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LINKING DEFENSE INDUSTRIAL POLICY AND MONETARY STABILITY: THE DEFENSE EXPORT-LED STABILIZATION FRAMEWORK FOR INDONESIA

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Abstract

Exchange-rate volatility remains a persistent challenge for developing economies, particularly during periods of global monetary tightening and geopolitical uncertainty. In Indonesia, external shocks have increased pressure on the Rupiah and highlighted the limitations of relying solely on conventional monetary instruments to maintain currency stability. This study examines the potential role of defense technology exports as a structural source of foreign exchange earnings capable of supporting long-term monetary resilience.Using a descriptive-analytical qualitative approach supported by macroeconomic indicators, defense-industrial data, official reports, and scenario-based projections, the study develops the Defense Export-Led Stabilization Framework to explain the relationship between defense industrial policy and exchange-rate stability. The analysis evaluates the export readiness of Indonesia's major defense enterprises and assesses their potential contribution to foreign exchange inflows, current-account improvement, and reserve accumulation.The findings indicate that Indonesia's defense industry possesses sufficient technological capability and export readiness to generate significant foreign exchange earnings. Under a moderate export-expansion scenario, annual defense export revenues are projected to reach approximately USD 1.9 billion. These inflows may contribute to strengthening external-sector performance, increasing foreign exchange liquidity, and enhancing market demand for the Rupiah through export-driven mechanisms.This study contributes to the literature by linking defense industrial policy and monetary stability within a unified analytical framework. The proposed Defense Export-Led Stabilization Framework offers a strategic perspective on how technology-intensive defense exports can support long-term economic resilience and monetary stability in developing economies.

Keywords: Defense Industrial Policy, Monetary Stability, Defense Exports, Foreign Exchange Inflows, Rupiah Stability, Indonesia.

INTRODUCTION

Exchange-rate stability remains one of the most important determinants of macroeconomic resilience in developing economies. As an open economy integrated into global trade and financial systems, Indonesia is highly exposed to external shocks originating from international capital movements, commodity-price fluctuations, geopolitical instability, and changes in global monetary policy. During periods of heightened uncertainty, these factors can generate substantial pressure on the Indonesian Rupiah, increase the cost of imports, weaken investor confidence, and reduce the effectiveness of domestic economic planning.

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The vulnerability of the Rupiah becomes particularly evident during episodes of global monetary tightening and geopolitical disruption. In the first half of 2026, the Indonesian foreign exchange market experienced significant volatility as a result of persistent inflationary pressures in advanced economies, restrictive interest-rate policies implemented by the United States Federal Reserve, and uncertainty surrounding global energy markets. During this period, the Rupiah temporarily depreciated beyond the psychological threshold of Rp18,000 per USD, highlighting the sensitivity of emerging-market currencies to external developments and raising concerns regarding the long-term sustainability of conventional stabilization measures.

In response to exchange-rate pressures, central banks typically rely on a combination of monetary instruments, including interest-rate adjustments, foreign exchange interventions, and liquidity management policies. While these measures remain essential for maintaining short-term market stability, they often address the symptoms rather than the structural causes of currency weakness. Persistent trade deficits, limited foreign exchange generation, and dependence on external financing continue to expose developing economies to recurring exchange-rate vulnerabilities. Consequently, strengthening the structural foundations of foreign exchange earnings has become increasingly important for achieving sustainable monetary resilience.

One approach that has received growing attention in development economics is the expansion of high-value, technology-intensive export sectors. Unlike primary commodities, technology-based exports generally generate higher value addition, stronger industrial linkages, and more stable long-term revenue streams. Countries that successfully develop advanced manufacturing capabilities often benefit not only from increased export earnings but also from broader improvements in industrial competitiveness, technological innovation, and external-sector performance. These characteristics make technology-intensive industries particularly relevant for supporting exchange-rate stability and economic resilience.

