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Business Confidence in Indonesia: Which Macroeconomic Factors Have Long-Term Impact?

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Abstract

Business confidence refers to the level of optimism or pessimism that business owners have about the prospects of their companies and the overall economy. Thus, the focus of this study is to examine the long-term impact of various macroeconomic factors—economic growth, government expenditure, interest rates, inflation, exchange rates, and the composite stock price index—on the business confidence index in Indonesia by utilizing monthly data from January 2009 to December 2022. We employ Dynamic Ordinary Least Squares (DOLS) and Fully-Modified Ordinary Least Squares (FMOLS) as the main methods, with Canonical Cointegrating Regressions (CCR) as a robustness check method. The study also utilizes pairwise Granger causality tests for a comprehensive analysis. The findings indicate that all macroeconomic factors significantly impact the business confidence index in the long term across all methodologies. Specifically, economic growth, inflation, and the composite stock price index exert a positive impact, while government expenditure, interest rates, and exchange rates indicate a negative impact on the business confidence index. This evidence emphasizes the importance for businesses to diligently monitor macroeconomic trends and understand the patterns in these indicators so that companies can better anticipate changes in business sentiment. Taking a long-term perspective when making strategic decisions and investments is also advisable, recognizing that the influence of macroeconomic factors on business confidence may be more pronounced over time.



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1. Introduction

Business confidence refers to the degree of optimism or pessimism that business owners, managers, and investors have about the future prospects of the economy [1–3]. It serves as an important indicator of economic health, as high levels of business confidence

often lead to increased investment, hiring, and spending, while low confidence can result in decreased economic activity [4–6]. The linkage between business confidence and macroeconomics is profound, with business sentiment influencing macroeconomic variables such as investment, employment, and consumption, while

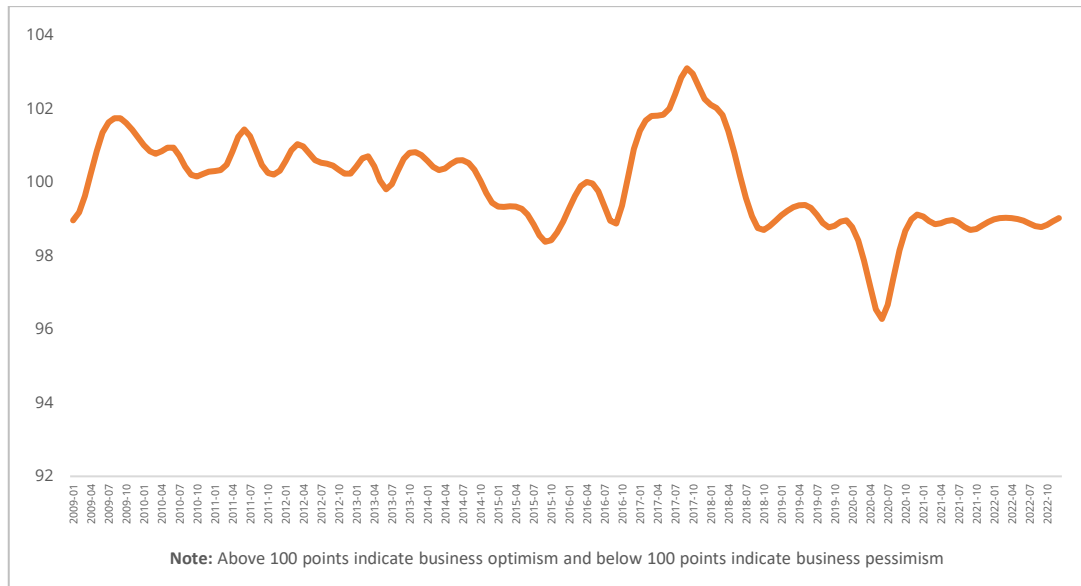


Figure 1. Trend of Indonesia's business confidence index, 2009-2022.
(Source: OECD)

macroeconomic conditions, in turn, shape business sentiment through overall economic performance [7–10].

According to the rational expectations theory, business confidence reflects the expectations of business leaders regarding future economic performance, including factors such as GDP growth, government spending, central bank interest rates, inflation level, exchange rates fluctuation, and stock market stabilization [11–14]. When businesses are optimistic about the future, they are more likely to invest in expansion and innovation, which can stimulate growth in the economy [15–17]. Conversely, pessimistic businesses may delay investment and hiring decisions, leading to slower economic growth or even recession [18–20].

The trend of Indonesia's business confidence index, based on data from the Organisation for Economic Co-operation and Development (OECD) and shown in Figure 1, reveals several notable patterns. Initially, from 2009 to 2010, the index showed gradual growth after the 2007–2008 financial crisis, peaking in mid-2009 before stabilizing around 100 in 2010. However, from 2013 to 2015, there was increased volatility, mainly driven by the euro area debt crisis 2012, with confidence dipping below 100 and exhibiting a downward trend. Notably, there is a significant recovery, with confidence surpassing 100 by mid-2016 and continuing to rise through 2017. This positive momentum reverses from late 2017 to 2018, with confidence gradually declining, though remaining above 100 for much of this period. The COVID-19 pandemic has had a substantial impact, leading to a sharp decline in confidence in early 2020, followed by a partial recovery towards the end of that year and into 2021, albeit below pre-pandemic levels. Throughout

2022, confidence slowly but steadily increases. However, it remains below the 100 level, which indicates a business pessimism. These trends reflect the dynamic interplay of macroeconomic factors shaping business confidence in Indonesia during the study period.

A study by Akkaya [21] in Turkey provides compelling evidence of the long-term impact of macroeconomic factors on business confidence. Similarly, a study conducted by Canöz [22], also in Turkey, reinforces this notion by highlighting the significant influence of various macroeconomic variables on business confidence. Furthermore, Varvares' study [23] in the USA uncovers intricate interconnections between macroeconomic factors and the business sector. Moreover, comprehensive studies by Nowzohour and Stracca [24] spanning 27 countries establish a robust correlation between business confidence and macroeconomic activity. Additionally, the study by Charpe et al. [25], which assesses the relationships between business confidence and macroeconomic factors using aggregate opinion dynamics as a novel feature approach, indicates rich interactions between them. Some of these studies collectively underscore the profound impact of macroeconomic factors on business confidence across diverse geographical contexts.

