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# Commodity Prices, the DJIA, and Inflation as Determinants of the Indonesian Composite Stock Price Index during COVID-19: An Empirical Analysis (2020–2022)

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## Abstract

The COVID-19 crisis created an exceptional combination of falling economic activity, volatile energy prices, cross-border financial spillovers, and changing domestic inflation. This study investigates whether West Texas Intermediate (WTI) crude oil prices, the Dow Jones Industrial Average (DJIA), and Indonesia's inflation rate were associated with movements in the Indonesian Composite Stock Price Index (IHSG) between March 2020 and December 2022. The analysis uses 34 monthly observations and applies a quantitative explanatory design, descriptive statistics, multiple linear regression, classical diagnostic tests, partial t-tests, a simultaneous F-test, and the coefficient of determination. The findings indicate that WTI prices, the DJIA, and inflation each have a positive and statistically significant relationship with the IHSG, with t-values of 4.144, 5.249, and 4.887, respectively. The predictors are also jointly significant ($F = 134.935$; $p < 0.001$), and the model explains 93.1% of the observed variation in the IHSG. The DJIA provides the strongest statistical signal, underscoring the role of global market sentiment. The study contributes by combining a global commodity indicator, an international equity-market benchmark, and a domestic price indicator in one Indonesian pandemic-period model. Because the sample is limited and the residuals exhibit positive serial correlation, the results should be interpreted as exploratory associations and validated in future research using dynamic time-series techniques.

**Keywords**:
WTI crude oil; Dow Jones Industrial Average; Inflation; Indonesian Composite Stock Price Index; COVID-19.

## 1. INTRODUCTION

Capital markets channel long-term funds from investors to businesses and public institutions while providing information about expectations concerning future economic and corporate performance. Broad stock indices condense these expectations into a market-wide measure. Their movements are therefore commonly examined together with macroeconomic conditions, monetary developments, and changes in real activity (Chen et al., 1986; Fama, 1981; Geske & Roll, 1983). Humpe and Macmillan (2009) further showed that the relevance and direction of these relationships can differ across countries and economic regimes.

In Indonesia, aggregate stock-market performance is represented by the Indonesian Composite Stock Price Index, or Indeks Harga Saham Gabungan (IHSG). The index summarizes price movements of shares listed on the Indonesia Stock Exchange and is routinely used by investors, financial analysts, corporate managers, and regulators. Domestic interest rates and the rupiah exchange rate are also relevant because they can alter financing costs, capital flows, expected returns, and the relative attractiveness of rupiah-denominated assets (Hesniati et al., 2022; Septiani, 2020). Identifying the main signals associated with the IHSG is consequently important for portfolio management and financial-risk assessment.

The need for such evidence intensified during the COVID-19 pandemic. After the World Health Organization declared COVID-19 a pandemic on March 11, 2020, restrictions on mobility and business operations disrupted production, consumption, employment, trade, and corporate earnings (World Health Organization, 2020). Investors were required to update their expectations rapidly as information about infection rates, policy responses, vaccination, and economic reopening changed.

International evidence documents the extraordinary scale of the market response. Baker et al. (2020) found that the United States equity market reacted to COVID-19 more strongly than to earlier infectious-disease outbreaks. Ashraf (2020) and Al-Awadhi et al. (2020) reported adverse market responses to rising case and fatality numbers, whereas Zhang et al. (2020) emphasized the sharp increase in global financial risk. Goodell (2020) similarly argued that the pandemic affected a wide range of financial activities, including investment, banking, insurance, and corporate finance.

The disruption was also transmitted across regions. Liu et al. (2020) observed rapid stock-price declines in countries exposed to the outbreak, and Haroon and Rizvi (2020) linked pandemic-related news coverage to higher market volatility. In emerging economies, the initial effect tended to be severe, although its magnitude varied with market structure, policy intervention, and the progression of the health crisis (Topcu & Gulal, 2020).

Indonesia experienced the same combination of uncertainty and market repricing. Earlier studies identified significant reactions in Indonesian equities to pandemic announcements, changes in trading activity, and shocks to large-capitalization shares (Machmuddah et al., 2020; Nurhayati et al., 2021; Trisnowati & Muditomo, 2021). Research on Sharia-compliant stocks also indicates that pandemic conditions altered the value of firm-specific characteristics and market responses (Ryandono et al., 2021; Wahyono, 2022). Evidence from major ASEAN technology markets further shows that COVID-19 affected stock liquidity and the transmission of regional information (Priscilla et al., 2023).