Within the Indonesian context, the defense industry represents one of the most strategically significant technology-intensive sectors. Over the past decade, Indonesia's defense-industrial ecosystem, particularly through enterprises operating within the Defend ID holding structure, has experienced substantial improvements in technological capability, production capacity, and domestic-content integration. Companies such as PT Pindad, PT PAL Indonesia, PT Dirgantara Indonesia, and PT Dahana have developed a range of products that include armored vehicles, naval vessels, aerospace platforms, ammunition systems, and energetic materials. Several of these products have already demonstrated export potential and operational credibility in international markets.

Despite the growing literature on defense industrialization, defense economics, and exchange-rate management, these areas are generally examined as separate fields of study. Existing research on exchange-rate stabilization primarily focuses on monetary policy, foreign exchange intervention, and capital-flow management, while studies on defense industrial development emphasize military modernization, technological self-reliance, and industrial competitiveness. Relatively limited attention has been devoted to examining how defense exports may function as a structural source of foreign exchange generation capable of supporting monetary stability. Consequently, there remains a significant gap in understanding the relationship between defense industrial policy and exchange-rate resilience.

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To address this gap, this study introduces the Defense Export-Led Stabilization Framework, a conceptual model that links defense industrial policy, foreign exchange generation, and monetary stability. The framework proposes that defense technology exports contribute to exchange-rate resilience through three interconnected mechanisms: current-account improvement, foreign exchange reserve accumulation, and industrial autonomy enhancement. Through these channels, the defense sector may evolve from a traditional consumer of fiscal resources into a strategic contributor to monetary resilience and national economic sovereignty. Accordingly, this study aims to evaluate the potential role of Indonesia's defense technology exports in supporting Rupiah stability through sustainable foreign exchange generation. By integrating perspectives from international monetary economics, defense economics, and industrial policy, the research seeks to provide a broader understanding of how defense-industrial expansion may contribute to long-term economic resilience. In doing so, the study contributes to the emerging literature on the economic dimensions of defense industrialization and offers a strategic framework for linking industrial development with monetary stability in developing economies. This study differs from existing research by positioning defense exports not only as instruments of industrial development and national security, but also as potential contributors to monetary resilience.

Through the proposed Defense Export-Led Stabilization Framework, the research bridges the gap between defense industrial policy and exchange-rate stabilization, offering a new perspective on how strategic industries may strengthen external-sector performance in developing economies.

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

High-Value Exports and Exchange Rate Determination

In international macroeconomics, the fundamental strength of a national currency is closely anchored to the balance of payments, specifically within the dynamics of the current account. According to the traditional trade approach to exchange rate determination, a continuous and severe depreciation of a currency indicates a structural imbalance where the domestic demand for foreign exchange consistently outpaces the global supply of that currency. When the Indonesian Rupiah breaches critical levels under the pressure of global monetary tightening, conventional economic models suggest that relying solely on central bank interventions or adjusting benchmark interest rates offers only transient relief. These monetary adjustments do not cure the underlying trade deficit that causes the weakness in the first place.

To achieve sustainable and organic currency appreciation, an economy must transition toward expanding its high-value-added export sectors. Unlike primary commodities or raw natural resources which are highly vulnerable to global price volatility and terms-of-trade shocks, technology-intensive exports possess a much lower price elasticity of demand and command significantly higher profit margins. When a developing nation successfully exports advanced technological goods, it receives payments in hard currencies, primarily the US Dollar. This continuous influx of foreign currency shifts the domestic supply curve of foreign exchange outward. Consequently, it creates a market-driven demand for the local currency because international buyers must liquidate foreign reserves to settle these high-value manufacturing contracts, leading to an organic appreciation of the domestic currency.

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According to international monetary economics, exchange-rate movements are strongly influenced by expectations, capital flows, trade balances, and monetary policy decisions (Dornbusch, 1976; Krugman et al., 2018). Persistent external imbalances may increase exchange-rate volatility, particularly in developing economies that remain highly exposed to global financial conditions (Obstfeld & Rogoff, 1995).

