 0{,}00385402$$

This calculation is repeated for all data available using the same method, and the result can be found in Table 2 below:

Table 2. Calculation Results Data CL, UCL and LCL

Time Frame	Amount of Production	Amount of Defect	Proportion	CL	UCL	LCL
Oct week 1	142.515	653	0,0046	0,0044	0,0049	0,0039
Oct week 2	171.018	639	0,0037	0,0044	0,0049	0,0039
Oct week 3	184.109	1.286	0,0070	0,0044	0,0048	0,0039
Oct week 4	165.048	605	0,0037	0,0044	0,0049	0,0039
Oct week 5	163.934	1.308	0,0080	0,0044	0,0049	0,0039
Nov week 1	0	0	0	0	0	0
Nov week 2	201.697	630	0,0031	0,0044	0,0048	0,0039
Nov week 3	178.211	512	0,0029	0,0044	0,0048	0,0039
Nov week 4	188.684	715	0,0038	0,0044	0,0048	0,0039
Nov week 5	224.245	1092	0,0049	0,0044	0,0048	0,0040
Dec week 1	219.784	631	0,0029	0,0044	0,0048	0,0040
Dec week 2	189.647	717	0,0038	0,0044	0,0048	0,0039
Dec week 3	197.341	961	0,0049	0,0044	0,0048	0,0039
Dec week 4	213.519	934	0,0044	0,0044	0,0048	0,0040
Dec week 5	0	0	0	0	0	0

Source: Primary data (processed), 2020

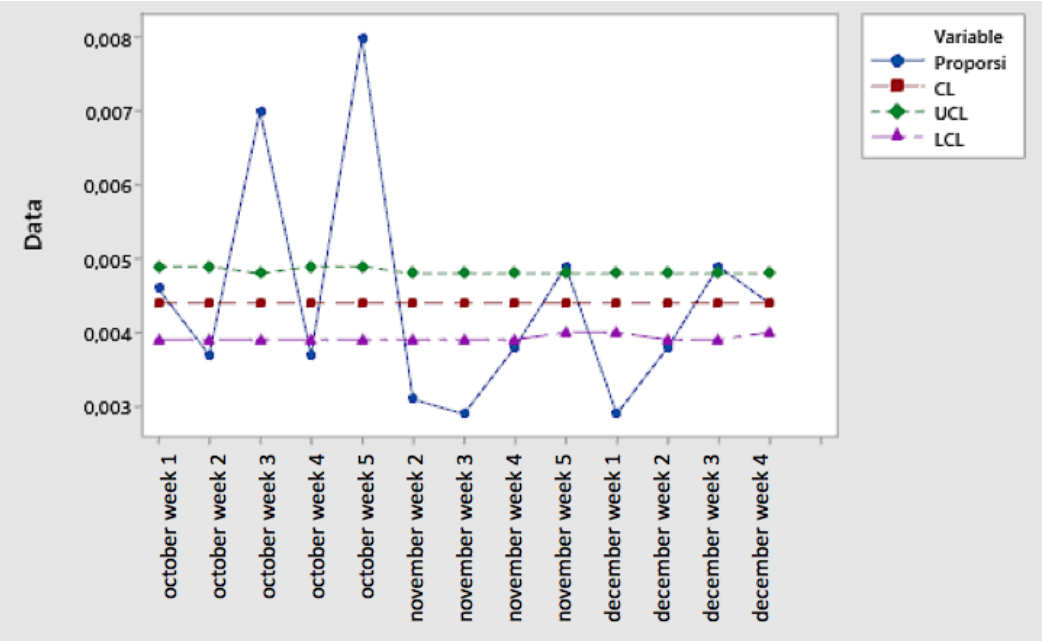

Figure 2. Control Diagram
Source: Primary data (processed), 2020

Figure 2 above shows the proportion of defects. Several productions periods show defect proportion value exceeds the upper control limit and the lower control limit. They are October week three and October week five significantly pointing far higher than the upper control limit. And the other side, November week two, November week three and December week one, point far below the lower control limit.

The value that comes out of the upper control limit (UCL) and lower control limit (LCL) areas can be considered undesirable values (Indrawati & Isnaini Dwi Ningsih, 2018). This shows that the production process is in an unstable condition. So further analysis is needed to determine the factors causing this instability in the production process.

Table 3. Calculation of DPO, DPMO and Sigma Level

Time Frame	Amount of Production	Amount of Defect	CTQ	DPO	DPMO	Sigma Level
Oct week 1	142.515	653	5	0,000916	916,3948	4,62
Oct week 2	171.018	639	5	0,000747	747,2898	4,68
Oct week 3	184.109	1.286	5	0,001397	1396,999	4,49
Oct week 4	165.048	605	5	0,000733	733,1201	4,68
Oct week 5	163.934	1.308	5	0,001596	1595,764	4,45
Nov week 1	0	0	0	0	0	0
Nov week 2	201.697	630	5	0,000625	624,6994	4,73
Nov week 3	178.211	512	5	0,000575	574,5998	4,77
Nov week 4	188.684	715	5	0,000758	757,8809	4,68
Nov week 5	224.245	1092	5	0,000974	973,9348	4,6
Dec week 1	219.784	631	5	0,000574	574,2001	4,75
Dec week 2	189.647	717	5	0,000756	756,1417	4,68
Dec week 3	197.341	961	5	0,000974	973,9486	4,6
Dec week 4	213.519	934	5	0,000875	874,8636	4,63
Dec week 5	0	0	0	0	0	0
	Averages			**0,000885**	**884,6028**	**4,64**

Source: Primary data (processed), 2020

Based on the results of DPMO calculations on corrugated zinc production available on Table 3, we got average value of 884,6028. This value then converted into a table of Sigma Level which classified as 4.64 sigma. This means continuous improvement is needed to reach the 6-sigma level.

Analyze

In the Analyze stage, the root causes of defect products are identified using Pareto diagrams and causal diagrams. The Pareto diagram is used to determine the proportion of the most dominant type of defect. In contrast, the cause-and-effect diagram determines the factors that cause the appearance of defect products. Before further analyze, Table 4 below show the result of Calculation of Defect Products.

Table 4. Result of Calculation of Defect Products

Defects Classification	Amount of Defect	Percentage
Folded zinc sheet (FZS)	4545	42,54 %
Cut size does not meet standard (CNMS)	4077	38,16 %
Thickness not meet up to standard (TNMS)	1074	10,05 %
Uneven coating layer (UCL)	609	5,70 %
Perforated zinc sheet (PZS)	378	3,54 %
TOTAL	**10683**	**100%**

Source: Primary data, 2020

Based on the Table 4, there are five main types of defects, namely: Folded Zinc Sheet (FZS) of 42.54%, Cut Size Does Not Appropriate to Standard (CNMS) by 38.16%, Thickness Does Not Appropriate to Standard (TNMS) by 10.05%, Uneven Coating Layer (UCL) of 5.70 % and 3.54% for Perforated Zinc Sheet (PZS). The proposed improvement will focus on the five types of defects because these defects have a significant impact on the quality of the output produced.

Knowing those problem, the next stage of this research is carried out by finding the cause of the problem. The fishbone diagram is then used to determine what factors are the causes of defect products in the wave zinc production process (Ayhari, 2009). At the stage of compiling the cause-and-effect diagram, interviews conducted with production labor on the site. The purpose involving the direct labor on the production site is to make sure that we got valid information causing those all problem, as the labor on production site are the one who have daily contact with all of those problems. The interview discusses the factors causing defects in the wave zinc production process. Every main problem we discussed earlier are meant to be discussed with labor on site to gain deep understanding about what is causing the problem. The result is then described in the following fishbone diagram. The result can be seen as in Figure 4 to Figure 8 shown below.

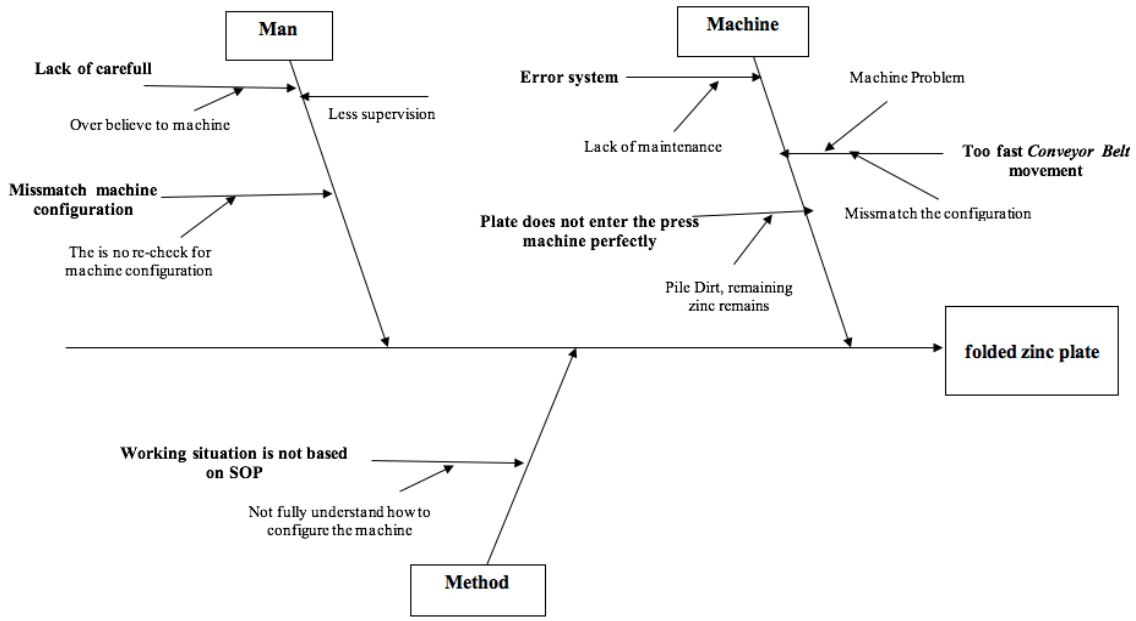

Figure 4. Cause and Effect Diagram of Folded Zinc Sheet
Source: Primary data (processed), 2020

Figure 4 shows the result of what causing the problem of Folded Zinc Place. There are 3 factor causing folded zinc plate often re occurred in the process of production. They are man factor, machine factor, and method factor. On the Man factor, we can understand the root causing problem, such lack of careful caused by less supervision and, the labor itself tend to over believe to the machine, so they tent just to ignore and does not performing check and recheck for the configuration. Machine factor can we understand caused by system error because of lack of maintenance, no regular maintenance is performed, and so on. Sometimes the conveyor belt just moves to fast, this caused by the labor does not perform check and re check so that the configuration does not fit to the changing materials being processed. This is also caused by the method because the labor does not always follow the SOPs available in performing each task.

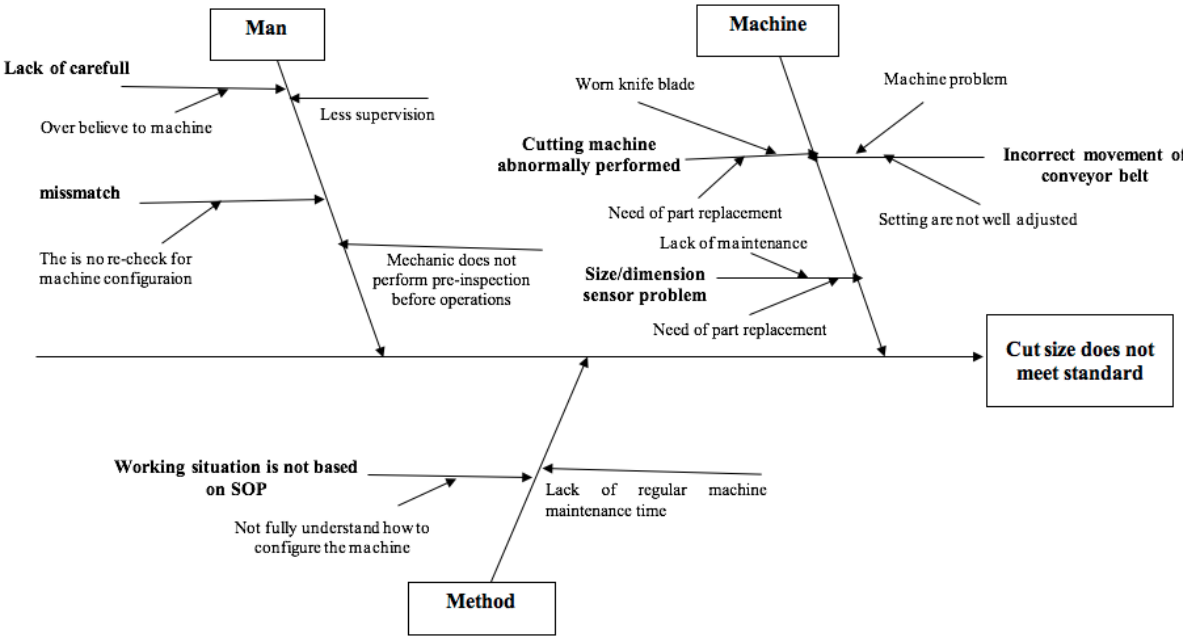

Figure 5. Cause and Effect Diagram of Cut Size Does Not Appropriate to Standard
Source: Primary data (processed), 2020

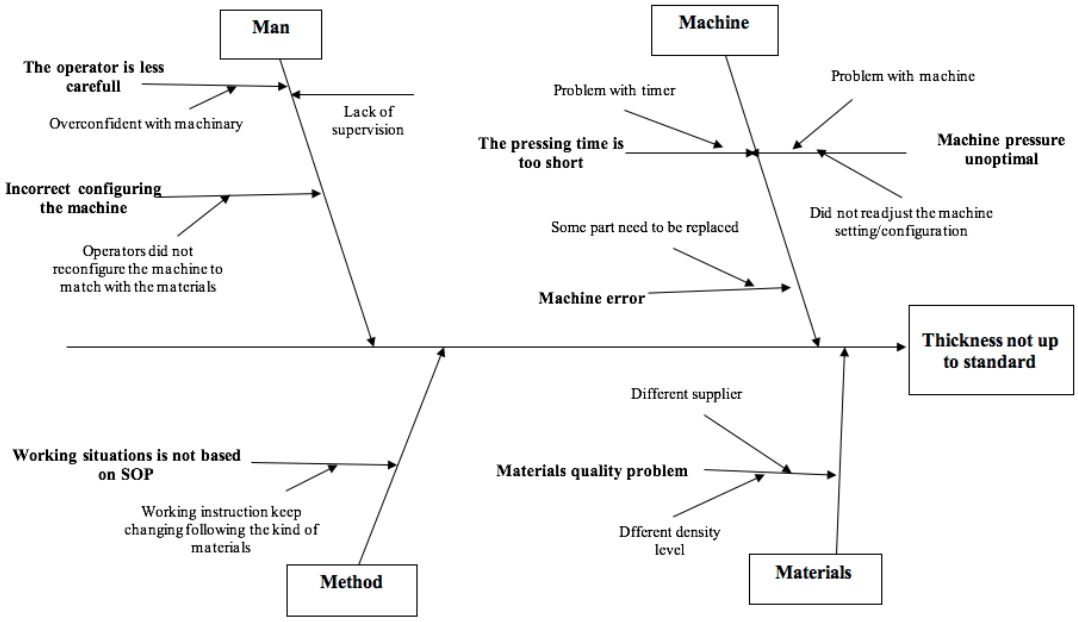

Figure 6. Cause and Effect Diagram of Thickness Not Meet Up to Standard
Source: Primary data (processed), 2020

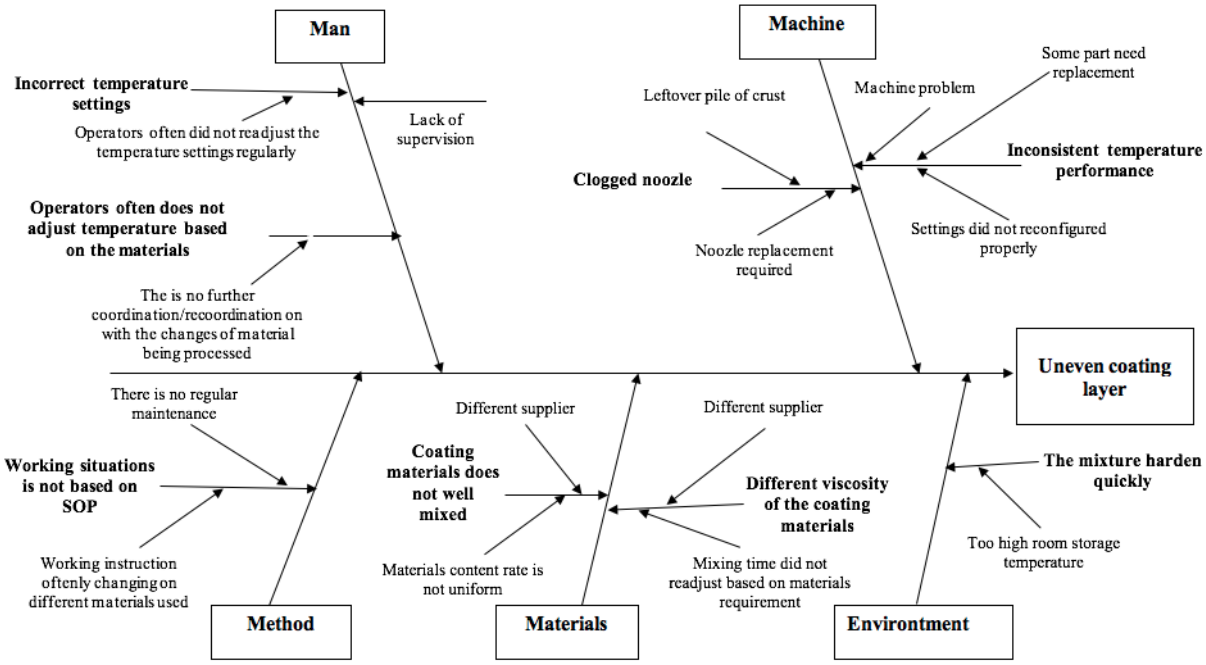

Figure 7. Cause and Effect Diagram of Uneven Coating Layer
Source: Primary data (processed), 2020

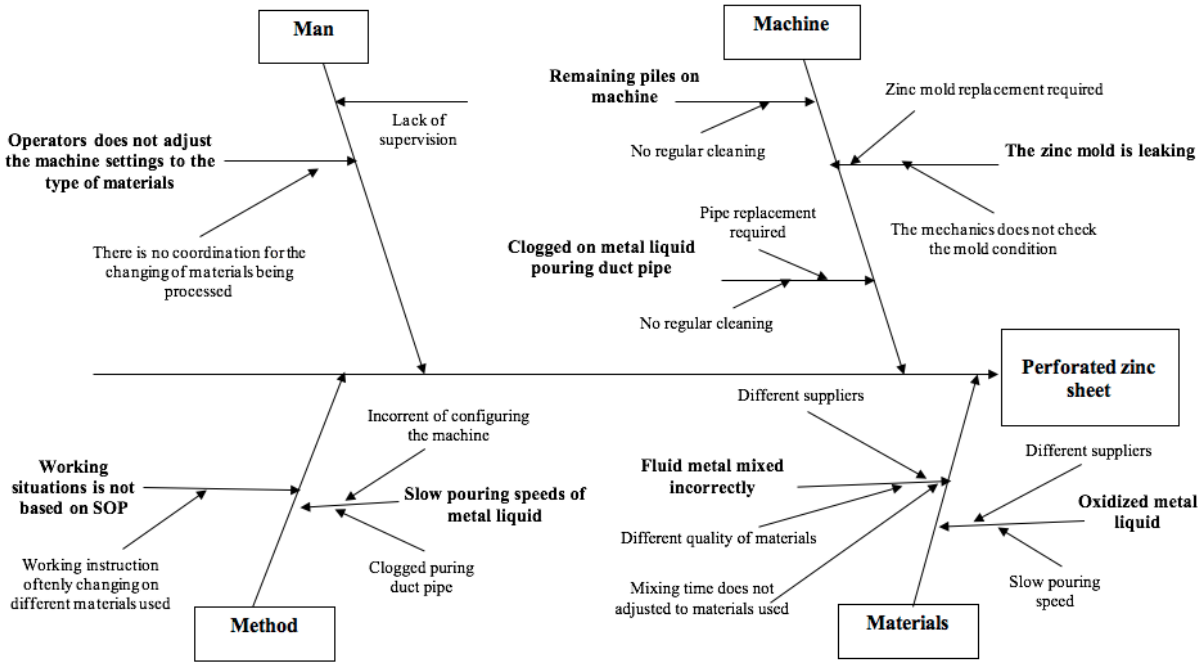

Figure 8. Cause and Effect Diagram of Perforated Zinc Sheet
Source: Primary data (processed), 2020

Improve

The Improve stage is a stage to provide recommendations for improvements to overcome the problem found. The model of the 5W + 1H method is used in this improvement stage (Anthony, 2017). Based on the Define, Measure and Analyze analysis, several main factors cause defect products. They are namely Human (Man), Machine, Method, Material, and Environment.