These developments have direct implications for management science and information technology. Market volatility complicates portfolio allocation, corporate financing, liquidity planning, and risk control. At the same time, digital data services allow investors and managers to combine domestic and international indicators in dashboards, market-intelligence systems, and decision-support applications. The quality of such systems depends on selecting variables that carry meaningful information about market movements.

Crude oil is one of the global indicators that may convey such information. Oil prices influence transportation, manufacturing, logistics, electricity generation, and household expenditure. Through these channels, a price change can affect expected corporate cash flows, production costs, inflation expectations, and aggregate demand (Hamilton, 2009; Jones & Kaul, 1996).

The oil-stock relationship, however, is not mechanically uniform. Kilian and Park (2009) demonstrated that market responses differ according to whether an oil-price movement is driven by supply disruption, global demand, or oil-specific demand. Dynamic correlations also vary across oil-importing and oil-exporting economies and across market conditions (Degiannakis et al., 2018; Filis et al., 2011).

For an emerging market such as Indonesia, an oil-price increase can generate opposing effects. Energy and mining issuers may benefit from stronger commodity revenues, while transportation, manufacturing, and consumer-oriented firms may face higher operating costs. Basher et al. (2012) showed that oil prices are connected with emerging stock markets and exchange rates. During COVID-19, these connections became especially complex because the collapse in energy demand was followed by reopening, supply constraints, and heightened geopolitical uncertainty (Sharif et al., 2020).

A second source of information is the performance of major foreign equity markets. Cross-border capital mobility, portfolio rebalancing, digital trading, and rapid news dissemination have strengthened interdependence among national exchanges. Market integration enables shocks originating in one financial center to influence other markets through common information, investor sentiment, and capital flows (Bekaert et al., 2005; Forbes & Rigobon, 2002).

Return and volatility spillovers provide a useful explanation for this transmission mechanism. Diebold and Yilmaz (2009, 2012) developed measures that distinguish between markets that primarily transmit shocks and those that receive them. Their framework implies that an international benchmark may contain information relevant to the direction and intensity of movements in an emerging-market index.

The present study uses the Dow Jones Industrial Average as the foreign-market proxy in the final inferential model. The DJIA is widely followed because it reflects the performance of major United States companies and often signals changes in global risk appetite. During a crisis, movements in this benchmark may influence Indonesian investors through expectations about global demand, corporate profitability, policy stimulus, and international capital allocation.

Indonesian evidence generally supports the relevance of foreign indices, although earlier conclusions are not fully consistent. Beureukat and Andriani (2021) reported a positive and significant effect of the Dow Jones Index on the IHSG, while Midesia (2022) found that both the DJIA and the Hang Seng Index affected the Indonesian market during 2021. Differences in data frequency, sample period, model specification, and crisis intensity may explain these mixed findings.

Inflation constitutes the principal domestic variable in this study. A persistent rise in the overall price level can reduce real purchasing power and alter firms' wage, input, and financing costs. For investors, inflation

changes expected real returns and may trigger reallocation among equities, bonds, deposits, commodities, and foreign-currency assets.

Conventional theory often predicts a negative stock-market response when inflation increases discount rates, weakens real activity, or leads to tighter monetary policy (Chen et al., 1986; Fama, 1981; Geske & Roll, 1983). Nevertheless, the observed sign may vary over the business cycle. Moderate inflation during a recovery can reflect stronger demand and normalization, whereas persistent and uncontrolled inflation can erode profitability and asset valuations.

Studies of Indonesia likewise produce context-dependent results. Septiani (2020) linked inflation and interest rates to the IHSG while also identifying the importance of the exchange rate. Hesniati et al. (2022) found that inflation, interest rates, and exchange-rate movements jointly contributed to IHSG variation. These findings also show why omitted variables such as the Bank Indonesia policy rate and the rupiah exchange rate remain important when interpreting a model that focuses on oil prices, the DJIA, and inflation.

Three gaps motivate the current analysis. First, many earlier studies were conducted under relatively normal market conditions, whereas the pandemic changed volatility, oil demand, monetary conditions, and investor behavior at the same time. Coefficients estimated in a stable period may not adequately represent relationships during an exceptional crisis.

Second, commodity prices, international equity indices, and inflation have often been examined in separate models. Such designs provide limited evidence about their combined explanatory role. An integrated specification is useful because global commodity conditions, international risk sentiment, and domestic prices moved concurrently during the pandemic.

