

Review Article

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Recalibrating Indonesia's Proposed Single Trade Entity for Palm Oil, Coal and Ferroalloy Exports: A Review on Trade Misinvoicing, State Capacity and Commodity Governance

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ABSTRACT

Indonesia's proposed establishment of a single trade entity for palm oil, coal and ferroalloy exports reflects a legitimate concern about under-invoicing, misinvoicing, transfer-pricing abuse and foreign-exchange leakage in natural-resource trade. Trade misinvoicing is widely recognised in the international economics literature as a mechanism through which firms may evade taxes, shift capital, distort customs records and weaken fiscal capacity. Recent literature on multinational profit shifting also shows that cross-border related-party transactions can be used to move taxable income away from source countries, particularly where tax authorities face informational and enforcement constraints. This article develops a qualitative literature-based analysis, rather than a systematic literature review, of Indonesia's proposed single-exporter policy. It argues that the policy objective is normatively defensible, but that a monopoly commercial exporter may be an institutionally disproportionate instrument for solving an information, valuation and enforcement problem. Palm oil, coal and ferroalloy exports involve heterogeneous products, specialised contracts, quality adjustment, shipping logistics, futures-market exposure, currency risk, working-capital needs and long-term buyer relationships. These characteristics mean that replacing existing trading networks with a single state-controlled commercial channel could create market disruption, fiscal risk and new rent-seeking opportunities. Drawing on literature on shadow economies, trade misinvoicing, transfer pricing, state capacity, natural-resource governance and regulatory design, this article proposes an alternative model: a single supervisory and data-integrating entity rather than a single monopoly exporter. Under this model, the state would require transaction-level digital reporting, letter-of-credit or verified-payment discipline, independent surveyor verification, beneficial-ownership disclosure, benchmark-price analytics, risk-based audit and artificial-intelligence-supported anomaly detection. The article concludes that Indonesia should strengthen state visibility over natural-resource exports without unnecessarily centralising commercial decision-making. This approach is more consistent with recent evidence on tax administration, customs enforcement and institutional quality.

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Introduction

Natural-resource-exporting economies face a persistent governance dilemma because the same commodities that generate foreign exchange and public revenue can also create incentives for rent extraction, tax avoidance and capital flight [1-2]. This dilemma is particularly important for countries whose export baskets include high-value commodities that differ by quality, grade, timing, destination, delivery terms and contractual structure [3-4]. Indonesia's proposed policy to establish a single trade entity for palm oil, coal and ferroalloy exports should therefore be analysed not only as a trade-policy proposal but also as a state-capacity reform aimed at improving the government's ability to observe, verify and tax natural-resource transactions [5-6].

The policy material underlying this article presents PT Danantara Sumber Daya Indonesia, or PT DSI, as a proposed government-designated entity through which exports of crude palm oil, coal and ferroalloy would be channelled to reduce leakage of foreign

exchange and state revenue. The same material identifies under-invoicing, misinvoicing and transfer pricing as key practices that may reduce fiscal revenue, distort official trade data and weaken macroeconomic governance. It also recognises, however, that a single-exporter design may create very large operational burdens because the entity would need to deal with producers, banks, commodity exchanges, importers, shipping companies, insurers, warehouses and quality-verification actors across three different commodity sectors.

The policy concern is legitimate because trade misinvoicing is a documented channel of tax evasion and illicit financial movement. Fisman and Wei's study of China's trade with Hong Kong shows that discrepancies in reported trade values can respond systematically to tax incentives, suggesting that firms adjust reported values when the expected gains from evasion exceed expected enforcement costs [7]. It has been demonstrated that differentiated products are more vulnerable to evasion than homogeneous products because greater product heterogeneity increases the discretion available in customs valuation [3]. It has been further shown that misreporting is associated with both tariff incentives and governance conditions, meaning that misinvoicing is not simply a technical customs problem but a broader institutional problem [4].

The problem is also connected to transfer pricing because multinational and related-party transactions may allow profits to be shifted away from the country where production occurs. It has been shown that intra-firm trade prices can respond to tax incentives, while it has been provided firm-level evidence that multinational firms may adjust related-party prices in ways consistent with profit-shifting incentives [8-9]. More recent literature confirms that developing countries can be especially exposed to multinational tax avoidance because they often have weaker administrative capacity, greater reliance on source-based taxation and more limited access to cross-border information [6,10]. It has been estimated that a substantial share of multinational profits is shifted to tax havens, reinforcing the argument that source countries need stronger data, audit and enforcement tools [2].

Nevertheless, the existence of misinvoicing does not automatically justify the creation of a monopoly exporter. A policy instrument should be evaluated according to whether it addresses the actual market and governance failure at the lowest institutional cost [11]. If the central problem is information asymmetry between exporters and the state, then the first-best practical reform may be stronger disclosure, verification, payment tracing, and risk-based audit rather than the full replacement of existing trading networks. If the central problem is abusive related-party pricing, then the appropriate instrument may be transfer-pricing documentation, benchmark-price comparison, and tax audit rather than state monopoly trading [6,10]. If the central problem is misclassification of commodities, then the relevant instruments are product testing, independent surveyor reports, and customs-classification enforcement [3,4].

