



## Systematic Literature Review: World Oil Commodity Price Fluctuations Financial Accounting Perspective

Ryani Virliana Muliawan<sup>1</sup>, Elita Septemberiyanti<sup>2</sup>, Rahma Agustria<sup>3</sup>, Amanda Ayu Ramadhani<sup>4</sup>, Rika Henda Safitri<sup>5\*</sup>, Tertiarto Wahyudi<sup>6</sup>, Ruth Samantha Hamzah<sup>7</sup>

<sup>1,2,3,4</sup> S1 Study Programs Sriwijaya University, Indonesia, <sup>5,6,7</sup> Sriwijaya University, Indonesia

<sup>1</sup>[ryaniv88@gmail.com](mailto:ryaniv88@gmail.com), <sup>2</sup>[elitaseptemberi@gmail.com](mailto:elitaseptemberi@gmail.com), <sup>3</sup>[rahmaagustria15@gmail.com](mailto:rahmaagustria15@gmail.com), <sup>4</sup>[rcsesflow@gmail.com](mailto:rcsesflow@gmail.com),

<sup>5\*</sup>[rikahenda@unsri.ac.id](mailto:rikahenda@unsri.ac.id), <sup>6</sup>[tertiarto\\_wahyudi@unsri.ac.id](mailto:tertiarto_wahyudi@unsri.ac.id), <sup>7</sup>[ruth\\_samantha@fe.unsri.ac.id](mailto:ruth_samantha@fe.unsri.ac.id)



### \*Corresponding Author

#### Article History:

Submitted: 31-10-2025

Accepted: 26-11-2025

Published: 01-12-2025

#### Keywords:

Accountability; Oil Price  
Fluctuations; Financial  
Statements; PT Pertamina;  
Transparency.

The Journal is licensed under a  
Creative Commons Attribution-  
NonCommercial 4.0 International  
(CC BY-NC 4.0).

### ABSTRACT

Global oil price volatility creates complex challenges for the transparency of financial reporting of national energy companies, especially PT Pertamina as a strategic state-owned enterprise that faces double accountability pressure to shareholders and the public. This study aims to analyze the influence of fluctuations in world oil commodity prices on the transparency of PT Pertamina's financial statements from a financial accounting perspective through a systematic literature review approach. The PRISMA 2020 method was applied to review 16 reputable journals for the 2020-2025 period selected from 309 initial articles through the Scopus, Web of Science, and Google Scholar databases. The results of the study revealed that oil price volatility had a significant impact on net profit fluctuations, the complexity of exchange rate differences, and the decline in financial health for the 2016-2020 period. PT Pertamina's transparency shows improvements through the implementation of ISO 37001 and GRI Standards 2021, but still faces the challenges of weak ethical principles, inconsistency of PSC regulations, and performance gaps with global competitors. The research recommends comprehensive governance reforms, business diversification, regulatory harmonization, and strengthening supervision to improve the credibility of financial reporting in the face of global market dynamics.

### INTRODUCTION

The oil and gas industry is a strategic sector that has a vital role in the global economy, where the volatility of crude oil commodity prices has become a phenomenon that has received special attention from academics and practitioners in the last decade. Significant fluctuations in world oil prices create complex challenges for national energy companies, especially in the context of transparency and accountability of financial reporting which are fundamental instruments in good corporate governance. In the period 2020 to 2025, the global oil market experienced extraordinary turmoil due to various geopolitical factors, the global pandemic, and unstable demand-supply dynamics, thus creating uncertainty in the assessment of the financial performance of oil and gas companies (Rahman, Hossain, Mintoo, & Islam, 2025). Recent research shows that extreme oil price movements have a direct impact on the operating cost structure, asset valuations, and revenue projections of energy companies, which in turn demands more transparent and accountable financial reporting standards to ensure that stakeholder confidence is maintained (Borg, Refalo, & Francalanza, 2023).

PT Pertamina (Persero) as a State-Owned Enterprise engaged in the upstream and downstream oil and gas sectors faces unique challenges in presenting financial statements that reflect the company's real condition amid volatile commodity price dynamics. Empirical findings show that there is a significant correlation between oil price volatility and the complexity of financial information disclosure in oil and gas companies, especially related to revenue recognition, inventory valuation, asset impairment, and financial risk management that must be presented in accordance with applicable financial accounting standards. However, there is still a gap in the academic literature on how national energy companies in developing countries, particularly Indonesia, implement the principle of financial report transparency when facing extreme commodity price volatility within the framework of International Financial Reporting Standards (IFRS) and the Financial Accounting Standards Statement (PSAK) (He, Zhang, Wang, & Wen, 2024).

The research gap identified is the lack of systematic studies that integrate the perspective of world oil price fluctuations with the practice of financial reporting transparency in the context of national energy companies in Indonesia, where most previous studies focused on macroeconomic aspects or corporate governance separately without exploring the interconnection of the two from a comprehensive financial accounting perspective. The novelty of this research lies in the effort to systematically map and synthesize literature that relates the impact of oil commodity price volatility to the quality, transparency, and accountability of PT Pertamina's financial statements using the framework of





contemporary financial accounting theory, so that it can make theoretical and practical contributions to the development of financial reporting standards in the energy sector in the future (Le, Wen, Wu, Liu, & Zhu, 2024). The study also seeks to identify best practices in the disclosure of financial information that is responsive to changes in commodity prices, which can serve as a reference for similar companies in increasing the credibility of their financial statements in the eyes of investors, regulators, and the general public, in line with the increasing demands for transparency in the global oil and gas industry (Lu, Yan, He, & Apergis, 2025).

Based on the background that has been described, this study formulates several main problems that will be studied in depth. First, how does fluctuations in world oil commodity prices affect the presentation and disclosure of information in the financial statements of energy companies, especially PT Pertamina, from the perspective of applicable financial accounting standards. Second, how is the level of transparency and accountability of PT Pertamina's financial statements in the face of global oil price volatility based on good financial accounting principles. Third, what are the challenges and obstacles faced in the implementation of financial reporting transparency in the oil and gas industry in the midst of unstable commodity price dynamics. Fourth, how are the patterns and trends of previous research in examining the relationship between oil price volatility and the quality of financial reporting in the energy sector globally and nationally.

This systematic literature review research aims to identify and comprehensively analyze the influence of fluctuations in world oil commodity prices on the presentation and disclosure of information in energy companies' financial statements with a focus on PT Pertamina from a financial accounting perspective. In addition, this study aims to evaluate the level of transparency and accountability of PT Pertamina's financial statements in the face of global oil price volatility based on the applicable financial accounting standard framework. This research also aims to identify the challenges and obstacles faced in the implementation of financial reporting transparency in the oil and gas industry amid unstable commodity price dynamics, as well as mapping patterns and trends in previous research in examining the relationship between oil price volatility and the quality of financial reporting in the energy sector (Oláh, Krisán, Kiss, Lakner, & Popp, 2020).