However, despite global evidence of the crucial connection between business confidence and macroeconomic factors, studies in Indonesia still need to be more comprehensive. In terms of business sentiment topics in general, some of the previous studies in Indonesia such as those by Ayuningtyas & Koesrindartoto [26] that examine business confidence and consumer confidence relationship with returns of stock market,

Yusri et al. [27] that assessing the linkage between business confidence and unemployment, Kuncoro [28] that analysis business uncertainty related to various corruption aspects, Kusumaningrum et al. [29] that identify business optimism during the COVID-19 pandemic through survey method, and Prestianawati & Setyanti [30] that investigating the causality between COVID-19 case growth and business continuity. However, none of these studies provided a comprehensive analysis of the relationship between business confidence and macroeconomic factors in Indonesia.

To address the research gap that persists in Indonesian literature, this study aims to fill it by utilizing six different macroeconomic variables—economic growth, government expenditure, interest rates, inflation, exchange rates, and the composite stock price index—to assess their impact on the business confidence index in Indonesia, particularly from a long-term perspective. The empirical findings of this study can provide implications for businesses to better anticipate market dynamics and for policymakers to stimulate growth while carefully considering the impact of economic indicators on business confidence in Indonesia.

2. Literature Review

2.1. *The Construction of Business Confidence Index (BCI)*

The BCI by the OECD is a leading economic indicator that measures the sentiment of business executives regarding the expected economic conditions. It is calculated using responses from business surveys, where managers provide their views on production, orders, and employment, among other factors. These responses are aggregated and standardized to create an index, with values above 100 indicating optimism and values below 100 indicating pessimism [31]. The BCI is advantageous because it provides timely insights into the business climate, helping policymakers, investors, and businesses make informed decisions. By anticipating changes in economic activity, the BCI aids in early detection of economic turning points, allowing for proactive measures to mitigate potential downturns or capitalize on upswings.

All economists and policymakers consider the business confidence index to be one of the vital indicators that reflect economic trends, making it possible to predict crises and develop potential solutions. Both theoretical and empirical aspects of constructing the business confidence index have been investigated by many researchers. For instance, a study by Los and Ocheretin [7] constructed a business confidence index based on the economic indicators of Ukraine. For this analysis, quarterly values of economic indicators such as GDP,

unemployment rate, price index, imports, and exports from 2008 to 2019 were chosen. Using regression models, the forecast of the business confidence index for the next period was evaluated, and trends were established. Moreover, De Mendonca and Almeida [16] examined the main factors affecting entrepreneurs' confidence through the credibility of monetary policy. They estimated the effect of credibility on business confidence using two different measures of the central bank's ability in Brazil. The results revealed that the credibility of monetary policy could reduce uncertainty in the economy, thereby enhancing entrepreneurship. Additionally, Sakaji et al. [32] proposed a new framework for developing a business confidence index and investigated the inter-industry structure of a local area using text data to replicate the economic features of that area. They used the Granger causality test, impulse response analysis, and variance decomposition methods to examine the causality of various time series data. The results indicated that changes in the business confidence index in each industry category influence one another within and among industries.

Furthermore, Semerikov [33] aimed to model the trends in indicators that determine the status of the business climate of countries. The preliminary results of substantiating a set of indicators and the taxonomy method formed the basis of their study. The results revealed that the annual GDP growth rate was the most significant factor influencing the business climate index. They proposed an approach to model the business climate index, which could be applied to the macroeconomic data of various countries, and the approach illustrated a high degree of accuracy and forecasting quality. Similarly, Leiva et al. [34] presented a methodology for a business confidence index based on the Chilean economy. The model describes aspects of the market at both global and industrial levels, as well as the sector levels of major Chilean brands. By introducing issues related to business intelligence, customer surveys, and market variables, the confidence level of the business was assessed. Furthermore, an analysis of real-world data was employed using the index, which reflected the competitiveness of some major Chilean brands.

2.2. *The Relationships between Business Confidence and Macroeconomic Factors*

Numerous previous studies globally have already examined the connection between business confidence and various macroeconomic factors. For instance, Ayuningtyas and Koesrindartoto [26] examined the relationship between business confidence and the stock market in Indonesia, considering quarterly returns of the

indices from the Jakarta Composite Index, LQ45 Index, and Jakarta Islamic Index for the period from 2000 to 2013. The results depicted that a change in business confidence had a significant and direct relationship with the quarterly return of each stock index. Such results are insightful for stock market valuation, investment, and risk management. Moreover, Akkaya [21] investigated the long- and short-term relationship between the real sector confidence index and macroeconomic and financial variables from 2007 to 2021 in Turkey. It was evident that there is a long-term cointegration relationship. It was found that domestic debt stocks, real exchange rates, and stock portfolios have a significant bilateral impact on the change in the real sector confidence index in the short term, whereas in the long term, both macroeconomic and financial variables are also statistically significant.

Furthermore, Sum [35] examined the impact of business confidence on stock returns for 31 countries, using monthly data. The results revealed cross-sectional effects of business confidence on stock returns. In addition, Sum and Chorlian [36] assessed the dynamics of business confidence and consumer confidence on stock market risk premiums through variance decomposition and regression analysis in the USA. The results indicated that consumer confidence and business confidence jointly affect stock market risk premiums. Additionally, Santero and Westerlund [37] investigated the effectiveness of consumer and business surveys in assessing the cyclical position of the economy through graphical examination, correlation analysis, and Granger causality tests. The results found a statistically significant relationship between business confidence and GDP, real business investment, and industrial production in 11 OECD countries. Kershoff [38] also identified a positive relationship between the business confidence index and GDP growth rate in South Africa.