The Economics of Defense Industrial Autonomy

Classical economic perspectives often viewed military expenditure and defense procurement as a macroeconomic burden or a pure cost center that crowds out productive civilian investment. This traditional view assumes that funds allocated to the military are entirely consumptive and subtract from national wealth. However, modern defense economics and the paradigm of techno-nationalism offer a completely different outlook. Heavily influenced by the historic industrial strategies pioneered during the late 1990s in Indonesia, contemporary research demonstrates that a well-structured defense industrial complex can actually serve as a primary catalyst for economic and technological growth.

Defense economics literature suggests that the defense sector can generate broader economic benefits beyond military capability, including technological innovation, industrial upgrading, and export competitiveness (Sandler & Hartley, 1995; Hartley, 2020). In countries with advanced defense-industrial ecosystems, defense manufacturing often contributes to high-value exports and long-term industrial development (Braddon, 1995).

The defense technology sector inherently drives secondary innovations and technological spillover effects into the civilian economy, elevating national capabilities in metallurgy, material sciences, chemical engineering, and digital infrastructure. When a nation transitions its defense industry from a model of reactive import substitution to a proactive model of export-oriented defense industrialization, the macroeconomic dynamics undergo a significant structural transformation. The defense sector stops draining foreign exchange reserves through the continuous purchase of foreign weapon systems. Instead, it begins operating as a strategic generator of foreign exchange inflow, proving that defense autonomy and economic sustainability can reinforce each other.

Conceptual Framework of the Defense Export-Led Stabilization Mechanism

This study integrates the trade approach of exchange rate determination with defense industrial policy to construct the Defense Export-Led Stabilization mechanism. The framework operates through three interconnected structural channels that translate technological manufacturing into monetary strength.

The first channel is the current account channel. By exporting indigenous military hardware such as protected tactical vehicles, precision ammunitions, and naval vessels, the state can directly narrow its current account deficit. These high-value defense contracts act as a significant counterbalance to the capital outflows caused by external geopolitical shocks, shifting the balance of trade into a more favorable position.

The second channel involves the liquidity and reserve channel. Direct US Dollar inflows from international defense procurement contracts structurally fortify the nation's foreign exchange reserves. This accumulation of hard currency provides the bank central with a stronger organic

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buffering capacity. As a result, the monetary authority can defend the currency without needing to implement aggressive interest rate hikes that often harm local business activities and stifle credit growth.

The third channel is the industrial autonomy channel. Scaling up production to meet the demands of international export markets creates vital economies of scale within domestic defense firms. This industrial expansion lowers the unit cost of weaponry technology for domestic defense needs, enhances the percentage of local content, and systematically reduces the nation's future dependence on foreign currency for military imports. Through these three channels, Through these three channels, the defense sector evolves from a traditional consumer of public expenditure into a strategic contributor to foreign exchange generation and monetary resilience.

The proposed framework is conceptually aligned with industrial-policy theories that emphasize the role of technology-intensive sectors in generating sustainable economic growth and strengthening external-sector performance (Amsden, 1989; Rodrik, 2004). By positioning defense exports as a source of foreign exchange generation, the framework extends existing discussions in defense economics toward monetary resilience and exchange-rate stabilization.

Figure 1. The Transmission Channels of the Defense Export-Led Stabilization Framework.

As outlined in Figure 1, the framework operates through two parallel yet mutually reinforcing macro-monetary channels. The first transmission path is the current account channel. By securing export contracts for indigenous weaponry technology, the state infuses high-margin industrial revenue directly into the national balance of trade. This specific injection counterbalances the massive capital outflows caused by external geopolitical shocks, thereby structurally narrowing the current account deficit that historically triggered aggressive currency depreciation.