This research is expected to make significant contributions both theoretically and practically to various stakeholders. Theoretically, this study will enrich the financial accounting literature, especially in the context of financial reporting of the energy sector facing commodity price volatility, as well as provide a more comprehensive conceptual framework regarding the relationship between macroeconomic external factors and corporate financial reporting transparency practices. Practically, the results of this study can be a reference for the management of PT Pertamina and other energy companies in improving the quality of transparency and accountability of financial statements, especially in the development of information disclosure policies that are responsive to commodity price dynamics. For regulators and policymakers, this research can provide input in the preparation or improvement of financial accounting standards and financial reporting regulations in the energy sector that are more adaptive to global market conditions. For academics and researchers, this systematic literature review can be the basis for the development of more specific and in-depth follow-up research related to energy sector accounting and corporate transparency in Indonesia.

## LITERATURE REVIEW

### Energy Commodity Price Volatility Theory

Energy commodity price volatility is a phenomenon of fluctuations in market value influenced by complex dynamics between factors *Supply Demand*, geopolitical conditions, and global macroeconomic turmoil. Crude oil price instability (*Crude Oil*) create *Uncertainty* significant to the projected revenue and cost structure of energy companies, which then influences management's strategic decisions in resource allocation. Research (Bushman, Lerman, & Zhang, 2021) It shows that oil price shocks have an asymmetric impact on macroeconomic indicators, where price declines have a greater effect than price increases in the context of developing countries that depend on commodity exports. This volatility creates challenges in long-term financial planning, especially for companies operating in the sector *Upstream* and *downstream* oil and gas with high market risk exposure.

### Financial Reporting Transparency and Accountability

Financial statement transparency is defined as a practice *Disclosure* accurate, relevant, and timely information to all stakeholders to facilitate rational decision-making. (Grossi, Kallio, Sargiacomo, & Skoog, 2020) asserts that corporate transparency does not only include the disclosure of historical financial information, but also includes information *Forward-looking* regarding risks, business strategies, and governance practices that affect the sustainability of the organization. In the context of state-owned enterprises (*State-owned enterprises*), financial reporting accountability has a dual dimension, namely accountability to shareholders and to the public as the ultimate owner. Implementation of international standards such as *International Financial Reporting Standards* (IFRS) is an important instrument in improving the comparability and credibility of cross-jurisdictional financial statements, especially for companies operating in strategic sectors with a high level of transaction complexity.

### Oil and Gas Industry Accounting Standards





The oil and gas industry has unique characteristics that require specific accounting treatment, especially with regard to the recognition of reserves (*Reserve Recognition*), the capitalization of exploration costs, and *Impairment Testing* long-term assets. Accounting methods *successful efforts* and *Full Cost* produces different representations of the financial performance of oil and gas companies, where the choice of method affects the volatility of reported profits. Research (Agustia, Muhammad, & Permatasari, 2020) identify that the implementation of IFRS 6 (*Exploration for and Evaluation of Mineral Resources*) provides flexibility that can lead to inconsistencies in reporting practices between global energy companies. This special accounting standard must be able to accommodate the uncertainty of reserve estimates, fluctuations in the economic value of assets based on commodity prices, and allocations *joint costs* in integrated operations involving activities *Upstream* and *downstream* Simultaneously.

### Good Corporate Governance in National Energy Companies

Good corporate governance (*Good Corporate Governance/GCG*) is the foundation for national energy companies in building public trust and ensuring long-term operational sustainability. (Kao, Hodgkinson, & Jaafar, 2022) found that the quality of GCG mechanisms was positively correlated with *Voluntary Disclosure* and the market performance of energy companies in Asia, where an independent board structure and an effective audit committee are key determinants of information transparency. In the context of SOEs, GCG implementation faces additional complexity due to political intervention, multiple conflicts of interest, and dual mandates between commercial profitability and social responsibility. The implementation of an anti-bribery management system such as ISO 37001 is a strategic step in mitigating corruption risks and improving organizational integrity.

### The Relationship of Price Volatility to the Quality of Financial Reporting

Fluctuations in commodity prices create pressure on the quality of financial reporting through increased complexity of accounting estimates and the potential for opportunistic profit management. (Nareswara & Dewiyanti, 2023) proving that oil price volatility is increasing *Earnings Management* in energy companies, mainly through manipulation *discretionary accruals* and *Real Activities Manipulation* to meet the set profit target. Commodity-based asset valuation uncertainty demands *Professional judgment* high in application *Fair Value Measurement* and impairment testing, which then affects the reliability of the financial information presented to the report user (Bala, 2013).

### METHOD

This study uses a systematic literature review approach by adopting the guidelines of Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 to ensure transparency, replicability, and quality of the literature review process (Page et al., 2022). The first stage begins with the identification of data sources through a comprehensive search of reputable national and international academic databases, including Scopus, Web of Science, Google Scholar, Science Direct, Emerald Insight, and the Garuda Portal for Sinta-accredited national journals. The search keywords used include a combination of "oil price volatility", "crude oil fluctuation", "financial reporting transparency", "financial disclosure", "Pertamina", "energy sector accounting", and "IFRS implementation" with Boolean AND/OR operators to produce relevant articles. The inclusion criteria for this study include scientific journal articles published in the period 2020 to 2025, in Indonesian or English, discussing the topic of oil price fluctuations and financial reporting transparency from a financial accounting perspective, and indexed in reputable databases. The exclusion criteria include articles that do not have full text, conference proceedings, books, theses, dissertations, opinion articles, as well as publications that are not relevant to the focus of the research. The screening stage is carried out through two phases, namely screening based on titles and abstracts to eliminate irrelevant articles, then continued with reading full text to ensure the suitability of the content for the purpose of the research. The data extraction process is carried out systematically by recording important information including authors, year of publication, research objectives, methodology, main findings, and conclusions of each article that meets the criteria. All stages of article selection are documented in the PRISMA flowchart to show the number of articles identified, screened, evaluated for feasibility, and finally included in a qualitative synthesis, so that the review process can be tracked and replicated by other researchers.