Through the business confidence index, investors' psychology and sensitivity can be accounted for in determining the tendencies of economic agents. Canöz [22] investigated the macroeconomic factors affecting the real sector confidence index, taking into account monthly data from January 2007 to March 2017. Using the Johansen cointegration test and Granger causality test, the results indicated that the central bank of the Republic of Turkey composite leading indicators index, capacity utilization rate of the manufacturing industry, interest rate, and stock market index affect the business confidence index. Similarly, Kilci [39] studied the impact of financial services and real sector confidence indexes on various macroeconomic and financial indicators, such as inflation, stock market index, interest rate, and

exchange rate in Turkey from May 2012 to May 2019. By investigating the causal relationship between confidence indicators and macroeconomic and financial variables using the Fourier Toda Yamamoto causality test, the results demonstrated a strong relationship between financial services and real sector confidence indexes on macro-financial indicators, supporting the evidence of the short-term impact of confidence on these variables. Additionally, Aytakin & Bozkaya [40] analyzed the effects of macroeconomic indicators on economic confidence, considering monthly data from January 2008 to December 2019 in Turkey and employing the ARDL model. The results found a negative association between inflation, export, and unemployment, and economic confidence in the long run, whereas there was a positive association between industrial production, real exchange rate, import, and economic confidence. These studies present mixed results on the relationship between macroeconomic variables and economic confidence in Turkey during the examined period.

Furthermore, Montes & Diaz [41] investigated the aggregate business confidence index and the business confidence index using panel data of 11 Brazilian industrial sectors through generalized method of moments regressions. They found that disagreements in inflation expectations reduce business confidence while monetary policy improves business confidence, attributing these results to the high optimism of Brazilian entrepreneurs. Similarly, Maredza & Nyamazunzu [42] empirically assessed the impact of certain macroeconomic variables on the business confidence index for the South African economy using quarterly data from 1975 to 2015 and 2002 to 2015 for two models. The results indicated that real economic growth, interest rate, exchange rate, inflation rate, and stock market performance significantly impact business confidence, suggesting that the government needs to ensure a conducive business environment. Additionally, Olkiewicz [43] aimed to demonstrate the fluctuations of economic indicators on business confidence during the COVID-19 pandemic. Using annual data from G7 and E27 countries and Poland from 2015 to 2021, the results found a relationship between the COVID-19 pandemic and the development of economic indicators and the business confidence index. The pandemic led to reduced GDP, increased unemployment rates, higher import rates, and unstable business confidence in the sampled countries.

In conclusion, the extensive array of studies discussed underscores the intricate interplay between business confidence and various macroeconomic factors across different contexts. From investigations into stock market dynamics in Indonesia to the examination of long- and

Table 1. Synopsys of variables.

Status	Variable	Symbol	Unit	Source
Dependent	Business Confidence Index	BCI	Points	OECD [44]
Independent	Gross Domestic Product	GDP	Constant Rupiah	WDI [45]
	Government Expenditure	GE	Constant Rupiah	WDI [45]
	Interest Rates	ITR	Percent	BI [46]
	Inflation	INF	Percent	BI [47]
	Exchange Rates	EXR	Rupiah/USD	MT [48]
	Composite Stock Price Index	IDXC	Points	IDX [49]

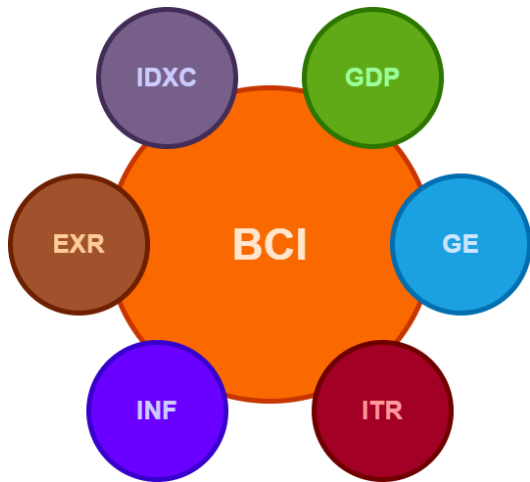


Figure 2. Conceptual framework.

short-term relationships in Turkey, and the global perspective on business confidence's impact on stock returns across countries, each study contributes valuable insights into understanding economic behavior. Moreover, the findings on how both business and consumer confidence jointly influence stock market risk premiums, along with assessments on the cyclical position of economies, further deepen our comprehension of the intricate relationships at play. These insights not only enhance our understanding of economic phenomena but also offer valuable implications for policymakers and investors, emphasizing the importance of fostering conducive environments for sustainable economic growth and stability amidst various challenges, including the unprecedented disruptions caused by events like the COVID-19 pandemic.

3. Materials and Methods

3.1. Data and Variables

The study utilizes data from January 2009 to December 2022, chosen due to the availability of interest rate data from January 2009 onwards. It incorporates seven variables, including the business confidence index as the dependent variable, and macroeconomic factors such as economic growth (represented by Gross Domestic Product (GDP)), government expenditure, interest rates, inflation, exchange rates (Rupiah/USD), and the

composite stock price index (represented by the Indonesia Stock Exchange (IDX) composite index) as independent variables.

The business confidence index data is obtained from the Organisation for Economic Co-operation and Development (OECD), while GDP and government expenditure data are sourced from the World Development Indicators (WDI). Interest rates and inflation data are gathered from Bank Indonesia (BI), exchange rates from the Ministry of Trade of the Republic of Indonesia (MT), and the composite stock price index from the Indonesia Stock Exchange (IDX). Summary information about the variables used in this study can be found in Table 1.