Proposed improvements to the Human factor by providing skills training, performance evaluation, and knowledge on the importance of maintaining quality to employees (Bozionelos et al., 2020; Kelly et al., 2021; Reichler et al., 2020). On the Machine factor, by providing skill training to machine technicians and making regular schedules for maintenance (Bozionelos et al., 2020). And its strongly recommended to perform such routine worn component replacement. In the Method factor, by providing training in understanding the importance of following SOPs, employees understand the function of the SOP itself.

In the Material factor, by marking each raw material which contains certain information or notes, or special treatment for each different. As well as separating raw materials that do not meet QC standards and providing detailed notes (Check Sheet) regarding any standards that these materials cannot meet to do a return. In Environmental factors, the proposed improvement is the intensive monitoring for the room temperature and production machines. This can be done by installing room thermometer sensors in each raw material and production warehouse to perform such effective temperature monitoring.

Control

At this stage, suggestions in the form of Control Proposal are built. Based on the results of the analysis from the previous stage, and focus deep underdiscusses the Production Manager and representatives from the management, the Control Proposal include:

1. Reset the machine according to the SOP and according to the type of raw material used.
2. Provide training to each operator, such as adjusting settings conveyor belts with press machines and cutting machines, regulating machine temperatures, and checking the type of raw material before use.
3. Ensure that the SOP is adequately implemented and correctly during the production process.
4. Provide skills training to technicians and make check sheets for machine monitoring and check sheets for machine maintenance.
5. Checking configuration needed for the raw materials received before entering the production stage.
6. Marking raw materials based on specifications and suppliers of origin.

CONCLUSION AND RECOMMENDATION

Conclusions

Five factors cause defect products in corrugated zinc production found on this research. The first factor is Human, where at work the employees are less careful when operating machines, poor coordination between SPV and operators and less strict supervision during the production process. The second factor is the Method, at work, employees do not perform procedures according to the SOPs, this is because employees do not fully understand the work procedures in the SOPs.

The third factor is the Machine factor, the machine often does not work normally because there are parts that need to be replaced and there is no regular maintenance performed. The fourth factor is Materials, the quality of the materials is different from each supplier. So, it a must to make some adjustments for each raw material during the production process. The fifth factor is the Environment, where inconsistent room temperature causes changes in the quality of raw materials and cause unintended result in the production stage.

Recommendation

By using Six Sigma, company can determine the factors causing defect products on their operations. Then, the company will be able to make corrective policies to fix the problem and minimize the same problem in their future operations. Before the work process begins, it is necessary to have a brief briefing to fully understand the details and work procedures according to the established SOPs (Castro-Rodríguez et al., 2020; Nobori et al., 2014; Park-Lee, 2020). Providing regular training to improve employee skills and work motivation is also necessary to conduct (Bozionelos et al., 2020; Kelly et al., 2021; Reichler et al., 2020).

Employee performance appraisal is also needed to be used as motivation for the employee to perform better and encourage them to compete to give their best productivity (Islami et al., 2018; Nair & Salleh, 2015; Sanyal & Biswas, 2014). Communication and further actions with suppliers must be improved so that the quality of raw materials sent is uniform and in accordance with the specifications required by the company. So, the product defects caused by raw materials factors which not comply with company standards can be minimized (Huaccho Huatuco et al., 2020; Saghiri & Wilding, 2021).

When the production process is running, coordination between supervisor and employees and overall during the production process must constantly be improved so that errors affect quality degradation can be minimized (Afridi et al., 2020). Giving certain marks to the raw materials based on specifications and suppliers of origin and do double checks each time raw materials are received from suppliers to make sure meets the company's quality standard.

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How does Unified Theory of Acceptance and Use of Technology (UTAUT) Work on Adopting Financial Technology (FinTech) by MSMEs?

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Abstract

Micro Small and Medium Enterprises (MSMEs) have a very significant role in the economy, can even be said to be the backbone of the economy. However, MSMEs are precisely the sector hardest hit by the Covid-19 pandemic. Digitalization creates new opportunities for MSMEs in the pandemic. FinTech, one of the implementations of digitalization should be pursued to be used by MSMEs. Using path analysis processed using Partial Least Square (PLS), this research aims to identify how Unified Theory of Acceptance and Use of Technology (UTAUT) works on Adopting FinTech by MSMEs. The Outer Model and Inner Model reflect that the model work. The outer loading value of ≥ 0.7, AVE value ≥ of 0.5, Cronbach's Alpha ≥ 0,70, a correlation value ≥ of 0.50; and Composite Reliability ≥ 0.6, and R-Square 0.716 reflect it. However, regarding the factors that influence intention to use, it is different from previous research that became a reference. There are only four hypotheses proven. Those are Context had a significant positive effect on Perceived Ease of Use and Perceived Usefulness, and Perceived Ease of Use and Perceived Usefulness had a significant positive effect on the intention to use fintech.

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INTRODUCTION

Micro Small and Medium Enterprises (MSMEs) have a very significant role in the economy, can even be said to be the backbone of the economy. With a small business scale based on local consumers, MSMEs products are always needed by the community. In addition, MSMEs are not dependent on the capital market and have proven to have high durability in crises. However, MSMEs are precisely the sector hardest hit by the Covid-19 pandemic. This condition occurs because the MSMEs sector is dominated by informal business units that require conducting business outside the home. The era of industrial revolution 4.0 marked by digitalization, automation, the internet of things (IoT), and artificial intelligence create new opportunities for MSMEs. The outbreak of covid 19 seems to be the trigger for the faster era of MSMEs digitization.

Digital technology is a medium for MSMEs to survive the covid period and is expected to accelerate the development of MSMEs business after covid 19. It can minimize the barriers of conventional business practices. The digitalization of MSMEs includes the performance of MSMEs that can survive or even grow during the pandemic and supports the creation of a sustainable and inclusive economy. The MSME digitization is reflected in the involvement of the poor in the expanded upstream to the downstream industrial supply chain. It means the digitization of MSMEs will contribute greatly to poverty alleviation efforts. One of the implementations of digitalization in business is the digitalization of payment methods, namely, non-cash payment methods use financial technology (FinTech). Based on this phenomenon, the acceleration of MSME digitization, especially in using Fintech needs to be pursued.

The problem is that introducing new technologies is not easy; it is very likely to be faced with resistance or lack of ability to adapt by the target user. Digitizing MSMEs requires hard effort because there are obstacles, including weak sustainable technology development, lack of adequate information, the inertia to change, weak e-commerce adaptation, and inefficient supply chains due to weak networks (Masurel, 2001). Therefore, digitalization behavior or adoption of digital technology in the development of its business and various factors that affect it need to be identified in depth. There are several approaches regarding the adoption of technology, including Unified Theory of Acceptance and Use of Technology (UTAUT), which is an extension of the Technology Acceptance Model /TAM (Shang Gaoa, John Krogstiea, and Keng Siau, 2017). This approach includes six variables consisting of three exogenous variables, namely Context, Personal Initiatives-Characteristics, and Trust. Four endogenous variables, namely Perceived Ease of Use and Perceived Usefulness, are a function of context and Intention to use, which is a function of Personal Initiatives-Characteristics, Trust Perceived Ease of Use and Perceived Usefulness.

It is important to understand the conditions of MSMEs' behavior intention and various factors that influence them to adopt FinTech in their business (implementing the FinTech of MSMEs). This research aims to draw alternative solutions to industrial problems, namely to overcome the problems of MSMEs as the sector most affected by the covid 19 pandemic and produce a formulating of MSMEs Fintech adoption intervention strategy. Thus, the results of this study will contribute to the economic efforts of financial inclusion as part of poverty alleviation efforts by improving MSMEs' competitiveness. In science and being a reference for similar activities, this research provides enrichment of the intervention model of digitalization behavioral intention.

METHOD

The object of this study is the adoption of the digitalization behavior intention of MSMEs on a perceptual basis with various factors that affect it conducted in the city of Semarang. This research includes as many as 56 MSMEs respondents in various types of products/businesses. The type of data used in this study is primary data in MSMEs perception of variable indicators developed in this study (Table 1). Data collection is done by survey method using questionnaire instrument. The primary data in this study is the perceptional data of selected indicators. The Likert Scale 1 - 5 (strongly disagree - strongly agree) is used to anticipate the perceptional data.

By its purpose, this research variable refers to the mobile services acceptance model, an extension of the technology acceptance model (TAM) by S. Gao, J. Krogstie, and P.A. Gransæther (2011). The model includes variables, i.e., Context, Personal Initiatives, and Characteristics, Trust, Perceived Ease of Use, Perceived Usefulness, Intention to Use.

Table 1. Variables and Research Indicators

Variable	Definition	Indicator
Context (X1)	Any information that can be used to characterize the situation of the entity (i.e., a person, place, or object) is considered relevant to the interaction between the user and the application, including the user and the application itself	• People around using digital technology (X1.1) • Have a fun experience using digital technology before (X1.2) • The government encourages the use of digital technology (X1.3) • Digital technology easy to install /install (X1.4) • Have access to digital technology (e.g., smartphone, internet) (X1.5)
Personal Initiatives and Characteristics (X2)	User willingness to experiment with digital technology	• Able to use digital technology (X2.1) • Happy to use Digital Technology (X2.2) • Using digital technology for the better (X2.3) • Will use digital technology if it is free (X2.4) • Using digital technology is a good idea (X2.5)
Trust (X3)	The user's belief or belief that digital technology is secure does not threaten privacy.	Will use digital technology if: • Know the functionality of digital technology (X3.1) • Widely known digital technology provider (X3.2) • digital technology protects privacy (X3.3) • Feeling confident in being able to control digital technology (X3.4) • Feel confident the data obtained is reliable (X3.5) • Believe in the use of risk-free digital technology (X3.6) • Feel safe using digital technology (X3.7)
Perceived Ease of Use (X4)	The extent to which one believes that the use of certain system technologies will provide convenience	• Learn to operate digital technology easily (X4.1) • Easy to find information about digital technology (X4.2) • Finding the user interface clearly (X4.3) • Discovering that digital technology is flexible (X4.4)

Variable	Definition	Indicator
Perceived Usefulness (X5)	The extent to which one believes that digital technology is effective to improve the efficiency of its work	• Digital technology is easy to use (X4.5) • The use of digital technology will improve working efficiency (X5.1) • The use of digital technology facilitates business activities (X5.2) • The use of digital technology makes recording transactions/books easier (X5.3)
Intention to Use (Y)	The possibility of users to use digital technology	• If you have access, intend to use the • Because it has access, it will still use • I Will try to use

Hypothesis:

1. *Context* positively and significantly affects the Ease of Use of MSMEs digitization.
2. *Context* positively and significantly affects the Usefulness of MSMEs digitization.
3. *Trust* has a positive and significant impact on the Intention to Use the digitization of MSMEs.
4. *Personal Initiatives and Characteristics* positively and significantly influence the Intention to use the digitization of MSMEs.
5. *Perceived Ease of Use* has a positive and significant effect on the Intention to use digitalization of MSMEs
6. *Perceived Usefulness* has a positive and significant effect on the Intention to use the digitization of MSMEs

Structural Equation Modelling

To achieve the objectives of research and hypothesis submission, the data obtained is then processed according to the needs of the analysis using the Structural Equation Model (SEM). Structural Equation Modeling (SEM) is a multivariate analysis technique that combines the confirmatory factor analysis aspect and the tiered aspect of the simultaneous equation model. There are two steps in SEM modeling, namely: (1) measurement model that is testing the dimensions of a construct, (2) structural model that is testing the causality relationship between variables.

The analysis model proposed in this study can be seen in figure 2.

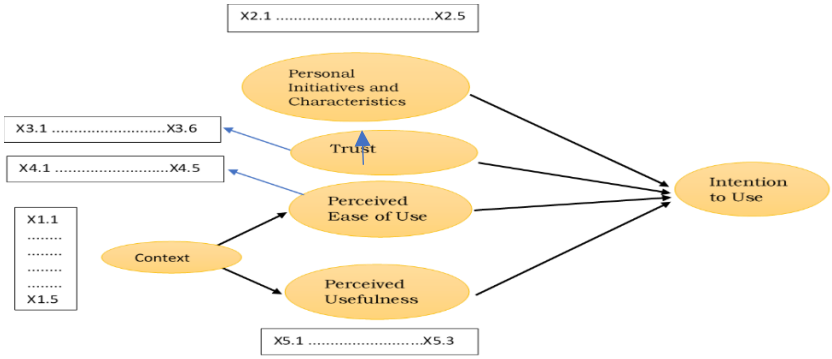

Figure 1. Research Structure Model

RESULT AND DISCUSSION

Measurement Model Evaluation (Outer ModeI)

The evaluation of the measurement model includes three stages, namely convergent validity test, discriminant validity test, and composite reliability test. The convergent validity reflects the correlation between the indicator score and its construct score, which in the PLS model is stated valid if it has an outer loading value of ≥ 0.7 and an AVE value ≥ of 0.5 (Jogiyanto, 2009). According to Chin (1998) in Ghozali (201), a correlation meets the validity of convergence if it has a loading value of more than 0.5. This test aims to determine the validity of each relationship between an indicator and its latent variables. The convergent validity test of the 26 indicators used in this study has four declared invalid indicators: two indicators for personal initiative and character (PI) variables and two indicators on Trust variables. Furthermore, the four invalid indicators are removed from the model so that only 22 indicators will be processed.

Testing the validity of discriminant (discriminant validity) reflective indicators needs to be done by comparing the values in the cross-loading table. This test is used to ensure that the concept of each variable or has a unique value that only correlates with the indicators in the variable. An indicator is said to meet the validity of the discriminant if the cross-loading value of the indicator against its variable is the largest compared to other variables. The results of the discriminant validity test show that the construct has an adequate discriminant in the sense that all constructs have better discriminant validity than the indicators in the other blocks (Table 2).

Tabel 2. Discriminant Validity

	Context	Intention to Use	Perceived Ease of Use	Perceived Usefulness	Personal Initiatives-Characteristic	Trust
Context	0,840					
Intention to Use	0,651	0,940				
Percieved Ease of Use	0,568	0,776	0,861			
Percieved Usefulness	0,712	0,787	0,722	0,912		
Personal Initiatives-Chararteristic	0,834	0,612	0,631	0,614	0,916	
Trust	0,508	0,321	0,350	0,423	0,434	0,824

Source: Primary data, processed

Reliability testing of indicators is important because it explains how large an item is as an indicator of the measured construct. The test can be done with several approaches, namely Cronbach's alpha, correlated item-total correlation, Composite Reliability, and Average Variance Extracted (AVE. Cronbach's Alpha is a measure of reliability with values ranging from zero to one (Hair et al., 2010). A variable that includes several indicators is reliable if the minimum reliability level value of Cronbach's Alpha is 0.70 (Eisingerich and Rubera, 2010). If using correlated item-total correlation, an indicator is reliable if it has a correlation value of at least 0.50 (Hair et al., 2010). Meanwhile, if using a composite reliability approach is considered better in estimating the internal coexistence, the indicator is declared reliable if it has more than 0.6. By paying attention to these approaches (Table 3), consistently, the indicators on all variables studied are declared reliable.

Table 3. Construct Reliability and Validity

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Contex	0,898	0,920	0,923	0,706
Intention to Use	0,869	0,876	0,939	0,884
Percieved Ease of Use	0,881	0,903	0,919	0,741
Percieved Usefulness	0,900	0,917	0,937	0,832
Personal Initiatives-Chararteristic	0,904	0,913	0,940	0,840
Trust	0,883	0,906	0,913	0,679

Source: Primary data, processed

Structural Model Evaluation (Inner Model)

Evaluation of structural models in SEM with PLS is conducted by conducting R-squared tests and significance tests by estimating path coefficients. Table 4 presents R Square calculation results. The coefficient of determination or R-Square reflects how much a free variable affects dependent variables. The higher the coefficient of determination (R Square) indicates that the better the model, it also has the more precise predictive power. According to Chin (1998) in Ghozali (2013), the model is good if it has a coefficient of determination of at least 0.67. Based on this idea, overall independent variables could explain the model variation as high as 71.6 percent (0.716), which means in either category. Meanwhile, the Context variable only explains the variation of the Perceived Ease of Use variable by 32.3 percent and Perceived Usefulness by 50.7 percent.

Table 4. R-Square

	R Square	R Square Adjusted
Intention to Use	0,716	0,694
Perceived Ease of Use	0,323	0,310
Perceived Usefulness	0,507	0,498

Source: Primary data, processed

Significance Tes

The significance test is intended to identify a large number of independent variables affecting dependent variables. We are bootstrapping Calculation Results data Research using SEM PLS presented in table 5 shows that there are two other hypotheses, namely Trust has a positive and significant effect on the intention to use digitalization of MSMEs and Personal Initiatives and Characteristics has a positive and significant impact on the intention to use digitalization of MSMEs is not proven, with a t-test value smaller than 1.65581 or sig. >0.05.