Third, Indonesian findings remain sensitive to the selected period and method. The pandemic sample is necessarily short, while monthly financial data may contain persistence, common trends, and structural breaks. These features raise the possibility that ordinary least squares do not fully represent dynamic time-series behavior. The present study therefore treats its regression as an empirical association model and explicitly acknowledges the need for stationarity, cointegration, and dynamic-model testing in subsequent research.

Accordingly, the study asks: to what extent were WTI crude oil prices, the DJIA, and Indonesian inflation associated with the IHSG during March 2020–December 2022? The objectives are to describe the monthly development of the four series, estimate the partial relationship of each predictor with the IHSG, and evaluate their joint explanatory power.

The study offers an empirical contribution by combining a global commodity benchmark, a major international equity index, and a domestic macroeconomic indicator in one model for the Indonesian pandemic period. The results extend evidence on financial-market interdependence in an emerging economy and identify variables that may be incorporated into portfolio-monitoring systems, financial dashboards, and market-intelligence applications.

Practically, the findings may help investors compare global and domestic signals rather than relying only on firm-level information. Corporate managers can use the evidence when evaluating financing conditions, investor sentiment, and exposure to energy-price changes. For policymakers, the results illustrate how international market developments and domestic inflation can coincide with movements in the national stock index.

## 2. RESEARCH METHOD

A quantitative explanatory design was used to evaluate statistical associations between the IHSG and three predictors: WTI crude oil prices, the DJIA, and Indonesia's inflation rate. Secondary time-series data were selected because all variables are numerical market or macroeconomic indicators observed repeatedly over time.

The observation window extends from March 2020 to December 2022. March 2020 was chosen as the starting point because it marked the emergence of officially reported COVID-19 cases in Indonesia and the beginning of pronounced domestic market disruption. Monthly frequency was used to align the financial and macroeconomic series, producing 34 matched observations.

The population consisted of monthly observations for the IHSG, WTI crude oil prices, foreign equity indices, and Indonesian inflation during the pandemic period. The analytical sample included every month within the designated window for which complete and chronologically matched information was available.

A purposive time-period criterion was applied rather than a respondent-based sampling procedure. An observation was retained when IHSG, WTI, DJIA, and inflation data were simultaneously available for the same month. The month was therefore the unit of analysis, and the final sample comprised 34 observations.

Hang Seng Index data were retained in the original dataset for descriptive comparison, but the final SPSS regression output used the DJIA as the single proxy for the foreign stock market. To maintain consistency between the title, abstract, method, and reported coefficients, the inferential discussion in this article is restricted to WTI, the DJIA, inflation, and the IHSG.

Data were obtained through documentation of publicly accessible financial and macroeconomic databases. IHSG values were sourced from the Indonesia Stock Exchange and supporting market databases.

Historical WTI and DJIA series were collected from financial-market databases, including Yahoo Finance and Google Finance, while Indonesia's inflation figures were obtained from Bank Indonesia.

Daily closing observations for the IHSG, WTI, and DJIA were grouped by month and transformed into monthly average closing values. Inflation was represented by the monthly year-on-year percentage published by Bank Indonesia. All series were then ordered chronologically from March 2020 through December 2022.

The analysis was conducted with IBM SPSS. Descriptive statistics—minimum, maximum, mean, and standard deviation—were used to summarize each series. Multiple linear regression was subsequently applied to estimate the association of WTI prices, the DJIA, and inflation with the IHSG. The empirical specification is:

$$IHSG_t = \alpha + \beta_1 WTI_t + \beta_2 DJIA_t + \beta_3 INF_t + \varepsilon_t$$

Model diagnostics included residual normality, variance inflation factors, the Glejser test for heteroscedasticity, and the Durbin-Watson statistic for serial correlation. Individual effects were evaluated with t-tests, the joint model with an F-test, and explanatory power with R-squared and adjusted R-squared, using a 5% significance level.

The methodology is subject to important restrictions. The 34-month sample limits statistical power, monthly averaging may conceal short-run volatility, and the specification omits potentially relevant variables such as the rupiah exchange rate, the Bank Indonesia policy rate, money supply, output growth, investor sentiment, and structural policy changes. Moreover, the original analysis did not perform unit-root, cointegration, structural-break, or lag-selection tests. Because the Durbin-Watson statistic indicates positive residual autocorrelation, the ordinary least squares coefficients and conventional probability values must be interpreted cautiously. These issues should be addressed in future work using longer data series and models such as ARIMAX, VAR/VECM, or ARDL after appropriate stationarity and cointegration assessment (Enders, 2015; Pesaran et al., 2001).

