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OIL AND GAS REVENUE ACCOUNTING TREATMENT AND COMPLIANCE: SYSTEMATIC REVIEW OF UPSTREAM COMPANY PRACTICES

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Abstract

The upstream oil and gas sector faces escalating complexity in revenue accounting treatment due to evolving international standards (PSAK 64/IFRS 15), substantial capital investments, reserve uncertainty, and intensifying climate-related asset valuation challenges, yet systematic evidence on implementation practices and compliance effectiveness across diverse institutional contexts remains fragmented. This study aims to comprehensively analyze revenue accounting treatment practices, evaluate compliance with financial accounting standards, map implementation challenges, and identify critical research gaps in upstream oil and gas companies through a systematic literature review. Following the PRISMA protocol, this research systematically searched four major academic databases, Scopus, Web of Science, ProQuest, and ScienceDirect, using predefined keywords, ultimately selecting 10 high-quality studies published between 2021 and 2025. The findings reveal that proper revenue accounting treatment is critical, given the substantial global revenue and the concentrated distribution of profits. Implementation of industry-specific accounting standards significantly enhances capital allocation efficiency, reduces information asymmetry, and positively impacts performance metrics. However, critical implementation challenges persist in three areas: absence of unified decommissioning accounting standards, inadequate frameworks for stranded asset valuation amid potential US$13-17 trillion devaluations, and insufficient transparency mechanisms for profit distribution reporting. This study contributes by providing systematic evidence synthesis across diverse geographical contexts, identifying prioritized research gaps in asset valuation frameworks and decommissioning standards, and offering actionable recommendations for standard setters to develop industry-specific guidance, regulators to strengthen enforcement mechanisms, and academics to pursue longitudinal comparative research examining climate risk integration in financial reporting practices.

Keywords: Accounting Standards, Asset Valuation, Decommissioning Obligations, Revenue Recognition, Upstream Oil and Gas

INTRODUCTION

The oil and gas industry is a strategic sector with complex accounting treatment, particularly in revenue recognition and measurement. The sector Upstream Oil and Gas, which includes exploration and production activities, requires special accounting standards given the unique

characteristics of its business activities involving large capital investments, high risk, and reserve uncertainty (*Reserve Uncertainty*). According to research (O'Neill & Phd, 2022), the complexity of oil and gas revenue accounting lies not only in the technical aspects of measurement but also in compliance with various accounting standards that apply both nationally and internationally. Proper accounting treatment is crucial because it directly affects the quality of financial reporting and economic decision-making for stakeholders. The application of financial accounting standards in the oil and gas industry continues to evolve in line with regulatory dynamics and global business practices. International Financial Reporting Standards (IFRS) through IFRS 15, Revenue from Contracts with Customers, have been in effect since 2018 and provide a comprehensive framework for revenue recognition, but their implementation in the oil and gas sector faces its own challenges (Latif, 2024). In Indonesia, the Financial Accounting Standard Statement (PSAK) 64, which is the adoption of IFRS 15, requires companies to identify contracts with customers, identify performance obligations (*Performance Obligations*), and allocate transaction prices in accordance with the principle of the five steps of revenue recognition. Research by Krisdianto et al. (2025) shows that the transition to IFRS 15 has a material impact on the revenue recognition patterns of extractive companies, including those in the oil and gas sector.

The complexity of oil and gas accounting extends beyond revenue recognition to encompass broader financial performance dimensions. Research by (Lorensha & Hertina, 2025) The on energy sector companies demonstrate that profitability, as proxied by Return on Equity (ROE), and investment decisions, as measured by Price Earnings Ratio (PER), significantly influence firm value, highlighting the critical importance of accurate financial reporting in investor decision-making. This finding underscores the necessity for robust accounting practices in the energy sector, as financial reporting quality directly impacts company valuation and stakeholder confidence.

Specific challenges in accounting for upstream oil and gas revenues include measuring production volume, setting benchmark prices (Benchmark Pricing), allocating shared costs (joint cost allocation), and treating the components of profit-sharing contracts (*production sharing contracts*). Studies conducted by (Arifin et al., 2021) Identify that variations in revenue accounting practices among Indonesian oil and gas companies indicate that there is room for different interpretations of the same standards, which have the potential to affect the comparability of financial statements. Further, the research (Renaldo et al., 2025) emphasizes the importance of Revenue Recognition Timing, which is appropriate for oil and gas contracts that often involve multiple deliverables and gradual payments. Compliance aspects (*Compliance*) and financial accounting standards are also important concerns, especially in the context of the transparency and accountability of oil and gas companies, most of which are public entities or involve state interests.

According to al. (2021), the level of compliance with disclosure (Disclosure Compliance) required by PSAK 64 still varies across companies, indicating the need for more in-depth research into the factors that affect the quality of standard implementation. In addition, research by Lona et al. (2024) found that the complexity of transactions in the oil and gas industry requires strong professional judgment from accountants to ensure that the economic substance of transactions is accurately reflected in the financial statements.