Table 5. Path Coeficients

	Original Sample	Sample Mean	Standard Deviation	T Statistics	P Values
Contex -> Percieved Ease of Use	0,568	0,576	0,105	5,411	0,000
Contex -> Percieved Usefulness	0,712	0,718	0,070	10,154	0,000
Percieved Ease of Use -> Intention to Use	0,399	0,406	0,150	2,663	0,008
Percieved Usefulness -> Intention to Use	0,460	0,466	0,167	2,752	0,006
Personal Initiatives-Chararteristic -> Intention to Use	0,104	0,097	0,197	0,525	0,600
Trust -> Intention to Use	-0,059	-0,047	0,084	0,700	0,484

Source: Primary data, processed

Four hypotheses are statistically supported. The four hypotheses are Context has a positive and significant effect on the Ease-of-Use digitizing MSMEs. Context has a positive and significant effect on the perceived usefulness of MSME digitization. Perceived Ease of Use has a positive and significant impact on the intention to use MSME digitization, and Perceived Usefulness has a positive and significant impact on intention to use the digitization of SMEs. This is reflected in the t-statistical value, which is greater than the t-table of 1.65581, or the probability value of sig. 0.000 is less than the specified alpha of 0.05.

Context has a positive and significant effect on Perceived Ease of Use and Perceived Usefulness. It means that there is a unidirectional change between Context and Perceived Ease of Use and Context with Perceived Usefulness. The use of digital technology by people around, pleasant experiences, ease of access, and a higher government drive will encourage the increased confidence to use certain system technologies will provide convenience to improve the efficiency of its work. Perceived Ease of Use has a positive and significant effect on the intention to use digitalization of MSMEs. It means that people believe that digital technology will provide convenience and that digital technology improves its working efficiency, the higher the intention to use digital technology. The digitalization of MSMEs is getting easier to implement.

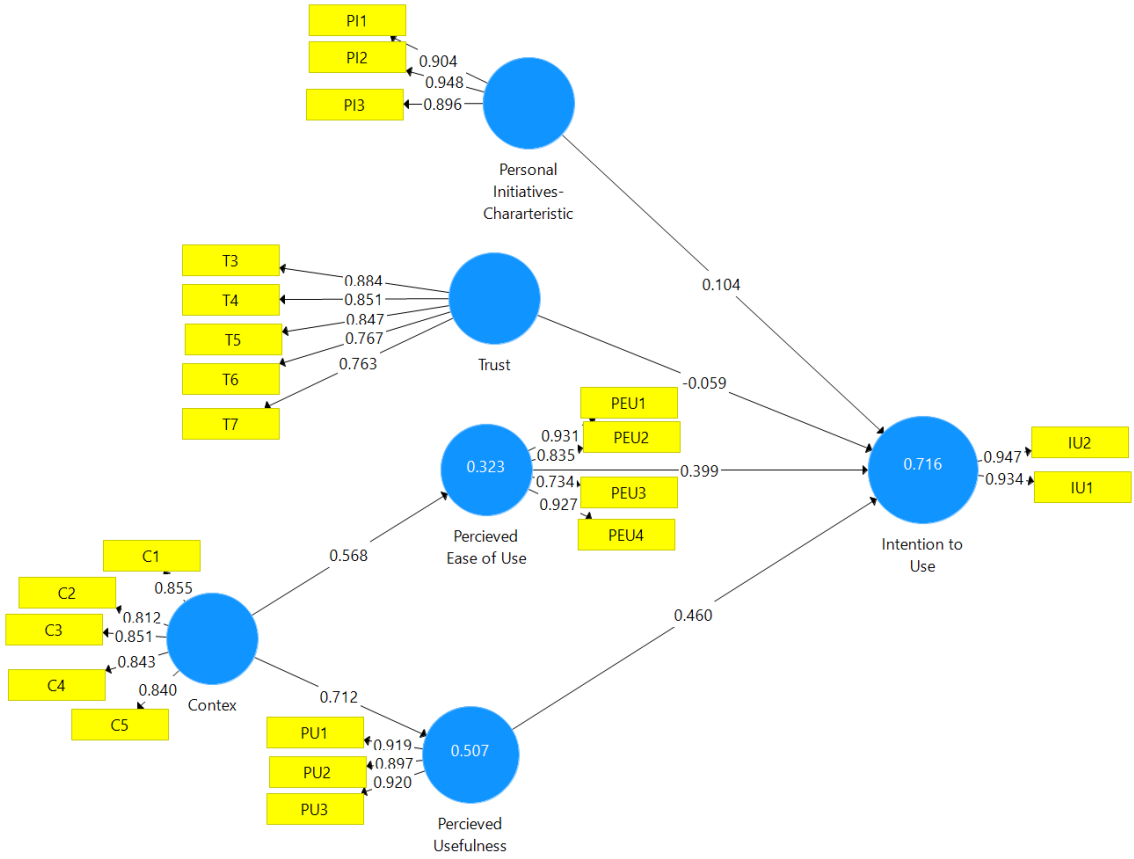

Figure 2. Structure Model (Path Coefficients Diagram)

Context has more effect on perceived Usefulness than it does on perceived Ease of Use, reflected in the regression coefficients of 0.712 and 0.568. Perceived Ease of Use has more influence on the intention to use digitalization of MSMEs than Perceived Usefulness. The coefficient of each is positive and significant of 0.460 reflects that condition. Context indirectly affects the intention to use digitalization of MSMEs through its positive and significant influence on Perceived Ease of Use and Perceived Usefulness, respectively to P-Value 0.048 and 0.012 and a P-Value total of 0.000

Table 6. Indirect Effect

	Original Sample	Standard Deviation	T Statistics	P Values
Contex -> Percieved Ease of Use -> Intention to Use	0,227	0,114	1,986	0,048
Contex -> Percieved Usefulness -> Intention to Use	0,328	0,130	2,531	0,012
Contex -> Intention to Use	0,477	0,113	4,226	0,000

Source: Primary data, processed

Discussion

Using the UTAUT tested by path analysis using the PLS 3.29 series shows that the model built meets the goodness of fit criteria. The convergent validity that reflects the correlation between the indicator score and its construct score was valid with the outer loading value of ≥ 0.7 and an AVE value ≥ of 0.5. The discriminant validity test that ensures that each variable has a unique value shows that the construct has an adequate discriminant in the sense that all constructs have better discriminant validity than the indicators in the other blocks. The composite reliability test that shows the reliability of indicators that tested by Cronbach's alpha, correlated item-total correlation, Composite Reliability, and Composite Reliability also shows consistently, the indicators on all

variables studied are consistently reliable. It has *Cronbach's Alpha* ≥ 0,70, a correlation value and Average Variance Extracted (AVE) ≥ 0.50, and Composite Reliability ≥ 0.6. Evaluation of structural models in SEM with PLS that reflected by the coefficient of determination shows that the model has an R-Square of 71.6 percent (0.716). It means that aggregately the independent variables could explain the model variation quite high at 71.6 percent (0.716). Meanwhile, the Context variable only explains the variation of the Perceived Ease of Use variable by 32.3 percent and Perceived Usefulness by 50.7 percent.

There are four hypotheses of UTAUT implemented on MSMEs that are statistically proven. The four hypotheses are Context has a positive and significant effect on the Ease-of-Use digitizing MSMEs. Context has a positive and significant effect on the perceived usefulness of MSME digitization. Perceived Ease of Use has a positive and significant impact on the intention to use MSME digitization, and Perceived Usefulness has a positive and significant impact on intention to use the digitization of SMEs. This is reflected in the t-statistical value, which is greater than the t-table of 1.65581, or the probability value of sig. 0.000 is less than the specified alpha of 0.05. This finding is a little bit different from the UTAUT model the be referred which shows that Personal Initiatives-Characteristics and Trust also have a positive significance toward intention to use. It is probably because of the differences in the character of the sample and desensitization. Desensitization is a gradual process that can affect a person's perspective. It may work in the case of intention to digitalize, especially in using financial technology (FinTech). How a person will behave can also be explained by the Stimulus, Organism, Response (SOR). SOR explains the influence of the physical environment on the internal state and individual behavior (Park, 2008). The stimulus affects the internal organism of an individual, which is reflected in its cognitive and affective aspects. Both are implemented by intermediaries and processes that mediate the relationship between stimulus and individual responses in purchasing behavior for organic food.

The knowledge possessed by individuals will determine attitudes and ultimately have implications for their behavior. According to The Theory of Reasoned Action, how a person will behave can be predicted from his behavioral intention. There are two variables for determining it, namely attitudes and subjective norms. If someone has a positive attitude towards an attitude object, then a high intention will appear if the social norms support this behavior. Attitudes towards something are influenced by the characteristics of the object of behavior and the evaluation of its benefits if someone behaves as he would do. If the individual feels the benefits directly, then he will build positive behavioral attitudes. The insignificant effect of the Trust and personal initiative and characteristics in this study is understandable. It is probably affected by culture. People tend to trust other people, such as public figures and the people surrounding them (family, close friends). People will believe in technology if other people are already using it.

CONCLUSSION AND RECOMMENDATION

Generally, the UTAUT test shows that the model works on Adopting Financial Technology (FinTech) by MSMEs. The Measurement Model Evaluation (Outer Model) and Structural Model Evaluation (Inner Model) reflect that the model work. However, regarding the factors that influence the behavior intention in using Fintech by MSMEs, it is different from previous research that became a reference. In the referenced model, Context has a significant positive effect on Perceived Ease of Use and Perceived Usefulness. Personal Initiatives and Characteristics, Trust, Perceived Ease of Use, and Perceived-Usefulness, have a significant positive effect on the intention to use fintech. In this study, there are four hypotheses proven. Those are Context had a significant positive effect on Perceived Ease of Use and Perceived Usefulness, and Perceived Ease of Use and Perceived Usefulness had a significant positive effect on the intention to use fintech.

Concerning efforts to realize financial inclusion as part of poverty alleviation efforts by improving MSMEs' competitiveness, the government needs to encourage the use of digital technology. The government can do providing training and guaranteeing ease of installation and access to digital technology. In addition, starting from the findings that perceived ease of use and perceived usefulness have a significant effect, decision-makers must show that the system technologies provide convenience and increase the effectiveness to improve the efficiency of its work.

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The Effect of Financial Distress, Firm Size, Leverage and Litigation Risk on The Application of Accounting Conservatism In Manufacturing Companies Listed In Indonesia Stock Exchange

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Abstract

This research aims to analyze the effect of financial distress, firm size, leverage, and litigation risk on implementing the accounting conservatism of manufacturing companies in Indonesia. The population in this research is manufacturing companies listed on the Indonesia Stock Exchanged (IDX) over 2014-2018. Research sample selection used the purposive sampling method. Obtained company data that meet the research criteria as many as 169 companies, so that the total research data is 149 data. The analysis methods in this research are multiple regression analysis. Based on the test results of the research conclude that variables of the board of financial distress, firm size, and litigation risk have no effect on accounting conservatism implemented of manufacturing companies. Meanwhile, the variable of leverage affects the accounting conservatism's implemented by manufacturing companies.

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INTRODUCTION

IFRS (International Financial Reporting Standards) is an International Accounting Standard used by companies in the world on an international scale. IASB (International Accounting Standards Board) is an international body that deals with developments and accounting standards and issues the IFRS. Indonesia, as one of the G-20 members, must follow the agreement to carry out IFRS Convergence. IFRS convergence itself aims to improvise on corporate financial information's quality, especially companies listed on the Stock Exchange.

Based on PSAK 68, the Financial Statements use valuations based on Fair Value. Using Fair Value in valuation here means that if there is no active market value, it must conduct self-assessment (competence required) or use the services of an appraiser. This results in a managers' expectation in the face of uncertainty are to apply conservative accounting principles. Accounting conservatism recognizes a decrease in assets even though the event has not yet been realized, but if there is an increase in unrealized assets, it cannot be identified.

Financial statements become the primary means because it provides information to assess the economic condition of the company and show company management's ability to manage the company's wealth. Users will use the News in the financial statement disclosures to decide.

Deviyanti (2012) suggests accounting standards in which goals, rules, and accounting principles form the basis of good financial reports. Thus, users are accountable for their content and value. Generally accepted accounting principles in the financial statements will allow management to select accounting rules and estimates. This flexibility affects managers' decisions when deciding to have accounting records and reporting on company transactions (Wardhani, 2008).

In choosing an accounting method, company management is careful in making financial reports because the company must decide the proper way for economic conditions and can cause instability in the company's economic conditions (Iskandar, 2016). Company management may also choose to report optimistic or conservative financial reports.

Ardina & Januarti (2012) stated that an optimistic financial report is an exaggerated financial report that can lead to and even harm users of financial statements. Unlike the case with optimistic financial reports, conservative financial reports are more cautious and pessimistic because the company's economic activity will experience uncertainty in the future. The measurement, recognition, and calculation are conservative.

According to Hapsari (2012), financial distress is a condition in which the company's operating cash flow is not enough to pay off current liabilities (such as trade payable or interest expenses), and the company must make repairs. Conservatism has a basic principle: (1) it must admit that losses are very likely to occur but must not expect profits before they occur. (2) if faced with several choices, the accountant must choose the accounting method that is least preferred (Suharli, 2009). Accounting conservatism is reducing net assets or reducing earnings in response to bad news and not increasing profits in response to good News Basu (1997). Platt & Marjorie (2002)stated that the usefulness of information on financial distress that occurs in the company is (1) Able to direct management steps to prevent problems before bankruptcy occurs. (2) Management can carry out mergers to pay debts and manage the company properly. (3) Providing early warning about bankruptcy that will occur at a later date.

The official definition of accounting conservatism in the Glossary of Concept Statement No. 2 The Financial Accounting Statement Board (FASB) defines conservatism as a prudent reaction in the uncertainties inherent in the company to try to make sure that uncertainties and risks in the business environment are sufficiently considered. The principle of conservatism is still a subject of debate for researchers, giving rise to pros and cons. Researchers who support accounting conservatism argue that when applied in preparing financial statements, the conservatism principle can avoid managers' desire to manipulate earnings (Fala, 2007). In this research, the writer wants to know and test what aspects can influence applying accounting conservatism. This study adds a litigation risk variable different from previous studies, intending to find out what can affect the application of conservatism accounting.

METHOD

Types of Research and Population Research Overview

This type of research is quantitative research, namely research that aims to test the hypothesis,

the data used is measured and produces conclusions that can prove the hypothesis. According to Sugiyono (2013), the population is a levelling area that includes quality subjects and objects determined by the researcher to understand and draw conclusions. The population used in this study are all manufacturing companies listed on the Indonesia Stock Exchange (BEI) for the 2014-2018 period.

Sampling Method

Sampling in this study using the purposive sampling method, namely determining the sample with certain criteria, is not random. The sample choice in this study used the following criteria:

1. Manufacturing companies listed on the IDX and reporting financial statements for the 2014-2018 period.
2. There is complete data for the 2014-2018 period.
3. Companies that have a negative CONTACT value.

Method of Collecting Data

The data used in this study uses the methods provided by the company. The data used in this study is secondary data in the form of financial statements of manufacturing companies listed on the Stock Exchange 2014-2018.

Operational Definition and Variable Measurement

Accounting Conservatism

Accounting conservatism means being careful as soon as possible to record liabilities and expenses even though the results are uncertain and record assets and income when they are received. Accounting conservatism in this study uses an accrual model (Givoly & Hayn, 2000). If the company applies accounting conservatism, the value will be even more negative. The formula for accounting conservatism is as follows:

$$ConAcc = \frac{\left((Net\ profit\ +\ Depreciation) - Operating\ Cash\ Flow\right) x - 1}{Total\ Assets}$$

Financial Distress

Financial distress is a situation when a company cannot pay off its obligations. Measurement of financial distress in this study using Altman (Z-Score). The formula is as follows :

$Z = 6{,}56(X1) + 3{,}26(X2) + 6{,}72(X3) + 1{,}05(X4)$

Information :

X1: Working capital / total assets

X2: Retained earnings / total assets

X3: Income before tax and interest / total assets

X4: Market value of equity/book value of debt

Firm Size

Company size shows the size of the company as seen through total assets, total sales, and others. Measurement of company size using total assets because the company is large or small can be known. If the number of assets is large, it is a large company or vice versa if the total assets are small, the company is a small company. Company size, according to Hartono (2015), uses the formula:

$Size = \log Total\ Assets$

Leverage

Leverage is a source of funds that comes from external parties. Leverage shows how much debt pays for the company's assets. Leverage is calculated using the Debt to Asset Ratio (DAR), accompanied by the formula:

$$Leverage = \frac{Totaldebt}{Totalassets}$$

Litigation Risk

DER measures the litigation risk arising from creditors.

$$DER = \frac{Total\ Amoun\ of\ debt}{Total\ equity}$$

RESULT AND DISCUSSION

Descriptive Statistical Analysis

The following results of descriptive statistical analysis of the study can be seen below:

Table 1 Descriptive Statistics Analysis Results

	N	Minimum	Maximum	Mean	Std. Deviation
Acc Conservatism	169	-.7880	-.0011	-.057737	.0826453
Financial Distress	169	-7.3316	24585.4383	182.260530	1905.9484439
Firm Size	169	.0000	14.4708	12.226705	1.1896334
Leverage	169	.0004	2.0558	.421368	.2593392
Litigation Risk	169	-8.3383	94.0997	1.492772	7.3222493
Valid N (listwise)	169				

Multiple Linear Regression Model

This multiple analysis test aims to see whether Financial Distress, Firm Size, Leverage, and Litigation Risk affect accounting conservatism. Table 2 is the Results of the Multiple Linear Regression Model.

Table 2. Multiple Linear Regression Test Results

Model	Unstandardized Coefficients	
	B	Std. Error
(Constant)	-.015	.028
Financial Distress	6.503E-007	.000
Firm Size	-9.672E-005	.002
Leverage	.071	.013
Litigation Risk	.000	.000

a. Dependent Variable: ACC CONSERVATISME

From table 2, so that it can be arranged multiple linear regression equations, among others:

$Y = -0{,}015 + 0{,}0000006503X1 - 0{,}00009672X2 - 0{,}071X3 - 0{,}000X4 + e$

Model test

The coefficient of determination test is used to see the effect of all independent variables used on accounting conservatism. Table 3 is the result of the determination coefficient test.

Table 3. Coefficient of Determination

Model Summary

Model	R	R square	Adjusted R Square	Std. The error of the Estimate
1	.432a	.187	.187	.0336690

Table 4 is the Result of the F Statistical Test.