### RESULTS

This study uses the systematic literature review method with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) approach to identify and analyze literature relevant to fluctuations in world oil commodity prices and the transparency of PT Pertamina's financial statements from a financial accounting perspective. The literature search process began with the identification stage through searching databases and registers which yielded 309 journals. After removing 102 duplicates, there are 207 journals left which then enter the screening stage. At this stage, 95 journals were excluded based on certain criteria, so 112 journals were selected for complete retrieval. However, 56 journals were not successfully obtained. Furthermore, 56 available journals were assessed for eligibility, and 40 journals were excluded for various specific reasons (Reason 1 and Reason 2 were 20 journals each). Finally, 16 journals met the inclusion criteria and were included in this systematic review. This rigorous selection process ensures





that only quality and relevant studies are analyzed to answer research questions regarding the relationship between global oil price volatility and the financial reporting practices of national energy companies.

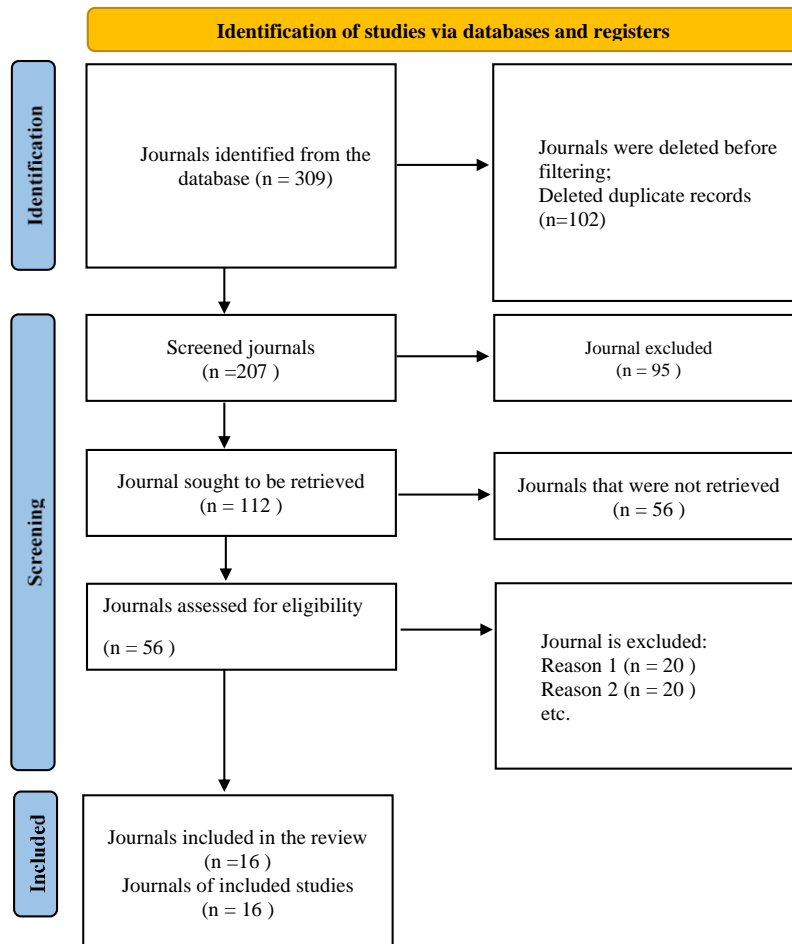


Figure 1. Flowchart PRISMA

Table 1. Synthesis and extraction of related journals

Yes	Author & Year	World Oil Price Fluctuations	Transparency of PT Pertamina's Financial Statements	The Perspective of Financial Accounting	Key Findings	Implication
1	(Wiyandari & Susilowati, 2025)	Not the main focus of the research	It shows that PT Pertamina has improved governance through the implementation of ISO 37001 and strengthening the sustainable reporting system, even though the risk of corruption still exists in strategic projects	Strengthening the relevance of Agency Theory, Accounting Behavior Theory, and Good Corporate Governance Theory in the context of corruption prevention	Improving internal oversight mechanisms and implementing anti-corruption standards can reduce the practice of manipulating financial statements and state losses	It is necessary to strengthen the public corporate governance system to support the achievement of the SDGs, especially SDG 16 on strong and accountable institutions





2	(Rosmiftafany Calvisanda, 2025)	Not specifically discussed	Identify weaknesses in the implementation of anti-corruption regulations that open up opportunities for corruption in the strategic energy sector	Normative juridical approach in analyzing the legal framework and the realities of implementation in the field	Although anti-corruption regulations are available, their implementation is still weak and opens up loopholes for corrupt practices in the strategic energy sector	Requires a comprehensive reform of procurement, oversight, and law enforcement systems with an emphasis on transparency and accountability
3	(Hidayatullah, Shidqiyyah, Pratama, Fauziah, & Nuraini, 2025)	Showing oil price volatility led to significant net profit fluctuations, with prices falling to USD 20 per barrel in 2020 due to the COVID-19 pandemic	It is not the main focus, but emphasizes the importance of accurate financial risk reporting	Using quantitative models for financial risk evaluation and predicting the financial health of companies	The Altman Z-Score analysis reveals a downward trend in financial health, especially in the 2016-2020 period, with an increased risk of bankruptcy despite the 2021-2023 recovery	Requires business diversification strategies, supply chain optimization, and proactive exchange rate policies to ensure long-term stability
4	(Ceisari, 2024)	Not discussed directly	Emphasizing the importance of PT Pertamina as a state-owned enterprise to provide more consistent and clear information regarding sustainability investments and expenditures in the annual report	Using the Sustainability Report Disclosure Index (SRDI) variables, and sustainability investments as predictors of financial performance	There is a positive relationship between sustainability investment with SRDI, sustainability investment with company performance, sustainability spending with ROE, and SRDI with financial ratio	Quality sustainability reporting can improve financial performance and stakeholder trust in the company
5	(Hasnawati, Cempaka, Arofani, & Rizki, 2021)	Analyze the impact of economic fluctuations and exchange rates on the company's foreign currency transactions	Not the main focus of the research	Using quantitative methods with an associative approach to test the relationship between profit, cash flow, and financial distress variables	Profit had an effect on financial distress with a significance of 0.006, while cash flow had no significant effect with a value of 0.053	Good profit management is the key in dealing with financial difficulties in the midst of economic fluctuations
6	(Veren Putri Shamaya, Alhabsyi, & Maria Yovita	Not discussed	Shows that PT Pertamina involves various	Using a descriptive qualitative approach with	Stakeholder engagement improves transparency,	Multi-year data analysis and direct interviews with stakeholders are