## 3. RESULTS AND DISCUSSION

The empirical analysis covers 34 monthly observations from March 2020 through December 2022. Table 2 summarizes the IHSG, WTI crude oil prices, the DJIA, and Indonesian inflation using the statistics reported in the final model.

Table 1. Descriptive Statistics of Research Variables

| Variable | N | Mean | Standard deviation | Minimum | Maximum |
|---|---|---|---|---|---|
| IHSG | 34 | 6,144.70 | 813.47 | 4,599.33 | 7,198.95 |
| WTI crude oil price | 34 | 68.03 | 25.38 | 16.84 | 113.64 |
| DJIA | 34 | 31,432.41 | 3,726.51 | 22,563.77 | 35,765.55 |
| Inflation (%) | 34 | 2.59 | 1.49 | 1.32 | 5.95 |

Source: Authors' calculations from secondary monthly data.

The IHSG averaged 6,144.70 points, ranging from 4,599.33 in May 2020 to 7,198.95 in April 2022. The wide interval between these values captures the transition from the initial pandemic shock to a substantial market recovery. Early uncertainty over mobility restrictions, earnings, and global financing conditions placed pressure on share prices, while vaccination, reopening, and improved growth expectations later supported the index.

WTI crude oil averaged USD 68.03 per barrel and displayed a standard deviation of USD 25.38. The lowest monthly average, USD 16.84, occurred in April 2020 when global travel and industrial demand contracted sharply. The series reached USD 113.64 in June 2022 as economic reopening, supply constraints, and stronger energy demand pushed prices upward.

The DJIA recorded a mean of 31,432.41 points. Its minimum of 22,563.77 occurred in March 2020, whereas the maximum of 35,765.55 was observed in November 2021. This pattern reflects a rapid recovery in the United States equity market and reinforces the role of the DJIA as a prominent signal of international risk appetite.

Indonesian inflation averaged 2.59%. The lowest rate, 1.32%, was recorded in August 2020 amid weak demand and restricted mobility. Inflation subsequently rose to 5.95% in September 2022 as consumption recovered, global commodity prices increased, and administered energy prices were adjusted.

Table 2. Regression Model Diagnostic Test Results

| Diagnostic test | Indicator | Result | Interpretation |
|---|---|---|---|
| Residual normality | Kolmogorov-Smirnov significance | 0.200 | No significant departure from normality |
| Multicollinearity: WTI | VIF | 4.452 | No severe multicollinearity |
| Multicollinearity: DJIA | VIF | 3.295 | No severe multicollinearity |

| | | | |
|---|---|---|---|
| Multicollinearity: inflation | VIF | 2.084 | No severe multicollinearity |
| Heteroscedasticity: WTI | Glejser significance | 0.178 | No evidence of heteroscedasticity |
| Heteroscedasticity: DJIA | Glejser significance | 0.164 | No evidence of heteroscedasticity |
| Heteroscedasticity: inflation | Glejser significance | 0.588 | No evidence of heteroscedasticity |
| Autocorrelation | Durbin-Watson | 0.684 | Positive residual autocorrelation indicated |

Source: IBM SPSS output and authors' recalculation of the three-predictor model.

The Kolmogorov-Smirnov probability of 0.200 was above 0.05, so the residual distribution did not show a statistically significant departure from normality. VIF values of 4.452 for WTI, 3.295 for the DJIA, and 2.084 for inflation were below the conventional threshold of 10, indicating that severe multicollinearity was not detected.

The Glejser probabilities for WTI, the DJIA, and inflation were 0.178, 0.164, and 0.588, respectively. Because all values exceeded 0.05, the test did not identify systematic heteroscedasticity in the residual variance.

The Durbin-Watson statistic was 0.684, which signals positive residual autocorrelation. This result is especially important because monthly financial and macroeconomic observations commonly depend on previous periods. The model therefore does not capture all dynamic information, and the reported ordinary least squares standard errors, t-tests, and p-values should be regarded as provisional rather than definitive evidence of causality.

Multiple linear regression was used to test the partial and simultaneous associations with the IHSG. Because several coefficient entries in the original presentation were inconsistently formatted, Table 4 reports the verified t-values, probability values, and hypothesis decisions used in the study.

Table 3. Partial Hypothesis Testing Results (t-Test)

| Predictor | t-value | p-value | Decision |
|---|---|---|---|
| WTI crude oil price | 4.144 | < 0.001 | H1 supported |
| DJIA | 5.249 | < 0.001 | H2 supported |
| Inflation | 4.887 | < 0.001 | H3 supported |
| Constant | 3.342 | 0.002 | — |

Dependent variable: IHSG. Source: IBM SPSS output processed by the authors.