This article therefore asks the following research question: **How should Indonesia's proposed single trade entity for palm oil, coal and ferroalloy exports be evaluated in light of the qualitative literature on trade misinvoicing, transfer pricing, state capacity and commodity governance?** The article argues that the policy objective should be supported, but that the original single-exporter design should be modified into a single supervisory and data-integrating entity. Such a model would preserve the commercial functions performed by existing producers and traders while strengthening the state's capacity to detect abnormal prices, false classification, related-party manipulation and suspicious payment flows.

The article makes three contributions. First, it reframes the Indonesian proposal as a problem of state information capacity rather than merely as a problem of export-channel ownership. Second, it explains why palm oil, coal and ferroalloy trade is operationally too complex to be centralised without significant institutional risk. Third, it proposes a compliance architecture that combines transaction-level reporting, independent verification, benchmark analytics, banking data, beneficial-ownership disclosure and artificial-intelligence-supported risk detection. This approach is consistent with the broader literature showing that effective fiscal governance requires the state to collect and process reliable information before it can enforce tax and trade rules [5,6,12].

Methodology: Qualitative Literature Research

This article uses qualitative literature research rather than a systematic literature review. A systematic literature review normally requires a formal search protocol, database selection, inclusion criteria, exclusion criteria, screening procedure, and reproducible coding framework. A qualitative literature research

article, by contrast, uses relevant scholarship to interpret a policy problem, build conceptual categories, and assess the coherence of alternative institutional designs [11]. This method is appropriate because the Indonesian single-trade-entity proposal is a recent and evolving policy issue for which the central question is not yet the statistical measurement of policy impact but the institutional evaluation of policy design.

The literature used in this article is organised around six themes. The first theme is the shadow economy and fiscal capacity because under-reported activity reduces the state's ability to collect revenue and design policy based on accurate data [5,13]. The second theme is trade misinvoicing because the proposed policy explicitly targets under-invoicing and misclassification in export transactions [3,4,7]. The third theme is transfer pricing and multinational profit shifting because natural-resource exporters may use related-party transactions to move profits into lower-tax jurisdictions or trading hubs [2,8,9,10]. The fourth theme is state capacity because the policy depends on the government's ability to observe, verify, and enforce complex commodity transactions [5,12]. The fifth theme is natural-resource governance. After all, resource rents can support development only when institutions prevent rent seeking and revenue leakage [1]. The sixth theme is regulatory proportionality because institutional reforms should solve the identified problem without creating larger market distortions [11].

The article treats the Indonesian policy material as a primary policy document and the peer-reviewed literature as the analytical framework. The policy document provides the problem diagnosis, the proposed institutional mechanism, and the alternative design suggested by the presenter. The literature provides the criteria for evaluating whether the proposed mechanism is likely to address the problem efficiently and fairly. This method allows the article to combine policy relevance with academic grounding.

The article relies heavily on journal articles with DOI links. Some foundational studies published before 2020 are retained because they remain canonical in the literature on trade misinvoicing, transfer pricing, state capacity and the resource curse. Recent post-2020 sources are used especially for profit shifting, multinational tax avoidance and developing-country exposure to tax-base erosion [2], [6], [10]. This combination is necessary because the most precise literature on trade misinvoicing includes older foundational empirical studies, while the most recent literature provides updated evidence on multinational tax planning and administrative vulnerability.

Thematic Findings

Shadow Economy, Natural-Resource Rents and Fiscal Capacity

A shadow economy consists of economic activities that are partly or fully hidden from public authorities, whether to avoid taxation, regulation, labour rules, foreign-exchange obligations or legal restrictions [13,14]. Shadow-economy activity matters for public finance because hidden income and under-reported transactions reduce the tax base and weaken the credibility of official statistics [12,13,15]. In natural-resource sectors, the fiscal problem is especially serious because royalties, income taxes, export levies and foreign-exchange rules often depend on accurate reporting of quantity, quality, price and ownership structure [1,6,16,17].

The Indonesian policy concern therefore fits a broader theoretical pattern: when the state cannot observe the true value of transactions, private actors can appropriate part of the resource rent that should

be shared through the fiscal system [1,5] Contemporary studies further demonstrate that improvements in fiscal capacity depend not only on taxation itself but also on institutional transparency, digital information systems and administrative quality, all of which strengthen governments' ability to monitor complex economic activities [18,19,20]. Natural-resource governance literature consistently shows that countries possessing abundant resource rents achieve better developmental outcomes only when institutions effectively limit rent extraction, political capture, and corruption [21,22]. Consequently, Indonesia is justified in viewing under-invoicing and trade misinvoicing as strategic governance challenges rather than isolated administrative irregularities [23,24].

However, fiscal leakage does not necessarily imply that commercial trade should be monopolised by the state. State capacity encompasses at least two distinct dimensions: the capability to participate directly in markets and the capability to regulate markets effectively through information, monitoring and enforcement [5]. Modern tax administration increasingly relies upon third-party reporting, integrated digital databases, risk-based compliance management and electronic audit trails rather than direct state ownership of commercial transactions [12,25,26], [27]. Evidence from revenue administrations across developing economies similarly indicates that digitalisation substantially improves tax compliance while preserving market competition [19, 28]. Therefore, the relevant policy question is whether a single commercial exporter provides greater informational advantages

than a supervisory platform requiring all exporters to disclose, verify and justify transactions.