	R Pandin, 2024)		stakeholders through active dialogue, regular reporting, surveys, and specific programs that increase transparency and credibility	analysis based on GRI 2-29 disclosure	credibility, and sustainability performance and builds public trust and minimizes operational risks	required for a more comprehensive representation of perspectives
7	(Sazly et al., 2023)	Analyzing financial performance amid turbulence in world oil prices for the 2017-2021 period	It is not the main focus, but emphasizes the importance of comprehensive financial performance reporting	Using liquidity ratios (CR), solvency (DER), activity (TATO), profitability (NPM), and Dupont ratios (ROI and ROE)	There are significant differences in CR, DER, TATO, and ROI between Pertamina and global competitors, while NPM and ROE are not significantly different	PT Pertamina needs to improve operational efficiency and asset management to compete with global oil companies
8	(Wardhani, 2021)	Discuss oil as a global commodity that affects the process of localization, transparency,	Demonstrate the localization of transparency as a 'work of assemblage' where the materiality of oil allows networks of actors to form and embed transparency in the local context	Using a new-materialism approach and a post-structuralist perspective to explain the localization of norms	The larger the oil reserves, the greater the efforts of the network of actors to instill transparency in the local context	Localization of transparency in the extractive sector is a non-linear process that changes from the local to transnational level
9	Arifin et al. (2021) (Arifin, Hidayat, & Maulana Arifin, 2021)	Not the main focus	Emphasizing the need for explicit principles and methods in profit-sharing contracts and accounting periods to avoid different interpretations between contractors and governments	Using Oil and Gas Accounting Standard No.29 of 2009 and comparison with FASB in developed countries	Accounting methods affect the financial statements used to measure contractor performance and state revenue	Clarity and transparency in accounting principles are needed to avoid differences in interpretation and ensure consistency with the State Budget
10	(Manumayoso, Utami, & Gabunia, 2024)	Not specifically discussed	Emphasizing the importance of transparency and policy harmonization in oil and gas management to	Using a doctrinal legal approach with an emphasis on ecological justice based on Pancasila	Oil and gas management in Indonesia follows Article 33 of the 1945 Constitution with two main	Challenges such as inadequate data, policy inconsistencies, and limited oversight capacity must be addressed through increased transparency





			ensure environmental impacts are considered		schemes, PSC and Cost Recovery and Gross Split, with an exploration period of 6 years and production rights of up to 30 years	and harmonization policy
11	(Cannavio, Info, & History, 2025)	Not discussed	Tempo.co frames the case critically with an emphasis on state losses and weak oversight systems, while Antaranews presents it procedurally and neutrally.	Using a qualitative approach with the Robert N. Entman model framing analysis method	The different framing of the media reflects different constructions of reality and shows that the media plays an active role in shaping public perceptions of strategic issues	Emphasizing the importance of media literacy so that the public is able to understand media framing critically
12	(Nafisah Emir & Aris Eddy Sarwono, 2025)	Not the focus of the research	The results of multiple regression analysis show that the quality of financial reporting and information transparency significantly reduce the risk of fraud	Using quantitative methods with the collection of primary data through questionnaires and secondary data from the 2022-2024 financial statements	The quality of financial statements and transparency of information have a significant effect on reducing the risk of fraud, while public understanding is not statistically significant	Highlighting the importance of reliable and transparent financial disclosure in reducing the risk of fraud in SOEs
13	(Muhamad Gani Fansyah, Bayu Firmansyah, Yulisa Tri Hapsari, & Sarpini, 2024)	OPEC decisions such as increasing or reducing oil production quotas directly impact global crude oil prices which affect domestic fuel prices	It is not the main focus, but uses secondary data from OPEC and Pertamina	Using a qualitative descriptive method with secondary data focusing on oil production and pricing	There is an interconnection between OPEC's production strategy and Indonesia's energy sector which affects people's purchasing power, industrial production costs, and inflation	Provides valuable insights for policymakers to adaptively address energy stability and ensure national energy security
14	(Maghfiroh, Ulfa, & Cahyatik, 2024)	Not the main focus	Emphasizing the need to increase financial transparency and strengthen international cooperation to achieve sustainable development	Using a descriptive qualitative approach with secondary data analysis from government reports, regulations, and scientific journals	PNBP supports economic diversification through the management of natural resources, state-owned enterprises, and public services, with the main	Optimization strategies include reforming the tax system, diversifying revenue sources, increasing financial transparency, and strengthening international cooperation





			goals		challenge of dependence on natural resources	
15	(Nurwenda & Junaedi, 2024)	Not discussed	The variables of financial reporting, transparency and accountability have not been fully fulfilled by government agencies in accordance with applicable provisions	Using descriptive and verifiable methods with questionnaires to Bappenas officials and BPKP auditors	SOE supervision has been carried out well and BPKP auditors have worked professionally, but there are still gaps in the implementation of financial reporting	It is necessary to revise the explanation/attachment to the Regulation of the Minister of Finance and the Minister of Home Affairs regarding BLU financial reporting so that the content is in sync with the attachment
16	(Renggani et al., 2025)	Not the focus of the research	Identify the weak implementation of the principles of transparency, accountability, and integrity at PT Pertamina that allow collusion and abuse of power	Using a case study and literature review approach to analyze unethical practices in crude oil procurement and refinery product distribution	Unethical practices in procurement and distribution that are not in accordance with the ethical principles of public administration demonstrate the need for governance reform	Recommend strengthening the supervisory system, implementing Good Corporate Governance (GCG), ethical education for employees, and increasing transparency to prevent corrupt practices and rebuild public trust

**DISCUSSION**

**The Impact of Oil Commodity Price Fluctuations on the Presentation and Disclosure of PT Pertamina's Financial Statement Information**

The volatility of global oil commodity prices has a significant influence on the construction and presentation of information in the financial statements of energy companies, especially PT Pertamina as a *State-owned enterprise* (SOEs) operating in strategic sectors. Findings from (Renggani et al., 2025) indicates that the COVID-19 pandemic caused a drastic decline in PT Pertamina's oil price to reach USD 20 per barrel in 2020, a condition that created substantial net profit fluctuations due to oil price volatility and changes in foreign exchange rates. This phenomenon shows that the volatility of energy commodity prices not only impacts the operational aspect, but also fundamentally affects how business entities structure, classify, and disclose financial items in *Financial statements*. Further (Ceisari, 2024) emphasized that the difference in foreign currency transaction exchange rates in the midst of economic fluctuations for the 2018-2023 period creates its own complexity in the recognition and measurement of financial statement elements, considering that transactions *Crude Oil* dominated in denomination of United States dollars.