The financial health of oil and gas companies is intrinsically linked to their accounting practices and financial ratio management. According to Allawiyah & Hertina (2025) Liquidity significantly affects profitability among oil and gas sub-sector companies listed on the Indonesia Stock Exchange during 2020-2023, indicating that proper accounting treatment of current assets and liabilities is crucial for maintaining operational performance. Furthermore, research by (Hertina, 2021) reveals that profitability has a significant positive effect on company value, while capital structure shows no significant effect, suggesting that revenue accounting accuracy and profit measurement are more critical determinants of firm value than financing decisions in capital-intensive industries such as oil and gas. In the Russian oil and gas industry Khalidov, et all (2021) revealed critical challenges in accounting for decommissioning activities. Hansen (2022) found that fossil fuel reserves will experience a devaluation globally. Semienjuk (2025) revealed that the net income of publicly listed oil and gas companies in the United States.

Given the importance of this issue and the evolving dynamics, a comprehensive study through a *systematic literature review* is needed to map oil and gas revenue accounting practices and the level of compliance with financial accounting standards in upstream oil and gas companies. This systematic review is expected to provide a comprehensive overview of the state of the art in this domain, identify research gaps, and offer recommendations for future practice and research. Based on the background described, this research focuses on several fundamental research questions. First, what are the revenue accounting treatment practices applied by upstream oil and gas companies in the context of the implementation of the latest financial accounting standards, especially PSAK 64/IFRS 15? Second, to what extent are the levels of compliance of upstream oil and gas companies with the requirements of financial accounting standards in the recognition, measurement, and disclosure of revenue? Third, what are the significant challenges and issues faced by upstream oil and gas companies in implementing revenue accounting standards, and what are the research gaps in the literature related to this topic?

This research aims to conduct a systematic review of academic literature and industry practices on revenue accounting in the upstream oil and gas sector. Specifically, this study aims to: (1) identify and analyse various revenue accounting treatment practices applied by upstream oil and

gas companies based on literature review; (2) evaluate the level of compliance of upstream oil and gas companies with applicable financial accounting standards; (3) mapping implementation challenges, critical issues, and research gaps in the literature; and (4) provide recommendations for improving accounting practices and future research development in the context of accounting revenues of the oil and gas industry. This research is expected to make a significant contribution both theoretically and practically. Theoretically, this study will enrich the financial accounting literature, particularly in the domain of extractive industrial accounting, by providing a comprehensive synthesis of previous research and identifying future research directions. In practice, the results of this study can provide valuable insights for accounting practitioners, oil and gas company management, regulators, and standard-setters to understand current practices in the field, identify areas for improvement, and formulate more effective policies. In addition, this research is useful for academics and researchers as a reference for advancing research on oil and gas industry revenue accounting, and for investors and financial analysts seeking to understand the complexity of oil and gas sector financial reporting to make more informed investment decisions.

The broader context of accountability and transparency in financial reporting is essential for all sectors, including extractive industries. As demonstrated by (Mais et al., 2025) In their study on financial management accountability, the proper implementation of financial accounting standards and transparent reporting formats significantly impacts stakeholder trust and organizational credibility. This principle applies equally to oil and gas companies, where the magnitude of financial transactions and the complexity of contractual arrangements demand rigorous adherence to accounting standards to ensure accountability to investors, regulators, and the public.

This study makes distinct theoretical and practical contributions grounded in *agency theory* and the *information asymmetry framework*, which fundamentally underpin financial reporting quality in capital-intensive extractive industries. Theoretically, this research advances the understanding of how industry-specific accounting standards, particularly PSAK 64/IFRS 15, function as *governance mechanisms* that mitigate information asymmetry between oil and gas companies and their stakeholders. By synthesizing empirical evidence from diverse institutional contexts, this study extends *agency theory* by demonstrating that stringent revenue recognition standards reduce *moral hazard* and *adverse selection* problems inherent in upstream operations characterized by reserve uncertainty and complex contractual arrangements. The theoretical framework explicates how proper accounting treatment serves as a *bonding mechanism* that aligns managerial reporting behaviour with stakeholder interests, thereby enhancing financial statement credibility.

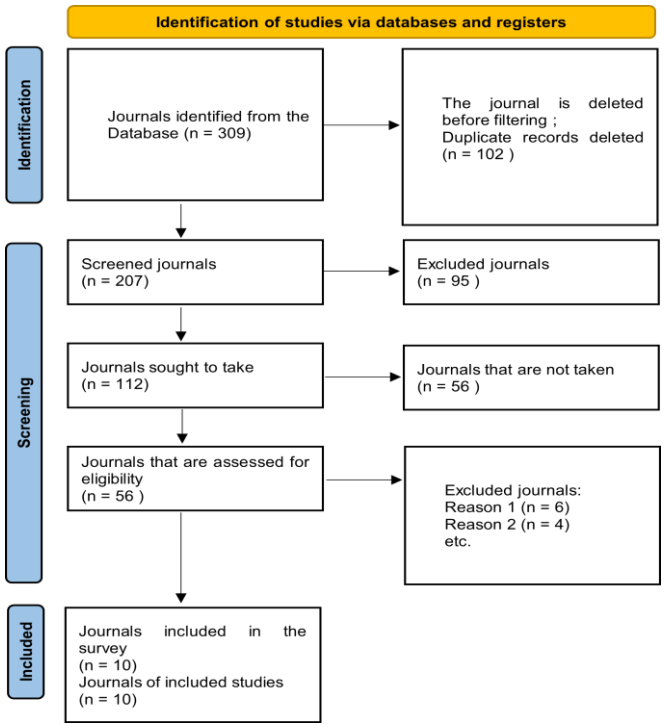
In practice, this research provides actionable insights for standard-setters to refine industry-