The distinction between **commercial centralisation** and **information centralisation** is fundamental. Commercial centralisation requires the government to assume operational trading responsibilities, whereas information centralisation focuses on obtaining complete, timely and verifiable transaction information while leaving commercial activities to market participants. Research on customs modernisation, regulatory governance and tax administration suggests that information transparency generally produces more sustainable improvements in compliance than replacing competitive markets with administrative monopolies [18,25,27,29]. Accordingly, the literature provides stronger support for information centralisation because trade misinvoicing primarily reflects deficiencies in information quality, transparency, and enforcement rather than shortcomings in market structure itself [7]. Although a single commercial exporter could increase transaction visibility, it may simultaneously generate administrative bottlenecks, governance risks, and concentrated opportunities for rent seeking [11].

Figure 1 summarises the principal channels through which under-invoicing, trade misinvoicing and transfer-pricing practices reduce Indonesia's fiscal capacity by weakening tax collection, foreign-exchange inflows and the government's ability to monitor natural-resource exports.

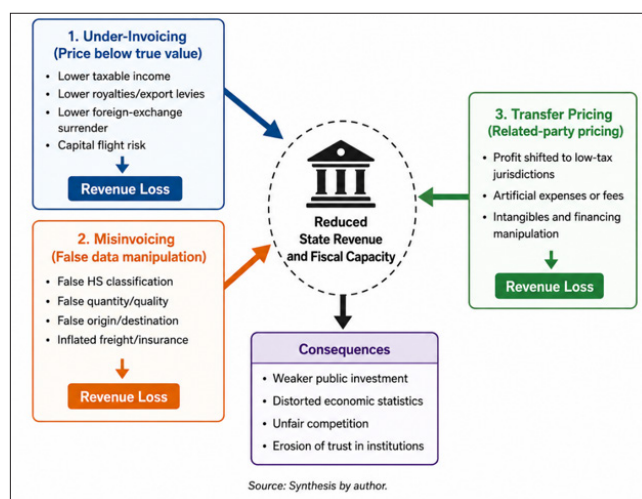


Figure 1: demonstrates that under-invoicing, trade misinvoicing and transfer pricing ultimately converge in reducing public revenue despite operating through different mechanisms. Beyond immediate tax losses, these practices weaken customs administration, reduce foreign-exchange repatriation, distort official trade statistics and undermine macroeconomic policymaking [2,6,10]. The figure therefore reinforces the broader literature arguing that strengthening information quality, institutional coordination and transaction transparency represents one of the most effective approaches for improving fiscal capacity in resource-dependent economies [5,19,20].

Under-Invoicing and Misinvoicing in International Trade

Under-invoicing occurs when exporters or importers declare a value below the true transaction value. Export under-invoicing may be used to reduce income tax, royalties, export levies or foreign-exchange surrender obligations. Import under-invoicing may be used to reduce tariffs, value-added tax or customs duties. The general logic is that firms compare the expected gain from misreporting with the expected penalty, which depends on the probability of detection and the severity of sanctions [12,30].

Misinvoicing is broader than under-invoicing because it can include false product classification, false origin, false destination, false quality, false quantity, or manipulation of freight and insurance components. Product misclassification is especially relevant where different Harmonised System codes are subject to different export restrictions, tax rates, royalty rules or industrial-policy measures [3,4]. In commodity sectors, misclassification can also involve quality manipulation, such as declaring a lower grade of coal or a different grade of mineral product to justify a lower declared price.

Recent empirical evidence further indicates that trade misinvoicing increasingly exploits complex global value chains, digital documentation and related-party commercial arrangements, making traditional customs inspection alone insufficient. Consequently, customs authorities increasingly combine mirror-trade analysis, risk analytics, electronic invoicing and integrated customs databases to identify suspicious transactions while minimising disruption to legitimate trade [25, 29, 31].

The empirical literature shows that trade misinvoicing responds to incentives and enforcement conditions. It has been found that higher tax rates are associated with larger discrepancies between export and import records in China-Hong Kong trade, which implies that documentary manipulation can be economically motivated [7]. It has been found that differentiated products are more vulnerable to tariff evasion than homogeneous products, which implies that valuation uncertainty creates room for misreporting [3]. It has been shown that misreporting is related not only to tariffs but also to corruption and auditing standards, which implies that institutional quality shapes the scale of evasion [4].

These findings are directly relevant to palm oil, coal and ferroalloy exports because commodity prices vary systematically according to quality, contractual terms, certification status, shipment timing and destination markets. Agricultural commodity markets further exhibit considerable seasonal variation and international benchmark dependence, while mineral commodities depend heavily upon technical product specifications and long-term industrial contracts [31-33]. Consequently, enforcement cannot rely upon a single benchmark price but instead requires multidimensional valuation models incorporating product quality, delivery conditions, contractual arrangements and buyer relationships.

The literature also warns that mirror-trade discrepancies should be interpreted carefully. Mirror statistics compare one country's recorded exports with the partner country's recorded imports, but discrepancies may arise from legitimate factors such as re-exports, valuation basis, timing differences, freight and insurance treatment, exchange-rate conversion or trans-shipment through hubs [4]. This warning is important for Indonesia because trade routed through Singapore or Hong Kong may be recorded differently across jurisdictions. Therefore, mirror statistics should be used as risk indicators, not as conclusive proof of fraud [34-37].