Table 4. Model Summary and Simultaneous Significance Test Results (F-Test)

| Indicator | Result |
|---|---|
| R | 0.965 |
| R-square | 0.931 |
| Adjusted R-square | 0.924 |
| Standard error of the estimate | 224.105 |
| F-statistic | 134.935 |
| Degrees of freedom | 3; 30 |
| Model significance | < 0.001 |

Source: IBM SPSS output processed by the authors.

The joint test produced $F = 134.935$ with $p < 0.001$. WTI prices, the DJIA, and inflation therefore had a statistically significant simultaneous association with the IHSG, supporting H4.

The model yielded $R = 0.965$, $R^2 = 0.931$, and adjusted $R^2 = 0.924$. Thus, the three predictors accounted for 93.1% of the variation observed in the IHSG within this sample, leaving 6.9% associated with omitted influences such as the policy rate, exchange rate, money supply, output growth, fiscal measures, investor sentiment, geopolitical events, and firm-level information. The high $R^2$ should not be interpreted without qualification. WTI, the DJIA, and the IHSG all recovered from unusually low 2020 levels, so part of the explanatory power may reflect common trends or the passage of the reopening cycle. The positive serial correlation provides additional evidence that the static model does not fully describe time-dependent market behavior.

### 3.1. Effect of WTI Crude Oil Prices on the IHSG

WTI crude oil prices were positively and significantly associated with the IHSG ($t = 4.144$; $p < 0.001$). This result is consistent with the cash-flow channel proposed by Jones and Kaul (1996) and with evidence connecting oil prices to emerging stock markets (Basher et al., 2012; Filis et al., 2011).

During the first phase of COVID-19, falling oil prices reflected reduced transportation, production, trade, and industrial demand. The same conditions weakened earnings expectations and equity valuations. As

economies reopened, higher energy demand and stronger growth expectations supported both oil prices and the Indonesian stock index.

The aggregate positive sign does not mean that every listed firm benefits from more expensive oil. Energy and mining companies may gain from stronger commodity revenues, whereas manufacturers, logistics providers, transport operators, and consumer-goods firms may experience higher costs. The coefficient may therefore capture both the weight of commodity-related issuers in Indonesia and the use of oil prices as a broad indicator of global recovery.

For investment analysis, WTI should be interpreted together with sector exposure, inflation, exchange-rate movements, and the source of the oil-price shock. A demand-driven increase during recovery may carry a different market signal from a supply-driven increase that raises costs without improving domestic activity.

### 3.2. Effect of the DJIA on the IHSG

The DJIA generated the largest t-value among the predictors ($t = 5.249$; $p < 0.001$), indicating that international equity information was strongly associated with Indonesian market movements. The result accords with financial integration and spillover theory, under which news and shocks from a major market are transmitted through global sentiment, portfolio rebalancing, and capital flows (Diebold & Yilmaz, 2009, 2012; Forbes & Rigobon, 2002).

This evidence is consistent with Beureukat and Andriani (2021), who identified a positive relationship between the Dow Jones Index and the IHSG, and with Midesia (2022), who documented the relevance of major foreign indices to the Indonesian market.

The simultaneous collapse of major equity markets in March 2020 reflected a shared reassessment of global risk. Subsequent improvement in the DJIA conveyed information about stimulus, vaccination, corporate earnings, and demand normalization. Indonesian investors may have interpreted that recovery as a signal that global economic prospects and the attractiveness of risky assets were improving.

This result supports the inclusion of international market data in IHSG-monitoring tools. A decision-support system that relies exclusively on domestic indicators may overlook rapid changes in global sentiment; however, any automated signal should also account for trading hours, exchange rates, lags, and structural breaks.

### 3.3. Effect of Inflation on the IHSG

Inflation was positively and significantly related to the IHSG during the sample period ($t = 4.887$; $p < 0.001$). The positive sign differs from the standard expectation that inflation depresses stock valuations through higher costs, discount rates, and monetary tightening (Chen et al., 1986; Fama, 1981; Geske & Roll, 1983).

The pandemic sequence provides a plausible explanation. Inflation was unusually low in 2020 and much of 2021 because mobility restrictions and weak demand suppressed spending. In 2022, consumption, production, commodity prices, and inflation rose as the economy reopened, while the IHSG remained well above its early-pandemic level. In this setting, inflation may have acted as a coincident indicator of normalization rather than as an isolated adverse shock. The positive coefficient may also reflect a delay between rising prices and subsequent monetary-policy tightening.