specific guidance that addresses critical implementation gaps, particularly in decommissioning liability recognition and stranded asset impairment, as identified through systematic evidence synthesis. For practitioners and regulators, the study demonstrates empirically that compliance with robust accounting standards directly improves *resource allocation efficiency* and *firm valuation metrics* (ROE, ROA, Tobin's Q), validating investments in financial reporting infrastructure. By explicitly connecting theoretical constructs of information asymmetry reduction to documented practical outcomes, capital growth, audit quality enhancement, and stakeholder confidence, this research establishes a cohesive evidence-based framework that simultaneously advances accounting theory and informs regulatory policy development in the evolving energy sector landscape.

RESEARCH METHODS

This study uses the *Systematic Literature Review* (SLR) to comprehensively analyse the academic literature related to the treatment of revenue accounting and compliance with financial accounting standards in upstream oil and gas companies (Tranfield, 2013; Xiao & Watson, 2017). The SLR method was chosen for its ability to provide a systematic, transparent, and replicable synthesis of various previous research findings. The research process follows the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) protocol, adapted for research in accounting and finance, to ensure the methodological rigor and validity of the study results. The research stage begins with the formulation of research questions, then continues with a systematic literature search on major academic databases such as Scopus, Web of Science, ProQuest, and ScienceDirect using a combination of keywords *"Revenue Recognition"*, *"oil and gas accounting"*, *"Upstream Petroleum"*, *"IFRS 15"* and *"Financial Reporting Compliance"*. The inclusion criteria include reputable journal articles, research reports, and academic conferences published between 2021 to 2025, in English or Indonesian, as well as focusing on revenue accounting practices in the upstream oil and gas sector. The selection process is carried out through a screening of titles and abstracts, followed by a reading of the full text to ensure relevance (Page et al., 2022; Snyder, 2019). The extracted data include research methodology, key findings, geographical context, and theoretical and practical implications, which are then analyzed thematically to identify existing research patterns, trends, and gaps in the literature.

Figure 1. PRISMA Flowchart



Source: researcher processed data, 2025

The process of identifying and selecting studies in this study follows PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. The identification stage began by searching journals in databases and registers, yielding 309 journals. After initial screening, 102 duplicate records were identified and deleted, leaving 207 journals for further processing. At *the screening stage*, participants are assessed against inclusion and exclusion criteria. Of the 207 journals screened, as many as 95 journals were excluded because they did not meet the criteria that had been set. Furthermore, 112 journals were sought in full text, but 56 could not be retrieved due to limited access or document unavailability.

The next stage is the feasibility assessment of the 56 journals that have been successfully obtained. In this process, an in-depth evaluation of each journal's quality and relevance is conducted. The results showed that some journals were excluded for specific reasons: 6 for Reason 1 and 4 for Reason 2, as well as for other reasons. At the end of this rigorous selection process, up to 10 journals met all criteria and were included in the systematic review. These ten journals are derived from the included studies and will be further analysed to answer the research questions formulated.

RESULTS AND DISCUSSION

Table 1. Synthesis of Systematic Literature

No	Author	Heading	Method/ Sample	Researchers' Findings	Relevance to the Topic
1	Semieniuk et al (2025)	Best of times, worst of times: record fossil-fuel profits, inflation and inequality	Analysis of company financial reports, comprehensive ownership data, and network models for profit propagation through stock ownership. Sample: publicly listed global oil and gas companies, Global (focus on the United States)	Net income of publicly listed oil and gas companies reached US$916 billion in 2022. The United States became the largest beneficiary with claims of US$301 billion. 50% of profits in the US went to the richest 1% of individuals, while the bottom 50% received only 1%. These profits exacerbate inflation inequality and reinforce racial, ethnic, and educational inequality.	Highly relevant - demonstrates the magnitude of revenue and profit in the oil and gas industry, as well as its distribution through stock ownership, which requires proper accounting treatment in financial reporting
2	Lartey (2024)	Government responses to oilfield discoveries: Impact of resource wealth on non-resource tax revenues	Exploitation of exogenous variation in the timing of giant oilfield discoveries to estimate the causal impact of natural resources on taxation. Cross-country (focus on low-middle income countries)	Non-resource tax revenues tend to increase after discovery, before production begins, and after production is underway, mainly due to increases in non-resource indirect tax revenues. This effect mainly occurs in low- to middle-income countries, driven by increased consumption of goods and services.	Relevant - analyzes the impact of revenue from oil discovery and production on tax structure, which relates to recording and reporting revenue in accounting standards
3	Khalidov et al (2021)	Decommissioning of oil and gas assets: industrial and environmental security management, international experience and Russian practice	Strategic policy analysis of decommissioning in North Sea countries and the Russian legislative framework. Case study of Russian practice in the oil and gas industry Russia (with comparison to the North Sea countries)	In the Russian oil and gas industry, there are no technical regulations that establish unified rules and standards for the formation of abandonment funds and field decommissioning. There is uncertainty about tax guidelines for completing operations at production facilities. Issues of proper accounting and financial reporting for these costs are increasingly urgent.	Highly relevant - identifies challenges in accounting and financial reporting related to decommissioning assets, abandonment funds, and compliance with accounting standards for field closure costs
4	Hansen (2022)	Stranded assets and reduced profits: Analysing the economic underpinnings of the fossil fuel industry's resistance to climate stabilization	Methodology that mimics the expectations and valuation procedures used by fossil fuel companies. Scenario analysis of 1.8°C and 1.5°C climate stabilization for the	Fossil fuel reserves will decline by 37%-50%, to $13-$17 trillion. 51%-63% of reserve devaluation comes from price declines, not from fuel left in the ground. Three-quarters of	Highly relevant - analyses asset valuation, stranded assets, and their implications for financial reporting of oil and gas companies, as well