A single exporter may reduce some documentary discrepancies by consolidating documentation within one institution, but such an arrangement does not eliminate the underlying valuation challenge. Without specialised commercial expertise, centralised entities may continue to depend upon information supplied by exporters while simultaneously introducing operational bottlenecks and governance risks. The literature therefore increasingly recommends strengthening customs intelligence, digital reporting, benchmark-price analytics and risk-based audit systems rather than replacing competitive commodity markets with monopoly trading institutions [18, 25, 29].

Transfer Pricing and Related-Party Commodity Trade

Transfer pricing refers to the pricing of transactions between related parties within the same multinational enterprise or corporate group. Transfer pricing is not illegal in itself because related companies must price internal transactions, but it becomes a fiscal problem when prices depart from arm's-length conditions to shift taxable income across jurisdictions [8, 9]. Commodity-exporting countries are vulnerable to transfer-pricing abuse when producers sell to affiliated trading companies located in lower-tax jurisdictions or trading hubs [6, 10].

Empirical literature shows that multinational firms may adjust intra-firm prices in response to tax incentives. It has been found that U.S. intra-firm trade prices are consistent with tax-motivated profit shifting [9]. It has been found that foreign-owned firms adjust transfer prices in ways that respond to corporate tax differences [8]. It has been reviewed and been concluded that international corporate tax avoidance occurs through multiple channels, including transfer pricing, debt shifting, and strategic location of intangible assets [10]. It has been shown that less developed countries can be more exposed to multinational tax avoidance because enforcement resources and information access are often weaker [6].

In natural-resource exports, transfer-pricing risk is not limited to declared product price. It may also arise through management fees, marketing fees, shipping arrangements, insurance charges, financing costs, hedging gains or losses, and resale margins booked by related trading entities. Tørsløv, Wier and Zucman's recent estimates of missing profits show why source countries have incentives to strengthen the monitoring of multinational profit allocation [2]. These findings support Indonesia's concern that natural-resource value may leak offshore through related-party trading structures.

However, the existence of transfer-pricing risk does not imply that all related-party trade is abusive. International commodity trading hubs frequently perform legitimate commercial functions, including price discovery, inventory management, financing, logistics coordination, hedging and market access. Contemporary transfer-pricing literature therefore emphasises distinguishing genuine value-adding commercial activities from artificial profit shifting through functional analysis, comparability assessment and arm's-length pricing methodologies [10, 25, 38]. Accordingly, effective policy should strengthen transparency rather than presume that all affiliated transactions represent tax avoidance.

A single commercial exporter may reduce related-party transfer-pricing opportunities by inserting a state-controlled entity into the transaction chain. However, it may also remove legitimate trading functions that existing firms perform efficiently. A better solution is to require related-party disclosure, beneficial-ownership transparency, benchmark-price justification and enhanced transfer-pricing documentation. This allows the state to audit suspicious transactions without disrupting legitimate commercial networks. Such an approach is more consistent with recent literature emphasising better tax information and enforcement capacity rather than blunt structural intervention [6, 10, 12].

Palm Oil, Coal and Ferroalloy as Complex Commodity Markets

The feasibility of a single trade entity depends fundamentally upon the operational characteristics of the commodities involved. Although palm oil, coal and ferroalloys are all natural-resource exports, each possesses distinct supply chains, pricing mechanisms, quality standards, contractual arrangements and market structures. Research on commodity governance consistently demonstrates that effective regulatory institutions must recognise these sector-specific differences rather than applying uniform administrative solutions across heterogeneous industries [21, 31, 33].

Palm oil is a time-sensitive agro-industrial commodity with strong links to plantations, smallholders, mills, refiners, derivative processors, sustainability certification and futures-market pricing. Price discovery in palm oil is influenced by benchmark markets, contract timing, quality parameters, delivery terms and currency conditions. Because palm oil supply is continuous and physical quality can deteriorate, exporters and traders perform important matching functions between producers, mills, buyers, banks and

shipping providers. A single exporter would need to replace these functions immediately and at scale. If it fails to do so, domestic prices may fall, shipment delays may increase, and producers may face cash-flow pressure [39-46].

Coal is also heterogeneous. Coal value depends on calorific value, ash, sulphur, moisture, mine origin, shipping route, buyer specification, and contract period. A central exporter would require technical capacity to evaluate coal quality, negotiate contracts with utilities and industrial users, manage shipping schedules and reconcile export prices with royalty obligations. Because coal markets are exposed to energy-transition risk and volatile global demand, the entity would also need risk-management capacity. Poorly designed intervention could reduce export reliability and weaken buyer confidence [47-52].

Ferroalloy trade involves even more technical product differentiation. Ferroalloy prices depend on metal content, grade, purity, production process and industrial application. Buyers may require strict specifications because ferroalloys are inputs into steelmaking and other industrial processes. A single exporter that lacks metallurgical and customer-specific expertise could weaken Indonesia's position in industrial supply chains. Therefore, any policy that centralises ferroalloy exports must address technical verification and buyer-specific contract management [53-56].

These commodity-specific characteristics reinforce the argument that the core problem is not only dishonest invoicing but also legitimate valuation complexity. When products vary by grade, timing and contract terms, enforcement requires technical knowledge. A single state trader would need to internalise all this knowledge, while a supervisory entity could instead require disclosure and verification from specialised market participants. The second model is less disruptive because it uses existing market expertise while strengthening the state's audit capacity [57-61].

Figure 2 compares the institutional logic of a monopoly commercial exporter with the proposed supervisory and information-integrating model advocated in this article.