This interpretation must remain cautious. Economic reopening, fiscal support, commodity-sector earnings, exchange-rate changes, and administered fuel-price adjustments may have moved alongside both inflation and the IHSG. The coefficient should therefore not be read as evidence that higher inflation is beneficial to equities. Persistent inflation can reduce real returns, increase operating expenses, and induce higher interest rates. Future research should test nonlinearities, lags, and regime differences between controlled recovery inflation and sustained price pressure.

### 3.4. Theoretical and Practical Implications

Theoretically, the results reinforce the proposition that an emerging stock market is influenced by a combination of global commodity conditions, international financial sentiment, and domestic macroeconomic information. At the same time, the diagnostic evidence shows that static regression alone is insufficient for strong claims about dynamic causality.

Investors may use WTI, the DJIA, and inflation as complementary monitoring indicators, but these variables should be assessed alongside interest rates, exchange rates, corporate fundamentals, liquidity, and market sentiment. Scenario analysis is preferable to relying on a single signal.

Corporate managers can incorporate oil-price and global-market scenarios into budgeting, financing, and risk-control decisions. Policymakers should distinguish between inflation associated with recovering demand and inflation that threatens purchasing power and financial stability. Both groups should treat the pandemic-period estimates as context-specific rather than permanent structural relationships.

For financial-system developers, the findings justify integrated dashboards that combine domestic market data, global commodity prices, international indices, inflation, exchange rates, and policy rates. Such systems should include lag analysis, anomaly detection, and model-validation warnings so that users are not misled by common trends or residual autocorrelation.

## 4. CONCLUSION

This empirical analysis examined monthly relationships between WTI crude oil prices, the DJIA, Indonesian inflation, and the IHSG from March 2020 to December 2022. The period captures the initial market shock, the gradual reopening of economic activity, and the subsequent normalization of commodity and consumer prices. WTI, the DJIA, and inflation were each positively and significantly associated with the IHSG, and the model was jointly significant. The DJIA supplied the strongest statistical signal, highlighting the importance of international sentiment and spillovers. The oil-price result reflects both Indonesia's commodity exposure and the role of energy prices as a recovery indicator. The positive inflation coefficient is best understood as a pandemic-specific association with economic normalization, not as evidence that persistent inflation improves stock-market performance.

The study contributes to the literature by evaluating global commodity, foreign-equity, and domestic-price information within one model for an emerging market during an exceptional crisis. It also provides a practical basis for selecting variables in portfolio-monitoring tools and data-driven financial dashboards.

Investors should combine the three indicators with exchange rates, policy interest rates, company fundamentals, and liquidity measures. Corporate managers may use energy-price and global-market scenarios in budgeting and financing decisions, while policymakers should monitor the interaction between external shocks, inflation, capital flows, and market confidence.

Several limitations constrain the interpretation. The sample contains only 34 monthly observations, daily volatility was compressed into monthly averages, and the model excludes relevant variables such as the rupiah exchange rate, the Bank Indonesia policy rate, money supply, output growth, fiscal interventions, and investor sentiment. Most importantly, the Durbin-Watson result indicates positive autocorrelation, while unit-root, cointegration, structural-break, and lag tests were not included. The high $R^2$ may therefore be partly influenced by common recovery trends.

Future studies should extend the period to include pre-pandemic and post-pandemic regimes, use weekly or daily observations where appropriate, and conduct Augmented Dickey-Fuller or Phillips-Perron stationarity tests before estimation. Long-run relationships may be examined with Johansen or ARDL bounds procedures, while short-run dynamics can be analyzed using VAR/VECM or ARIMAX models with robust standard errors. Adding exchange rates, interest rates, market liquidity, investor sentiment, and structural-break indicators would provide a more rigorous assessment of how global and domestic forces shape the Indonesian stock market.

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## REFERENCES

Al-Awadhi, A. M., Alsaifi, K., Al-Awadhi, A., & Alhammadi, S. (2020). Death and contagious infectious diseases: Impact of the COVID-19 virus on stock market returns. Journal of Behavioral and Experimental Finance, 27, Article 100326. https://doi.org/10.1016/j.jbef.2020.100326

Ashraf, B. N. (2020). Stock markets' reaction to COVID-19: Cases or fatalities? Research in International Business and Finance, 54, Article 101249. https://doi.org/10.1016/j.ribaf.2020.101249

Babbie, E. R. (2016). The practice of social research (14th ed.). Cengage Learning.