			upstream fossil fuel industry Global (focus on the upstream fossil fuel industry)	stranded assets are owned by governments. Analysis shows historical profit margins between fossil fuel and renewable energy companies.	as accounting treatment for asset impairment
5	Fiechter et al (2024)	Do industry-specific accounting standards matter for capital allocation decisions?	An empirical study using company data before and after the implementation of industry-specific accounting standards. Analysis of company capital growth and capital allocation decisions Cross-country (various industries, including oil and gas)	Implementing industry-specific accounting standards increases a company's capital growth, especially through equity issuance. The effect is more significant for: (i) industry standards that disclose new information, provide explicit guidance, or improve accounting uniformity, and (ii) small companies with greater information asymmetry. Two channels explain the increase in capital flows: a reduction in information asymmetry and an improvement in the comparability of financial statements.	Highly relevant - demonstrates the importance of industry-specific accounting standards (such as for oil and gas) in improving financial reporting quality, accounting uniformity, and capital allocation decisions
6	Durand-Lasserve & Karanfil (2023)	Fiscal policy in oil and gas-exporting economies: good times, bad times, and ugly times	Unique database of oil and gas fiscal revenue for 30 countries. Unbalanced panel for the period 2000-2020. Novel framework to identify asymmetries in public expenditure responses to oil and gas revenue 30developing energy-exporting countries	Fiscal policy is generally procyclical but neutral when revenue is high and declining. The greatest level of procyclicality occurs when revenue is low but increasing. Financial openness increases procyclicality only in low revenue regimes. IMF programs are associated with expenditure reductions, regardless of whether oil and gas revenue improves or declines.	Relevant - analyzes oil and gas revenue patterns and their impact on fiscal policy, which requires accurate recording and reporting of revenue according to accounting standards for decision-making
7	Biehl et al (2024)	The real effects of financial reporting: Evidence and suggestions for future research	Systematic review of 94 accounting and finance studies discussing the real effects of financial reporting Global (systematic review)	High-quality financial reporting is positively related to the efficiency of resource allocation of reporting companies. Many studies show a positive association between high-quality financial reporting and efficient resource allocation in the real sector. Internal controls over financial reporting	Relevant - emphasizes the importance of financial reporting quality in efficient resource allocation, which also applies to the oil and gas industry in recording and reporting revenue according to

				and accounting-auditing regulation affect and contribute to real effects.	standards
8	Bibi (2024)	Oil revenues, FDI, and balance of payment dynamics: The case of Kazakhstan between the super cycle commodity boom and financial subordination	Analysis of Kazakhstan's balance of payments, international investment position statistics, and ownership of Kazakhstan's major resources. Analysis period: 1995 to post-supercycle 2003-2014 Kazakhstan	Kazakhstan has experienced a golden age since 1995, driven by large foreign direct investment (FDI) in the oil sector. During the super cycle 2003-2014, Kazakhstan had an extraordinary trade balance but still experienced current account deficits, reinforcing the need for external financial flows. Development strategies based on primary commodity exports, especially fossil fuels, and dependence on external financial flows raise sustainability questions.	Relevant - analyses oil revenue, foreign direct investment in the oil sector, and its impact on the balance of payments, which requires recording and reporting in accordance with international accounting standards
9	Barker (2025)	Corporate sustainability reporting	Conceptual paper discussing fundamental questions about corporate sustainability reporting, including the definition of sustainability, relevance to corporations, components of sustainability reporting, relationship with conventional financial reporting, the role of reporting standards, and the theory of change. Global (conceptual)	Corporate sustainability reporting is an evolving field with fundamental questions about its definition, relevance, and relationship to conventional financial reporting. Reporting standards have an important role. This paper offers policy implications and practical applications by integrating critical issues that require understanding and development.	Moderately relevant - although focused on sustainability reporting, this paper discusses the relationship with conventional financial reporting and the role of reporting standards that are relevant to the oil and gas industry in the context of compliance
10	Alsmady (2022)	Quality of financial reporting, external audit, earnings power, and companies' performance: The case of Gulf Corporate Council Countries	Panel Data Regression analysis (EGLS). Sample: 191 companies in 6 GCC countries (Saudi Arabia, Bahrain, Oman, Qatar, Kuwait, UAE). Period: 2013-2017 (pre-COVID-19). Total: 1337 company-years observations. 6 Gulf Corporate Council (GCC) countries	Earnings power, audit quality, and financial reporting quality positively affect company performance (measured by ROA, M/B, Tobin's Q, and EPS). Agency theory confirms that financial reporting quality and audit quality improve the reliability of financial reports and reduce information asymmetry.	Relevant - demonstrates the importance of financial reporting quality and compliance with standards in improving company performance and reducing information asymmetry, which applies to oil and gas companies in major oil-producing regions

