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Economic Influences on Plantation Sector Stock Prices in Malaysia: A Quantile Regression Approach

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Abstract

This study aims to examine the relationship between microeconomic, sentiment, and macroeconomic variables across three quantiles (q25, q50, and q75) of stock prices in the Malaysian plantation sector. This study used Earnings per share (EPS) and return on equity (ROE) as the proxy for microeconomic variables, consumer sentiment index (CSI), and business condition index (BCI) as the proxy for sentiment variables, while inflation (INF which proxy from consumer price index) and exchange rate (ER, RM/USD) as the proxy for macroeconomic variables. Using a panel dataset covering 32 listed companies in plantation sector from 2008Q3 to 2023Q3. Result of quantile regression indicates that EPS, BCI, INF have a consistently positive and statistically significant relationship with stock prices across all quantiles. ROE has a mixed impact, with a positive relationship at the 25th and 50th quantile, but with a negative relationship at the 75th quantile. Furthermore, CSI and ER have a consistently negative and statistically significant relationship with stock prices across all quantiles.

Keywords: Microeconomic, Sentiment, Macroeconomic, Quantile regression

1. Introduction

Stock prices are affected by various variables including microeconomic, sentiment, and

macroeconomic factors. Malaysia's plantation sector is an important sector of the country's economy, producing mainly in palm oil and rubber. These commodities make a significant contribution to Malaysia's GDP, export earnings, and employment, especially in rural areas (Ibrahim, 2022). As one of the largest global producers and exporters, Malaysia has a significant influence on global trade patterns. The palm oil industry employs millions of people, including nearly 500,000 smallholders (Malaysian Palm Oil Council, 2021b). Price fluctuations in these commodities may affect income levels, government revenues, investment decisions, trade balances and consumer costs, highlighting their importance to Malaysia's economic stability and global market position (Malaysian Palm Oil Council, 2021a).

Hereafter, understanding these factors is crucial for investors, policymakers, and researchers, especially in the decision-making policies. This study focuses on the stock price of plantation sector in Malaysia, which is an important aspect of the country's economy, especially because of its significant contribution to export earnings and employment. However, the individual stock price in the market is volatile as the stock prices move up and down frequently (Trade Brains, 2021). In addition, each of individual companies from plantation sector may varying different price's range as well such as lower, medium, and higher range. It may lead to stock prices exhibit non-normal distributions when review it as an overall. It is possible that financial models assume a normal distribution of price level may not accurately capture the true nature of stock price movements.

Figure 1 shows the quarterly average stock prices of the plantation sector from 2008Q3 to 2023Q3. The average stock prices represent an upward trend from 2008Q3 to 2014Q2, while there is a continuous downward trend from 2014Q3 until 2019Q3. Followed by a sudden drop in 2020Q1, which might be due to the Covid-19 pandemic. The average stock prices started to recover after 2020Q2 with some fluctuations and became more stable at around RM3.50 in recent quarters.

For Figure 2, stock prices are categorized based on the range of minimum, average, and maximum. Maximum stock prices seem like more fluctuating over time compare to average and minimum of stock prices, which remain relatively stable within their respective ranges. The maximum stock prices could reach approximately RM25, while average stock prices around RM3 to RM4, and minimum stock prices are around RM1.

Throughout these figures, several differences and insights could be observed. Figure 1 focuses only on the average stock prices, which provides a general trend of the sector's performance over time. In contrast, Figure 2 provides a more detailed view, including the minimum and maximum stock prices, showing the range and volatility within the sector. However, Figure 1 masking the underlying volatility by showing a smoothed average trend. It could be concluded that, although average stock prices generally show growth and periods of stability, individuals' stocks could experience significant fluctuation.