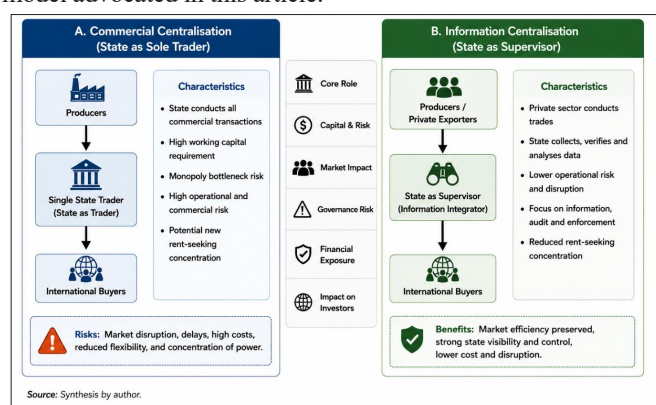


Figure 2: illustrates the institutional distinction between commercial centralisation and information centralisation. Rather than replacing existing commodity markets, the proposed supervisory model enhances transparency by integrating transaction reporting, customs information, banking records and risk analytics while preserving the commercial expertise of specialised market participants. This institutional design aligns with contemporary evidence demonstrating that effective public administration increasingly depends upon integrated information systems, inter-agency cooperation and evidence-based regulatory enforcement rather than direct state participation in commercial markets [19,25,26].

Discussion and Analysis

Evaluating the Single Commercial Exporter Model

The strongest argument for a single commercial exporter is that it may increase state visibility over export transactions. If all exports pass through one designated institution, customs authorities can more easily reconcile prices, shipment volumes, buyers, payment flows, and foreign-exchange receipts across administrative databases. Contemporary tax-administration literature consistently demonstrates that third-party information substantially improves compliance because taxpayers have fewer opportunities to conceal or manipulate transactions when independent information sources are available [12,18,28]. Similarly, research on state capacity argues that governments strengthen fiscal performance when administrative agencies obtain reliable transaction-level information supported by digital verification and inter-agency coordination [5,19,20]. Consequently, improving transaction visibility represents a legitimate policy objective independent of the institutional form ultimately adopted.

A second justification concerns foreign-exchange governance. Requiring export proceeds to pass through verified banking channels could strengthen compliance with foreign-exchange [4,6] regulations, improve balance-of-payments statistics and reduce opportunities for capital flight through trade mispricing. Empirical evidence indicates that trade misinvoicing frequently serves both tax-minimisation and capital-flight objectives, particularly where customs administration and cross-border information exchange remain weak [6,7]. Standardised documentation may also reduce discretionary invoice preparation, thereby improving consistency across customs declarations, banking records and tax filings [25,29].

However, the institutional risks remain substantial. Monopoly trading entities can reduce market flexibility, create administrative congestion and increase dependence on a single organisation's managerial capability. Studies of institutional economics emphasise that organisational concentration often creates additional governance costs when administrative capacity, accountability mechanisms and technical expertise do not expand proportionately [5,1,62]. Commodity markets are particularly sensitive because price volatility, shipping schedules, and financing arrangements require rapid commercial decision-making that may be difficult to centralise within a single administrative institution.

Fourth, monopoly intermediation may unintentionally create new opportunities for rent extraction. Resource-governance literature consistently finds that concentrating authority over valuable natural-resource rents increases corruption risks unless accompanied by strong transparency, accountability and independent oversight institutions [1,21,22]. International experience therefore suggests that improving transparency and auditability is generally more sustainable than concentrating commercial discretion within a single public organisation.

Fifth, a single exporter may increase legal risk for public officials. Commodity trading involves ordinary commercial losses due to price movements, quality disputes, hedging outcomes, currency fluctuations and counterparty default. If such losses are later interpreted as state losses or corruption, managers may become risk-averse. Excessive risk aversion can delay trades, reduce hedging and weaken commercial performance. This is a serious concern because good commodity trading requires timely decisions under uncertainty [63-65].

Sixth, the single-exporter model may damage the investment climate if implemented abruptly. Investors generally value predictable rules, contract continuity, and the ability to manage market risk. A sudden requirement to sell only through a state-designated entity may be perceived as regulatory uncertainty or partial expropriation of market functions. Rodrik's concept of second-best institutions is relevant here because reforms must be adapted to institutional constraints and should not assume that a theoretically neat institutional solution will work under real-world conditions [11,66].

The conclusion from this evaluation is not that Indonesia should ignore misinvoicing. The conclusion is that the single commercial exporter model is a high-risk instrument for a problem that may be better addressed through data, verification, and enforcement.

A More Proportionate Model: as a Supervisory Integrator

A more proportionate institutional model would establish a supervisory and data-integrating entity rather than a monopoly trader. This approach recognises that the principal governance failure concerns information asymmetry rather than private-sector participation itself. Modern regulatory literature increasingly advocates information-centred governance in which public agencies coordinate digital reporting, verification, analytics and risk management while preserving competitive commercial markets [18,25,26,29]. Such a model improves state capacity without unnecessarily replacing existing commodity-trading expertise.

Figure 3 presents the proposed institutional architecture for a supervisory and data-integrating entity connecting customs, taxation, banking, surveyors, and exporters through a unified compliance platform.