Source: researcher processed data, 2025

Literature Overview

This systematic review analyses ten scientific articles published between 2021 and 2025, reflecting the latest developments in revenue accounting research for the upstream oil and gas sector. The study's geographical distribution is diverse, spanning global perspectives and focusing on the United States, cross-country analyses, Russia, Kazakhstan, and the Gulf Corporate Council (GCC) countries, indicating the global relevance of the issue of oil and gas revenue accounting treatment. From a methodological aspect, the research employs varied approaches, including financial report analysis, empirical studies, strategic policy analysis, panel data regression, and systematic reviews. This methodological diversity highlights the complexity of the oil and gas accounting phenomenon, which requires multifaceted exploration across different research paradigms. Research trends for the 2021-2025 period show a comprehensive focus on revenue magnitude and profit distribution, the impact of resource wealth on fiscal structures, decommissioning accounting challenges, asset valuation and impairment issues, industry-specific accounting standards implementation, and the broader implications of financial reporting quality for resource allocation and company performance. The thematic classification identifies five main areas: revenue recognition and profit distribution in the oil and gas sector; fiscal and tax implications of resource revenue; asset management and decommissioning accounting; industry-specific accounting standards and their effects on capital allocation; and financial reporting quality and its impact on company performance. These findings confirm that oil and gas accounting research encompasses not only standard technical aspects but also considers the broader dimensions of economic inequality, fiscal policy, environmental obligations, capital markets, and corporate governance (Khalidov, et all, 2021).

Fiscal and tax implications extend beyond technical revenue issues to broader policy considerations, including how resource rents are shared between companies and governments and how tax avoidance or incentives affect national revenue streams (Xiao & Watson, 2017). Studies in the oil, gas, and mining sectors indicate that fiscal policy design and corporate tax practices directly shape corporate behaviour and public resource allocation decisions, though findings on tax avoidance behaviour remain mixed and context-dependent. Additionally, asset retirement obligations and decommissioning accounting have emerged as focal areas due to regulatory liabilities and environmental stewardship concerns, with the literature documenting challenges in estimating future decommissioning costs and the variability in disclosure quality among listed entities. Concurrently, research on financial reporting quality shows that robust reporting frameworks, shaped by standards such as IFRS and governance quality, significantly affect investor perceptions, capital allocation efficiency, and firm outcomes in capital markets, linking accounting

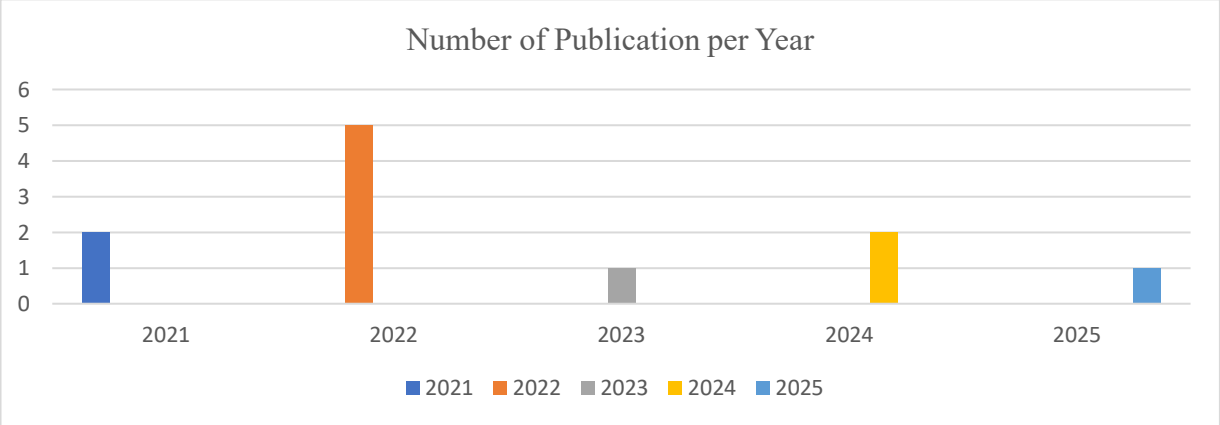
practices to performance indicators beyond mere compliance (Allawiyah & Hertina, 2025).

Table 2. Distribution of Literature Characteristics

Characteristic	Category	Sum	Percentage
Publication Period	2021-2022	3	30%
	2023-2025	7	70%
Geographic	Global/multi-country	4	40%
	United States	1	10%
	Russia	1	10%
	Kazakhstan	1	10%
	GCC Countries	1	10%
	Cross-country	2	20%
Methodology	Quantitative/Empirical	4	40%
	Qualitative/Case Study	2	20%
	Systematic Review	1	10%
	Conceptual	1	10%
	Mixed Methods	2	20%
Journal Rate	Q1	9	90%
	Q2	1	10%
Publication Year	2021	1	10%
	2022	2	20%
	2023	1	10%
	2024	4	40%
	2025	2	20%

Source: researcher processed data, 2025

Figure 2. Distribution of Publications by Year (2021-2025)



Source: researcher processed data, 2025

Revenue Accounting Treatment Practices in Upstream Oil and Gas Companies

The implementation of revenue recognition standards in the upstream oil and gas industry is complex, particularly regarding the magnitude and distribution of revenues. Semienjuk (2025) reported that the net income of publicly listed oil and gas companies reached US$916 billion in 2022, with the United States as the largest beneficiary, accounting for US$301 billion. This substantial revenue magnitude requires proper accounting treatment in financial reporting to ensure

accurate representation of the company's financial performance. The distribution pattern shows that 50% of profits in the US accrued to the richest 1% of individuals through stock ownership, while the bottom 50% only received 1%, highlighting the critical importance of transparent revenue accounting practices.