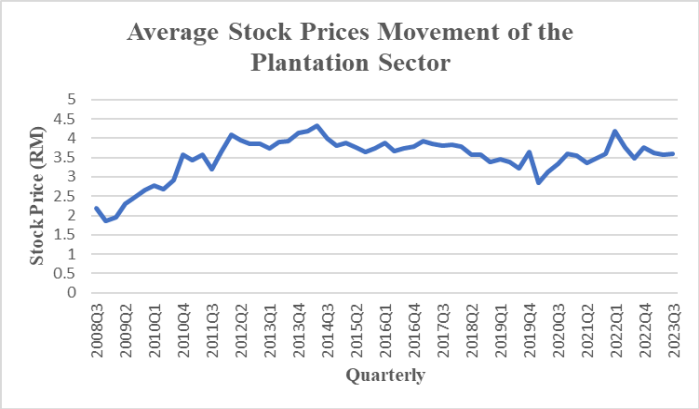

Figure 1. Average Stock Prices Movement of the Plantation Sector

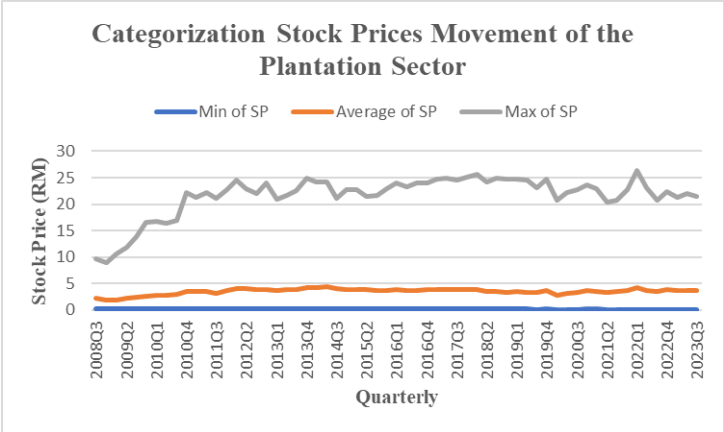

Figure 2. Categorization Stock Prices Movement of the Plantation Sector

This is because relying solely on the average or mean of stock prices may not provide a comprehensive understanding of the underlying data distribution due to heterogenous nature (Cade et al., 1999; Koenker & Bassett, 1978). The conditional mean of stock prices might not able to capture the variability or distribution of stock prices across different levels. Stock prices may exhibit different behaviors at various level of the distribution such as higher price, median price, or even lower price. Therefore, relying on the conditional mean value might ambiguous the important patterns and variations that are crucial for accurate financial analysis (Koenker & Bassett, 1978).

Besides that, the conditional mean of stock prices is also sensitive to the extreme values or outliers. Since stock market might experience volatile price fluctuation, these extreme values may disproportionally influence the mean. Thus, the mean of stock prices may not represent the typical stock price behavior (Cade et al., 1999). Furthermore, microeconomic, sentiment, and macroeconomic variables might have different impacts on stock prices at different quantiles. For example, sentiment and macroeconomic variables might affect high-value stocks differently from low-value stocks. Hence, investors, policymakers, and researchers may overlook the impact of these variables on stock price at different level by focusing solely on the conditional mean of stock prices. It is important to understanding the full range of stock price behaviors in the plantation sector.

Thus, this study aims to examine the relationship between microeconomic, sentiment, and macroeconomic variables across different quantiles of stock prices in the Malaysian plantation sector. The finding may contribute significant theoretical and practical implications. Theoretically, this study may extend the body of knowledge on stock price determinants by highlighting the consideration of distributional effects. Practically, the findings are useful for both investors and policymakers. Investors may use the identified metrics to make better investment decisions, while policymakers may develop specific initiatives to stabilize and support the plantation sector. In addition, the methodology of this study can be extended to other industries and sectors, thereby increasing its relevance and applicability.

2. Literature Review

Previous studies have explored the determinants of stock prices in various sectors including Financial Services, Consumer Product and Services, Health Care, Utilities, Properties, Industrial Product and Services, and Energy. It highlighting the importance of microeconomic, sentiment, and macroeconomic variables on stock prices by using the analysis method of Ordinary Least Squares, Fixed Effect, Random Effect, Common Effect Model, Generalized Method of Moment, and Causality Test. Throughout the past studies, there is lack of study focuses on the context of plantation sector. Furthermore, all methods that was used by previous studies focuses on the conditional mean of data, which limited the comprehensive view of how economic variables relate to companies across various levels of stock prices. In addition, the result finding shows that each microeconomic, sentiment, and macroeconomic variables have a mixed result across different context and methodologies, a summarize literature review table may refer Appendix A.