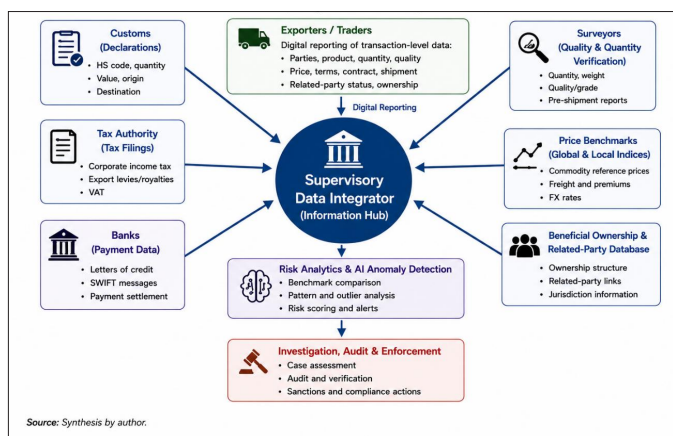


Figure 3: illustrates how the proposed supervisory institution functions as an information integrator rather than a commercial intermediary. By combining customs declarations, banking information, surveyor reports, tax records, benchmark-price databases, and beneficial-ownership disclosures into a unified compliance platform, the system creates multiple independent verification channels for each export transaction. Similar integrated compliance architectures have increasingly been recommended by the OECD, IMF, and customs administrations because they improve audit efficiency while reducing unnecessary regulatory burdens on compliant firms [19,25,26,29].

The first component should be **mandatory transaction-level digital reporting**. Exporters should report seller identity, buyer identity, beneficial ownership, related-party status, commodity

type, Harmonised System code, grade, quantity, quality certificate, benchmark reference, contract price, delivery term, payment method, bank, shipment route, and final destination. This is necessary because tax and customs enforcement depends on high-quality information [5,12]. Digital reporting would also allow customs, tax authorities, the central bank, and trade regulators to compare the same transaction across different databases.

The second component should be **verified payment discipline**. Export transactions in covered sectors should use letters of credit or equivalent bank-verifiable payment instruments where commercially feasible. Verified payment channels reduce the gap between invoice value and actual money flow. They also create third-party information that can support audit and enforcement. Because third-party reporting is central to modern tax compliance, this reform would be more directly aligned with the enforcement problem than monopoly trading [12].

The third component should be **independent surveyor verification**. Surveyors should verify quantity, grade and quality before shipment, especially for high-risk exporters, related-party transactions and shipments with abnormal pricing. For palm oil, this may include free fatty acid content and other quality parameters. For coal, it should include calorific value, ash, sulphur and moisture. For ferroalloys, it should include alloy composition and purity. This mechanism directly addresses the problem that commodity prices vary legitimately by quality and grade.

The fourth component should be **benchmark-price analytics**. The institution should maintain benchmark-price ranges adjusted for quality, timing, destination, freight terms, and contract structure. Transactions outside the expected range should not automatically be treated as fraudulent, because legitimate commercial explanations may exist. However, abnormal transactions should trigger enhanced documentation and possible audit. This approach reflects the literature's warning that valuation discretion creates evasion opportunities, but that price variation can also be legitimate [3,4].

The fifth component should be **related-party and beneficial-ownership disclosure**. Exporters should disclose whether buyers are affiliated entities and whether the transaction involves a group trading company. Related-party transactions should face enhanced transfer-pricing documentation. Tax authorities should be able to compare declared export prices with resale prices, benchmark prices, and group profit allocation. This is necessary because recent literature shows that profit shifting remains a major challenge for source countries [2,6,10].

The sixth component should employ **artificial-intelligence-supported anomaly detection**. Recent advances in digital government demonstrate that machine-learning algorithms can improve customs risk management by identifying unusual combinations of transaction characteristics that would be difficult to detect manually. Nevertheless, public-administration research consistently recommends that AI remain a decision-support tool rather than an autonomous enforcement mechanism because algorithmic outputs require human interpretation, legal review, and procedural fairness [25,26,29]. Accordingly, AI should prioritise high-risk cases for investigation while preserving due-process protections.

The seventh component should be **due process and graduated sanctions**. Firms should be allowed to explain deviations caused by contract timing, quality discounts, long-term buyer

arrangements, freight terms, hedging effects or market shocks. Administrative errors should be distinguished from deliberate fraud. Repeated unexplained deviations, false quality reports, false HS classification or concealed related-party transactions should face stronger sanctions. This balance is necessary because

excessive criminalisation can damage compliance culture and investment climate. Figure 4 summarises the principal compliance instruments incorporated into the proposed supervisory model and identifies the specific governance risks addressed by each mechanism.

No.	Tool / Mechanism	Primary Function	Problems Addressed				Key Output / Benefit
			Under-Invoicing	Misinvoicing (Misclassification, False Quality, etc.)	Transfer Pricing	Capital Flight & FX Leakage	
1	 Digital Transaction Reporting	Provides real-time, standardised data on all export transactions	✓	✓	✓	✓	 Complete visibility and audit trail; improves data quality and integrity.
2	 Verified Payment Discipline	Links invoice value to actual money flow through banks	✓	✓	✓	✓	 Reduces invoice-payment gaps and supports FX repatriation monitoring.
3	 Independent Surveyor Verification	Verifies quantity, grade and quality before shipment by an independent party	✓	✓	✓	✓	 Ensures accurate physical and quality data; reduces false declaration.
4	 Benchmark-Price Analytics	Compares declared price with global/local benchmarks adjusted for quality, terms and timing	✓	✓	✓	✓	 Detects abnormal pricing early and supports risk-based audit.
5	 Related-Party & Beneficial Ownership Disclosure	Identifies affiliate relationships and ultimate beneficial owners	—	✓	✓	✓	 Supports transfer-pricing audits and prevents opaque ownership use.
6	 AI Anomaly Detection & Risk Scoring	Flags unusual patterns and high-risk transactions for further review	✓	✓	✓	✓	 Improves audit targeting and enforcement efficiency.
7	 Due Process & Graduated Sanctions	Ensures fairness; penalises deliberate violations while allowing legitimate defence	✓	✓	✓	✓	 Promotes compliance culture and deters deliberate violations.