The accounting treatment for revenue in oil and gas companies involves complex considerations related to resource wealth and fiscal structures. Lartey (2024) identified that non-resource tax revenues tend to increase after oilfield discovery, before production begins, and after production is ongoing, mainly from increases in non-resource indirect tax revenues. This effect, particularly pronounced in low-middle income countries and driven by increased consumption of goods and services, underscores the intricate relationship between oil and gas revenue recognition and broader fiscal implications. The timing of revenue recognition from discovery through production phases requires careful accounting treatment to ensure compliance with applicable standards.

In the context of asset management and long-term obligations, Khalidov (2021) revealed critical challenges in accounting for decommissioning activities. In the Russian oil and gas industry, there are no technical regulations that establish unified rules and standards for the formation of abandonment funds and field decommissioning. Uncertainty about tax guidelines for completing operations at production facilities makes proper accounting and financial reporting for these costs increasingly urgent. This finding highlights the need for comprehensive accounting frameworks that address not only current revenue recognition but also long-term environmental and decommissioning obligations.

The valuation aspects of oil and gas assets add complexity to revenue accounting. Hansen (2022) found that fossil fuel reserves will experience a 37%-50% devaluation, reaching $13-$17 trillion, with 51%-63% of the devaluation coming from price declines rather than from fuel left in the ground. Three-quarters of stranded assets are owned by governments. These findings have significant implications for accounting treatment of asset impairment and the recognition of potential losses that may affect future revenue streams, requiring sophisticated measurement and disclosure practices in financial reporting.

Level of Compliance with Financial Accounting Standards

The compliance analysis reveals the critical importance of industry-specific accounting standards in enhancing financial reporting quality. et al. (2024) demonstrated that adopting industry-specific accounting standards increases companies' capital growth, particularly through equity issuance. The effect is more significant for industry standards that disclose new information, provide explicit guidance, or improve accounting uniformity, and for small companies with greater

information asymmetry. Two channels explain the increase in capital flows: a reduction in information asymmetry and an improvement in financial statement comparability. These findings indicate that compliance with specialized accounting standards for the oil and gas industry yields tangible benefits for capital allocation efficiency.

The quality of financial reporting and compliance with standards directly impacts company performance metrics. Alsmady (2022) found that earnings power, audit quality, and financial reporting quality have positive effects on company performance, as measured by ROA, market-to-book ratio, Tobin's Q, and EPS, in Gulf Corporate Council countries. Agency theory confirms that financial reporting quality and audit quality improve the reliability of financial reports and reduce information asymmetry. This evidence from major oil-producing regions demonstrates that compliance with financial accounting standards is not merely a regulatory requirement but a strategic imperative that enhances stakeholder confidence and corporate valuation.

The broader implications of financial reporting quality extend to resource allocation efficiency in the real economy. Biehl, et all (2024) Conducted a systematic review of 94 studies and found that high-quality financial reporting is positively related to the efficiency of resource allocation of reporting companies. Many studies show a positive association between high-quality financial reporting and efficient resource allocation in the real sector, with internal controls over financial reporting and accounting-auditing regulation affecting and contributing to these real effects. For the oil and gas industry, this underscores that compliance with accounting standards for revenue recognition and reporting is essential to the optimal allocation of capital resources. The fiscal dimension of compliance reveals asymmetric patterns in policy responses to revenue fluctuations. Durand-Lasserve & Karanfil (2023) analyzed 30 developing energy-exporting countries and found that fiscal policy is generally procyclical but neutral when facing high revenue that is declining. The greatest level of procyclicality occurs when revenue is low but increasing, and financial openness increases procyclicality only in low revenue regimes. These findings suggest that accurate recording and reporting of oil and gas revenue in accordance with accounting standards are crucial for informed fiscal policy decisions and macroeconomic stability.

Table 3. Compliance Levels and Standard Implementation Challenges

Compliance Aspects	Key Findings	Country	Reference
Industry-Specific Standards	Implementation increases capital growth and reduces information asymmetry	Cross-country	Fiecher, et all (2024)
Financial Reporting Quality	Positive impact on company performance (ROA, Tobin's Q, EPS)	GCC Countries	Alsmady (2022)
Resource Allocation Efficiency	High-quality reporting enhances efficient resource allocation	Global	Biehl, et all (2024)
Decommissioning	Lack of unified standards creates	Russia	Khalidov et al. (2021)

Accounting	reporting challenges		
Asset Valuation & Impairment	Need for proper accounting treatment of stranded assets	Global	Hansen (2022)
Revenue Recording Accuracy	Critical for fiscal policy decision-making	30 Energy Exporters	Durand-Lasserve & Karanfil (2023)

Source: researcher processed data, 2025

Challenges and Critical Issues in Implementation

The complexity of accounting for environmental obligations represents a significant implementation challenge. Khalidov, et al (2021) identified that in the Russian oil and gas industry, there are no technical regulations for unified rules and standards governing the formation of abandonment funds and field decommissioning. Uncertainty about tax guidelines for completing operations at production facilities makes proper accounting and financial reporting for these costs increasingly urgent. This gap between industry practice and accounting standard requirements creates substantial challenges for companies attempting to accurately represent their long-term environmental liabilities in financial statements.