2.1 Microeconomic Variables

Earnings per share (EPS) is expected to have a positive relationship with stock prices. The result finding is supported by Wong and Bin Pinjaman (2023), Al-Dwiry et al. (2022), Azmeh and Hamada (2022), Wong and Pinjaman (2022), Raza et al. (2021), Widyastuti and Susilo (2020), and Wadud (2017). It highlights that higher EPS leads to higher stock prices as investors perceive the company become more valuable. But the result finding is contradicted by Silfia and Zuhroh (2022), who found a negative relationship in the Consumer Product and Services Sector (Food and Beverage Industry). It highlights that EPS does not have the same impact across all sectors, its effect can vary by sector.

Silfia and Zuhroh (2022), Wong and Pinjaman (2022), Nugroho and Pertiwi (2021), Widyastuti and Susilo (2020) found that return on equity (ROE) had a positive impact on stock prices. It indicates that higher ROE signals investors regarding the efficient management and profitable use of shareholder's investment, thus driving up stock prices. On the other hand, Wong and Bin Pinjaman (2023), Azmeh and Hamada (2022), Maani et al. (2021), Wadud (2017) reports a negative relationship. It suggests that in some contexts, high ROE could be associated with higher risk or lower future growth prospects, which could discourage investors.

2.2 Sentiment Variables

Karim et al. (2022) and Rashid et al. (2014) found that both consumer sentiment index (CSI) and business condition index (BCI) had a positive relationship, which means that higher CSI and BCI increase investor confidence, thereby pushing up stock prices. On the other hand, Gunathilaka et al. (2017) found mixed results across different samples, suggesting that the effects of CSI and BCI may vary depending on market conditions or sample characteristics.

2.3 Macroeconomic Variables

The impact of inflation (INF) on stock prices also debated among previous studies. Al-Dwiry et al. (2022) Silfia and Zuhroh (2022), and Wong and Pinjaman (2022) found that INF positively impacts stock prices. It indicates that the companies followed anticipated inflation conditions, meanwhile, the changes in the price level would not affect the company's financial performance due to the ability to maintain maximum profit with minimum cost (Wong & Pinjaman, 2021). In contrast, Raza et al. (2021), Widyastuti and Susilo (2020) found a negative relationship. It suggests that the companies followed unanticipated inflation conditions (Wong & Pinjaman, 2021).

The exchange rate (ER) also provides inconsistent results. Widyastuti and Susilo (2020) found a positive relationship between the exchange rate and stock prices. It suggests that depreciation of domestic currency may increase the export competitiveness. This may boost up the revenue leads to higher profitability and stock prices for export-oriented companies. On the other sides, Silfia and Zuhroh (2022) and Wong and Pinjaman (2022) found a negative relationship, suggesting that depreciation of domestic currency may increase the cost of production for import-oriented companies.

To understand the impact of these variables, this study is grounded in the signalling theory (1973). According to the theory, microeconomic variables are the main focus as they serve as the main signal released by listed companies. A company's financial condition, presented in its annual report, acts as a channel of communication between internal and external stakeholders (Rajandran, 2021; Sun et al., 2020). Sentiment and macroeconomic variables, on the other hand, serve as the signal environment. These variables are the medium of signal transmission between the signal (microeconomic variables) and the receiver (stock price), which influences how the receiver perceives and interprets the signal (Shou et al., 2020; Wei et al., 2015). Stock price as the receiver is influenced by both the signal (microeconomic variables) and the signal environment (sentiment and macroeconomic variables). Hence, this theoretical framework underpins the study.

This study will fill out the gap to examine microeconomic, sentiment, and macroeconomic determinants of stock prices specifically in the context of plantation sector in Malaysia. Instead of focusing on the conditional mean of these determinants, this study will apply quantile regression to provide a more comprehensive understanding of stock price behavior. Specifically, the study examines the significant relationship between Earnings Per Share, Return on Equity, Consumer Sentiment Index, Business Condition Index, Inflation, and Exchange Rate across various quantiles of stock prices.