Note: A green check (✓) indicates that the tool directly helps address the specific risk.

Source: Synthesis by author.

Figure 4: demonstrates that effective governance depends upon combining complementary compliance instruments rather than relying upon any single regulatory intervention. Digital reporting, payment verification, surveyor certification, benchmark-price analytics, beneficial-ownership disclosure and artificial-intelligence-assisted risk assessment reinforce one another by creating overlapping layers of verification. Contemporary tax-administration literature similarly concludes that compliance improves when governments integrate multiple independent information sources into coherent audit frameworks instead of relying exclusively upon ex-post inspections [12,18,19].

Discussion: From Control of Trade to Control of Information
The central policy lesson emerging from this analysis is that governments should distinguish between controlling commercial transactions and controlling information. Contemporary institutional theory increasingly argues that effective regulation depends upon improving the quality, timeliness and interoperability of information available to enforcement agencies rather than expanding direct state participation in markets [5,20,25]. Because trade misinvoicing primarily exploits weaknesses in information systems, improving transaction visibility is likely to generate greater long-term compliance benefits than restructuring market organisation itself.

The supervisory model is also more compatible with maintaining an attractive investment climate. Predictable regulatory requirements, transparent enforcement procedures and proportional sanctions generally reduce regulatory uncertainty while encouraging voluntary compliance. Empirical studies indicate that investors respond more positively to institutional reforms that improve governance quality without fundamentally disrupting existing commercial relationships [11,21,67]. Consequently, gradual implementation of supervisory reforms is more likely to preserve Indonesia’s competitiveness in global commodity markets while simultaneously strengthening fiscal governance.

This model would also reduce the risk of concentrated rent seeking. A monopoly exporter controls commercial allocation, while a supervisory integrator controls data standards and compliance rules. The second form of power is still important and must be audited, but it is less likely to become a direct source of commercial favouritism if properly governed. Governance safeguards should include independent audits, public aggregate reporting, conflict-of-interest rules, data-access controls and parliamentary oversight [68-70].

The supervisory model is also better aligned with the investment climate. Honest firms may accept stricter reporting if rules are predictable and applied equally. They may even benefit if enforcement prevents competitors from gaining unfair advantage through under-invoicing. By contrast, a sudden monopoly-export requirement could be perceived as policy instability and could reduce long-term investment. Since natural-resource governance requires both revenue collection and investment continuity, policy design must avoid unnecessary disruption.

Policy Recommendations
Figure 5 outlines a phased implementation roadmap illustrating how the proposed supervisory model can be introduced progressively while maintaining institutional stability and minimising disruption to commodity exports.