3.2. Function and Modeling

This study utilized rational expectation theory, first proposed by Muth [50], and further developed and popularized the concept within macroeconomic scope by Lucas [51], in building the mathematical function and econometric model for the study. The rational expectations model explains that the optimism and pessimism of business practices, also known as business confidence, are impacted by various economic conditions. Thus, as pictured in Figure 2, the main objective of this study is to analyze the influence of six key factors—GDP, government expenditure, interest rates, inflation, exchange rates, and the composite stock price index—on the business confidence index. The mathematical function of these relationships is illustrated in Equation 1.

$$BCI = f(GDP, GE, ITR, INF, EXR, IDXC) \tag{1}$$

Here, *BCI* represents the business confidence index, *GDP* stands for gross domestic product, *GE* denotes government expenditure, *ITR* refers to interest rates, *INF* represents inflation, *EXR* indicates exchange rates, and *IDXC* signifies the composite stock price index.

Based on the function in Equation 1, econometric model for the variables relationship is expressed in Equation 2.

$$BCI_t = \beta_0 + \beta_1 GDP_t + \beta_2 GE_t + \beta_3 ITR_t + \beta_4 INF_t + \beta_5 EXR_t + \beta_6 IDXC_t + \varepsilon_t \tag{2}$$

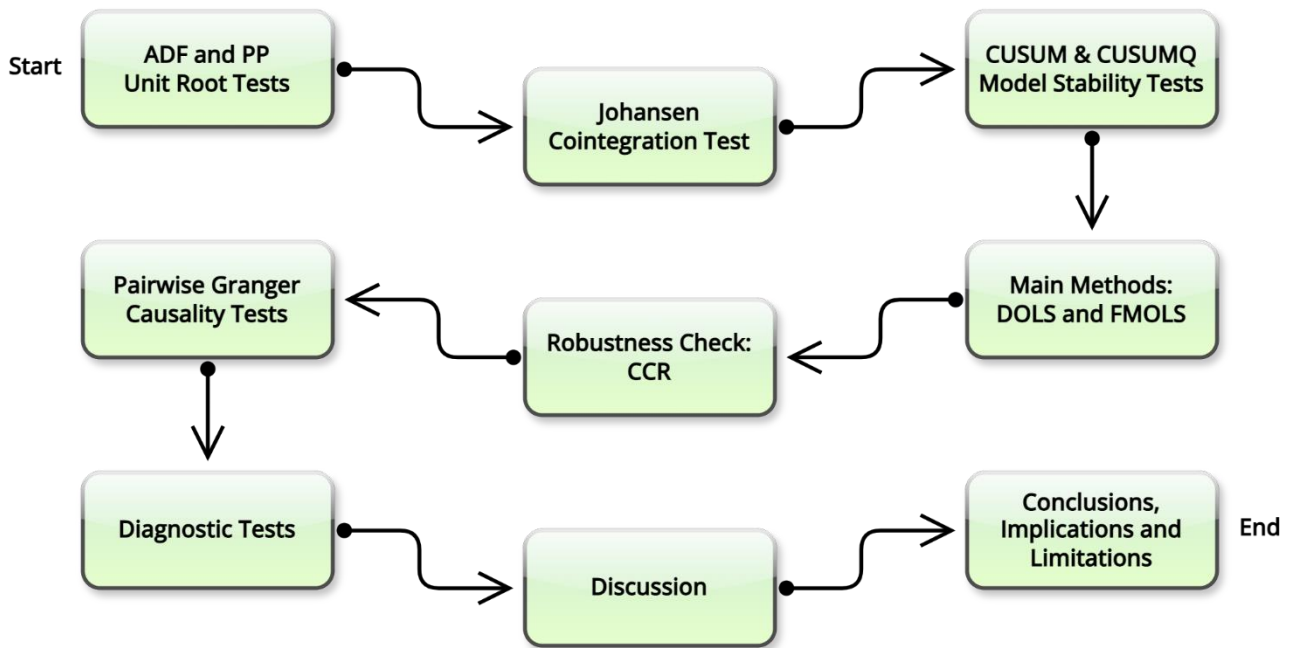


Figure 3. Flow analysis of the study.

Furthermore, in order to interpret the coefficients obtained from regression analysis as percentage changes rather than absolute changes, Equation 2 was transformed into natural logarithmic (ln) form (except for the ITR and INF variables, which are already in percentage form), as shown in Equation 3.

$$\ln BCI_t = \beta_0 + \beta_1 \ln GDP_t + \beta_2 \ln GE_t + \beta_3 ITR_t + \beta_4 INF_t + \beta_5 \ln EXR_t + \beta_6 \ln IDCX_t + \varepsilon_t \quad (3)$$

Here, t is the study timeframe, β_0 denotes the intercept, $\beta_1 - \beta_6$ are the coefficients, and ε is the error term.

3.3. Methods

3.3.1. Dynamic Ordinary Least Squares (DOLS)

Originally developed by Stock and Watson [52], DOLS extends the conventional ordinary least squares (OLS) framework by integrating lagged differences of variables to address potential non-stationarity, thereby mitigating issues associated with spurious regression and yielding more dependable estimates. A key advantage of DOLS is its capability to deliver consistent and efficient parameter estimates even with integrated time series data, providing a robust approach for modeling relationships that might display long-term trends or persistent shocks. Additionally, DOLS is particularly advantageous in cointegration analysis, where it facilitates the estimation of long-term equilibrium relationships between non-stationary variables [53–56].

3.3.2. Fully-Modified Ordinary Least Squares (FMOLS)

Similar to DOLS, FMOLS also expands upon the conventional OLS approach by integrating additional

lagged values of both the dependent and independent variables to address potential endogeneity and serial correlation issues. Originally developed by Phillips and Hansen [57], this can be achieved by incorporating lagged variables into the model, thus enabling FMOLS to effectively tackle concerns regarding autocorrelation and simultaneity bias, resulting in more precise parameter estimates and robust inference. FMOLS's advantage lies in its capacity to generate consistent estimates even when confronted with time series data displaying non-stationarity or endogeneity, which is particularly valuable in cointegration analysis [54–56, 58].