3. Data and Methodology

3.1 Data

This study employs quantitative research to examine the impact of microeconomic and macroeconomic variables across different quantiles of stock prices of the plantation sector in Malaysia. Stock prices (SP, closing price) as the dependent variables of the study. Earnings per share (EPS) and return on equity (ROE) as the proxy for microeconomic variables, consumer sentiment index (CSI), and business condition index (BCI) as the proxy for sentiment variables, while inflation (INF which proxy from consumer price index) and exchange rate (ER, RM/USD) as the proxy for macroeconomic variables. All the data are obtained from Bloomberg. This study focuses on 32 listed companies with the available data in the plantation sector in the main market of Bursa Malaysia. This study covers the period from 2008Q3 to 2023Q3 with 1952 observations.

3.2 Model Specification

Quantile regression was developed by Koenker and Bassett (1978). It is an extension of the linear model that estimates relationships between variables for all portions of a probability distribution. It able to examine of how variables impact various quantiles of the response variable in which providing a comprehensive view of the data distribution. This is because quantile regression able to characterize the entire heterogenous conditional distribution of the outcome variable compared with conventional mean regression when the normality assumption is violated or outliers and long tails exist. It may be robust to outliers and misspecification of error distribution. It provides more comprehensive statistical modelling than traditional mean regression. This is because it provides more information and describe the distribution of the dependent variable.

Quantile regression models are used to detect heterogenous effects of covariates at different quantiles of the outcome variable, this make quantile regression attractive and are applicable to different types of data. When asymmetries and heavy tail exist, the sample mean, one of the best-known examples of quantiles could provide a better summary of centrality than the mean. This study specifically utilized the quantile regression for panel data (QRPD) by Powel (2022). It allows for non-additive fixed effects in the quantile function and preserves non-separable disturbance terms. Considering the stock prices' range of the companies in plantation sector, this method may provide a sufficient outcome. The following is the basic model,

$$Q_q(y_{it}|x_{it}) = \beta_q x'_{it} \tag{1}$$

Equation (1) could be rewritten by sub-in the dependent variable, independent variables, and control variables as follow;

$$Q_q(SP_{it}|x_{it}) = \beta_{0,q} + \beta_{1,q}EPS_{it} + \beta_{2,q}ROE_{it} + \beta_{3,q}NP_{it} + \beta_{4,q}OCS_{it} + \beta_{5,q}DTE_{it} + \beta_{6,q}FS_{it} + \beta_{7,q}CSI_{it} + \beta_{8,q}BCI_{it} + \beta_{9,q}INF_{it} + \beta_{10,q}ER_{it} + \varepsilon_{it,q} \tag{2}$$

4. Results and Discussion

Table 2 shows the results of the panel quantile regression analysis determined the impact of microeconomic, sentiment, and macroeconomic variables on the plantation sector's stock price across different quantiles, such as Q25 (25th percentile), Q50 (median or 50th percentile), and Q75 (75th percentile). The table also shows the estimated coefficients for each variable across quantiles, along with their p-value and significance levels.

Table 2. Panel Quantile Regression Result for Plantation Sector

Model	(1)	(2)	(3)
Variables	q25	q50	q75
lnEPS	0.4341	0.5115	0.5168
	*(0.000)****	*(0.000)****	*(0.000)****
lnROE	0.0026	0.0178	-0.0095
	*(0.010)***	*(0.000)****	*(0.017)***
lnRV	0.0967	0.0494	0.0060
	*(0.000)****	*(0.000)****	*(0.015)***
lnNP	-0.2658	-0.2788	-0.2452
	*(0.000)****	*(0.000)****	*(0.000)****
lnOCF	-0.0235	-0.0121	-0.0150
	*(0.000)****	*(0.000)****	*(0.000)****
lnDTE	-0.1061	-0.1103	-0.1099
	*(0.000)****	*(0.000)****	*(0.000)****
lnFS	0.6908	0.6883	0.6762
	*(0.000)****	*(0.000)****	*(0.000)****
lnCSI	-0.3236	-0.1875	-0.2904
	*(0.000)****	*(0.000)****	*(0.000)****
lnBCI	0.3155	0.1586	0.1585
	*(0.000)****	*(0.000)****	*(0.000)****
lnINF	0.5042	0.6564	0.8320
	*(0.000)****	*(0.000)****	*(0.000)****
lnER	-1.4047	-1.3798	-1.4823
	*(0.000)****	*(0.000)****	*(0.000)****
Observations	1952	1952	1952

Note: All variables are expressed in natural logarithm forms. The value inside the parentheses refers to the p-value of the variable, where *, **, and *** refers to the significance level at 10%, 5%, and 1%.