The implementation of financial accounting standards in the context of the oil and gas industry faces unique methodological challenges, as expressed by (Hasnawati et al., 2021) that the regulation of Indonesia's upstream oil and gas industry has been regulated through the Financial Accounting Standard Statement (PSAK) Number 29 of 2009, where clarity and transparency in the application of accounting principles are imperative to avoid differences in interpretation between contractors and the government. The chosen accounting method has a direct impact on the financial statements, so that the performance of contractors and state revenues can be measured objectively. In an international comparative perspective, (Sazly et al., 2023) conducting a comparative analysis of Pertamina's financial performance with global oil companies such as *British Petroleum, Royal Dutch Shell* and *Exxon Mobil* In the 2017-2021 period, it found significant differences in liquidity ratios (*Current Ratio*), solvency ratio (*Debt-Equity Ratio*), activity ratio (*Total Asset Turnover*), and the ratio *Return on Investment*. These findings indicate that fluctuations in world oil prices generate different responses in the presentation of financial information, depending on capital structure, strategy *Hedging*, and the accounting policies adopted by each corporation.

More in-depth analysis using simulations *Monte Carlo* and *Altman Z-Score* What is done (Nafisah Emir & Aris





Eddy Sarwono, 2025) revealed that PT Pertamina experienced a downward trend in financial health, especially in the 2016-2020 period with an increased risk of bankruptcy, despite the recovery in 2021-2023, the company was still in a high-risk zone. This condition demands greater transparency in the disclosure of financial risks related to commodity price volatility. From a fiscal regulatory perspective, (Veren Putri Shamaya et al., 2024) emphasizing that the scheme *Production Sharing Contract* (PSC) with a model *Cost Recovery* and *Gross Split* have different implications for revenue recognition and expense allocation in financial statements. The six-year exploration period with production rights of up to thirty years creates complexity in long-term asset recognition and depreciation, which must be adjusted for fluctuations in the economic value of oil reserves due to changes in global market prices.

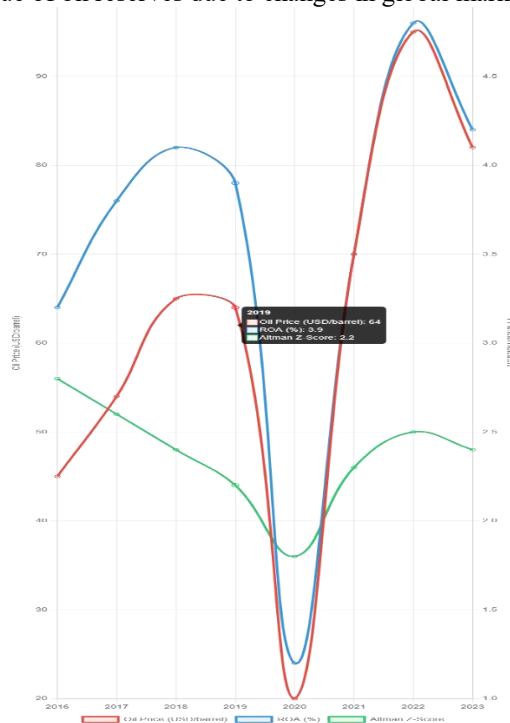


Figure 2. Oil Price Fluctuation Trends and Their Impact on PT Pertamina's Financial Indicators (2016-2023)

### Level of Transparency and Accountability of PT Pertamina's Financial Statements in the Face of Global Oil Price Volatility

Transparency and accountability are two fundamental pillars of good corporate governance (*Good Corporate Governance*), especially for state-owned entities that have dual responsibility to shareholders and the wider community. (Nafisah Emir & Aris Eddy Sarwono, 2025) In his study, he analyzes that the implementation of financial accountability and transparency plays a crucial role in preventing corrupt practices in public companies, by reviewing their contribution to social sustainability within the framework of *Sustainable Development Goals* (SDGs). The findings of the study show that PT Pertamina has shown improved governance through the implementation of ISO 37001 and strengthening sustainability reporting, although there is still a risk of corruption in strategic projects that can hinder the achievement of SDG 3 (Good Health), SDG 9 (Industry, Innovation, and Infrastructure), and SDG 16 (Peace, Justice, and Strong Institutions). In contrast to these conditions, (Nurwenda & Junaedi, 2024) revealed that the case of alleged corruption in crude oil imports by PT Pertamina Patra Niaga executives has caused public concern because it has a major impact on the national economy and the level of public trust in state institutions, which indicates that although anti-corruption regulations are available, their implementation is still weak and opens up opportunities for corruption in strategic sectors.

In the context of sustainability reporting, (Renggani et al., 2025) conducting a study on the influence *sustainability accounting and reporting* financial performance of PT Pertamina Persero for the 2013-2020 period, found that there is a positive relationship between sustainability investment and *Sustainability Report Disclosure Index* (SRDI), between sustainability investment and company performance, as well as between the company's sustainability expenditure and *Return on Equity* (ROE). These findings reinforce the argument that transparency is not only limited to conventional financial aspects, but should also include environmental, social, and governance dimensions (*Environmental, Social, and Governance*/ESG). Analyzing stakeholder involvement in PT Pertamina's sustainability report based on the GRI Standard 2021, shows that the company involves various *Stakeholders* including shareholders, customers, employees, regulators, and communities through active dialogue, regular reporting, surveys, and specific programs. These engagements improve transparency, credibility, and sustainability performance while building public trust and minimizing operational risks.





(Arifin et al., 2021) conduct quantitative research to analyze the influence of financial statement quality, information transparency, and public understanding of risks *Fraud* at PT Pertamina. The results of multiple regression analysis showed that the quality of financial reporting and information transparency significantly reduced risk *Fraud*, while public understanding although showing a negative direction, is not statistically significant. These findings emphasize the importance of reliable and transparent financial disclosure in reducing the risk of fraud in state-owned companies. The corruption case of PT Pertamina for the 2018-2023 period from the perspective of public administration ethics found that the weak implementation of the principles of transparency, accountability, and integrity at PT Pertamina allowed collusion and abuse of power in procurement *Crude Oil* and distribution of refinery products that are not in accordance with the principles of public administration ethics. This case highlights the importance of governance reform, implementation *Good Corporate Governance* (GCG), and the need for ethical education for employees to rebuild public trust in SOEs.