Table 4. Test Results F

ANOVA [a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.037	4	.009	8.212	.000b
	Residual	.162	143	.001		
	Total	.199	147			

The F test value of 8,212 with a significance of 0,000 is the result of the significance test. There is a significant relationship between the dependent variable Accounting Conservatism with the overall independent variables of Financial Distress, Company Size, Leverage, and Litigation Risk of a significance value <0.05.

Hypothesis test

This test aims to see the partial or the effect of each independent variable on the dependent variable. The t-test considers the significance value obtained by each variable. Table 5 is the result of the t statistical test.

Table 5. Test Results t

Coefficients

Model	Sig.
(Constant)	.587
Financial Distress	.641
Firm Size	.966
Leverage	.000
Litigation Risk	.641

The result of the t t-test calculation means that the Financial Distress has a significance value of 0.641> from the significance level of 0.05. Suppose Financial Difficulty does not affect Accounting Conservatism. T the hypothesis H, one which states that Financial Distress affects conservatism, is rejected.

Firm size has a significance value of 0.966> from the 0.05 significance level. So that shows if the size of the company does not affect accounting conservatism. Thus, the H2 hypothesis, which states the size of the company influences accounting conservatism, is rejected.

Leverage has a significance value of 0,000 <from the significance level of 0.05. This shows that Leverage affects Accounting Conservatism. Thus, the H3 hypothesis, which states that Leverage influences Accounting Conservatism, is accepted.

Litigation risk has a significance value of 0.641> from the significance level of 0.05. So it shows if Litigation Risk does not affect Accounting Conservatism. Thus, the H4 hypothesis, which states that Litigation Risk influences Accounting Conservatism, is rejected.

The Effect of Financial Distress on the Application of Accounting Conservatism

Based on the research and analysis that has been done, the variable Financial Distress does not affect Accounting Conservatism. Thet-test results obtained a significance value of 0.690> of a significance level of 0.05. This shows if Financial Distress does not affect Accounting Conservatism, which means that H1 is rejected.

The results of this study are not by the positive accounting theory in the bonus plan. Managers tend to increase profits and do not apply the principle of conservatism to increase bonuses that they can. However, the results of testing in this study indicate that Financial Distress does not affect the

application of Accounting Conservatism due to conservative financial statements that will prevent companies from exaggerating profits and limiting dividend distribution, thereby indirectly increasing the availability of cash to pay debts and reducing the likelihood the occurrence of Financial Distress.

The results of this study support previous research by Ningsih (2011), which proves that Financial Distress does not affect Accounting Conservatism. However, the results of this observation are not in line with observations of Noviantari & Ratndi (2015) which prove that Financial Distress influences Accounting Conservatism.

Effect of Firm Size on the application of Accounting Conservatism

Based on the research and analysis that has been done, the variable Firm Size does not affect Accounting Conservatism. The t-test results obtained a significance value of 0.838 > from the significance level of 0.05. This shows that the company's size has no effect on accounting conservatism, which means that H2 is rejected.

The results of this study are not in accordance with the positive accounting theory on the political cost hypothesis, is namely that companies tend to reduce profits to reduce the tax burden, which means the company will apply the principle of accounting conservatism. However, the results of testing in this study indicate that firm size does not affect the application of accounting conservatism because the company will prefer to display high profits to attract investors and creditors' attention and gain public trust rather than applying the principle of accounting conservatism to reduce the tax burden.

The results of this observation are in accordance with previous observations by Utama & Titik (2018), which prove that Firm Size does not affect Accounting Conservatism. However, the results of these observations are not in accordance with observations of Noviantari & Ratnadi (2015) and Sulastri, Mulyati, & Icih (2018), which prove that firm size influences accounting conservatism.

Effect of Leverage on the application of Accounting Conservatism

From the results of research and analysis that have been done, the Leverage variable influences Accounting Conservatism. The t-test results obtained a significance value of 0,000 <from the significance level of 0.05. This shows if leverage affects Accounting Conservatism, which means that H3 is accepted.

The results of this study are in accordance with the positive accounting theory on the debt agreement hypothesis, namely that companies that will tend to reduce the debt ratio by increasing the reported earnings of the current period tend not to be conservative.

This observation is in accordance with observations that have been carried out by Noviantari & Ratnadi (2015) and Utama & Titik (2018), which prove that Leverage influences Accounting Conservatism. However, the results of this study are not in line with research results from Rohminatin (2016), which proves that leverage does not affect Accounting Conservatism.

The Effect of Litigation Risk on the Application of Accounting Conservatism

From the research and analysis that have been done, the Litigation Risk variable does not affect Accounting Conservatism. The t-test results obtained a significance value of 0.641 > of a significance level of 0.05. This shows if Litigation Risk does not affect Accounting Conservatism, which means that H4 is rejected.

CONCLUSIONS AND RECOMMENDATION

Based on research that has been worked on samples obtained as many as 149 Manufacturing Companies listed on the Stock Exchange in 2014-2018. From this study, there are limitations that the Adjusted value (R2) obtained from this research model is still very weak that is equal to 0.178 or equivalent to 17.8%, and the remaining 82.2% is explained by other variables outside the study.

According to the limitations in this study, there are still many shortcomings, so it is hoped that future studies will pay more attention to the following matters:

1. For further research, it is recommended to add other variables that can influence Accounting Conservatism, for example, Managerial Ownership Structure, Profitability, and Cash Flow.
2. For investors, it is recommended to analyze the financial statements related to steps to provide capital for the company by considering financial distress, firm size, leverage, and litigation risk.

3. For companies, it is recommended to identify the symptoms of a company going bankrupt and anticipate it from happening.

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Millennial Generation's Music, Moods, and Impulsive Buying: empirical studies in minimarkets

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Abstract

The purpose of this paper is to examine the influence of in-store music on impulsive buying among college students (as a millennial generation) in Bandung State Polytechnic, employed customer mood as mediator. Data from 200 respondents were received and analyzed using a regression for testing the hypotheses developed. The results show that the music is significantly affecting the customer's mood and impulsive buying. However, the customer mood does not play significantly affecting impulsive buying. Future research and managerial implications are addressed.

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INTRODUCTION

The behavior of young consumers is one of the targets of marketers to provide products and services that suit their needs. One of these consumers is the millennial generation. The millennial generation is a profitable segment (Helmi et al., 2021), whose consumption experience is consistent and can be embraced by marketing offers. Thus, understanding the behavior of the millennial generation is an important topic (Moreno et al., 2017; Smith, 2011). This generation was born from 1980 to 2000 (Lee & Kotler, 2016), also referred to as generation Y (BPS, 2018). The number of millennials according to Susenas (National Socio-Economic Survey), in 2017 was 88 million people or 33.75 percent of Indonesia's population (BPS, 2018), followed by generation Z (29.23%), generation X (25.74%), and least population is the baby boomers and veterans (11.27%) (Deloitte Indonesia, 2019). Unfortunately, studies on the millennial generation in Indonesia are still less intensive (Helmi et al., 2021).

Millennials have high purchasing power, becoming a magnet for marketers to make them a target market (Smith, 2011; Kueh & Voon, 2007; Schiffman & Kanuk, 2009; Pendergast, 2010; Moscardo et al., 2011). The millennial generation who have graduated from college and have worked make them the most influential group (Kim & Ammeter, 2008) because they have high purchasing power (Krotz, 2005) and buy significantly more than creating another generation (Ma & Niehm, 2006).

Millennials have different behavior, unlike previous generations (Smith, 2011). More millennials but less loyal to a brand. Apart from purchasing power, millennials are trendsetters, easy to accept new products, and have the potential to become consumers of lifestyle products (Schiffman & Kanuk, 2009).

This research focuses on studying the behavior of millennials, especially college students, when shopping at minimarkets that have a program in the form of instrumental music, which is the store's background (in-store music). The minimarket operates within the Bandung State Polytechnic campus, functioning as a real business laboratory for the Department of Business Administration students, a kind of learning factory.

In-store music is an effort of minimarket managers to provide a comfortable store environment, and with this convenience, consumers are expected to spend more time shopping (Mehrabian & Russell, 1974). It is common knowledge, consumers not only buy products/services based on functional aspects, but they also consider the experience they get when the buying process occurs (Venter et al., 2016). This happens because the decision-making in shopping is not solely based on rational factors but is more controlled by emotional considerations (Clarke et al., 2012). On the other hand, the study results indicate that music in the store triggers emotions, in the form of moods-in the form of pleasure and arousal (Garlin & Owen, 2006; Turley & Milliman, 2000).

Another consequence of the presence of music is the emergence of unplanned behavior (Turley & Milliman, 2000). It can even become an impulsive purchase (Mattila & Wirtz, 2001). This purchase is important because about 62% of product purchases in supermarkets are impulsive types (Luo, 2005), even reaching 80% of the total products purchased for certain product categories (Abrahams, 1997). Impulsive buying can increase retail sales and profits, especially for products with high-profit margins (Rostoks 2003).

Store visitors become more impulsive because music triggers or changes moods (Bruner, 1990; Donovan et al., 1994; Jain & Bagdare, 2011), and in turn will change human behavior (Donovan et al., 1994; Oakes, 2000). This means that mood is a mediator between music and impulsive buying.

Thus, this study will evaluate the pattern of the relationship between music in the store, the mood of visitors (divided into two dimensions, namely pleasure, and arousal (Russel, 2003)), and impulsive buying, from the perspective of the millennial generation and with the research locus in minimarkets operating at the Bandung State Polytechnic.

Research on music and impulsive buying has been widely discussed in the marketing literature. However, specific studies in minimarkets (as a learning factory in universities) with visitors coming from the millennial generation (in this case, college students) are still scarce. Besides, impulsive buying studies generally focus on the Western context. Therefore, it is necessary to explore impulsive buying behavior in the context of non-Western countries, especially for developing countries (such as Indonesia), a country that is a very profitable market destination. More specifically, this study can be a reference for managers of vocational high schools in building a retail

business laboratory that students can use to become professionals in this field. Thus, this research is expected to be able to fill the void in the knowledge base in this field.

Hypothesis Development

Relationships between Music, Moods, and Impulsive Buying

Music affects emotions (Coloma & Kleiner, 2005), and its presence, even in the tiniest volume, affects repurchases and makes buyers feel happy (Garlin & Owen, 2006). As a result of the influence of music, buyer behavior will occur when humans non-randomly assign emotional meaning to music, experience non-random affective reactions to music, and subsequently make non-random behavioral responses (Bruner, 1990).

There are three main terminologies in understanding emotions: affect, emotion, and mood (Russell, 2003; Fiske & Taylor, 2008). All three are theoretical concepts that are interrelated and cannot be separated from one another. Affect refers to a broad and general term that covers emotions, moods, and attitudes. Emotion refers to a variety of emotional states that tend to be volatile and short-term. Meanwhile, mood refers to an emotional state that tends to be long-term and can arise without any specific emotional object (trigger). In general, the difference between emotion and mood lies in the period and the emotional object, but both refer to the same conceptual framework, affect, and are often used interchangeably.

Unlike the theory of the basic emotions, which explains that humans have special emotions, the circumplex model of affect theory proposed by Russell (1980; 2003) has a different perspective. This theory explains that humans have different core emotions and can be classified into two emotions: pleasure and arousal. These core emotions are called core affect (Russel, 2003).

Based on the arousal-mood hypothesis, listening to music can affect arousal and mood, which in turn will affect the performance of various cognitive skills. The impact of music on arousal and mood has been recognized by various researchers (Gabrielsson, 2001; Krumhansl, 1997; Peretz, 2001; Schmidt & Trainor, 2001; Sloboda & Juslin, 2001). So, music has the potential to trigger human moods, feelings, and thoughts (Ahmad & Rana, 2015). In more detail, Gancer and Huda (2010) stated that music has the power to influence mood positively and negatively. Therefore, people choose to listen to music to get this effect (Gabrielsson, 2001).

The theory of SOR, stimulus-organism-response (Mehrabian & Russell, 1974), states that physical and social stimuli in the environment will affect individual emotions, affecting one's behavior. SOR theory uses pleasure, arousal, and dominance as expressions of emotions that arise in response to stimuli from the environment, in this case, in the form of music. In this study, dominance was not included as a part of emotion because the dominant dimension requires cognitive rather than affective judgment (Russell & Pratt, 1980). Research suggests that in-store music triggers consumer pleasure and arousal (Garlin & Owen, 2006; Turley & Milliman, 2000; Bruner, 1990; Meng & Choi, 2017; Ryu & Jang, 2007). Pleasure and arousal are dimensions of emotion or mood. Thus, the following hypothesis can be made.

H1a. In-store music influences the mood of the buyer, in this case, it is a pleasure

H1b. In-store music influences the mood of the buyer, in this case, it is arousal

Furthermore, Bruner (1990) suggested that music should be considered as an effective and efficient instrument to trigger non-verbal communication. Vida (2008) states that the ability of music to adapt to the image of the retail business plays an important role in shaping buyer behavior. Influencing buyer behavior through music is a must, but this influence is like a double-edged knife, helping to achieve business goals or destroying them (Milliman, 1982).

Therefore, retailers design store environments with care to increase the positive feelings of buyers, which in turn will lead visitors to buy more or explore the store for longer (Xu, 2007). Russel and Mehrabian (1976) stated that increasing the pleasantness of the store will maximize purchasing behavior. A pleasant environment will make the customer feel welcome and make the buyer stay longer in the store. Music is an attempt to improve pleasantness. Milliman (1982, 1986) states that background music tends to be calming to create a pleasant atmosphere. Jain and Bagdare (2011) state that music affects the level of the experience of consuming cognitive, emotional, and behavioral regarding attitudes and perceptions and the time and money spent while shopping at the store.

Music evokes affective reactions and shops visitors' behavior (Mattila & Wirtz, 2001, 2008). Music makes consumers spend more time in stores, which leads to impulsive buying (Oakes, 2000).

More specifically, the music genre produces a stronger influence on preferences and perceptions of impulsive buying (Saini, 2015).

The mechanism, background music (in coordination with other factors), makes consumers feel they don't spend time shopping and don't feel long waiting (Chebat et al., 1993), affecting consumers' perceptions of the overall store environment (Hui et al., 1997), increasing sales, increasing impulsive buying tendencies, changing consumer attitudes towards the shopping experience, and increasing consumer interaction with the store environment (Morrison et al., 2011).

Music affects shop consumers directly or indirectly (Lucas & Koff, 2014; Milliman, 1982; Dubé & Morin, 2001; Fiegel et al., 2014). As part of the background music, musical rhythm also affects consumers in retail stores (Milliman, 1982). Consumers will run faster and shop less when the music is fast (Milliman, 1982). The rhythm of music can also affect the emotional reaction of consumers, music with a slow rhythm makes consumers feel relaxed or relaxed. This is a positive mood that will lead consumers to stay longer in the store, which will impact the tendency to make impulsive purchases (Morrison et al., 2011). So, when a consumer walks quickly in a store, in a fast-paced musical environment, it creates impatience, which reduces the chance for impulsive buying behavior.

A study by Mattila and Wirtz (2008) shows that the store environment positively influences impulsive buying behavior, especially when the store environment stimulates visitors. Applebaum (1951) recommends that impulsive buying can occur when consumers get a stimulus from the environment when they are shopping at the store. Designing a store environment, one of which is by empowering music, is a marketing technique created to provide a favorable store environment that will create impulsive purchases (Graa et al., 2014; Mattila & Wirtz, 2008). Based on this explanation, the following hypothesis can be developed.

H2. In-store music influences impulsive buying.

Relationships between Mood and Impulsive Buying

Variables of the shop atmosphere, such as sounds, sights, and smells, are important stimuli in generating impulsive buying desires (Eroglu & Machleit, 1993; Donovan et al., 1994). Beatty and Ferrel (1998) stated that impulsive buying is closely related to hedonic consumption and sensory stimulation. Music is a form of stimulant that is captured by the sense of hearing. Sherman et al. (1997) stated that store environment and consumer emotions are the most important determinants of certain purchasing behavior, for example, impulsive buying; instead of a cognitive factor.

Thus, impulsive buying can occur because the store atmosphere generates a mood or emotional response in the form of pleasure, arousal, or dominance (Mehrabian & Russell, 1974; Donovan & Rossiter, 1982; Dholakia, 2000). Donovan et al. (1994) found that the shop environment influences consumers' emotional states (eg pleasure and arousal). Furthermore, these emotions are a strong reason why they spend more time in stores and spend more rupiahs than planned. Thus, emotions or moods influence actions, including impulsive buying (Beatty & Ferrell 1998; Park et al. 2006). However, recent studies suggest that mood is only represented by two dimensions, pleasure and arousal, so it is often referred to as the PA model (Yüksel, 2007; Bigné et al., 2005; Chebat & Michon, 2003; Mattila & Wirtz, 2000). Yalch and Spangenberg (2000) stated that dominance is not related to behavior. Or, pleasure and dominance are often categorized as indicators of pleasure (Yüksel, 2007; Bigné et al., 2005; Chebat & Michon, 2003; Mattila & Wirtz, 2000). Russell and Pratt (1980) noted that the dimensions of mood or emotion, namely pleasure and arousal, are sufficient to represent people's emotions or people's affective responses to the environment on a broad scale.

In the context of retail business, pleasure and arousal indicate the tendency of consumers to react positively (Eroglu & Machleit, 2008). This happens because mood has significant implications for human behavior. Pleasure and arousal are mood dimensions, while mood, emotions, and attitudes refer to a broader concept, namely, affect. According to Park et al. (2006), an emotion, which consists of affect and mood, is an important factor in decision making, including in-store purchasing decisions. On the other hand, Verplanken and Herabadi (2001) explain that customers who engage in impulsive buying tend to show emotions all the time during the purchase, before, during, or after the purchase.

That is, the individual affective state or individual mood is one of the determinants of impulsive buying. When someone is in a good mood, he tends to give himself gifts generously, and there will be a tendency to become more impulsive (Beatty & Ferrell, 1998). Not surprisingly, Rook and Gardner (1993) found that a pleasurable mood encourages impulsive buying. There is an argument that impulsive buying behavior is strongly related to positive emotions and feelings, in such a way that impulsive buyers experience more positive emotions, such as delight, and have an

impact on more shopping activities (Beatty & Ferrell 1998). Positive emotions, consisting of affect and mood, will determine the intensity of consumer decision-making (Amiri et al. 2012; Tirmizi et al., 2009). Thus, positive emotions when consumers are in the store will be a mediator in leveraging impulsive purchases. Impulsive buying occurs when a person experiences a strong need for arousal and experiences an emotional impulse from constant repetitive buying behavior (O'Guinn & Faber 1989; Verplanken & Sato 2011).