3.3.3. Canonical Cointegrating Regressions (CCR)

The CCR, developed initially by Park [59], directly estimates the cointegrating vectors and addresses potential endogeneity concerns by including lagged values of the variables. CCR enhances robustness to specification errors and facilitates more efficient estimation of cointegrating relationships. Its key advantage lies in its capability, particularly in providing consistent and dependable estimates of cointegrating vectors, enabling accurate modeling and comprehension of equilibrium relationships between variables over time. Based on this, CCR serves as a valuable tool for verifying the robustness of DOLS and FMOLS long-term estimation results [54, 59].

3.3.4. Pairwise Granger Causality Test

As an expansion of the Granger causality concept initially introduced by Granger [60], pairwise Granger causality entails estimating a sequence of autoregressive

Table 2. Descriptive statistics.

Variables	Mean	Median	Max.	Min.	Std. Dev.	Skewness	Kurtosis
lnBCI	4.6046	4.6056	4.6358	4.5673	0.0123	-0.0277	3.2141
lnGDP	3.6038	3.6044	3.6109	3.5947	0.0051	-0.3171	1.8319
lnGE	25.189	25.199	25.475	24.669	0.1929	-1.1662	4.5209
ITR	1.7202	1.7492	2.1691	1.2528	0.2528	-0.5112	2.1061
INF	1.3628	1.3494	2.2159	0.2776	0.4775	-0.3764	2.6187
lnEXR	9.4019	9.4962	9.7031	9.0488	0.1908	-0.5453	1.7409
lnIDX	7.7563	7.9029	8.6159	5.9621	0.7277	-0.6939	2.3539

models for each variable individually, followed by a comparison of the model residuals to ascertain whether one variable significantly aids in predicting future values of the other variable beyond its own lagged values. The advantage of the pairwise Granger causality test lies in its simplicity and straightforward interpretability, making it widely adopted for exploring causal relationships between variables in time series analysis. Moreover, pairwise Granger causality offers a direct approach to examining causality between pairs of variables without necessitating an extensive multivariate model, thereby enabling a rapid assessment of potential causal connections between variables of interest [55, 56, 61, 62].

3.4. Flow Analysis

The study's process, as illustrated in Figure 3, starts with the Augmented Dickey-Fuller (ADF) and Phillips-Perron (P-P) unit root tests to check the stationarity of the variables. Next, the Johansen cointegration test is applied to identify the long-term equilibrium relationships among the variables. Once cointegration is confirmed, model stability is assessed using the CUSUM and CUSUMQ tests. Then, the parameters of the cointegrating equation are estimated using DOLS and FMOLS methods. Robustness is further ensured through CCR techniques, including pairwise Granger causality tests to enhance comprehensiveness. To validate the model, various diagnostic tests such as the Jarque-Bera test, Breusch-Pagan-Godfrey test, and Ramsey test are conducted. The subsequent sections provide a discussion of the findings, followed by conclusions drawn from the analysis. The research ends with policy recommendations based on the empirical results, offering practical implications for decision-makers and stakeholders, and outlines study limitations for better future research.

4. Results and Discussion

4.1. Descriptive Statistics

Table 2 presents summary statistics for all variables employed in the study in their logarithmic form. The BCI reflects a stable trend, with a mean value of 4.6046 and a median of 4.6056, suggesting consistent confidence levels among businesses. The narrow range between the

maximum (4.6358) and minimum (4.5673) values further supports this stability. However, the slight negative skewness (-0.0277) indicates a slightly left-skewed distribution, potentially leading to more extreme negative values, while the kurtosis value of 3.2141 suggests a slightly peaked distribution around the mean, with fewer extreme values. Similarly, the GDP demonstrates stability, with a mean value of 3.6038 and a median close to the mean at 3.6044. The minimal variability between the maximum (3.6109) and minimum (3.5947) values indicates consistent economic output. Nevertheless, the negative skewness (-0.3171) and kurtosis value of 1.8319 suggest a distribution slightly skewed to the left, with a moderate concentration of values around the mean.

In contrast, the GE exhibits relatively high spending levels, with a mean value of 25.189 and a median close to the mean at 25.199, indicating stable expenditure patterns. Despite the narrow range between the maximum (25.475) and minimum (24.669) values, the negative skewness (-1.1662) implies a left-skewed distribution with potential volatility in spending. The kurtosis value of 4.5209 suggests a more peaked distribution around the mean, possibly with heavier tails. ITR and INF demonstrate moderate levels, with mean values of 1.7202 and 1.3628, respectively, and median values close to the means. EXR remains relatively stable, with a mean value of 9.4019 and a median slightly higher at 9.4962. However, all three indicators show variability in their levels and exhibit left-skewed distributions with moderate concentrations around the mean, as indicated by their respective skewness and kurtosis values. Similarly, the IDX indicates moderate consumer confidence levels, with some variability and left-skewed distributions, as reflected by its skewness and kurtosis.

4.2. Unit Root Test

A unit root indicates that a variable lacks stability or consistency over time, displaying a random pattern instead of settling around a consistent average. Conversely, stationary variables maintain a stable average and variability, making them suitable for reliable dynamic estimation. As shown in Table 3, the outcomes of Augmented Dickey-Fuller (ADF) [63] and Phillips

Table 3. Results of ADF and P-P unit root tests.

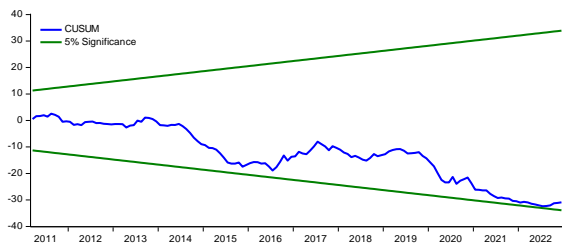
Variables	ADF		P-P	
	Level	1 st Difference	Level	1 st Difference
	Prob.	Prob.	Prob.	Prob.
BCI	0.0298**	0.0002*	0.1465	0.0022*
GDP	0.8346	0.0004*	0.9152	0.0000*
GE	0.4157	0.0000*	0.6514	0.0000*
ITR	0.0208**	0.0000*	0.1252	0.0000*
INF	0.9979	0.0005*	0.9979	0.0000*
EXR	0.1990	0.0001*	0.1098	0.0000*
IDXC	0.2424	0.0490**	0.2683	0.0000*

Note: ** and * indicates 5% and 1% significance level, respectively.