Table 2. Comparison of Aspects of Transparency and Accountability of PT Pertamina in Various Dimensions

Dimension	Indicators	Positive Outcomes	Challenges Faced	Reference
<b>Anti-Corruption Governance</b>	ISO 37001 Implementation	Strengthening of the anti-bribery system	The risk of corruption in strategic projects still exists	Rachmanita (2025)
<b>Sustainability Reporting</b>	GRI Standards 2021	Active involvement of stakeholders	Multi-year data limitations	Veren Putri Shamaya et al. (2024)
<b>Quality of Financial Statements</b>	Disclosure Index	Positive relationship with performance	Consistency of sustainability investment information	Ceisari (2024)
<b>Fraud Risk Management</b>	Information Transparency	Significant reduction in fraud risk	Public understanding is not optimal	Nafisah Emir & Aris Eddy Sarwono (2025)
<b>Public Administration Ethics</b>	Integrity Principle	Awareness of GCG reform	Weak implementation of ethical principles	Renggani et al. (2025)
<b>Comparative Financial Performance</b>	Liquidity & Solvency Ratio	Rise in the Fortune 500 rankings	Gap with global oil companies	Sazly et al. (2023)

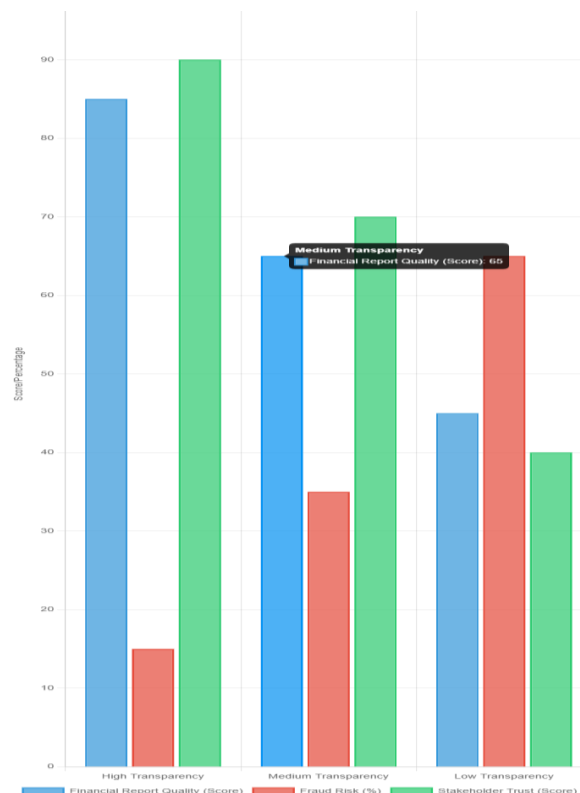


Figure 3. The Relationship between Transparency, Financial Report Quality, and Fraud Risk at PT Pertamina





### Challenges and Obstacles to the Implementation of Financial Reporting Transparency in the Oil and Gas Industry

The oil and gas industry faces complex challenges in implementing financial reporting transparency, especially amid volatile commodity price dynamics and evolving regulations. (Renggani et al., 2025) conducting an analysis of financial reporting in ministries/state agencies and supervision of SOEs for transparency and accountability, found that the variables of financial reporting, transparency, and accountability have not been fully fulfilled by government agencies in accordance with applicable regulations. This condition shows that there is a gap between normative regulations and practical implementation in the field, where the difference in accounting standards between non-profit organizations (Public Service Agencies) and profit-oriented SOEs creates complexity in the harmonization of reporting. Furthermore, the study recommends revision of the explanation/appendix of the Regulation of the Minister of Finance and the Minister of Home Affairs on BLU financial reporting so that the content is in sync with the appendix, indicating regulatory inconsistencies that hinder transparency.

From a legal and regulatory perspective, (Wiyandari & Susilowati, 2025) Identify that although anti-corruption regulations are available, their implementation is still weak and opens up opportunities for corruption in strategic sectors such as energy, which requires a comprehensive overhaul of the procurement, supervision and enforcement system. He added that oil and gas management in Indonesia follows Article 33 of the 1945 Constitution with two central PSC schemes *Cost Recovery* and *Gross Split*, but challenges such as inadequate data, policy inconsistencies, and limited oversight capacity must be addressed through increased transparency and policy harmonization. The implementation of the principle of ecological justice rooted in Pancasila is important to ensure that environmental impacts are properly considered and local communities are involved in natural resource management. His study of local transparency in Bojonegoro, East Java, reveals that the localization of transparency norms in the extractive sector is a political process influenced by material-spatial elements, where the materiality of oil determines the localization of transparency through "assembly work" involving various networks of actors with diverse agencies and objectives.

In the context of international fiscal policy, Analyzing the influence of OPEC (*Organization of the Petroleum Exporting Countries*) on fuel oil prices in Indonesia, shows that OPEC's decision to increase or reduce oil production quotas has a direct impact on global crude oil prices, which then affects various aspects of the economy including domestic fuel prices in Indonesia. As an oil importing country, Indonesia is greatly influenced by fluctuations in global oil prices influenced by OPEC policies, which have an impact on people's purchasing power, industrial production costs, and inflation. These findings highlight the linkage between OPEC's production strategy and Indonesia's energy sector, providing valuable insights for policymakers to adaptively address energy stability and ensure national energy security. A sustainable development perspective by analyzing the role of state revenue in achieving *the Sustainable Development Goals*, finds that state revenue sources include taxes, Non-Tax State Revenue (PNBP), and grants play an important role in supporting the achievement of the SDGs, but the management of these sources of revenue faces various challenges such as low tax compliance, dependence on natural resources, and inefficiencies in grant management.

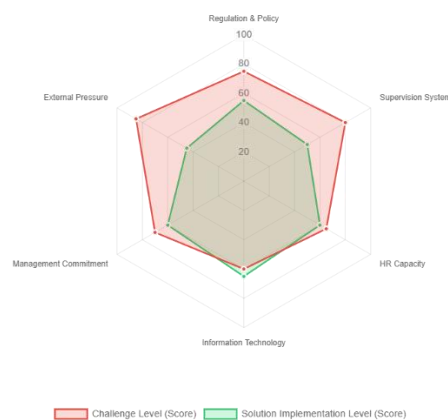


Figure 4. Mapping Challenges in the Implementation of Financial Transparency in the Oil and Gas Industry

### Patterns and Trends of Previous Research in Examining the Relationship between Oil Price Volatility and Financial Reporting Quality

A systematic review of the previous literature reveals a growing pattern and trend of research examining the relationship between oil price volatility and the quality of financial reporting in the energy sector, both in a global and national context. Methodologically, there is an evolution of the research approach from qualitative descriptive analysis to a more complex quantitative approach with the use of advanced statistical and simulation techniques. (Wiyandari & Susilowati, 2025) Represent the trend of using advanced quantitative methods by applying simulations *Monte Carlo*,





sensitivity analysis, and regression models to evaluate the impact of various risks on financial indicators such as total revenue, ROA, ROE, NPM, and EBIT, as well as using analysis *Altman Z-Score* to reveal trends in financial health. This methodological approach shows a shift in the research paradigm from retrospective analysis to predictive analysis oriented towards risk management and long-term strategic planning.