However, consumers also appear to be more impulsive when they have negative emotions, such as sadness. This is done to improve the negative mood (Rook & Gardner, 1993). Self-gifting is a form of store therapy that helps shoppers manage their moods (Mick & Demoss 1990; Rook & Gardner 1993; Vohs & Faber 2007). While other researchers agree that impulsive buying can be used to manage or increase negative emotions, they also claim that this influence occurs through a self-regulatory function (Rook & Gardner 1993; Verplanken et al. 2005). Thus, emotional states, positive or negative, are likely to influence impulsive buying, but there is no consensus on whether emotions are positive or negative or both that uniquely define impulsive buying. Based on these arguments, the researcher can develop the following hypothesis.

H3a. The mood of the in-store shoppers, in this case, it is pleasure, influences impulsive buying.
H3b. The mood of the in-store shoppers, in this case, it is arousal, influences impulsive buying.

METHOD

The design of this research is descriptive and associative, with the unit of analysis for the millennial generation, in this case, college students, who shop at the minimarket that operates at the Bandung State Polytechnic. The study population was all Bandung State Polytechnic students who shop at the minimarkets in the college. The sample is determined based on the technical analysis used in this study, multiple regression analysis (Hair et al., 1998; 2010), the minimum quota of respondents is 150 visitors. This amount has met the requirements for multivariate research (Hair et al., 1998; 2010).

A self-administered survey was conducted for one month (Monday-Friday, at work hours 08.00-15.00 WIB) to collect primary data, using a Likert scale questionnaire instrument (Soedibjo, 2013), with a value of 1 = strongly disagree and 4 = strongly agree, there is no middle value to avoid a central tendency. The measurement of the three constructs used in this study is based on the literature. The music played is instrumental music, for example: Makes Me Wonder from Maroon 5, Murs from Olly Murs, You are the Reason from Callum Scott, Shape of You from Ed Sheeran, Friend Like Me from Will Smith, or Boyfriend from Justin Bieber. The Brief Mood Introspection Scale (BMIS) developed by Mayer and Gaschke (1988), the visitor's mood was measured to measure pleasure and arousal. Customer perceptions of the music that is "played" in the minimarket are measured by three statement items from Morrin & Chebat (2005), an example of the statement item is: This minimarket has pleasant music. Furthermore, the five-item statements from Weun et al. (1998) are used to measure impulsive purchases. Examples of items are: When I see an attractive item, I will buy it, regardless of the consequences.

Validity and reliability tests are used to test the seriousness of respondents' answers (Sekaran, 2007; Hair et al., 1998; 2010). Reliability using Cronbach's alpha, Cronbach's alpha value close to one indicates the variable has higher reliability. Now (2007) suggest that the minimum acceptable Cronbach's alpha value is 0.50, but Nunnally and Bernstein (1994) recommend Cronbach's alpha value of 0.70 or higher as a reliable scale. This study follows Nunnally and Bernstein (1994). As a result, all statement items used to measure the three research variables were valid because they had an item-total correlation value>0.30; also reliable because it has Cronbach's alpha>0.70 (Sekaran, 2007; Robinson et al., 1991).

Finally, to determine the pattern of relationships between variables, researchers used correlation analysis and multiple regression analysis (Santoso, 2002; Hair et al., 1998; 2010) to answer research questions.

RESULT AND DISCUSSION

Complete and processable questionnaires are 200 sets. Respondents were dominated by female students (68%), the rest were students (32%). In terms of age, 61.6% are students who are less than twenty years old, meaning they are the youngest millennial generation; while students aged between 20-25 years were 35.6%, the rest were more than 25 years old. Next, based on the history of the frequency of their visits to minimarkets, almost all respondents have been to the minimarket more than six times (90%), the restless than six times. This means that millennials are familiar with the minimarket.

The results of the descriptive analysis (Table 1) show that the variable perceptions of music, pleasure, and arousal are at the "high" level (in the range 2.51-3.25; scale 4). Meanwhile, the impulsive buying variable is at a "very high" level (range 3.26-4.00; scale 4). Judging from the standard deviation, the music, pleasure, and arousal variables have a standard deviation that is within a tolerable range, namely: a maximum of 20% of the average value (Santoso, 2002), except for the impulsive purchasing variable. This variable has a rather high standard deviation, indicating that respondents' perceptions have varied values. Furthermore, not all independent variables have a significant relationship with the dependent variable. This indicates that the criterion-related validity or predictive validity requirements are marginal (Das et al., 2008). This applies to pleasure and arousal, which do not have a significant correlation with impulsive buying.

Table 1. Mean and Correlation among Variables

		Mean	Stand. Dev.	1	2	3	4
1	Music	3.17	0.51	1	0.149*	0.062*	0.192**
2	*Pleasure*	3.11	0.45		1	0.088	0.056
3	*Arousal*	2.76	0.39			1	0.044
4	Impulsive buying	3.43	0.77				1

*. Significant correlation at the 0.05 level (2-tails)
**. Significant correlation at the 0.01 level (2-tails)
Source: data processing results, 2021

Next, regression analysis was used to test the three research hypotheses. The results are presented in the form of a structural model with path coefficients (Figure 1). In-store music has been shown to significantly affect both pleasure and arousal. So, hypothesis 1 can be accepted. Music has a path coefficient of 0.177 (t=2.834), significant, and can explain the variations in the pleasure dimension of 3.1%; other variables explain the rest. Furthermore, music significantly affects arousal, with a path coefficient of 0.128 (t=2.026), and can explain the variation in this dimension by 1.6%; other variables explain the rest.

Hypothesis 2 which states that in-store music affects impulsive buying is also supported by empirical studies, because in-store music has a positive and significant effect on impulsive buying, with a path coefficient of 0.206 (t=3,221), and can explain the existing variations in the impulsive buying variable by 3%; other variables explain the rest. For hypothesis 3, the results of this study identified no significant effect of mood, for the pleasure and arousal dimensions, on impulsive buying. That is, hypothesis 3 is not supported by empirical data.

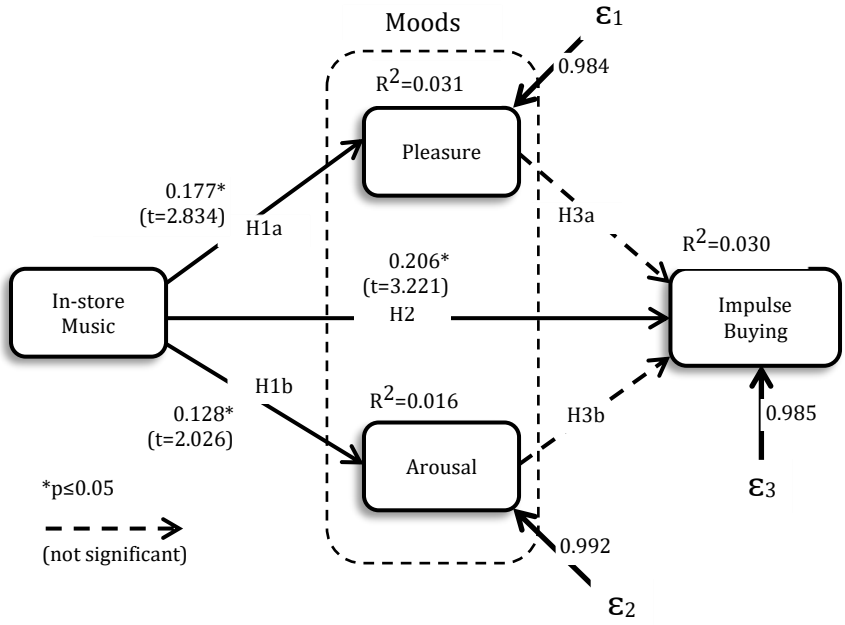

Figure 1. Structural Model with Path Coefficients
Source: data processing results, 2021

The Influence Of Music On Mood

This study shows that music in the minimarket can generate pleasure and arousal as dimensions of mood. As a result, students enjoy the experience of shopping at the minimarket, get a pleasant emotional experience (Petra, 2016). These results are consistent with the results of studies from Fulberg (2003), Milliman (1982, 1986), Garlin and Owen (2006), Jain and Bagdare (2011), Mehrabian and Russell (1974), Russell (1980), Russell and Pratt (1980), Russell et al. (1981), Bell et al. (2001), or Gifford (2001).

So, the millennial generation in college can accept (approach) a shop environment that programs instrumental music as a background. Consequently, their mood is significantly affected by the presence of music. The managerial consequence is that minimarket managers need to empower marketing practices that focus on a pleasant shopping experience, not just focus on products (Maghnati et al., 2012; Venter et al., 2016). Experiential marketing needs to be applied in minimarkets through music ambiance. Moreover, in-store background music is a major variable of the retail store atmosphere (Turley & Milliman, 2000; Gopal & Gopal, 2010; Jain & Bagdare, 2011). However, in-store music needs to be synergized with other variables because buyers develop perceptions of the overall store environment (Hui et al., 1997; Bitner, 1992).

The Influence Of Music On Impulsive Buying

Based on meta-analysis (Iyer et al., 2020), marketing stimuli directly influence impulsive buying, with a path coefficient of 0.17. Not much different, this study shows that in-store music affects impulsive buying by 0.206 (t=3.221). This is also in line with studies from Dholakia (2000), Kacen et al. (2012), Sharma et al. (2010), Amos et al. (2014), Milliman (1982), Mattila and Wirtz (2001), Dubé and Morin (2001), Eroglu et al. (2003), Mohan et al. (2013), Lucas and Koff (2014), Donovan and Rossiter (1982), Davis and Sajtos (2009), or Fiegel et al. (2014) who stated that background music has the potential to increase impulsive buying. In this case, the millennial generation can also be stimulated by music to make impulsive purchases at convenience stores.

This is because music creates a comfortable shopping environment, and with that convenience, the millennial generation will spend more time shopping (Mehrabian & Russell, 1974). The more time you spend at the convenience store, the more likely it is that unplanned purchases will arise. Exploration in stores causes students to be attracted to previously unthinkable items (Tai & Fung, 1997), so the likelihood of impulsive buying is greater. This is in line with the report which

states that the millennial generation has a 52% chance of making impulsive purchases to pamper themselves (Tuttle, 2012).

Music also can encourage students to interact with other students (Mattila & Wirtz, 2001; Sweeney & Wyber, 2002), and with minimarket staff (Areni, 2003; Dube et al., 1995). This makes them feel good, so they tend to make impulsive purchases.

Because background music influences the impulsive buying of the millennial generation, the managerial implication is this: minimarket managers need to create new and unique marketing stimuli to convey the values they offer and encourage impulsive buying. It must always be new because students as the millennial generation also understand this tendency. This means that students are increasingly familiar with the marketing tactics minimarket managers use to persuade them to make impulsive purchases. It is unique to differentiate it from other minimarkets, or so that the stimulant is explicitly dedicated to the millennial generation, following the characteristics of the millennial generation. If it is not done, then students will feel skeptical about these marketing practices (Iyer et al., 2020), millennials are known to be less loyal to a brand (Smith, 2011).

The Influence Of Mood On Impulsive Buying

This study found that pleasure and arousal did not significantly influence impulsive buying. Thus, the students' moods cannot trigger impulsive buying. This is in line with the opinion of Yalch and Spangenberg (1993) which states that the role of mood as a mediator between the physical environment of stores and consumer behavior is inconsistent. Another explanation, not everything can be influenced by mood (Soh et al., 2015). Kim (2006) also states that the intention to buy is not influenced by mood.

This may be caused by the minimarket environment, which is noisy, or because the audio quality is not good enough (Kellaris, 2008). In the perspective of the harmony or compatibility of music with the shop environment, millennials who visit the convenience store may not see a match between the music played and the shop environment which tends to be noisy, the audio quality is not good, or the arrangement of goods is not neat, etc. The study results by Demoulin (2011) and Spangenberg et al. (2005) stated that the harmony of music with the overall shop atmosphere and the products sold will affect both pleasure and arousal levels. Minimarket visitors respond to the shop environment as a whole, not only from a musical background (Bitner, 1992; Hui et al., 1997).

Besides, the emotional response of visitors to the shop environment used in this study uses a framework from Mehrabian and Russel (1974), which is bipolar, consisting of pleasure and arousal. However, although various researchers have used this framework, in retail or other types of services (eg Caro & Garcia, 2007; Kaltcheva & Weitz, 2006; Zhou & Wong, 2003), others have argued that the bipolar conceptualization is lacking able to interpret consumer emotions (Babin et al., 1998). Therefore, several studies (for example, Jang & Namkung, 2009; Lee et al., 2008; Yalch & Spangenberg, 2000) suggest two independent unipolar dimensions, namely, positive and negative affections than pleasure and arousal schemes in evaluating their relationship to behavior emerging. In other words, pleasure and arousal do not reflect the emotions when millennial buyers shop at minimarkets. A negative mood or positive mood is probably the more appropriate terminology. Also, the most important limitation is the ability of the pleasure and arousal dimensions to explain special emotions or what are called discrete emotions (Russel, 2003). Discrete emotions, called basic emotions, are special emotions that exist in humans, and each of them has special characteristics (Ekman, 1992). These emotions are anger, fear, disgust, joy, sadness, and surprise. This implies the need to seek more empirical evidence to determine which emotions are more prominent, which determines impulsive buying.

The next reason that might explain why mood does not influence impulsive buying is the moderator variable. Impulsive buying is also affected by the situation that occurs at the time of purchase (Sharma et al., 2010). These situational factors, for example, the availability of time and money (Beatty & Ferrell, 1998). This means that the buyer's mood will not always affect impulsive buying, situational factors are a moderating variable between mood and impulsive buying (Chang et al., 2013). For example, although the mood of students who shop at minimarkets is positive because the time available for shopping is very limited, impulsive buying will not occur (Chang et al., 2013). Lectures at the Bandung State Polytechnic are relatively dense, so the gap between the first lecture and the next lecture is very narrow, or you have to move to another class that is quite far away (± 20 acres of Bandung State Polytechnic campus). Or, because students are the millennial generation who

do not yet have high purchasing power (because they are not yet working, they still rely on pocket money from their parents), financial limitations may prevent impulsive buying.

Finally, based on the history of the frequency of their visits to the minimarkets at the Bandung State Polytechnic, almost all respondents have been to the minimarket more than six times (90%), the restless than six times. As a result, they are better prepared or trained to exercise self-control, so they are not lured into making impulsive purchases. This cognitive ability will intervene when students experience the desire to buy impulsively (Baumeister 2002; Baumeister et al., 2008; Hofmann et al., 2012; Tice et al., 2001).

To optimize the role of mood so that it can become a mediator between music and impulsive buying, minimarket managers need to harmonize music with other elements of the store environment, use various types of music genres, distinguish different types of music for the morning, afternoon, or evening. As well as using two free unipolar dimensions, namely, positive and negative affections to evaluate their relationship with impulsive behavior.

CONCLUSION AND RECOMMENDATION

The results showed that music in the minimarket has a significant positive effect on mood in the form of high pleasure and arousal. Furthermore, music positively and significantly impacts impulsive buying, but mood (pleasure and arousal) does not significantly affect impulsive buying.

This study shows how in-store music can leverage mood and explain its relationship to impulsive buying among millennials, especially college students. However, because shoppers in stores assess the shop environment holistically, other variables that can influence impulsive buying need to be explored to get a more comprehensive understanding of impulsive buying among millennials, especially for minimarkets that function as a learning factory.

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Foreign Portfolio Investment Control Using Macroeconomic and Institutional Policies: Evidence from Indonesia and Thailand

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Abstract

This study analyzed the influence of macroeconomic and institutional variables on foreign portfolio investment inflows in two ASEAN countries, Namely Indonesia and Thailand, in 2005 – 2019. The analytical tools used in this research are Panel Vector Error Correction Model (PVECM) and Panel Ordinary Least Square (POLS). The estimation results show that the macroeconomic variables that are proxied using inflation and openness economy and institutional variables that are proxied using the variable level of corruption and quality of regulation have a significant effect. The inflation rate, the openness economy, and the quality of regulation variables significantly affect foreign portfolio investment in the long term. Meanwhile, in a short time, only the inflation rate variable and the openness ratio have a significant effect on foreign portfolio investment. The two analytical tools used found that macroeconomic and institutional variables consistently affect foreign portfolio investment.

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INTRODUCTION

Developed and developing countries have increasingly opened their economic systems since GATT opened international trade liberalization in 1947 (Staffs, 2001; Ayenagbo et al., 2011; Baldwin, 2016; dan DeMarco et al., 2020). Throughout the 1990s, the taps of the economy in developing countries were opened wide by the governments of their respective countries (Salazar-Xirinachs et al., 2014). The policies adopted in implementing an open economic system are carried out by eliminating restrictions on the domestic market (Strašek, 1994 dan Edeme et al., 2020). The removal of restrictions on the domestic market in these developing countries was accompanied by domestic capital markets and foreign portfolio investment (FPI). In the financial market, foreign portfolio investment (FPI) is used to increase domestic capital, increase the choice of sources for the national development budget and add investment products in the domestic financial market (Winona et al., 2016). Indonesia has adopted an open economic system since 1970 and is slowly becoming one of the destination countries for foreign investment in ASEAN (Mccawley, 2013; Khaliq & Noy, 2007). There are several reasons for choosing Indonesia as an investment destination. Apart from having a high return value, it is also known as a rice barn and has more stable economic growth in the long term (Quibria, 2002; Estrada et al., 2010 and Wibowo, 2017).

The world investment report released by UNCTAD in 2019 noted that Indonesia was in the eighteenth position as the country with the highest foreign capital inflows from the top 20 host economies in 2017 and 2018 (UNCTD, 2017). Other countries in ASEAN that were included in the top 20 host economies in 2017 and 2018 are Singapore, which is in the fifth position. Meanwhile, Thailand and several other countries in ASEAN were recorded as having high foreign capital outflows. The world investment report in 2019 released by UNCTAD noted that Thailand was in the eighteenth position in the top 20 host economies in 2017-2018, lower than Singapore, which was recorded at the eighth position as a country with high foreign investment capital outflows in 2017. the same one. Countries in ASEAN that are not listed in the top 20 host economies in the world investment report are classified as low foreign capital inflows and low foreign capital outflows.

Before the 1997 Asian financial crisis, FPI played an essential role in the Thai economy so that it was able to achieve the fastest growth rate in exports of manufactured goods among ASEAN countries (Tnyakhan, 2008). Historical data on net investment portfolios in current prices released by Knoema noted that in 2015, Thailand's FPI was the highest compared to its golden year before the Asian crisis, which amounted to US$16,508,135,076 in 2015 and US$3,985,000,000 in 1990. Meanwhile, FPI's golden year in Indonesia was recorded as being in 1990 – 2000. Knoema historical data noted that the net investment portfolio in 2000 was positive at 1,910,730,193 US Dollars, higher than 1990, which was positive at 93,000,000 US Dollars.