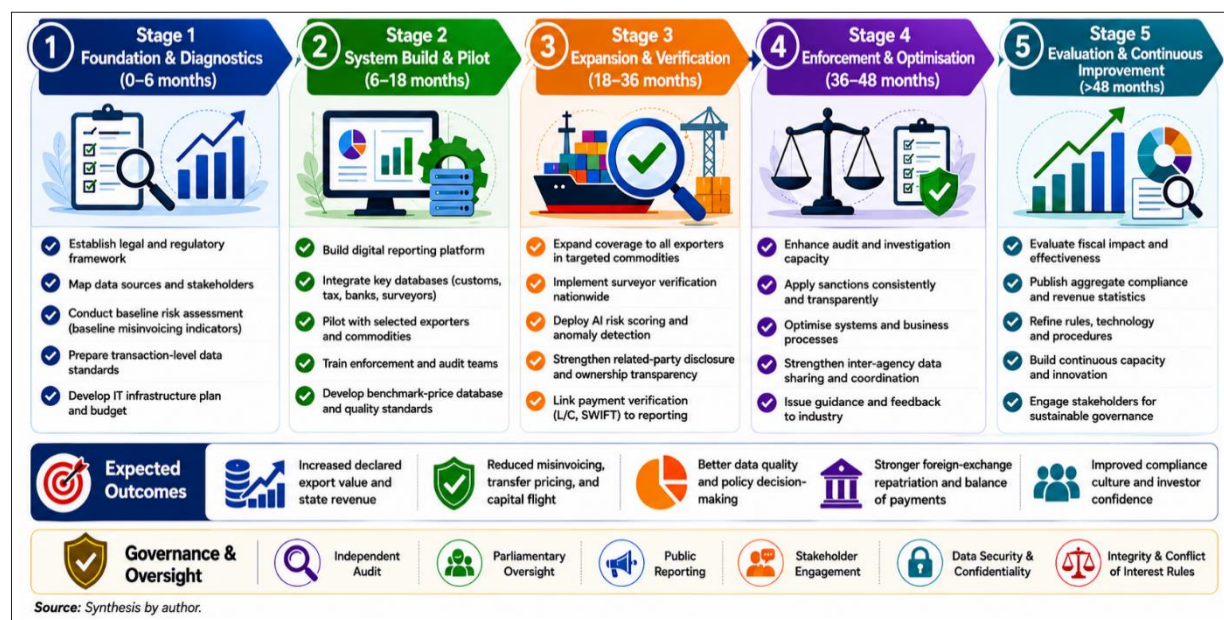


Figure 5: illustrates that implementation should proceed incrementally through sequential stages rather than through immediate structural transformation. Beginning with regulatory preparation and digital infrastructure development, the roadmap gradually expands reporting requirements, verification mechanisms, analytical capabilities and enforcement capacity before moving toward continuous evaluation and institutional refinement [62]. A phased implementation strategy reduces implementation risk, allows regulatory learning and provides opportunities to evaluate policy effectiveness before introducing more comprehensive reforms.

Successful implementation ultimately depends upon institutional sequencing. International experience with customs modernisation and tax digitalisation suggests that reforms are most successful when governments first strengthen data infrastructure, legal frameworks and institutional coordination before expanding analytical capability and enforcement intensity. A phased approach allows administrative learning, reduces implementation risk and provides opportunities for continuous evaluation and stakeholder consultation [19,25,26,29].

First, **Indonesia should conduct a transaction-level diagnostic before imposing monopoly export intermediation.** Mirror-trade discrepancies should be used as warning signals, but they should be reconciled with re-export data, shipment records, customs declarations, bank payments, surveyor reports, and tax filings. This is necessary because trade discrepancies can reflect both fraud and legitimate statistical differences.

Second, **Indonesia should initially establish a supervisory and data-integrating institution** rather than as the mandatory buyer and seller of all covered exports. This design would address the information problem without creating excessive operational risk. It would also allow the government to test compliance tools before considering stronger intervention.

Third, **the government should require mandatory digital reporting for all palm oil, coal and ferroalloy exports.** Reporting should include price, quality, quantity, buyer, beneficial owner, related-party status, delivery term, payment channel and benchmark reference. This would improve the state's ability to compare declared values with commercial reality.

Fourth, **Indonesia should require enhanced transfer-pricing documentation for related-party commodity exports.** Such documentation should explain pricing methodology, benchmark selection, quality adjustments, contractual terms and resale

arrangements. This recommendation follows recent evidence that developing countries are exposed to multinational tax avoidance and need stronger source-country enforcement tools [2,6,10].

Fifth, **independent surveyors should be integrated into the compliance system.** Surveyor reports should be digitally linked to customs declarations and bank payment records. Random inspection should be combined with risk-based targeting so that enforcement resources focus on transactions with the highest misinvoicing probability.

Sixth, **artificial-intelligence-supported risk scoring should be used to flag abnormal transactions.** Risk scoring should consider price deviations, quality inconsistencies, related-party status, unusual destination patterns, repeated amendments, payment delays, and discrepancies between shipment and invoice data. However, sanctions should require human review and legal due process.

Seventh, **the government should publish aggregate compliance statistics.** Public reporting can show whether the policy reduces suspicious discrepancies, increases declared export values, improves foreign-exchange repatriation, and avoids disruption of export volumes. Transparency would help prevent the institution from becoming an opaque rent node.

Eighth, **Indonesia should avoid abrupt contract disruption.** Existing contracts should be respected unless fraud is proven. Transitional implementation would reduce legal uncertainty and protect Indonesia's reputation as a reliable supplier.

Conclusion

The government's concern about under-invoicing, misinvoicing and transfer-pricing abuse in palm oil, coal and ferroalloy exports is strongly supported by the literature on trade misreporting, corporate tax avoidance and state capacity. Trade misinvoicing

can reduce fiscal revenue, distort official statistics and facilitate capital flight. Transfer-pricing abuse can shift profits away from source countries and weaken the tax base. Natural-resource sectors are especially vulnerable because large rents, complex quality differences and cross-border trading structures create opportunities for manipulation.

However, the policy instrument must be proportionate to the problem. A single commercial exporter may improve visibility, but it could also create a monopoly bottleneck, require very large working capital, disrupt existing buyer relationships, weaken hedging and logistics capacity, concentrate rent-seeking opportunities and expose public officials to commercial and legal risk. These risks are particularly serious because palm oil, coal and ferroalloy are operationally complex and commercially heterogeneous.

The most defensible reform is therefore not a single monopoly exporter but a single supervisory and data-integrating entity. The institution should be designed to make all covered export transactions visible, verifiable, benchmarked and auditable. It should integrate customs data, tax data, banking records, surveyor reports, beneficial-ownership information and commodity-price analytics. It should use artificial intelligence to flag suspicious transactions, but it should preserve human review and due process. It should strengthen enforcement without replacing legitimate commercial functions.

The broader lesson is that the state should control the integrity of information rather than unnecessarily control every commercial transaction. Indonesia needs stronger state capacity, but state capacity should be understood as the ability to observe, verify, and enforce. If the institution is designed as a smart supervisory institution, it could help transform shadow-economy leakage into official, taxable, and transparent economic activity. If it is designed as an all-encompassing monopoly trader without sufficient capacity, it risks becoming the kind of institutional blunder that the policy material itself warns against.

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