Previous studies have shown the integration of various complementary theories to explain complex phenomena in the oil and gas industry. (Wardhani, 2021) reinforcing the relevance of Agency Theory, Accounting Behavioral Theory, and Theory *Good Corporate Governance* in the context of accountability and financial transparency as a form of corruption prevention. This theoretical integration reflects the understanding that the issues of transparency and quality of financial reporting cannot be approached in a monolithic manner, but rather require a multidimensional theoretical framework to accommodate the complexity of interactions between principal-agents, aspects of organizational behavior, and corporate governance structures. Meanwhile, (Wardhani, 2021) Using the approach *New-materialism* and a post-structuralist perspective to seek alternative explanations for norm localization as a process of implementing transparency in the extractive sector, where this approach expands the theoretical discourse by including the dimensions of materiality and spatial configuration in the analysis of natural resource governance.

Research trends also show increasing attention to the sustainability dimension and *Environmental, Social, and Governance* (ESG) in the financial reporting of energy companies. (Ceisari, 2024) Analyze the influences *sustainability accounting and reporting* on financial performance, found a positive relationship between sustainability investment with SRDI and corporate performance, which indicates that conventional financial statements have evolved beyond mere operational representations to encompass and explain various dimensions of corporate value including environmental and social dimensions. (Maghfiroh et al., 2024) reinforcing this trend by analysing stakeholder engagement in the GRI Standard-based sustainability report 2021, showing that engagement *Stakeholders* improve transparency, credibility, and sustainability performance. This research pattern reflects the academic response to global pressure to integrate ESG considerations in corporate reporting practices, in line with the agenda *Sustainable Development Goals* which emphasizes sustainable development.

Comparative research by (Sazly et al., 2023) explains the significant differences in various financial ratios, which this comparative approach provides perspective *Benchmarking* which is important to evaluate the relative performance of national companies in the context of global competition. Overall, research patterns and trends show a shift from a single focus on traditional financial aspects to a holistic approach that integrates the dimensions of governance, sustainability, ethics, and risk management in conditions of commodity price volatility. The literature synthesis indicates that future research needs to adopt a longitudinal approach with longer observation periods, integrate hands-on interviews with stakeholders, and explore alternative reporting frameworks to broaden insights and provide more comprehensive recommendations for practitioners and policymakers in the energy sector.

## CONCLUSION

A systematic literature review of 16 journals revealed that fluctuations in world oil commodity prices had a significant impact on the presentation and disclosure of PT Pertamina's financial statements, especially through the volatility of net profit, the complexity of the exchange rate difference, and the deterioration of financial health for the 2016-2020 period identified through the Altman Z-Score. PT Pertamina's transparency and accountability in financial reporting shows improvements through the implementation of ISO 37001 and the adoption of GRI Standards 2021, with research proving that the quality of financial statements and information transparency significantly reduce the risk of fraud. However, substantial challenges are still faced including the weak implementation of public administration ethical principles that allow corrupt practices, the gap between normative regulations and practical implementation, the inconsistency of the PSC Cost Recovery and Gross Split fiscal policies, and the dependence on OPEC policies that affect the stability of domestic fuel prices. Comparative findings show that PT Pertamina has a performance gap with global oil companies in liquidity, solvency, and asset efficiency ratios, indicating the need for comprehensive governance reforms, business diversification, regulatory harmonization, and strengthening of the supervisory system to increase financial reporting transparency and support the achievement of the SDGs in dealing with global oil price volatility.

## REFERENCES

- Agustia, Dian, Muhammad, Nur Pratama Abdi, & Permatasari, Yani. (2020). Earnings Management, Business Strategy and Bankruptcy Risk. *Hell*, 6(2). <https://doi.org/10.1016/j.heliyon.2020.e03317>
- Arifin, Kasman, Hidayat, Dina, & Maulana Arifin, Iqbal. (2021). Management of the Oil and Gas Industry in Indonesia Managerial Perspective (Study in the Indonesian Upstream Oil and Gas Industry). *Dinaste International Journal of Management Science*, 2(3), 381–395. <https://doi.org/10.31933/dijms.v2i3.700>
- Bullets, Masud. (2013). Effects of IFRS Adoption on the Financial Reports of Nigerian Listed Entities: The case of Oil and Gas Companies. *The Macrotheme Review*, 2(7), 9–26.
- Borg, Massimo, Refalo, Paul, & Francalanza, Emmanuel. (2023). Failure Detection Techniques on the Demand Side of Smart and Sustainable Compressed Air Systems: A Systematic Review. *Energies*, 16(7).