Other ASEAN countries, namely Malaysia, have better FPI than Thailand and Indonesia. 2018 was a golden year for Malaysia. It is recorded from Knoema's data that in 2018 Malaysia's net investment portfolio was 12,431,150,396 US Dollars, lower than Thailand and higher and better than Indonesia, which was dominantly negative. Singapore has a net portfolio investment of US$106,451,719,314 in 2019, the highest recorded in the historical data for its portfolio investment net and higher than other countries. Higher than Indonesia, the Philippines had the most increased net portfolio investment in the country's history of 5,470,919,991 US Dollars in 2015.

Meanwhile, Cambodia has a lower net portfolio investment than Thailand, Indonesia, and Malaysia. In the last 30 years, Cambodia's net portfolio investment was under one billion. Cambodia recorded its golden year in 2019 with a net portfolio investment of 12,453,079 US Dollars. Myanmar in 2017 recorded its best net portfolio investment of 44,393,624 US Dollars, while Laos recorded a golden year for its net portfolio investment in 2019 of 41,278,649 US Dollars. The net investment portfolio under one billion USD also applies to countries in ASEAN that are not mentioned, such as Brunei Darussalam. From the net portfolio investment data in ASEAN countries published by Knoema, it can be concluded that it is true that Indonesia and Thailand are classified as countries

with high FPI. However, Indonesia's net portfolio investment position is below the Philippines, Thailand, and Singapore. Indonesia has the most elevated GDP position and the lowest (tight) market openness ratio compared to Thailand and some of the top countries in Knoema's net portfolio investment.

Table 1. Nominal GDP and Market Openness Ratio of ASEAN Countries in 2019

No	Country	Nominal GDP (Millions of US Dollars)	Market Openness Ratio (Percent)
1	Indonesia	1,100,911	37.30
2	Thailand	516,662	110.39
3	Malaysia	373,447	123.00
4	Singapura	372,807	319.15
5	Filiphina	356,682	68.61
6	Vietnam	260,301	210.40
7	Myanmar	65,665	60.69
8	Kamboja	26,979	123.56
9	Laos	20,153	75.09
10	Brunei Darussalam	13,325	108.50

Source*: International Monetary Fund & World Bank* 2019, processed.

Table 1 shows that the economic growth of Indonesia and Thailand are the two strongest GDP countries in ASEAN. With a high GDP value, it is expected that portfolio investment inflows can increase. Portfolio investment can grow if a country's openness to international financial markets is wide open. Thailand's domestic financial market openness ratio is known to be lower than Indonesia's domestic financial market openness ratio. The significant difference in the openness ratio of the two countries with large GDP is most likely due to the post-traumatic economic recovery after the crisis. One conclusion can be drawn that the Indonesian state chose to tighten its market to avoid an international impact.

Some empirical studies show that there is a correlation between foreign portfolio flows and macroeconomic variables. Evans (2002) argues that foreign portfolio investment can support the running of the domestic economy in various ways. First, liquidity in the capital market. Second, increasing transparency and discipline in the capital market. Third, increasing company performance. Anwar's (2016) research results found that interest rates and inflation, the ratio of economic openness (openness) affect the formation of foreign portfolio investment in the ASEAN region. Research in recent years concerns the linking of foreign portfolio investment with the state of a country's institutions. Atrobah (2015), who examines foreign portfolio investment inflows in Sub-Saharan Africa, concludes that exchange rates, institutional quality, and inflation significantly affect. Al-Smadi (2018) reviewed the same case in Jordan, showing that political stability and corruption significantly role in the influx of foreign portfolio investment over a more extended period.

Corruption is one of the institutional factors that can affect the size of portfolio investment inflows in a country (Archana et al., 2014; Jain et al., 2017 dan Chamisa, 2020). In Indonesia, the Center for Strategic and International Studies survey found that 70 percent of entrepreneurs believe that corruption has increased (OECD, 2016) and makes it difficult for foreign companies or foreign investment to partner with local companies. The survey results further found that in 2016-2017, corruption was the main obstacle most frequently cited and discussed in electronic and print media for doing business in Indonesia (WEF, 2016). This is because public institutions in several ASEAN countries do not have vital transparency and accountability, coupled with weak anti-corruption laws and limited civil society involvement (Tranparency International, 2015; Zafarullah & Siddiquee, 2020

dan D. F. Anwar, 2020). Within the ASEAN countries, only Indonesia and Thailand have passed the law on freedom of information (Partridge, 2015).

Empirical studies on the relationship between foreign portfolio investment and corruption have been investigated by Jain et al. (2017). The results of his research state that the level of corruption can reduce the level of foreign investment that enters a country. Jajkowicz & Drobiszová (2015), in their research, confirms that the corruption variable has a significant influence on the allocation of government spending. Furthermore, five out of ten government spending groups were found to have a substantial effect on FPI. Ciocchini et al. (2011) found that the perception of corruption in a country impacts the spread of companies, while the global bond market considers corruption to have an influential role in determining the distribution of debt for a company or in government.

Research on foreign portfolio investment and institutions has not become the subject of much research by economists. With the background of several studies with the same theme, the basis for thinking and several improvements will be included in this research. Adoption of ideas on existing research is used for writing, discussion, to econometric modeling. This study differs from previous research by comparing the scope of the study between Indonesia and Thailand. Previous research focused only on developed countries and was carried out by people outside Indonesia. Using PVECM analysis tools and different periods and case studies from other countries will produce different results and conclusions. This study adopts the model of Al-Smadi (2018) for PVECM analysis and the ordinary least square (POLS) panel model of Anwar (2016) using annual data in 2005-2019. The variables to be used differ from Al-Smadi's (2018) and Anwar's (2016) research. The addition of economic variables that are more balanced with institutional variables can compare the effects of economic and institutional variables on FPI.

METHOD

The data used are two regions representing two countries in ASEAN from 2005–2019. The annual data used for analysis are inflation rate data, economic openness ratio data, corruption level data, and regulatory quality data. These data are for Indonesia and Thailand in 2005 – 2019 obtained from the world bank, international transparency, the global economy, CEIC data, Bank Indonesia, and the Central Bank of Thailand (Bank of Thailand/BOT). In this study, the method used is the analysis method with Panel Vector Error Correction (VECM) and Panel Ordinary Least Square (POLS). This method uses a combination of time series and cross-sectional data, namely PVECM and POLS analysis methods that have several significant advantages over using only time-series data, such as increasing freedom levels and reducing multicollinearity between explanatory variables thus increasing efficiency in econometric model estimation.

The model used in this study adopts the model used by Al-Smadi (2018) with several different variables. Meanwhile, the simulation of the economic model formed in this study is as follows:

$$FPI = f(INF, OPEN, COR, REG)$$

Considering the panel data analysis method is a combination of time series analysis with cross-section analysis, the model can be written linearly with the linear equation:

$$FPI_t = b_0 + b_1 INF_{it} + b_2 OPEN_{it} + b_3 COR_{it} + b_4 REG_{it} + \varepsilon_{it}$$

Where FPI = Foreign portfolio investment, INF = inflation rate, OPEN = economic openness ratio, COR = Corruption, REG = regulatory quality and εit = error term.

In addition, specifically for macro variables, namely the ratio of economic openness. The proxy variable formula is calculated using the following formula:

$$OPEN = \frac{X+M}{GDP}$$

The proxy formula for the variable level of economic openness ratio aims to know the status of tight or loose economic openness to foreign investment. Using the net trade formulation, namely exports (X) minus imports (M), it is hoped that the variable can explain the economic openness of international fund flows.

RESULT AND DISCUSSION

The Panel Vector Error Correction Model (PVECM) begins the analysis step using the panel data regression method. The use of this method has the aim of determining the relationship of the independent variable to the dependent variable. Panel regression model from Anwar (2016), which have been implemented and adopted in this research variable, are as follows:

FPI = 1133,074 + $\beta_1$35,11568 INF - β_2 0,000880 OPEN - β_3 52,69098 COR + β_4 17,76300 REG

Based on the results of panel data regression (POLS) using the E-views ten program, the panel tests for the two countries were obtained as follows.

Table 2. Classic Assumption Test Results

Classic assumption test					
Normality		Heteroscedasticity		Multicollinearity	
Jarque-Bera Value	3,7910	Probability		INF – OPEN	-0,107890
Mean	-7,5815	INF	0,9410	INF – REG	-0,739091
Median	-95,2754	OPEN	0,8431	INF – COR	-0,737868
Maximum	866,6094	COR	0,8986	OPEN – INF	-0,107890
Minimum	-487,0992	REG	0,5801	OPEN – COR	0,204646
Std. Dev.	368,2467			OPEN – REG	0,219070
Skewness	0,8438			COR – INF	-0,737868
Kurtosis	2,5707			COR – OPEN	0,204646
F-statistic				COR – REG	0,792331
Probability	0,0161*			REG – INF	-0,739091
Jarque-Bera				REG – OPEN	0,219070
Probability	0,1502			REG – REGUL	0,792331

Note: * is the level of significance 5%

Using an ordinary least square (OLS) panel, panel regression testing shows a significant level of 5%. In table 2, the f-statistical probability value is below the 5% level, which means that the model used in this study is feasible. The first rule, the conditions for passing the classical assumption test, are met. The jarque-fall value in the data normality test shows a significance of more than 5%, which is 3.79, and a probability of more than 5%, meaning that the data is normal. In the second rule, the conditions for passing the classical assumption test are met. The heteroscedasticity of the panels from the two countries used in the study showed a significance of more than 5%, which means that the data are free from relationships between variables. In the third stage, the requirements for passing the classical assumption test are met. Multicollinearity also shows more than 5% significance, which suggests that data is free from data shortages that lead to strong regression. The fourth stage of the classic assumption test condition is fulfilled. In theory, the results of the panel regression test in table 2 through the software can be said to be feasible and meet the classical

assumption test. A regression or econometric model calculation in economics is feasible if the model being tested is free from heteroscedasticity and Multicollinearity (Mulyono, 2019).

Table 3. Multiple Panel Regression Test Results in Indonesia and Thailand

Panel Test	
Common Effect (probability)	
INF	0.3670
OPEN	0.1238
COR	0.0484*
REG	0.2223

Note: * is the level of significance at 5%

After testing the type of panel regression model using the Likelihood ratio test, the common effect as the chosen model concludes that the level of corruption affects the formation of foreign portfolios in both countries (see table 3). In the results of table 3 regression, the institutional side has a more dominant role than the economic side. The significant influence of institutional variables in the two countries is most likely due to the government's active role in improving the quality of regulations every year, which then causes investor confidence in the environment and the economic cycle to increase (Tay & Tijaja, 2017). This is evidenced by the significance of the corruption level variable in table 3.

After knowing the data and obtaining the test results by panel regression and the model is free from the classical assumption test, data processing is continued with the presentation of the PVECM regression results and a brief discussion about the test results.

Panel Vector Error Correction Model (PVECM) Results

The Panel Vector Error Correction Model (PVECM) test results show that the independent variables on the macroeconomic side and the institutional side variables have a significant effect in the short and long term. In the short and long term, economic variables have a significant impact on foreign portfolio investment. Here are the PVECM test results.

Unit Root Test

Unit root testing is the first step in testing each variable. There are three stages to determine whether the individual variables used in this study are stationary at the level, the first differentiation level, or the second differentiation level. In this study, the unit root test results showed that the four variables used were in the first level of differentiation (see table 4). This test is used after the level test, which is the basis for the choice of the vector error correction (PVECM) panel to be used as a data analysis method on this panel data.

Table 4. Unit Root Test Results

First Level Differentiation	
Method ADF – Fisher Chi-square	Probability
D(FPI)	0.0097*
D(INF)	0.0104*
D(OPEN)	0.0003*
D(COR)	0.0007*
D(REG)	0.0174*

Note: * is the level of significance at 5%

Optimal Lag Test

Optimal lag determination has an essential role in the Panel Vector Error Correction Model (PVECM) model. In choosing the lag length of the variables that are considered in the model, it is desired that a sufficient lag length so that the researcher gets the dynamics of the system to be modeled (Davies & Chatfield, 1990; Ziegel, 1995 dan Utlaut, 2008). If the lag is too long, then it can result in more parameters to be estimated so that in the end, it can reduce its ability to reject $H_0$and will reduce the degrees of freedom (Greenland et al., 2016 dan Cox, 2016).

Table 5. Optimal Lag Test Results

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-252,1533	NA	268,2260	19,78103	20,02297*	19,85070
1	-217,4682	53,36169*	132,8152*	19,03602*	20,48767	19,45404*

Note: * significance of the number of lags

In table 5 below, the PVECM optimum lag test results show the number of lags of 1. This indicates that the number of derivatives in this study is one model derivative.

Stability Test

The stationarity test is a regression test that aims to determine the stationarity of the variables used in the study. The data can be non-stationary if the modulus's significance value is more than one. Non-stationary data lead to false regression results (Lety Marvillia, 2013). Meanwhile, the stationary data provide evidence that the model used and the data used are valid.

Table 6. Stability Test Results

Root	Modulus
-0,479528	0,479528
-0,330839 – 0,240865i	0,409231
-0,330839 + 0,240865i	0,409231
-0,324317	0,324317
-0,034042	0,034042

Note: * is the level of significance at 1

From table 6 above, the modulus value is in the range of 0.03 – 0.4. The coefficient value of the modulus value has a level of less than one, which means that the variables used per individual in this study are stationary or normal.

Cointegration Test

Before modeling the Vector Panel Error Correction Model (PVECM), it is recommended to perform a co-integration test conducted to find out if the variables used have a relationship or not (Sinay, 2014). The concept of co-integration is basically to see the long-term balance between the observed variables.

Tabel 7. Cointegration Test Result

	FPI	INF	OPEN	COR	REG
Probability	0,0000*	0,0000*	0,0002*	0,0005*	0,0046*

Note: * is the level of significance at 5%

Stationary test results using critical values MHM 0.05 indicate that there are four cointegrated variables. Five independent variables used in this study have a relationship with other variables or a

relationship between variables. A second condition is fulfilled why PVECM is appropriate to be used in this study.

Granger Causality Test

Granger Causality Test tests whether an independent variable improves forecasting performance from the dependent variable (Suhel, 2008). One of the Panel Vector Error Correction Model (PVECM) analyses helps explain the relationship and answer research hypotheses by interpreting the probability of the Granger Causality Test results. This study used the Granger Causality Test to respond and strengthen the research hypothesis in the Panel Vector Error Correction Model (PVECM) method.

Table 8.Granger Causality Test Results

Equation	Exclude	Probability
INF	FPI	0,0018*
FPI	INF	0,0941
OPEN	FPI	0,1262
FPI	OPEN	0,0886
COR	FPI	0,1808
FPI	COR	0,3511
REG	FPI	0,5087
FPI	REG	0,2794
OPEN	INF	0,2037
INF	OPEN	0,2743
COR	INF	0,0138*
INF	COR	0,8356
REG	INF	0,0016*
INF	REG	0,3423
COR	OPEN	0,1944
OPEN	COR	0,1936
REG	OPEN	0,0496*
OPEN	REG	0,1331
REG	COR	0,5918
COR	REG	0,1684

Note: * is the level of significance at5%

On the panel, the two countries, Indonesia and Thailand, both show a close relationship between the inflation rate and foreign portfolio investment, the level of corruption, and the quality of regulations. This condition illustrates that the macroeconomic side has a significant influence on the level of corruption and the quality of regulations that affect the formation of foreign investment in the domestic market. In addition to economic variables, significance also occurs in institutional variables, namely the relationship between regulatory quality and the ratio of economic openness. From Granger causality, in table 8, one conclusion can be drawn that what affects the level of regulatory quality with the ratio of economic openness is the reactive state of loosening macroeconomic policies in ASEAN countries.

Throughout 2013, many changes in policy formulations were seen in both countries, both Thailand and Indonesia, both of which had secret policies to balance the economy (Chirathivat & Cheewatrakoolpong, 2015 dan Middleton, 2012). Since Indonesia has actively implemented macroprudential policies since 2013, Thailand has also implemented the same national financial policy to maintain stability in the financial market (Warjiyo, 2017). With the form of a systemic mitigation policy that supports and blocks the impact of high shocks from outside the country, it can

be ascertained that by the end of 2021, both countries can and are ready to face the taper tantrum that The FED will actively enforce.

The policy of reducing quantitative easing carried out by The FED had a significant enough impact on Indonesia in 2013. It is hoped that this will not happen again (Vahlevi & Muharam, 2017; Dinata & Oktora, 2020 dan Halimatussadiah et al., 2020). As a result of the weak financial market, the market quickly overheated, the dollar strengthened, and foreign portfolios declined rapidly (Ghossoub & Reed, 2017). The rapid breakdown of trust is why Indonesia is one of the most affected by the 2013 taper tantrum (fragile five) (Basri, 2017). Moreover, the COVID-19 pandemic crisis that began to be active at the end of 2019 has motivated financial institutions and several other institutions to strengthen coordination (both in Indonesia and Thailand).

Estimated Panel Vector Error Correction Model (PVECM)

The Vector Error Correction Model (PVECM) Panel method in this study analyzed the relationship between independent variables on dependent variables in the short and long term. Based on the PVECM empirical test results in table 9, the variables that affect FPI in the long term are macroeconomic variables, inflation, economic openness ratios, and corruption in Indonesia and Thailand.

There are two economic variables and one institutional variable that significantly influences FPI long-term in Indonesia and Thailand. The strong influence of macroeconomic variables and the weak influence of one of the institutional variables, in the long run, are most likely due to high global market competition and the industrial era 4.0, which demands the development of industries based on advanced technology (Salazar-Xirinachs et al., 2014 dan Cornick, 2014). As a result, the economic development plan is shifted to building a modern economy in the long term through the withdrawal of foreign investment regularly (Agyapong & Bedjabeng, 2019).

It is known from the t-statistics in table 9, the relationship between economic variables and institutional variables on the formation of foreign portfolio investment is apparent. Foreign portfolio investment in Indonesia and Thailand would increase by one unit if the inflation rate decreased by 3.45267 and the ratio of economic openness decreases by 6.50413. Meanwhile, the value of foreign portfolio investment in Indonesia and Thailand will increase by one unit if the quality of regulation increases by 4.11471. The results of the PVECM test in this study are following the empirical and theoretical, where when the inflation rate decreases, the amount of investment (domestic and foreign) in the financial market in a country will increase.

Table 9. Long-Term Estimation of Panel Vector Error Correction Model (PVECM)

Long-term		
Variable	Coefficient	t-statistics
LOG(FPI(-1))	1	-
INF(-1)	-0,463868	-3,45267*
LOG(OPEN(-1))	-3,286289	-6,50413*
COR(-1)	0,009047	0,14131
REG(-1)	0,170900	4,11471*

Note: * significant effect if $t_{statistik} > t_{tabel}$, T_{tabel} = 1,70814

The effect of the independent variables on the macroeconomic side and the institutional side variables in the short term is less than the influence of the independent variables on the macroeconomic side and the institutional side variables in the long term. In table 10, the results of the PVECM test show that the formation of foreign portfolio investment in two countries in the

ASEAN region, namely Indonesia and Thailand, is influenced by two factors, namely the inflation rate and the ratio of economic openness.