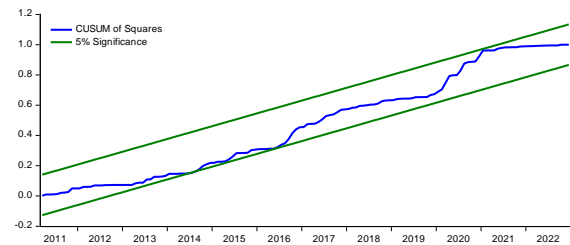
Table 4. Results of Johansen cointegration test.

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.
None	0.3234	155.76	111.78	0.0000*
At most 1	0.1948	90.917	83.937	0.0142**

Note: ** and * indicates 5% and 1% significance level, respectively.



(a)



(b)

Figure 4. Results of (a) CUSUM and (b) CUSUMQ tests.

Perron (P-P) [64] tests affirm that all variables indicate stationarity at the order of first difference. This shows that the average and variability of the data consistently remain stable over time, supporting dynamic and causal estimation.

4.3. Cointegration Test

The analysis of cointegration is also crucial for dynamic and causal investigations, as it indicates a sustained relationship between the variables over a prolonged time series. Table 4 confirm that all variables used together demonstrate strong cointegration at a 5% significance level based on the Johansen cointegration test [65]. These findings further support the idea that all dynamic methods utilized in this study suggest a persistent long-term connection.

4.4. Model Stability Test

After conducting unit root and cointegration tests, detecting changes in time series data is also important to maintain model quality control. The cumulative sum of recursive residuals (CUSUM) and the cumulative sum of squares of recursive residuals (CUSUMQ) tests [66] are employed for this purpose, aiming to identify shifts in the

data parameters. As illustrated in Figure 4, the results of both CUSUM and CUSUMQ tests indicate that the model stayed within the 5% significance level critical bounds throughout the study period, suggesting model stability.

4.5. Results of DOLS and FMOLS Estimations

In Table 5, it is evident that all independent variables—namely GDP, GE, ITR, INF, EXR, and IDXC—have a significant impact on BCI over the long term. Notably, GDP stands out with a strong impact on BCI, demonstrating statistical significance at the 5% level according to both DOLS and FMOLS. Moreover, GE's effect on BCI is prominently significant, showing strength at the 5% level in DOLS and remarkable significance at the 1% level in FMOLS. Similarly, both ITR and INF exhibit noteworthy impacts on BCI, displaying exceptional significance at the 1% level in both DOLS and FMOLS. Although EXR's influence on BCI is significant, it holds at an acceptable level of 10% in both DOLS and FMOLS. Lastly, IDXC's impact on BCI is excellently significant, registering at the 1% level in both DOLS and FMOLS.

Additionally, both R² and adjusted R² values from the DOLS and FMOLS estimations surpass the 50% mark, demonstrating an acceptable level of explanatory power

Table 5. Results of FMOLS and DOLS Estimations.

<i>Dependent Variable: BCI</i>						
Independent Variables	DOLS			FMOLS		
	Coeff.	t-stat.	Prob.	Coeff.	t-stat.	Prob.
GDP	4.1278	2.1428**	0.0336	4.6871	2.5941**	0.0104
GE	-0.0648	-2.3572**	0.0196	-0.0811	-3.1373*	0.0020
ITR	-0.0377	-3.3478*	0.0010	-0.0415	-3.9299*	0.0001
INF	0.0118	2.6494*	0.0089	0.0145	3.4405*	0.0007
EXR	-0.0494	-1.7531***	0.0815	-0.0514	-1.9371***	0.0545
IDXC	0.0166	3.4842*	0.0006	0.0157	3.5013*	0.0006
constant	-8.2537	-1.3542	0.1776	-9.8326	-1.7189***	0.0876
R ²	0.5289			0.5309		
Adjusted R ²	0.5114			0.5134		
S.E. of Regression	0.0086			0.0086		
Long-Term Variance	0.0003			0.0002		

Note: ***, ** and * indicates 10%, 5% and 1% significance level, respectively.

Table 6. Results of CCR Estimation.

<i>Dependent Variable: BCI</i>			
Independent Variables	CCR		
	Coeff.	t-stat.	Prob.
GDP	4.7314	2.5722**	0.0110
GE	-0.0807	-3.0681*	0.0025
ITR	-0.0409	-3.9159*	0.0001
INF	0.0144	3.4249*	0.0008
EXR	-0.0527	-1.9469***	0.0533
IDXC	0.0155	3.3026*	0.0012
constant	-9.9867	-1.7183***	0.0877
R ²	0.5314		
Adjusted R ²	0.5139		
S.E. of Regression	0.0086		
Long-Term Variance	0.0002		

Note: ***, ** and * indicates 10%, 5% and 1% significance level, respectively.

of the independent variables on the dependent variable. Additionally, the observed standard error of regression and long-term variance are notably low, indicating a close alignment between the model's predictions and the actual data. Hence, it can be inferred that the findings derived from the DOLS and FMOLS estimations are reliable.

The coefficient values derived from both DOLS and FMOLS analyses indicate that GDP, INF, and IDXC positively influence BCI over the long term, whereas GE, ITR, and EXR exert a negative impact. Specifically, a 1.0% rise in GDP corresponds to a 4.1278% and 4.6871% increase in long-term BCI according to DOLS and FMOLS, respectively. Furthermore, a 1.0% increase in GE leads to a 0.0648% and 0.0811% decrease in long-term BCI based on DOLS and FMOLS, respectively. Similarly, a 1.0% uptick in ITR results in a 0.0377% and 0.0415% decrease in long-term BCI according to DOLS and FMOLS, respectively. Conversely, a 1.0% increase in INF yields a 0.0118% and 0.0145% rise in long-term BCI based on DOLS and FMOLS, respectively. Additionally, a 1.0% increase in EXR triggers a 0.0494% and 0.0514% decline in long-term BCI according to DOLS and FMOLS, respectively. Finally, a 1.0% increase in IDXC is associated with a 0.0166% and

0.0157% increase in long-term BCI according to DOLS and FMOLS, respectively.