- <https://doi.org/10.3390/en16073188>
- Bushman, Robert M., Lerman, Alina, & Zhang, X. Frank. (2021). The Changing Landscape of Accrual Accounting. *Journal of Accounting Research*, 54(1), 41–78. <https://doi.org/10.1111/1475-679X.12100>
- Cannavio, Alexander Defly, Info, Article, & History, Article. (2025). *The Influence of Company Characteristics on Human Resources Accounting Disclosure of Energy Companies in the Oil Gas & Coal Sector*. 8(September), 11087–11097.
- Ceisari, Btari Bunga. (2024). Enrichment: Journal of Management Effect of sustainability accounting and reporting on financial performance of firms in PT Pertamina Persero. *Enrichment: Journal of Management*, 14(5).
- Grossi, Giuseppe, Kallio, Kirsi Mari, Sargiacomo, Massimo, & Skoog, Matti. (2020). Accounting, performance management systems and accountability changes in knowledge-intensive public organizations: A literature review and research agenda. *Accounting, Auditing and Accountability Journal*, 33(1), 256–280. <https://doi.org/10.1108/AAAJ-02-2019-3869>
- Hasnawati, Pebriani, Cempaka, Putri, Arofani, Syofiatul Aziza, & Rizki, Novia. (2021). Analysis of Foreign Currency Transaction Exchange Differences in the Midst of Economic Fluctuations at PT Pertamina (Persero) in 2018–2023. *Journal of Accounting Unihaz-Jaz*, 4(1), 78–93.
- He, Mengxi, Zhang, Yaojie, Wang, Yudong, & Wen, Danyan. (2024). Modelling and forecasting crude oil price volatility with climate policy uncertainty. *Humanities and Social Sciences Communications*, 11(1), 1–10. <https://doi.org/10.1057/s41599-024-03561-w>
- Hidayatullah, Syarif, Shidqiyyah, Nuhaa Salsabila, Pratama, Maheza Fiko, Fauziah, Dian Ayu, & Nuraini, Ulfa Siti. (2025). Assessing Financial Risks at PT Pertamina: Insights from Monte Carlo and Altman Z-Score. *Management and Business*, 24(1), 216. <https://doi.org/10.24123/mabis.v24i1.864>
- Kao, Mao Feng, Hodgkinson, Lynn, & Jaafar, Aziz. (2022). Ownership Structure, Board of Directors and Firm Performance. *Corporate Governance (Bingley)*, 19(1), 189–216. <https://doi.org/10.1108/CG-04-2018-0144>
- Le, Yiyi, Wen, Jing, Wu, Yuchen, Liu, Jia, & Zhu, Yuchen. (2024). Investigating factors influencing oil volatility: a GARCH-MIDAS model analysis. *Frontiers in Energy Research*, 12(June), 1–18. <https://doi.org/10.3389/fenrg.2024.1392905>
- Lu, Xunfa, Yan, Huanhuan, He, Pengchao, & Apergis, Nicholas. (2025). Multifractal relationship between decomposed oil price shocks and trading volume. *Humanities and Social Sciences Communications*, 12(1), 1–16. <https://doi.org/10.1057/s41599-025-05227-7>
- Maghfiroh, Ulfa, Nikmatul, & Cahyatik. (2024). *The Role Of State Revenue In Achieving Sustainable Development Goals*. 2(1), 33–44.
- Manumayoso, Bambang, Utami, Annissa Dewi Rinenggo Kusumo, & Gabunia, Luiza. (2024). Oil and Gas Fiscal Term Regulations Based on Ecological Justice. In *Journal of Sustainable Development and Regulatory Issues* (Vol. 2). <https://doi.org/10.53955/jsderi.v2i3.50>
- Muhamad Gani Fansyah, Bayu Firmansyah, Yulisa Tri Hapsari, & Sarpini. (2024). The Influence of OPEC (Organization of the Petroleum Exporting Countries) on Fuel Oil Prices in Indonesia. *Academic Journal of Economics and Management*, 1(4), 144–151. <https://doi.org/10.61722/jaem.v1i4.3297>
- Nafisah Emir, & Aris Eddy Sarwono. (2025). The Effect of Financial Statement Quality, Information Transparency, and Public Understanding on Pertamina's Fraud Risk. *Scientific Journal of Management, Economics and Accounting*, 5(2), 270–278. <https://doi.org/10.55606/jurimea.v5i2.962>
- Nareswara, Fathullah Aryo, & Dewiyanti, Silvia. (2023). Bankruptcy Risk and Its Effect on Earnings Management of Indonesian Firms. *E3S Web of Conferences*, 426, 2–7. <https://doi.org/10.1051/e3sconf/202342602100>
- Nurwenda, Mirna, & Junaedi, Dedi. (2024). The Analysis of Financial Reporting in Ministries/State Institutions and Supervision of SOEs for Transparency & Accountability. *Global Research Review in Business and Economics*, 10(5), 229–235. <https://doi.org/10.56805/grrbe.24.10.5.76>
- Oláh, Judit, Krisán, Eszter, Kiss, Anna, Lakner, Zoltán, & Popp, József. (2020). PRISMA statement for reporting literature searches in systematic reviews of the bioethanol sector. *Energies*, 13(9), 1–35. <https://doi.org/10.3390/en13092323>
- Page, Matthew J., McKenzie, Joanne E., Bossuyt, Patrick M., Boutron, Isabelle, Hoffmann, Tammy C., Mulrow, Cynthia D., Shamseer, Larissa, Tetzlaff, Jennifer M., Akl, Elie A., Brennan, Sue E., Chou, Roger, Glanville, Julie, Grimshaw, Jeremy M., Hróbjartsson, Asbjörn, Lalu, Manoj M., Li, Tianjing, Loder, Elizabeth W., Mayo-Wilson, Evan, McDonald, Steve, McGuinness, Luke A., Stewart, Lesley A., Thomas, James, Tricco, Andrea C., Welch, Vivian A., Whiting, Penny, & Moher, David. (2022). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *Pan American Journal of Public Health*, 46. <https://doi.org/10.26633/RPSP.2022.112>
- Rahman, Md Arifur, Hossain, Md Shakawat, Mintoo, Abdul Awal, & Islam, Siful. (2025). A systematic review of intelligent support systems for strategic decision-making using human-AI interaction in enterprise platforms. *American Journal of Advanced Technology and Engineering Solutions*, 1(1), 506–543. <https://doi.org/10.63125/a5yh1293>
- Renggani, Fira Putri, Maruapey, Muhamad Husein, Armelitta, Aulia, Paujiah, Nur Santi, Nurjanah, Siti Resa, Firdaus,





- Rifqi Galan, Afriandi, Reihan, & Yusuf, Agung M. (2025). Analysis of PT. Pertamina Corruption Case in the Perspective of Public Administration Ethics. *International Journal of Applied Research and Sustainable Sciences*, 3(6), 533–542. <https://doi.org/10.59890/ijarss.v3i6.69>
- Rosmiftafany Calvisanda, Shavinra. (2025). Juridical Analysis of Alleged Corruption in Crude Oil Imports by PT Pertamina Patra Niaga Executives. *Jurisprudence and Governance*, 1(2), 68.
- Sazly, Syukron, Subariyanti, Herudini, Ariawan, Joko, Kusumaningrum, Aliffah, Yulianto, Andri Rizko, & Warsono, Warsono. (2023). Comparison of Pertamina's Financial Performance with British Petroleum, Royal Dutch Shell, and Exxon Mobil in the Midst of World Oil Price Turbulence. *Jessica*, 6(1), 908–917. <https://doi.org/10.36778/jesya.v6i1.1024>
- Veren Putri Shamaya, Alhabsyi, Amru, & Maria Yovita R Pandin. (2024). Stakeholder Involvement in PT Pertamina's Sustainability Report Based on the 2021 GRI Standard. *Journal of Accounting Economics Research (JENSI)*, 8(2), 399–407. <https://doi.org/10.33059/jensi.v8i2.10657>
- Wardhani, Beautiful Sun. (2021). Making Transparency in Bojonegoro , East Java , Indonesia : Local Transparency and the Materio- Spatial Configuration of Oil. *Nusantara: An International Journal of Humanities and Social Sciences*, 3(2), 1–37. [https://doi.org/10.6936/NIJHSS.202112\\_3\(2\).0001](https://doi.org/10.6936/NIJHSS.202112_3(2).0001)
- Wiyandari, Rachmanita Putri, & Susilowati, Endah. (2025). *Analysis of Financial Accountability and Transparency as a Form of Corruption Prevention in Public Companies in the Perspective of Social Sustainability and SDGs*. 4(8), 6059–6068.