In the first period, the decrease in the ratio of economic openness by one unit led to an increase in foreign portfolio investment of 1.76667. The cause of the increase in foreign investment due to a decrease in the ratio of economic openness can be caused by the precautionary principle applied by macroeconomic policymakers in Indonesia and Thailand (Boyer-Kassem, 2017 dan Hansson, 2020). The precautionary principle applied emphasizes that every policy made and formulated by macroeconomic policymakers must be appropriately filtered, starting from considering the cause and effect of creating investment conditions in a country. For example, the buyback relaxation policy provides a second chance for financial market participants in the capital market to make buybacks within a specific time limit (Buckley & Mason, 1990). The regulation and supervision policy in the financial market is classified as rescuing financial conditions when domestic stock prices experience a weakening (Tobal & Menna, 2020).

Efforts to save the financial market by authorized macroeconomic policymakers have indirectly provided a second chance for domestic capital market players to purchase investment products. The flow of foreign and domestic capital will increase, and falling financial markets' risk will also be high. For this reason, the policymakers implemented additional policies, namely the trading halt policy and the auto rejection policy, which caused a narrowing of the path for direct investment flows. They provided an avenue (capital inflow) for portfolio investment products (Humanicki et al., 2017).

Another factor that can affect the increase in foreign portfolio investment (FPI) when the disclosure ratio decreases are the weak condition of the domestic financial market. QUAH (2012)mentions that the characteristics of financial markets in developing countries are more vulnerable than those in developed countries. In addition to the problem of large discount cuts, the opportunity cost of investing is also significant in contrast to the financial market conditions in developed countries, which have a relatively low level of market competition and a strong and financially prepared market. Therefore, the relationship of a decrease in the ratio of economic openness causing an increase in foreign portfolio investment (FPI) was found to have a significant effect in Indonesia and Thailand.

Table 10. Estimated Panel Vector Error Correction Model (PVECM) in the Short Term

DependentVariables	D(LOG(FPI))	D(INF)	D(OPEN)	D(COR)	D(REG)
Independent Variables			t-statistik		
D(LOG(FPI(-1)))	-0.01545	-1.26299	-2.07301*	1.06441	0.91379
D(INF(-1))	1.44147	-5.52934*	1.57169	0.92645	0.61947
D(OPEN(-1)	-1.76667*	-1.97762*	-0.83192	0.29982	0.19957
D(COR(-1))	0.43488	-2.51300*	0.39572	-1.13146	0.52216
D(REG(-1))	-0.95137	-0.71476	0.13072	-1.31258	-0.44923

Note: * significant effect if $t_{statistik} > t_{tabel}$, T_{tabel} = 1,70814

The regression of the vector error correction model (PVECM) panel found that economic openness variables significantly affect foreign portfolio investment in the short term. Table 10 shows that the increase in the inflation rate was due to a decrease in the economic openness ratio of 1.97762 and a decrease in corruption of 2.51300. This suggests that the decline in political stability represented by variable levels of corruption and a decrease in economic openness is predicted to increase inflation quickly in the short term. A statement can be drawn that the condition of the global economy dramatically influences the achievement of macroeconomic stabilization in Indonesia and Thailand. In addition to the condition of the goods market and the domestic financial market, which

is not yet strong, institutional variables which are one of the factors why an investor wants to invest in a portfolio in these two countries, must also be considered.

Impulse Responses Function Test

Individual responses of economic variables and institutional variables to foreign portfolio investment show varying results. The variables used in this study, both economic and institutional, respond to other variables by forming a positive gap and a negative gap from the horizontal line.

The impulse responses function test results in figure 1 show that the variables that make up the positive gap consist mainly of the responses of macroeconomic variables to institutional variables. The variables that make up the positive gap consist of individual responses from FPI to FPI, FPI to inflation, FPI to the ratio of economic openness, inflation rate to inflation rate, individual responses to the ratio of economic openness, the level of corruption to the ratio of economic openness, the level of corruption to the level of corruption, the level of corruption on the inflation rate, the quality of regulation on the inflation rate, the quality of regulation on the ratio of economic openness and the response of the quality of regulation to its variables.

A positive variable response indicates that it has a strong and positive response to portfolio and macroeconomic investments over the next ten periods. Monetary policies such as lower inflation can be implemented to strengthen indices on Wall Street to maintain a stable FPI in Indonesia and Thailand. Meanwhile, variables that respond to other variables by forming negative gaps are FPI on regulatory quality, inflation rate to regulatory quality, inflation rate to corruption level, corruption level to regulatory quality, regulatory quality to corruption level, and regulatory quality to FPI.

Institutional variable responses to macroeconomic variables dominate variables that respond to causal relationships negatively in this study. The conclusion of this response is following the political conditions and quality of government in ASEAN countries where the current state of the economy results from a combination of institutions and economic policies. Macroeconomic factors and institutional factors in ASEAN countries work in different routes but have the same ultimate goal: macroeconomic stability.

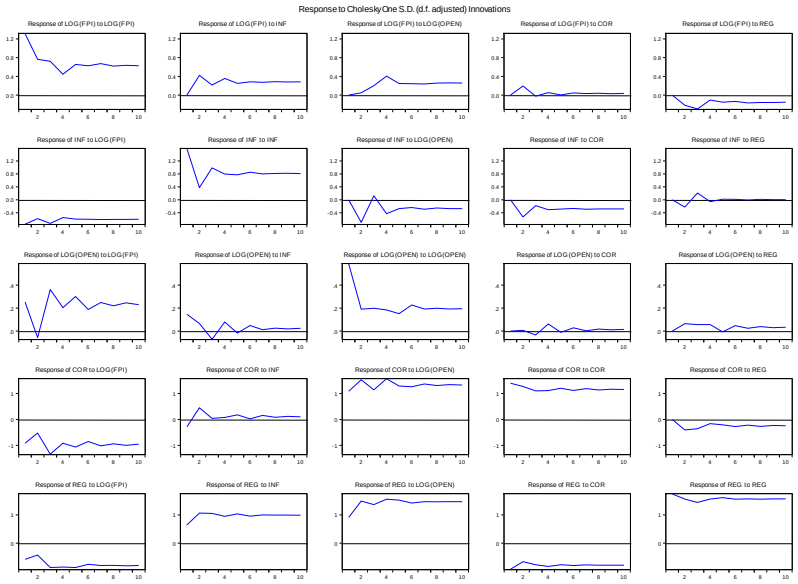

Figure 1. Impulse Response Function Test Results

From the conclusions drawn from figure 1 above, the description of the cause and effect of the variable response is based on a negative gap and a positive gap concerning other horizontals. In

this section, the response variables that make up perfect and significant fluctuations are the ratio of economic openness to FPI, inflation rate, level of corruption, and quality of regulation. This concludes that macroeconomic variables have an influence on fluctuations in foreign investment portfolios and three other variables. The response of the ratio of economic openness to fluctuations in changes in the three research variables is most likely caused by the open economic system adopted by the two countries. An economic system that does not impose limits on international markets and its financial policies can affect inflation rates, levels of corruption, and the quality of regulations in the short term. To achieve long-term stability, policy mixing between the track record of the inflation rate, corruption rate, and regulatory quality that has been implemented can be used to achieve macroeconomic stability in the long term by controlling foreign portfolio investment.

Variance Decomposition

After knowing each individual's response and the effect of the independent variable on the dependent variable in the long term, the last step of PVECM is to predict the dependent variables that affect it in the long term. From the results of the PVECM empirical test, the results of the variance decomposition test show a tendency for the growth of each variable in the long term. In figure 2, it can be seen clearly that each dependent variable has a dominant influence in each variable. The foreign portfolio investment variable is predicted to have a major influence on changes in foreign portfolio investment for the next period, supported by changes in the inflation rate and the ratio of economic openness. Meanwhile, macroeconomic variables, namely the inflation rate and the ratio of economic openness, are predicted to influence the individual's response and other supporting factors such as FPI and the level of corruption.

Different things are found in institutional variables where in the next ten time periods, in the long term, apart from being influenced by individuals themselves, the level of corruption is influenced by the ratio of economic openness and FPI. The combination of the same magnitude of influence from the level of corruption, the ratio of economic openness, and FPI is visible in figure 2. The last variable, namely the variable quality of regulation, is predicted to be formed by the response of the regulation itself, the level of corruption, the level of inflation, the ratio of economic openness, and FPI. Regulatory quality has four responses from other variables in full. This illustrates that the quality of regulation is the final result of a summary of changes in corruption and the ratio of economic openness in maintaining foreign portfolio investment.

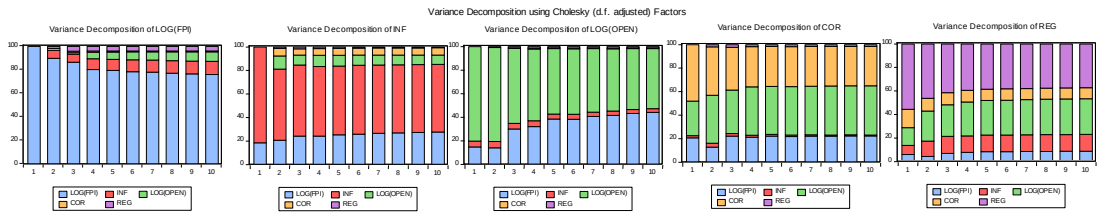

Figure 2. Variance Decomposition Test Results

CONCLUSIONS AND RECOMMENDATION

Controlling foreign portfolio investment through macroeconomic and institutional policies is quite effective in both Indonesia and Thailand. Through good macroeconomic policies and quality institutions, the economic risks resulting from increased foreign portfolio investments can be controlled under direct investment. In the short term, it is controlling the rate of inflation through controlling wages and prices. Another policy that can control inflation and keep the amount of foreign portfolio investment within normal limits under central bank regulations is maintaining bond prices

and short-term interest rates. Meanwhile, in the long term, the quality of institutional regulations can be improved, political stability and corruption are maintained at a low rank.

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How is using of the Indonesian Banking Environmental Disclosure with GRI?

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Abstract

This study aims to determine how the differences in environmental disclosure in conventional banking with Islamic banking using the GRI index. This study found that conventional banking has a higher environmental disclosure than Islamic banking. In addition, the results of this study state that the disclosure of the Islamic banking environment is more representative when using the ISR index when compared to the GRI index. The data used are in the form of annual reports and sustainability reporting of conventional banking companies and Islamic banking listed on the Indonesia Stock Exchange in 2019. The data analysis technique used in this study is content analysis and statistical tests to confirm the results.

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INTRODUCTION

Corporate Social Responsibility is a topic that is quite interesting to discuss in the business world as this concept is considered the core of business ethics (Nobanee & Ellili, 2016), which can answer the demands of the community related to company activities that are deemed to meet the demands of stakeholders (Meng et al., 2020). Corporate Social Responsibility is not only based on the responsibility that rests on a single bottom line, namely the value of the company which is reflected in its financial condition. (Hummel et al., 2020). However, corporate responsibility also rests on the triple bottom lines (Sobhani et al., 2012) that, in addition to achieving financial targets, also seeks to contribute to social and environmental issues so that it will gain legitimacy for its existence in the midst of society (Ageron et al., 2012; Hart et al., 2003; Wheeler et al., 2003). Likewise, with the banking world, Corporate Social Responsibility had become an interesting new trend, especially when the United Nations (UN) launched a guide that forces the banking industry to contribute to sustainable development. (Vernon, 2015; Zhang et al., 2017). Therefore, there is a synchronization between the demands on banking performance and the concept of CSR (Nizam et al., 2019).

In Government Regulation no. 47 of 2012, apart from requiring companies to carry out social and environmental responsibility, it also states that "The implementation of social and environmental responsibility is included in the Company's annual report and is accountable to the GMS". The Indonesian government, through the Financial Services Authority (OJK) has also issued a regulation that requires financial service institutions to carry out a Corporate Social Responsibility program in the form of a sustainable report. In the Financial Services Authority Regulation No. 51 / POJK / .03 / 2017, OJK requires all financial service institutions to prepare a sustainable financial action plan, to carry it out, and to report the sustainable finance in a sustainability report that is prepared separately from an annual report or as an inseparable part of the annual report.

Law No. 32 of 2009 on Environmental Protection and Management has also required all economic activities to comply with promoting environmental sustainability. In banking companies, it is necessary to better understand and master environmental risk management. One of these efforts can be made by encouraging banks to increase their environmentally friendly financing portfolios such as renewable energy, energy efficiency, organic agriculture, ecotourism, environmentally friendly transportation, and various eco-label products (Ziolo et al., 2019). Even though the world of banking does not have a direct relationship with environmental management, the application of the principle of responsibility in the aspects of Good Corporate Governance (GCG), it encourages banks to create added value for their products by increasing their social role in the environment (www.bi.go.id).

The company's demands to carry out specific responsibilities for the implementation of the living environment is getting higher (Baboukardos, 2018; Miah et al., 2020). In this implementation, the company shows concern and responsibility for the environment, one of which is through environmental disclosure (Ane, 2012; Tsalis et al., 2020). Environmental disclosure is a collection of information related to environmental management activities carried out by a company which can be obtained from qualitative statements, assertions, or quantitative facts, in financial reports or footnotes (Al-Tuwaijri et al., 2005; Berthelot & Robert, 2011; Plumlee et al., 2015).

Environmental disclosure by the company is considered as one part of the communication tool between the company and its stakeholder (Belkaoui, 1980; Wang et al., 2020). Environmental disclosure reporting in Indonesia is mandatory (mandatory report), but the content disclosed is still voluntary (voluntary disclosure) (Law No. 40 of 2007 article 66 paragraph (2)). The standard guidelines for disclosure of social and environmental responsibility that are widely followed by companies in the world are the guidelines for sustainability reporting issued by the Global Reporting Initiative / GRI (Economics, 2016; Kumar et al., 2018; Tsalis et al., 2020). This study also chose to use the GRI guidelines to assess the differences in environmental disclosure between conventional banking and Islamic banking since the government in Indonesia has not yet made guidelines that can be used as the standard in reporting their social responsibility.

Banks, as financial sector institutions, are also pressured to behave ethically to run an environmentally friendly business (Dong et al., 2020). One form of ethical behavior carried out by an organization is not only to focus on achieving profit but also to pay attention to the environmental aspects (planet) and society (people) so that they are able to maintain sustainability in the long term (Dong et al., 2020; Sahoo & Nayak, 2007). Activities of banks and financial institutions related to funding and investment policies also have a sensitive impact on the environment compared to the direct impact of companies that cause industrial pollution (Branco & Rodrigues, 2006).

Green banking concept (Bai et al., 2013) where a bank whose operations are environmentally friendly, has environmental responsibility and performance and considers environmental protection aspects in running its business (Sahoo & Nayak, 2007). By considering environmental aspects in making business decisions, it can reduce the negative impact of the operating activities of financial institutions so that it can help corporate social responsibility efforts and achieve sustainability (Shaumya & Arulrajah, 2017). Therefore, through the initiation of green banking, the bank will introduce the concept of paperless and information technology-based banking services to existing and prospective customers and, on the other hand, seek to promote the role of the bank to become responsible corporate citizens for achieving sustainable development (Fernando & Fernando, 2017). The company's challenge in maintaining the company's image in society is the reason why a bank in Indonesia conducts social reporting (www.worldbank.org).

The concept of CSR (Corporate Social Responsibility) is developing in a conventional economy and developing in an Islamic economy. The idea of CSR in Islam is closely related to companies that carry out business activities according to the Islamic concept expected by companies that can carry out Islamic corporate social responsibility. In disclosing sustainability reports, conventional banking is higher when compared to Islamic banking (Nobanee & Ellili, 2016). This is likewise confirmed by (Hartanti, D. dan Fitria, 2010)) who have conducted research on the comparison of conventional banking Corporate Social Responsibility (CSR) disclosures and show that traditional banking disclosures are better than Islamic banks, as seen from the GRI index and ISR index. The absence of regulations on CSR standards in sharia (Islam) causes various activities and reporting of CSR in Islamic banking to be uneven. Measurement of social performance in many Islamic banks in Indonesia still refers to the GRI Index (Saridona & Cahyandito, 2015).

In environmental disclosure practice, Islamic banking should have a higher level. This is because Islamic banking adheres to the concept that Islamic banking has a relationship with God, humans, and the environment (Elasrag, 2015). Sharia entities are required to contribute to economic development as part of their relationship with humans and the environment in accordance with the Maqasid Sharia (Mohamed Zain et al., 2014). Moreover, in the concept of sharia which states that he is a *Khalifah/leader* (Mara & Mara, 2014), humans, in this case, the company, have the responsibility to maintain all of Allah's creation (Tafti et al., 2012). The concept of CSR in Islam emphasizes that humans are *Khalifah* who are obliged to protect all of Allah's creation within the scope of the company (Mohamed Zain et al., 2014). There are very few studies that have compared the environmental disclosure of conventional banking with Islamic banking.

Meanwhile, related to the need for disclosure of social responsibility in Islamic banking, currently discussing the Islamic Social Reporting Index (hereinafter referred to as the ISR index)(Hartanti, D. dan Fitria, 2010). The ISR index is believed to be a starting point in terms of CSR disclosure standards in accordance with an Islamic perspective (Nugraheni & Azlan Anuar, 2014). With the use of Islamic banking, this study also looks at the breadth of the disclosure of the Islamic banking environment as measured by the GRI-G4 indicator when compared with the use of the ISR index.

METHOD

This research belongs to qualitative research using a descriptive approach. This study focuses on analyzing information in the theoretical literature related to research topics. The data used in this research is secondary data. Secondary data is the data that already exists and does not need to be collected by researchers alone (Martins et al., 2018) or the data obtained by accessing secondary data sources that can be trusted and can be scientifically justified. The data used are in the form of annual reports and sustainability reporting for conventional and Islamic banking companies listed on the Indonesia Stock Exchange in 2019.

The data analysis technique used in this study was carried out in two stages. First, looking and understanding the differences of environmental disclosures carried out by conventional banking and Islamic banking by comparing the results of the calculation of the GRI G4 index, which consists of 34 items with content analysis. It is 0 value if there is no disclosure regarding the item and one value if there is disclosure related to the item. Furthermore, to strengthen the results in testing, the t-test statistical testing was carried out with the SPSS version 20 testing tool.