Baker, S. R., Bloom, N., Davis, S. J., Kost, K., Sammon, M., & Viratyosin, T. (2020). The unprecedented stock market reaction to COVID-19. The Review of Asset Pricing Studies, 10(4), 742–758. https://doi.org/10.1093/rapstu/raaa008

Basher, S. A., Haug, A. A., & Sadorsky, P. (2012). Oil prices, exchange rates and emerging stock markets. Energy Economics, 34(1), 227–240. https://doi.org/10.1016/j.eneco.2011.10.005

Basuki, A. T., & Prawoto, N. (2016). Analisis regresi dalam penelitian ekonomi dan bisnis: Dilengkapi aplikasi SPSS dan EViews. Rajawali Pers.

Bekaert, G., Harvey, C. R., & Ng, A. (2005). Market integration and contagion. The Journal of Business, 78(1), 39–70. https://doi.org/10.1086/426519

Beureukat, B., & Andriani, E. Y. (2021). Pengaruh harga minyak dunia, Indeks Dow Jones, dan Indeks Hang Seng terhadap Indeks Harga Saham Gabungan periode 2016–2020. Oikonomia: Jurnal Manajemen, 17(1), 1–12. https://doi.org/10.47313/oikonomia.v17i1.1129

Chen, N.-F., Roll, R., & Ross, S. A. (1986). Economic forces and the stock market. The Journal of Business, 59(3), 383–403. https://doi.org/10.1086/296344

Degiannakis, S., Filis, G., & Arora, V. (2018). Oil prices and stock markets: A review of the theory and empirical evidence. The Energy Journal, 39(5), 85–130. https://doi.org/10.5547/01956574.39.5.sdeg

Diebold, F. X., & Yilmaz, K. (2009). Measuring financial asset return and volatility spillovers, with application to global equity markets. The Economic Journal, 119(534), 158–171. https://doi.org/10.1111/j.1468-0297.2008.02208.x

Diebold, F. X., & Yilmaz, K. (2012). Better to give than to receive: Predictive directional measurement of volatility spillovers. International Journal of Forecasting, 28(1), 57–66. https://doi.org/10.1016/j.ijforecast.2011.02.006

Enders, W. (2015). Applied econometric time series (4th ed.). Wiley.

Fama, E. F. (1981). Stock returns, real activity, inflation, and money. The American Economic Review, 71(4), 545–565.

Filis, G., Degiannakis, S., & Floros, C. (2011). Dynamic correlation between stock market and oil prices: The case of oil-importing and oil-exporting countries. International Review of Financial Analysis, 20(3), 152–164. https://doi.org/10.1016/j.irfa.2011.02.014

Forbes, K. J., & Rigobon, R. (2002). No contagion, only interdependence: Measuring stock market comovements. The Journal of Finance, 57(5), 2223–2261. https://doi.org/10.1111/0022-1082.00494

Geske, R., & Roll, R. (1983). The fiscal and monetary linkage between stock returns and inflation. The Journal of Finance, 38(1), 1–33. https://doi.org/10.1111/j.1540-6261.1983.tb03623.x

Ghozali, I. (2016). Aplikasi analisis multivariete dengan program IBM SPSS 23 (8th ed.). Badan Penerbit Universitas Diponegoro.

Goodell, J. W. (2020). COVID-19 and finance: Agendas for future research. Finance Research Letters, 35, Article 101512. https://doi.org/10.1016/j.frl.2020.101512

Hamilton, J. D. (2009). Causes and consequences of the oil shock of 2007–08. Brookings Papers on Economic Activity, 2009(1), 215–261. https://doi.org/10.1353/eca.0.0047

Haroon, O., & Rizvi, S. A. R. (2020). COVID-19: Media coverage and financial markets behavior—A sectoral inquiry. Journal of Behavioral and Experimental Finance, 27, Article 100343. https://doi.org/10.1016/j.jbef.2020.100343

Hesniati, H., Ogawa, A. Y., Clarence, A., Topher, C., & Engelina, J. (2022). Pengaruh inflation, interest rate, dan exchange rate terhadap IHSG di Bursa Efek Indonesia pada tahun 2011–2021. Studi Ilmu Manajemen dan Organisasi, 3(1), 261–271. https://doi.org/10.35912/simo.v3i1.1078