4.1 Microeconomic Variables

For EPS, the coefficient values are about 0.4341, 0.5115, and 0.5168 at a 1% significance level for each 25th, 50th, and 75th quantiles respectively. This suggests that a 1% increase in EPS will increase the stock price by 0.4341%, 0.5115%, and 0.5168% at each quantile correspondingly. In short, there is a positive and statistically significant effect of EPS on stock price across all quantiles. This result highlights that EPS as an important determinants of stock price. The higher of EPS, the higher of stock price across the distribution. The slightly stronger effect at higher quantiles indicates that firms with better performance may benefit more from the increases of EPS. This positive relationship is similar to Wong and

Pinjaman (2023), Al-Dwiry et al. (2022), Azmeh and Hamada (2022), Wong and Pinjaman (2022), Raza et al. (2021), Widyastuti and Susilo (2020), and Wadud (2017).

For ROE, the coefficient value at the 25th and 50th quantile is about 0.0026 and 0.0178 respectively, indicating that a 1% increase in ROE will increase the stock price by 0.0026% and 0.0178% for median firms, and this effect is statistically significant at the 1% of significance level. However, at the 75th quantile, the effect of ROE turned into a negative with the coefficient value of -0.0095. This suggests that a 1% increase in ROE will reduce stock price by 0.0095%, and it is statistically significant at 5% significance level. This implies that higher ROE generally improves performance, while this relationship may not hold for the best-performing firms. Both relationships are supported by previous studies. The positive relationship is supported by Silfia and Zuhroh (2022), Wong and Pinjaman (2022), Nugroho and Pertiwi (2021), Widyastuti and Susilo (2020). While the negative relationship is supported by Wong and Pinjaman (2023), Azmeh and Hamada (2022), Maani et al. (2021) and Wadud (2017).

4.2 Sentiment Variables

For CSI, the coefficient values are about -0.3236, -0.1875, and -0.2904 at the 25th, 50th, and 75th quantile respectively, all are statistically significant at 1% of significance level. This indicates that a 1% increase in CSI will decrease the stock price by 0.3236%, 0.1875%, and 0.2904% at the respective quantiles. The result confirmed that CSI has a negative effect on stock price across all quantiles. Throughout three quantiles, lower quantile received a larger effect, followed by upper quantile, and median quantile. These results are surprisingly as the result is contrary with the expected positive relationship. It may indicate that a potential measurement issues or industry-specific dynamics cause higher consumer sentiment to correlate with lower stock prices. It might be a reason behind to challenge the typical understanding of consumer behavior's in influencing on the stock market in the Plantation sector. This negative relationship is contracted with Karim et al. (2022) and Rashid et al. (2014).

For BCI, the coefficient values are about 0.3155, 0.1586, and 0.1585 at the 25th, 50th, and 75th quantile respectively, all are statistically significant at 1% of significance level. This indicates that a 1% increase in BCI will increase the stock price by 0.3155%, 0.1586%, and 0.1575% at the respective quantiles. The result reveals that BCI has a positive effect on stock price, indicating in line with the expected relationship. The larger effect at the lower quantile suggests that underperforming firms gain more from higher business confidence, emphasizing the significance of a positive business climate for raising investor confidence and stock values, especially for underperforming firms. This positive relationship is similar with Karim et al. (2022) and Rashid et al. (2014).