Generally speaking, the disclosure indicators in the environmental scope in GRI show the environmental dimensions of sustainability that affect the organization's impact on living and non-living natural systems, including ecosystems, soil, water, and air. Meanwhile, the information disclosed in the environmental theme includes conservation environment, non-polluting the environment,

education about the environment, awards in the environmental field, and environmental management systems (Haniffa & Hudaib, 2007; Othman et al., 2009)

RESULT AND DISCUSSION

Descriptive statistics

Environmental Disclosure GRI Index Conventional Banking vs. Islamic Banking

The results of environmental disclosure assessment in conventional banking companies and Islamic banking are shown in the following table:

Table 1. Frequency of Disclosure of Each Item Environmental Disclosure GRI Index

Code	Information	ED Index Conventional Banking	ED Index Syariah banking
EN 1	The materials used are based on weight or volume	3.09	0.64
EN 2	Percentage of materials used that are recycled input materials	3.18	0.55
EN 3	Energy consumption in the organization	3.09	0.91
EN 4	Energy consumption outside the organization	2.91	0.91
EN 5	Energy intensity	3.18	0.91
EN 6	Reduction in energy consumption	3.36	0.91
EN 7	Reduction of energy requirements for products and services	2.82	0.64
EN 8	Total water withdrawal by source	2.82	0.82
EN 9	Water sources that are significantly affected by water withdrawal	2.91	0.73
EN 10	Percentage and total volume of water recycled and reused	2.18	0.55
EN 11	Operational locations that are owned, leased, managed within, or adjacent to, protected areas and areas with high biodiversity value outside protected areas	1.00	0.18
EN 12	Description of the significant impact of activities, products, and services on biodiversity in protected areas and areas with high biodiversity value outside protected areas	1.00	0.18
EN 13	Protected and restored habitat	0.64	0.09
EN 14	Total number of species on the IUCN Red List and species on the national protected species list with habitats in areas affected by operations, by the level of risk of extinction	0.55	0.09
EN 15	Direct greenhouse gas emissions	1.18	0.18
EN 16	Indirect greenhouse gas emissions	1.18	0.18
EN 17	Other indirect greenhouse gas emissions	1.18	0.18
EN 18	Greenhouse gas emission intensity	1.18	0.18
EN 19	Reduction of greenhouse gas emissions	1.36	0.27
EN 20	Emissions of ozone depleting substances	0.55	0.27
EN 21	NOX, SOX and other significant air emissions	0.55	0.18
EN 22	Total water discharge by quality and purpose	2.00	0.45
EN 23	Total waste weight by type and disposal method	2.18	0.45
EN 24	The number and total volume of significant spills	2.00	0.45
EN 25	Weight of waste considered hazardous transported, imported, exported, or treated, and percentage of waste transported for international shipment	1.09	0.09
EN 26	Identity, size, protected status, and biodiversity value of water bodies and associated habitats significantly affected by wastewater and runoff and organization	1.00	0.09

EN 27	The level of impact mitigation on the environmental impact of products and services	0.73	0.09
EN 28	Percentage of products sold and their packaging that was reclaimed by category	0.64	0.09
EN 29	The significant monetary value of fines and the total number of non-monetary sanctions for non-compliance with environmental laws and regulations	1.91	0.18
EN 30	Significant environmental impacts of transporting products and other goods and materials for the organization's operations and transporting workers	1.36	0.45
EN 31	Total environmental protection expenditure and investment by type	0.64	0.18
EN 32	Percentage of new suppliers that were screened using environmental criteria	0.45	0.18
EN 33	Significant actual and potential negative environmental impacts in the supply chain and actions taken	0.45	0.18
EN 34	Number of grievances about environmental impacts filed, handled, and resolved through the official grievance mechanism	1.36	0.18

Figure 1. The following presents a descriptive analysis of the assessments that have been obtained from the environmental disclosure of conventional banking and Islamic banking.

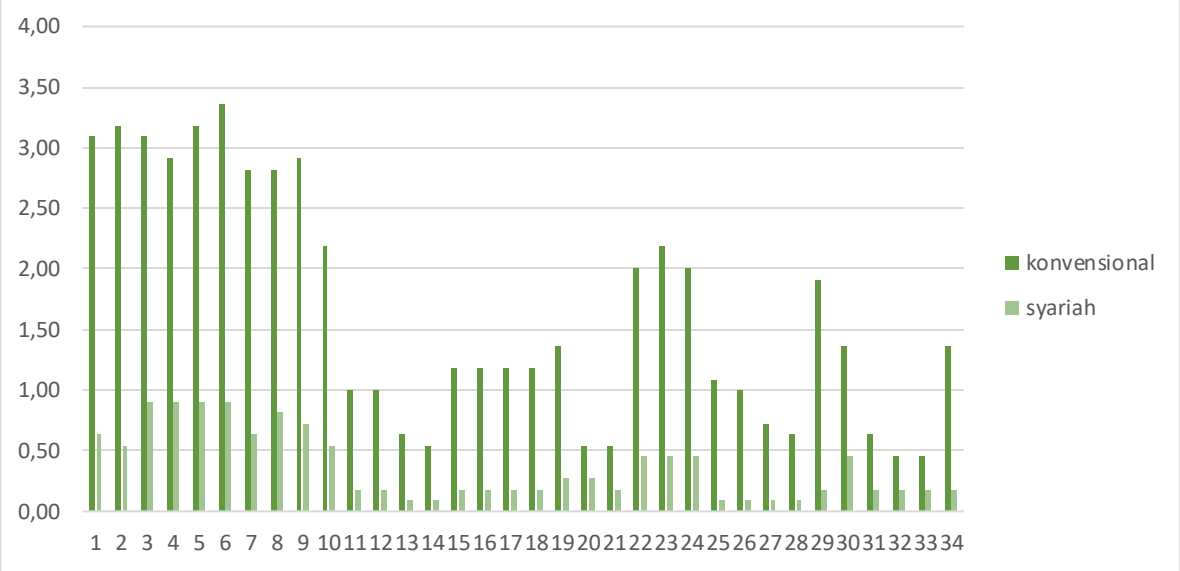

Figure 1. Comparison of Environmental Disclosure on Conventional Banking and Islamic Banking

The chart results on the environmental disclosure of conventional banking and Islamic banking (Figure 1) show that conventional banking discloses environmental items higher than Islamic banking in its annual report and sustainability reporting. This result is also confirmed in the following t-test:

Table 2. T-test results

	Mean	t	*p*-value
ed_konv	1,6388	10,153	, 000
ed_syar	, 3709		

From the results of the t-test that has been conducted, it shows that there are differences in environmental disclosure carried out by conventional banking with Islamic banking, and conventional

banking is higher in disclosing environmental disclosure (p-value = 0,000, and the mean environmental disclosure of traditional banking is higher than Syariah banking). These results support the research(Nobanee & Ellili, 2016).

***Environmental Disclosure* Islamic banking with the GRI index vs. the ISR index**

The results of the assessment of the disclosure of the Islamic banking environment using the ISR index are as follows:

Table 3. Frequency of Disclosure of Each Environmental Disclosure Item ISR Index

Code	Information	ED ISR Index
ISR1	Environmental conservation	0.82
ISR2	Activities to reduce the effects of global warming (pollution, water treatment, etc.)	0.91
ISR3	Environmental education	0.27
ISR4	Environmental awards / certifications	0.36
ISR5	Environmental management system	0.82

To find out the difference in the average value in the environmental disclosure GRI index and the environmental disclosure ISR index, an Independent Samples Test was conducted as follows:

Table 4. Average Testing Results

	Group	Mean
ED	Islamic ED	, 3709
	ISR	, 6360

Based on the output table above, it is known that the number of environmental disclosure items for the GRI index is 34 items, while for the ISR index, there are five items. The average value of the results of environmental disclosure assessment of the mean for the GRI index is 0.3709, while for the ISR index is 0.6360. Thus, statistically descriptive, it can be concluded that there is a difference in the average index of environmental disclosure between GRI and ISR. Furthermore, to prove whether the difference is significant (real) or not, the "Independent Samples Test" output is interpreted as follows:

Table 5. Independent Samples test results

		Levene's Test for Equality of Variances		t-test for Equality of Means	
		F	Sig.	Sig. (2-tailed)	Mean Difference
ED	Equal variances assumed	, 031	, 860	, 060	-, 26512
	Equal variances not assumed			, 118	-, 26512

Based on the output of the "Independent Samples Test" the sig value is known. Levene's Test for Equality of Variances is 0.860> 0.05, which means that the data variance between the GRI index and the ISR index is homogeneous or the same. In the "Equal variances assumed," the sig value is known. (2-tailed) of 0.060 <0.1, so it can be concluded that there is a significance (real) between the average assessment of Islamic banking environmental disclosure and the GRI index and the ISR index.

Table 6. Homogeneity Test Results

Levene Statistics	df1	df2	Sig.
12,728	8	26	, 000

The obtained Levene Statistic number is 12,728 with a probability value (sig.) of 0,000, so it can be concluded that the variants of the index used in viewing the environmental disclosure of Islamic banking are different or heterogeneous. Each disclosure theme has a sub-theme as an indicator for the disclosure of that theme (Leipziger, 2015; Traxler et al., 2018). This result is also corroborated by the plots shown as follows:

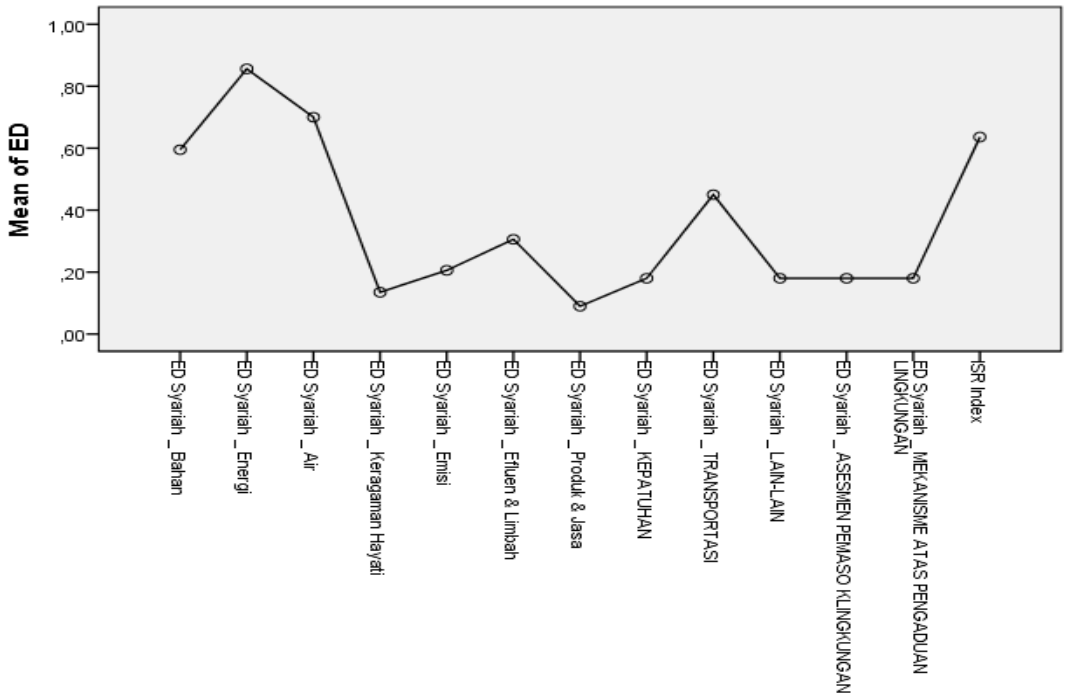

Figure 2. Plots of Aspects in the ED GRI Index and the ED ISR Index

From the results of the independent samples test, homogeneity, and plot, it can be concluded that the assessment of environmental disclosure of Islamic banking is better if using the ISR index (Belal et al., 2015; Santoso et al., 2018).

The item of reducing energy consumption is the most frequently disclosed item by conventional banking and Islamic banking. Banking in Indonesia has supported government programs as stipulated in Presidential Instruction No. 10/2005 regarding Energy Saving (Indonesian Government, 2014). In accordance with the instructions of the Financial Services Authority (OJK), companies that are in the financial sector can carry out energy conservation by going through the following stages:

Table 7. Energy Conservation Stages

Stages	Effort
First	Prevention; eliminates waste of energy
Second	Recovery; reduce energy losses
Third	Efficiency innovation; improve the energy utilization efficiency

Source: Otoritas Jasa Keuangan, (2015)

The involvement of the private sector in managing environmental and social risks is also regulated in Law Number 32 of 2009 concerning Environmental Protection and Management, which, among other things, regulates the obligation for industry to protect nature and the environment. The initiation of banks to adopt green banking practices in Indonesia is inseparable from the issuance of relevant regulations that encourage the implementation of environmentally friendly banks. Various ways can be performed in the adoption of green banking, such as online banking, internet banking, green checking accounts, green loans, mobile banking, electronic banking outlets, and saving energy use that contributes to environmental sustainability programs (Gupta, 2015). (Iqbal et al., 2016) with the factor analysis approach, found one of the factors of why banks adopt green banking practices to ensure sustainable economic development, namely environmental interests. The adoption of green banking in the banking business is a crucial issue as it becomes an identifier for companies that care about the environment in their business and can strengthen their competitive advantage (Bryson et al., 2016).

In the environmental aspect, the implementation of the Islamic banking CSR report shows that the items in the ISR index are more appropriate to measure environmental performance (Zafar & Sulaiman, 2019). These aspects include environmental conservation, protection of endangered animals or habitats, prevention of environmental pollution, environmental education, concern for green world issues, environmental audits, and the establishment of an environmental management system.

The advantage of using the ISR index in Islamic banking disclosure compared to the GRI index is that the ISR index can reveal indicators related to transactions that occur in companies that are free from elements of usury (*riba'*), speculation and gharar and disclosed zakat, Islamic compliance status, and social aspects. Such as alms, waqf, qard al hassan, to the disclosure of worshipping within the company environment (Sunarsih & Ferdiansyah, 2016). The ISR index is also able to describe ethical aspects that represent accountability to God and humans as well as transparency regarding all company activities, which are needed by humans to ensure that all comply with the provisions of Allah SWT (Haniffa & Hudaib, 2007).

Stakeholder Theory

Stakeholders are a group that is able to provide support for the existence of an organization (Parmar et al., 2010). According to (R. E. E. Freeman & McVea, 2005) Stakeholders are groups or individuals who can influence or be influenced by the process of achieving the goals of an organization. Stakeholder theory says that a company is not an entity that only operates for its own interests but must provide benefits for its stakeholders (shareholders, creditors, consumers, suppliers, government, society, analysts, and other parties)(Laplume et al., 2008). The existence of a company is strongly influenced by the support provided by stakeholders for the company (Friedman & Miles, 2002). (Gray et al., 1995) said that the company's survival depends on stakeholder support and that support must be sought so that the company's activity is to seek that support. The more powerful the stakeholders, the greater the company's efforts to adapt (Ullmann, 1985).

Stakeholder theory, related to the concept of corporate social responsibility, is not only limited to maximizing profit and shareholder interests but also must pay attention to the community, customers, and suppliers as part of the company's operations itself. (Argandoña, 1998). Stakeholders will support the company's operational activities if they disclose reliable and relevant information so that stakeholders continue to trust and help the company in making decisions (R. E. Freeman et al., 2017).

Environmental Disclosure with the Global Reporting Initiative

According to (Gray & Bebbington, 2000), disclosure of corporate social and environmental responsibility aims to show the public the activities carried out by the company and the impact on society. (Clarkson et al., 2008) have a view of the environmental disclosure theory, which states that companies that have performed their environmental performance well will prefer to disclose their environmental information, which is not easily imitated by other companies with poor environmental performance. Furthermore, environmental disclosure is a collection of information related to environmental management activities by companies in the past, present, and future (Khalil & O'sullivan, 2017).

The guidelines used to prepare a sustainability report are made by the Global Reporting Initiative (GRI), which is headquartered in the Netherlands. GRI is a non-profit organization that has pioneered guidelines for sustainability reports or reports on social and environmental responsibility (GRI, 2013). In the GRI G4 standard, performance indicators are divided into three main components, namely economic, environmental and social. The total indicators contained in the GRI reached 91 items (www.globalreporting.org). This study, using the assessment guide to compare the environmental disclosure of banking with GRI, which has become a reference for sustainable reporting guidelines around the world, to determine the differences in environmental disclosures between conventional banking and Islamic banking. In addition, GRI is considered as a tool that can harmonize many approaches related to sustainability reporting by companies (Lozano 2006b; Newport, Chesnes, and Lindner 2003).

Islamic Social Reporting Index

Islamic Social Reporting Index is an alternative to the standard of Corporate Social Responsibility disclosure for Islamic-based companies issued by the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI). (Othman et al., 2009), developed a relevant

disclosure index on Islamic Social Reporting (ISR). Islamic Social Reporting (ISR) is a conceptual framework for CSR disclosure based on Islamic principles that not only help make decisions for Muslims but also helps companies fulfill their obligations to Allah and society at large (Sunarsih & Ferdiansyah, 2016). Furthermore, the conceptual framework is in accordance with the Islamic entity to reveal matters related to Islamic principles as a transaction that is free from elements of usury (*riba'*), speculation and *gharar* (the sale of what is not yet present) and zakat disclosure, islamic status and social compliance aspects such as alms (*sadaqah*), waqf, *qard al hasan* (an interest-free loan), to the disclosure of worshipping in the corporate environment.

An important factor that forms the basis of sharia in the formation of Islamic Social Reporting (ISR) is Tauhid (One True God) which forms the perception of a Muslim to be willing to accept all the provisions of Islam-based on two main sources, namely Al-qur'an and Al-Hadith. All the advantages contained in the GRI Index still have disadvantages, in the sense that it is not suitable for companies that are unique, such as Islamic-based companies. This discrepancy is considered natural because GRI is an organization dominated by westerners, resulting in standards that are more in line with conventional companies (Alam et al., 2017).

In addition to knowing how the differences in the environmental disclosure in conventional banking and Islamic banking, this study also looks at the differences in the assessment of the environmental disclosure of the Islamic banking as measured by the GRI index and the ISR index. In this study, the measure used to assess the level of ISR disclosure was the ISR index designed by Othman et al. (2009).

CONCLUSION AND RECOMMENDATION

Conclusions

This study aims to determine what differences are found in environmental disclosure in conventional banking and Islamic banking using the GRI index. This study found that conventional banking has a higher environmental disclosure than Islamic banking. The item of reducing energy consumption is the item most frequently disclosed by conventional banking and Islamic banking. In addition, the results of this study indicate that the environmental disclosure of the Islamic banking is more representative when using the ISR index as compared to the GRI index.

One of the implementations of banking transparency principles is by conducting environmental disclosures. This implementation can increase the reputation and value of the company, which has an impact on increasing the trust of consumers and society. In the policy aspect, this research contributes to supporting the importance of regulation for bank financial institutions to practice more ethically towards environmentally friendly banks.

Recommendation

It is important for banks to implement and report CSR, especially on environmental disclosure, not only to comply with existing regulations but also more in the awareness that by doing CSR, they will get a competitive advantage which will have an impact on a good reputation and in the end can improve long-term financial performance. For future researchers, it is advisable to conduct further research to determine the motivation of banking companies on environmental disclosure efforts in the annual report and in the sustainability report by using primary data sources such as questionnaires.

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