Humpe, A., & Macmillan, P. (2009). Can macroeconomic variables explain long-term stock market movements? A comparison of the US and Japan. Applied Financial Economics, 19(2), 111–119. https://doi.org/10.1080/09603100701748956

Jones, C. M., & Kaul, G. (1996). Oil and the stock markets. The Journal of Finance, 51(2), 463–491. https://doi.org/10.1111/j.1540-6261.1996.tb02691.x

Kilian, L., & Park, C. (2009). The impact of oil price shocks on the U.S. stock market. International Economic Review, 50(4), 1267–1287. https://doi.org/10.1111/j.1468-2354.2009.00568.x

Liu, H., Manzoor, A., Wang, C., Zhang, L., & Manzoor, Z. (2020). The COVID-19 outbreak and affected countries' stock markets response. International Journal of Environmental Research and Public Health, 17(8), Article 2800. https://doi.org/10.3390/ijerph17082800

Machmuddah, Z., Utomo, S. D., Suhartono, E., Ali, S., & Ghulam, W. A. (2020). Stock market reaction to COVID-19: Evidence in customer goods sector with the implication for open innovation. Journal of Open Innovation: Technology, Market, and Complexity, 6(4), Article 99. https://doi.org/10.3390/joitmc6040099

Midesia, S. (2022). Pengaruh Dow Jones Industrial Average dan Indeks Hang Seng terhadap Indeks Harga Saham Gabungan pada tahun 2021. Jurnal Penelitian Ekonomi Akuntansi, 6(2), 129–135. https://doi.org/10.33059/jensi.v6i2.6740

Nurhayati, I., Endri, E., Aminda, R. S., & Muniroh, L. (2021). Impact of COVID-19 on performance evaluation of large market capitalization stocks and open innovation. Journal of Open Innovation: Technology, Market, and Complexity, 7(1), Article 56. https://doi.org/10.3390/joitmc7010056

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. Journal of Applied Econometrics, 16(3), 289–326. https://doi.org/10.1002/jae.616

Priscilla, S., Hatane, S. E., & Tarigan, J. (2023). COVID-19 catastrophes and stock market liquidity: Evidence from the technology industry of four major ASEAN capital markets. Asia-Pacific Journal of Business Administration, 15(5), 695–720. https://doi.org/10.1108/APJBA-10-2021-0504

Ryandono, M. N. H., Muafi, M., & Guritno, A. (2021). Sharia stock reaction against COVID-19 pandemic: Evidence from Indonesian capital markets. The Journal of Asian Finance, Economics and Business, 8(2), 697–710. https://doi.org/10.13106/jafeb.2021.vol8.no2.0697

Septiani, D. (2020). The influence of the inflation rate and the interest rate of Bank Indonesia Certificates on the Composite Stock Price Index with the US dollar exchange rate as a moderating variable on the Indonesia Stock Exchange. Economics and Accounting Journal, 3(3), 212–220. https://doi.org/10.32493/eaj.v3i3.y2020.p212-220

Sharif, A., Aloui, C., & Yarovaya, L. (2020). COVID-19 pandemic, oil prices, stock market, geopolitical risk and policy uncertainty nexus in the US economy: Fresh evidence from the wavelet-based approach. International Review of Financial Analysis, 70, Article 101496. https://doi.org/10.1016/j.irfa.2020.101496

Syahri, A., & Robiyanto, R. (2020). The correlation of gold, exchange rate, and stock market on COVID-19 pandemic period. Jurnal Keuangan dan Perbankan, 24(3), 350–362. https://doi.org/10.26905/jkdp.v24i3.4621

Topcu, M., & Gulal, O. S. (2020). The impact of COVID-19 on emerging stock markets. Finance Research Letters, 36, Article 101691. https://doi.org/10.1016/j.frl.2020.101691

Trisnowati, Y., & Muditomo, A. (2021). COVID-19 and stock market reaction in Indonesia. Journal of Accounting and Investment, 22(1), 23–36. https://doi.org/10.18196/jai.v22i1.8859

Wahyono, B. (2022). The value of political connections and Sharia compliance during the COVID-19 pandemic. Eurasian Economic Review, 12, 1–28. https://doi.org/10.1007/s40822-021-00197-y

World Health Organization. (2020, March 11). WHO Director-General's opening remarks at the media briefing on COVID-19—11 March 2020. World Health Organization.

Zhang, D., Hu, M., & Ji, Q. (2020). Financial markets under the global pandemic of COVID-19. Finance Research Letters, 36, Article 101528. https://doi.org/10.1016/j.frl.2020.101528