4.3 Macroeconomic Variables

For INF, the coefficient values are about 0.5042, 0.6564, and 0.8320 at the 25th, 50th, and 75th quantile respectively, all are statistically significant at 1% of significance level. This indicates that a 1% increase in INF will increase the stock price by 0.5042%, 0.6564%, and

0.8320% at the respective quantiles. The result suggests that ER has a positive effect on stock price, indicating firms in Plantation sector are following the anticipated inflation condition. The inflation effect shows an increasing trend from lower quantile to higher quantile, indicating firms with better performance experience a stronger positive impact from the rising of inflation. This result confirmed that inflationary conditions may enhance the stock price more substantially for higher-performing firms. This positive relationship is supported by Al-Dwiry et al. (2022) Silfia and Zuhroh (2022), and Wong and Pinjaman (2022).

For ER, the coefficient values are about -1.4047, -1.3798, and -1.4823 at the 25th, 50th, and 75th quantile respectively, all are statistically significant at 1% of significance level. This indicates that a 1% increase in ER will decrease the stock price by 1.4047%, 1.3798%, and 1.4823% at the respective quantiles. The result suggests that ER has a negative effect on stock price. This result confirmed that a strong and significant negative effect of ER highlights that higher ER adversely affect stock price across the distribution. This negative relationship is similar to Silfia and Zuhroh (2022) and Wong and Pinjaman (2022).

5. Conclusion and Recommendations

This study examined the relationship between microeconomic, sentiment, and macroeconomic variables across three quantiles (q25, q50, and q75) of stock prices in the Malaysian plantation sector over the period 2008Q3 to 2023Q3. This result found that EPS and INF exhibit a consistently positive and statistically significant relationship with stock prices across all quantiles. It indicates that both variables as a critical role in enhancing the stock value, particularly for higher-performing companies. Even though BCI found a consistently positive and significant relationship with stock prices across all quantiles, underperforming companies could enjoy more benefits compared to median and higher-performing companies. For ROE, there is a mixed impact such as a positive effect at the 25th and 50th quantiles, but a negative effect at the 75th quantile. It pointed out that higher ROE generally improves stock prices, while it may not benefit the higher-performing companies. Furthermore, CSI and ER exhibit a consistently negative and statistically significant relationship with stock prices across all quantiles. Only median-performing companies received less impact compared to underperforming and higher-performing companies.

Several policy implications and recommendations could be derived from the findings of this study. For investors, focusing on companies with strong EPS and ROE is crucial, particularly in underperforming and median-performing firms, as these metrics are key drivers of stock prices. However, investors should also account for exchange rate fluctuations and consumer sentiment within the markets.

1. Investors might prioritize firms with consistently growing EPS across all performance levels whether in the lower, median, or higher quantiles, as it has a direct and positive impact on stock prices at every quantile, making it a critical driver of stock price growth.
2. Investors might be careful when evaluating the ROE of high-performing firms.

Diversifying their portfolios instead of focusing heavily on high ROE plantation firms is advisable. As lower returns may mean inefficient use of capital or increased risk in these firms.

3. Investors might leverage currency hedging strategies or prioritize firms with a diversified international revenue base. Sentiment analysis techniques could also help investors assess market conditions and adjust their portfolios accordingly, especially in the plantation sector, where macroeconomic factors such as exchange rates and consumer sentiment play a significant role.

Policymakers can foster a stable and conducive business environment to boost investor confidence and support stock market growth. In addition, implementing exchange rate interventions may be prioritized to stabilize the currency.

1. Policymakers could adopt inflation-targeting policies to maintain stable inflation, which would positively impact plantation stock values across all performance levels. By focusing on monetary control, such policies can help sustain growth in the sector's stock prices.

2. Central banks may consider implementing measures to stabilize the national currency and reduce exchange rate volatility. Promoting Foreign Direct Investment (FDI) and maintaining healthy foreign exchange reserves can mitigate the adverse effects of currency fluctuations on the plantation sector.

3. Introducing policies that prioritize sustainability and transparency within the plantation sector could improve consumer sentiment. Effective public communication strategies that instill confidence in the sector's future are also likely to enhance stock performance.

For companies in the plantation sector, the management team may keep enhancing the performance of EPS and ROE to attract investors. In addition, the management team may develop strategies to reduce the negative effects of exchange rate volatility such as securing cost-effective financing options. Last but not least, the management team may engage in effective communication with stakeholders to overcome the negative sentiment reflected in the CSI. It may be an option to improve overall market perception.