The challenge of asset valuation in the context of energy transition poses unprecedented accounting difficulties. Hansen (2022) revealed that fossil fuel reserves will experience a devaluation of 37%-50%, reaching $13-$17 trillion, with the majority of the devaluation stemming from price declines rather than reserves being stranded. The analysis shows that three-quarters of stranded assets are owned by governments, complicating the accounting treatment because they involve both private and public-sector entities with different reporting frameworks. The historical profit margin analysis between fossil fuel and renewable energy companies suggests that accounting standards must evolve to address the unique valuation challenges posed by climate-stabilization scenarios and the potential obsolescence of fossil-fuel assets. The magnitude and concentration of profits in the oil and gas sector create challenges for transparent financial reporting. Semieniuk et al. (2025) documented that 50% of the US$301 billion in profits claimed by the United States went to the richest 1% of individuals, while the bottom 50% received only 1%. This extreme concentration of wealth through stock ownership structures requires sophisticated accounting treatments for complex ownership arrangements, profit distribution mechanisms, and the propagation of benefits through investment networks. The findings indicate that accounting standards must address not only the technical aspects of revenue recognition but also the transparency of how these revenues ultimately flow to various stakeholder groups.

The fiscal volatility associated with oil and gas revenues presents challenges for consistent accounting practices. Durand-Lasserve & Karanfil (2023) found that the greatest level of fiscal procyclicality occurs when revenue is low but increasing, and that IMF programs are associated with expenditure reductions regardless of whether oil and gas revenue improves or declines. This

asymmetric behaviour in fiscal responses to revenue fluctuations suggests that accounting standards must provide sufficient granularity and timeliness in revenue reporting to enable appropriate policy responses. The finding that financial openness increases procyclicality only in low revenue regimes further complicates the accounting challenge, as reporting must accommodate different policy environments and their varying information needs.

Research Gap and Recommendations

Table 4. Identified Research Gaps in Oil and Gas Revenue Accounting

Research Gap Category	Specific Gap Description	Current Evidence	Priority Level
Asset Valuation & Climate Risk	Limited research on accounting frameworks for stranded assets and carbon pricing mechanisms	Hansen (2022) identified $13–$17 trillion in potential devaluation, but accounting treatment frameworks remain underdeveloped	High
Decommissioning Standards	Insufficient cross-jurisdictional studies on best practices for abandonment fund accounting	Khalidov et al. (2021) revealed gaps in Russian standards; comparative analysis across jurisdictions is limited	High
Revenue Distribution Transparency	Scarce research on how accounting choices affect the transparency of profit distribution patterns	Semieniuk et al. (2025) showed extreme inequality (1% receiving 50% of profits), but the accounting treatment implications were unexplored	Medium
Cross-Country Compliance	Minimal comparative studies of compliance effectiveness across institutional contexts	Fiechter et al. (2024) demonstrated positive effects, but implementation factors across contexts are understudied	Medium
Integration of Sustainability Reporting	Limited research on integration frameworks between financial and sustainability reporting	Barker (2025) conceptualized the relationship, but empirical studies on integration mechanisms are lacking	Medium
Fiscal Policy Accounting Interface	Insufficient studies on optimal revenue reporting granularity for fiscal policy decision-making	Durand-Lasserve & Karanfil (2023) identified asymmetric fiscal responses, but the accounting standard implications were not examined	Low