4.6. Results of CCR Estimation for Robustness Check

As depicted in Table 6, the CCR outcomes align closely with those of DOLS and FMOLS, exhibiting identical significance levels based on probability values and consistent impact directions based on coefficient values compared to both DOLS and FMOLS results. Moreover, with an R² above the 50% mark and low values of standard error of regression and long-term variance based on CCR results, it further adds to the robustness and reliability of the DOLS and FMOLS results.

In particular, as per CCR, a 1.0% growth in GDP corresponds to a 4.7314% boost in long-term BCI. Moreover, a 1.0% uptick in GE results in a 0.0807% reduction in long-term BCI. Similarly, a 1.0% increase in ITR leads to a 0.0409% decrease in long-term BCI. Conversely, a 1.0% rise in INF brings a 0.0144% increase in long-term BCI. Additionally, a 1.0% increase in EXR prompts a 0.0527% decline in long-term BCI. Finally, a 1.0% increase in IDXC correlates with a 0.0155% upturn in long-term BCI.

Table 7. Results of Pairwise Granger Causality Tests.

Null Hypothesis:	F-stat.	Prob.	Direction
GDP ≠ BCI	5.8805*	0.0034	GDP → BCI
BCI ≠ GDP	0.2295	0.7952	
GE ≠ BCI	3.8343**	0.0236	GE → BCI
BCI ≠ GE	0.2177	0.8046	
ITR ≠ BCI	1.6437	0.1965	ITR ≠ BCI
BCI ≠ ITR	0.6573	0.5196	
INF ≠ BCI	2.9913***	0.0530	INF → BCI
BCI ≠ INF	1.4029	0.2489	
EXR ≠ BCI	4.4985**	0.0126	EXR → BCI
BCI ≠ EXR	1.5101	0.2240	
IDXC ≠ BCI	5.8396*	0.0036	IDXC ↔ BCI
BCI ≠ IDXC	3.3985**	0.0358	

Note: ***, ** and * indicates 10%, 5% and 1% significance level, respectively.

Table 8. Results of Diagnostic Tests.

Diagnostic Test	Coeff.	Prob.	Conclusion
Jarque-Bera	5.1658	0.0756	Residuals are normally distributed
Breusch-Pagan-Godfrey test	1.3166	0.1989	No heteroscedasticity exists
Ramsey test	0.4257	0.5151	The model is properly specified

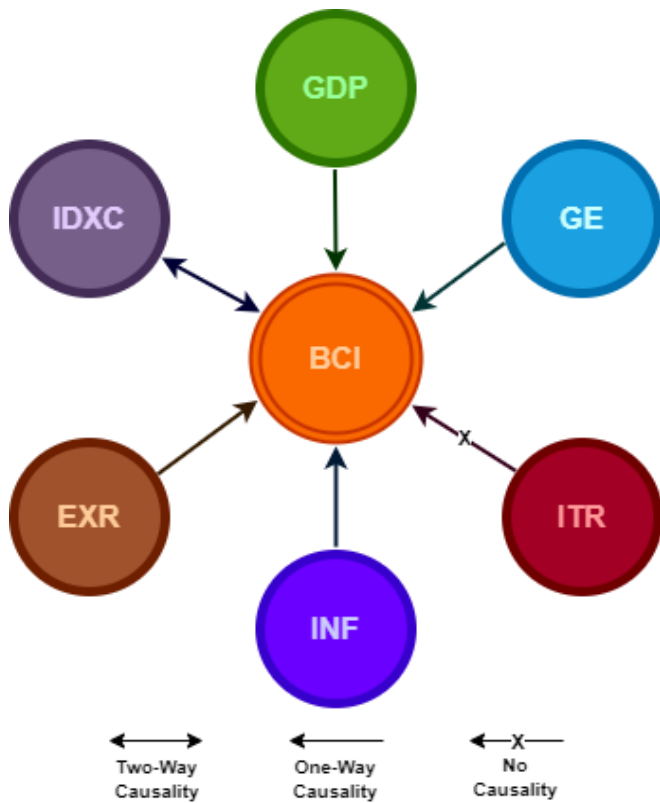


Figure 5. Results overview of pairwise Granger causality test.

4.7. Results of Pairwise Granger Causality Test

To enhance the comprehensiveness of the analysis, this study also utilized the pairwise Granger causality test to investigate the causal connections among the variables, as presented in Table 7. In summary, the study identified one instance of two-way causality, four cases of one-way causality, and one instance of no causality. Specifically, two-way causality was observed between IDXC and BCI,

while one-way causality was found from GDP to BCI, from GE to BCI, from INF to BCI, and from EXR to BCI. Meanwhile, it was revealed that there is no causality between ITR and BCI. These findings are overviewed in Figure 5.

4.8. Results of Diagnostic Test

Three diagnostic tests are employed on a statistical model to ensure the accuracy of the estimation results across various methodologies, as depicted in Table 8. Initially, the Jarque-Bera test indicates normal distribution of residuals, given its probability value of 0.0756 exceeding 0.05. Additionally, the Breusch-Pagan-Godfrey test shows probability values of 0.1989, surpassing 0.05, suggesting absence of heteroskedasticity issue. Lastly, the Ramsey test, with a probability value of 0.5151 (>0.05), affirms the appropriate specification of the model, without any omitted variables or incorrect functional form.

4.9. Discussion

The rational expectations theory explains how various economic conditions influence optimism and pessimism in business practices [12]. Business confidence mirrors the expectations of business leaders regarding future economic performance, encompassing factors such as economic growth, government spending, central bank interest rates, general price increases of goods, exchange rate fluctuations, and stock market stability [13]. This study aims to evaluate the impact of the mentioning macroeconomic factors on business confidence, recognizing that this crucial connection has yet to be

comprehensively explored in Indonesia, particularly from a long-term perspective.