In summary, studying the impact of economic variables at different quantile levels able to provide a more complete and accurate understanding of market behavior. It emphasizes the need to consider the full distribution of stock prices rather than just the conditional mean, which allows investors, policymakers, and companies to make more informed decisions. This approach reveals underlying patterns and relationship that traditional mean-based analysis would miss, leading to more informed and strategic market decisions. For future research, a similar research topic could be explored in other industries or sectors with a longer period for better understanding.

Authors contributions

PhD Student Wong Vui Ken and Dr. Saizal were responsible for study design and revising.

Wong Vui Ken was responsible for data collection. PhD Student Wong Vui Ken drafted the manuscript and Dr. Saizal revised it. All authors read and approved the final manuscript. In this paragraph, also explain any special agreements concerning authorship, such as if authors contributed equally to the study.

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The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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Appendix A

Table 1. Past Studies Summarizations

No	Author	Year	Periods/ Frequency	Number of Firms/ Observations	Sector/Industry	Market/Country	Model	Result
1	Wong and Pinjaman	2023	2021Q1-2021Q4	25 NoF/100 Obs.	Food and Beverage	Bursa Malaysia	GMM	EPS (+), ROE (-)
2	Al-Dwiry, Al-Eitan, & Amira	2022	2010-2021	13 NoF/143 Obs.	Commercial Banks	Amman Stock Exchange	Fixed Effect	EPS (+), GDP (+), INF (+)
3	Azmeh & Hamada	2022	2014-2017	23 NoF/92 Obs.	Banking	Dubai & Abu Dhabi	Fixed Effect	EPS (+), ROE (-)
4	Karim, Fahmi, Karim, & Shokr	2022	2010-2019	608 NoF	-	Bursa Malaysia	GMM	CSI (+), BSI (+), DTE (-)
5	Silfia & Zuhroh	2022	2016-2020	10 NoF/50 Obs.	Food and Beverage	Indonesia Stock Exchange	CEM	ER (-), INF (+), IR (+), ROE (+), DTE (+), EPS (-)
6	Tiwari, Abakah, Bonsu, Karikari, & Hammoudeh	2022	Oct 1974 - Oct 2020	-	Health Care, Consumer Discretionary, Consumer Staples, Utilities, Financials, Real Estate, Industrials, Basic Materials and Energy	Rural Australia	Causality	CSI granger caused stock returns of Health Care, Financials and Industrial Sector
7	Wong and Pinjaman	2022	2013-2019	23 NoF/161 Obs.	Travel, Leisure, and Hospitality	Bursa Malaysia	GMM	EPS (+), ROE (+), INF (+), ER (-)
8	Maani, Alawad & Karaki	2021	2015-2019	-	Insurance	Jordan	Pooled OLS	ROE (-)
9	Nugroho & Pertiwi	2021	Q12018-Q22020	45 NoF/450 Obs.	Hotel, Tourism, Restaurant & Retail Trade	Indonesia Stock Exchange	Random Effect	Revenue (-), Operating Cash Flow (-), ROE (+)
10	Raza, Hassan Gillani, Ahmad, Qureshi, & Khan	2021	2009-2017	62 NoF/588 Obs.	Textile	Pakistan	Fixed Effect	EPS (+), GDP (+), INF (-)
11	Widyastuti & Susilo	2020	2015-2018	17 NoF/68 Obs.	-	Indonesia Stock Exchange	Pooled OLS	ROE (+), EPS (+), ER (+), INF (-)
12	Gunathilaka, Jais, & Balia	2017	Jan2007-Dec2017	38 NoF	-	Bursa Malaysia	OLS	Sample 1: CSI (-), BCI (+&-) Sample 2: CSI (+), BCI (+) Sample 3: CSI (+&-), BCI (+) Sample 4: CSI (-), BCI (+&-)
13	Wadud	2017	2007-2016	30 NoF/300 Obs.	Commercial Banks	Dhaka Stock Exchange	Fixed Effect	IR (+), EPS (+), ROE (-)
14	Rashid, Hassan, & Yein	2014	2007Q1-2013Q4	-	-	Shari'ah Stock Market, Malaysia	OLS	CSI (+), BSI (+)