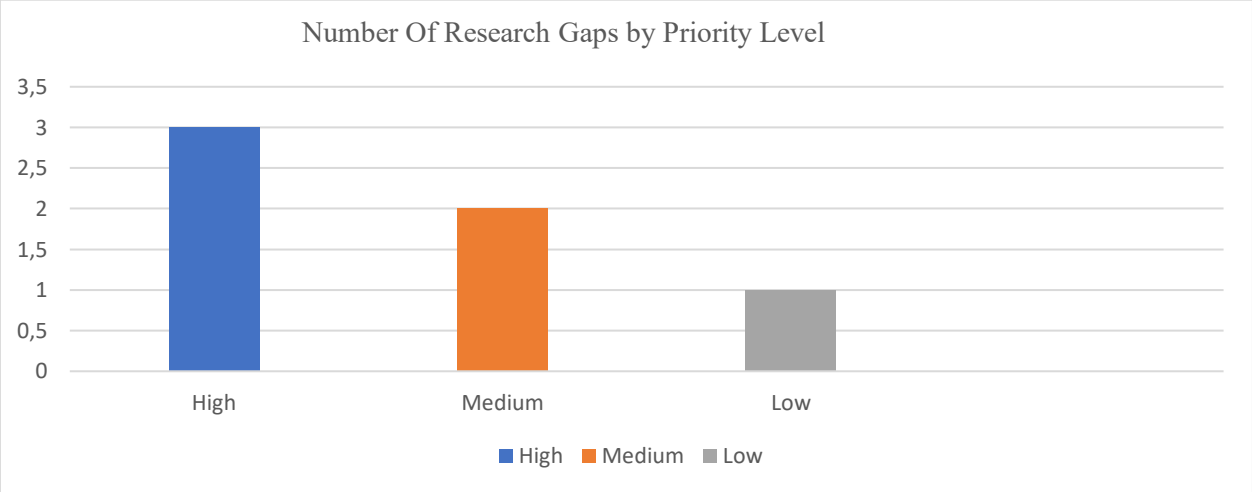
Source: researcher processed data, 2025

The gap identification points to several critical areas requiring further research. First, there is limited research analysing the accounting treatment of the intersection of traditional fossil-fuel asset valuation and emerging carbon pricing mechanisms or stranded-asset risks. Hansen (2022) highlighted the massive scale of potential asset devaluation, but research on appropriate accounting frameworks to reflect these risks in financial statements remains insufficient. Second, while Khalidov et al. (2021) identified significant gaps in decommissioning accounting standards, there is a need for comprehensive studies that examine best practices across different regulatory jurisdictions and assess their effectiveness in ensuring adequate provision for long-term environmental obligations.

Third, research examining the distributional implications of different revenue accounting treatments is scarce. Semieniuk et al. (2025) demonstrated extreme inequality in profit distribution,

but studies analysing how different accounting choices for revenue recognition, profit allocation, and ownership structures affect transparency and stakeholder awareness are limited. Fourth, cross-country comparative studies of compliance effectiveness across different institutional contexts remain minimal. While Fiechter et al. (2024) showed positive effects of industry-specific standards, research examining implementation challenges and success factors across diverse regulatory environments is needed.

Figure 2. Priority Level of Research Gaps



Source: researcher processed data, 2025

Recommendations for practice include developing comprehensive accounting guidelines that specifically address decommissioning obligations and abandonment fund accounting, as identified by Khalidov et al. (2021). Industry-specific standards should provide explicit guidance on the recognition, measurement, and disclosure of long-term environmental liabilities to reduce practice variation and enhance comparability. Based on Alsmady (2022), strengthening audit quality and internal controls over financial reporting should be prioritized to enhance the reliability of revenue reporting in the oil and gas sector. For standard-setters, evidence from Fiechter et al. (2024) suggests that developing or refining industry-specific accounting standards for the oil and gas industry should focus on reducing information asymmetry and improving accounting uniformity, as these channels demonstrably enhance capital allocation efficiency. Given Hansen's (2022) findings on stranded assets, accounting standard setters should consider developing specific guidance on impairment testing and disclosure requirements that adequately reflect climate-related risks and the potential obsolescence of fossil fuel reserves.

Future research agendas should prioritize longitudinal studies examining the long-term effects of different revenue accounting treatments on investment decisions, capital allocation, and company valuation in the oil and gas sector. Building on Biehl et al. (2024), research should

investigate the mechanisms through which high-quality financial reporting in the oil and gas industry translates into efficient resource allocation and identify factors that strengthen or weaken these mechanisms. Studies examining the integration of sustainability reporting and conventional financial reporting, as suggested by Barker (2025), would provide valuable insights into comprehensive disclosure frameworks appropriate for the energy transition era. Finally, research analyzing the effectiveness of different regulatory and enforcement mechanisms in ensuring compliance with accounting standards across diverse institutional contexts, building on the fiscal policy patterns identified by Durand-Lasserve & Karanfil (2023), would contribute to evidence-based policy development.

CONCLUSION

This systematic review of ten studies (2021-2025) reveals that revenue accounting treatment in upstream oil and gas companies is multifaceted, encompassing revenue recognition, asset valuation, decommissioning obligations, and compliance with industry-specific standards. The findings demonstrate that proper accounting treatment is critical, given the substantial revenue magnitude (US$916 billion in 2022) and its concentrated distribution. Implementation of industry-specific accounting standards significantly enhances capital allocation efficiency by reducing information asymmetry and improving comparability of financial statements, with demonstrable positive effects on company performance metrics, including ROA, Tobin's Q, and EPS. However, critical challenges persist, particularly in accounting for decommissioning obligations, where unified standards remain absent; asset valuation amid potential devaluations of US$13-17 trillion due to stranded assets; and transparent reporting of profit distribution mechanisms.

Despite these contributions, this review acknowledges several limitations. The geographic concentration in developed economies and major oil-producing regions limits generalizability to emerging markets with different institutional contexts. The predominance of quantitative methodologies may overlook nuanced implementation challenges revealed through qualitative approaches. The temporal scope (2021-2025) captures recent developments but may not reflect long-term trends in the evolution of accounting practice. Future research should prioritize longitudinal comparative studies across diverse regulatory jurisdictions, examine the integration frameworks between financial and sustainability reporting in the energy transition context, and investigate the mechanisms linking accounting quality to resource allocation efficiency. Cross-jurisdictional studies on decommissioning accounting best practices and empirical research on accounting treatments for climate-related risks and stranded assets remain critically needed to advance both theoretical understanding and practical guidance in this evolving field.

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