Through careful steps in conducting the econometric estimation with various dynamic methods, this study's empirical findings show that all employed macroeconomic variables—economic growth, government expenditure, interest rates, inflation, exchange rates, and the composite stock price index—significantly impact business confidence in the long term. This suggests that businesses are influenced by broader economic conditions when forming their confidence levels and making decisions regarding future prospects.

Economic growth has been identified as a significant positive driver of business confidence in the long term. According to the study's findings, for every 1% increase in economic growth, there is a notable 4.7% rise in business confidence. Moreover, a strong one-way causality found from economic growth to business confidence enhances the long-term evidence. This underscores the crucial role of economic expansion in fostering optimism within business practices and reflects the pivotal importance of sustained growth in the country's overall economy [43, 67–71].

Meanwhile, this study found evidence of a suspected 'crowding-out effect' in the Indonesian context, as both government expenditure and interest rates negatively impacted business confidence. This led to a decrease of about 0.08% and 0.04% in long-term business confidence for every 1% increase in government expenditure and interest rates, respectively. When government spending increases, it often requires financing through borrowing or taxation. Increased borrowing can raise interest rates, thereby crowding out private-sector investment. Higher interest rates can discourage businesses from borrowing for investment purposes, reducing business confidence as they anticipate less favorable conditions for expansion [41, 72, 73].

Furthermore, the inflation factor positively impacts business confidence in the long term, and evidence was found of one-way causality from inflation to business confidence, aligning with theoretical expectations. The study revealed that a 1% rise in the inflation rate correlates with approximately a 0.01% increase in business confidence. Moderate inflation can indicate growing economic demand, which can benefit businesses as it implies increased consumer spending. Moreover, inflation can also lead to higher revenues for businesses if they can pass on increased costs to consumers through higher prices [74–76].

On the other hand, the exchange rate is found to negatively impact business confidence in the long term.

Causality tests also indicate a one-way causality from exchange rate to business confidence. Specifically, for every 1% rise in the exchange rate, business confidence is reduced by about 0.05%. This suggests that when the Rupiah loses value relative to the US dollar, it has a detrimental effect on business confidence in Indonesia. Businesses tend to have less confidence or optimism about the economic environment and future prospects when the local currency weakens relative to the US dollar. A weaker local currency makes imported goods more expensive, potentially increasing production costs for businesses that rely on imported inputs [77, 78].

Lastly, the composite stock price index serves as evidence of a positive influence on business confidence, emphasized by the findings of two-way causality between them. The study finding indicates that a 1% increase in the composite stock price index correlates with approximately a 0.02% increase in long-term business confidence. This indicates that businesses tend to feel more confident or optimistic about the economic environment and their future prospects when the stock market performs well. The implication is that businesses may view a rising stock market as a sign of economic strength, potentially leading to increased investment, expansion, and overall positive sentiment among businesses [79–82].

This discussion highlights the interplay between various economic factors and business confidence in Indonesia, offering a deeper understanding of positive drivers and potential deterrents to business confidence. While economic growth emerges as a robust catalyst for bolstering business confidence, caution must be exercised regarding the 'crowding-out effect' of government expenditure and interest rates, which can dampen long-term confidence levels. Moreover, the nuanced impacts of inflation, exchange rates, and stock market performance underscore the complex dynamics in shaping business sentiment. As stakeholders navigate these multifaceted influences, a comprehensive understanding of these relationships becomes imperative for fostering a conducive environment for sustained economic vitality and business prosperity in Indonesia.

5. Conclusions, Implications and Limitations

This study provides empirical evidence of the significant role of economic growth in fostering business confidence over the long term, emphasizing the importance of sustained economic expansion in bolstering optimism within business practices and contributing to the overall health of the country's economy. However, the study also highlights potential challenges observed in the

Indonesian context, where government expenditure and interest rates negatively impact business confidence. These findings emphasize the importance of policymakers' decisions in managing fiscal and monetary policies to maintain a conducive environment for business confidence amidst economic fluctuations. Moreover, while inflation positively impacts business confidence, indicating growing economic demand, the exchange rate exhibits a negative effect, particularly when the local currency weakens relative to the US dollar. Additionally, the study underlines the significance of stock market performance, showing a positive correlation between the composite stock price index and long-term business confidence.

Businesses can draw several implications for their practices as the empirical findings suggest that macroeconomic factors significantly influence business confidence. Firstly, it is crucial for businesses to diligently monitor macroeconomic trends, including economic growth, inflation rates, and composite stock prices. By understanding the patterns and shifts in these indicators, companies can better anticipate changes in business sentiment. Secondly, businesses should assess how fluctuations in economic growth, inflation, and stock market performance might impact consumer behavior, investment decisions, and overall business sentiment. Thirdly, risk management strategies need to account for the potential impact of government expenditure, interest rates, and exchange rates on business confidence. Companies should develop strategies to mitigate the adverse effects of these factors, such as hedging against currency fluctuations or diversifying funding sources. Moreover, maintaining adaptability in business operations is essential. Businesses that can swiftly adjust their strategies and operations in response to changes in macroeconomic conditions are better positioned to maintain confidence and stability. Lastly, taking a long-term perspective when making strategic decisions and investments is also advisable, recognizing that the influence of macroeconomic factors on business confidence may be more pronounced over time.

Limitations of the study include its focus on the Indonesian context, which potentially limits the generalizability of findings. Additionally, there may be biases stemming from specific datasets or time periods utilized. Moreover, the study's selection of variables may not encompass all relevant factors influencing business sentiment. Future research could address these limitations by conducting comparative analyses across diverse contexts, employing longitudinal studies to capture temporal dynamics, integrating qualitative methods to explore underlying mechanisms, examining

sector-specific dynamics, and evaluating the effectiveness of policy interventions. Such efforts would deepen our understanding of the relationship between economic indicators and business confidence, thereby informing more targeted policymaking and promoting sustainable economic growth globally through business practices.

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