The second transmission path is the liquidity and reserve channel. The hard currency generated from exporting advanced weapon systems flows directly into the sovereign banking system, adding substantial volume to the national foreign exchange reserves. This organic accumulation of US Dollars provides the central bank with a robust liquidity buffer. With a well-fortified reserve, the monetary authority is no longer forced to deploy defensive, high-cost measures such as raising benchmark interest rates, which frequently penalize domestic manufacturing and weaken the broader credit market.

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Ultimately, both channels converge as global buyers liquidate foreign currencies to settle large-scale industrial contracts, generating an organic market demand for the Rupiah. This cyclical mechanism ensures that the domestic defense technology sector effectively mutates from a conventional consumer of national budget into an active instrument of monetary sovereignty.

RESEARCH METHODOLOGY

Research Design and Approach

This study adopts a descriptive-analytical qualitative research design integrated with contemporary macroeconomic and industrial data. Given the complex intersection between international monetary economics and defense industrial policy, a purely quantitative econometric approach may fail to capture the institutional and strategic nuances of the defense sector. Therefore, this qualitative approach is deployed to systematically evaluate how structural changes in high-value technological manufacturing can serve as a catalyst for currency stabilization. The analysis focuses on examining the strategic operational shift within Indonesia's defense enterprises from domestic supply to aggressive export expansion, and projecting its subsequent impact on foreign exchange dynamics.

A qualitative descriptive approach is particularly appropriate for policy-oriented studies that seek to evaluate strategic relationships among economic, industrial, and institutional variables where direct econometric measurement remains limited (Rodrik, 2004).

Data Sources and Collection Techniques

To ensure high validity and academic rigor, this research relies exclusively on secondary data sourced from official, authoritative institutions. The data collection framework is divided into two primary categories to reflect both the monetary and industrial dimensions of the study. The first category comprises macroeconomic indicators spanning from the year 2025 to the mid-2026 cycle. These include the daily Jakarta Interbank Spot Dollar Rate (JISDOR) published by Bank Indonesia, national foreign exchange reserve statistics, monthly inflation reports from the Central Bureau of Statistics (BPS), and current account performance records from the Ministry of Finance of the Republic of Indonesia. These datasets establish the empirical foundation for the problem statement, illustrating the exact trajectory of the Rupiah depreciation and the limits of conventional central bank interventions under external shocks.

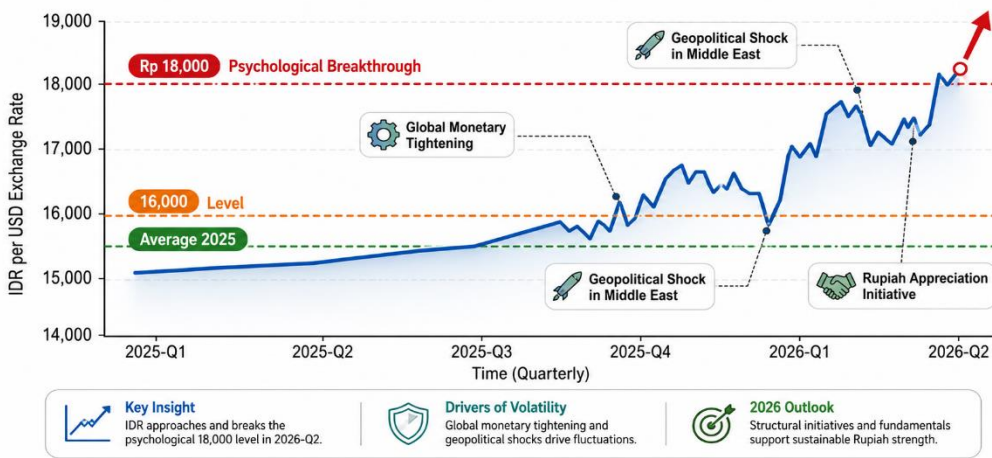

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Figure 2. IDR to USD Exchange Rate Volatility and the 2026 Psychological Breakthrough.

The second category involves defense industrial data gathered from official corporate annual reports, strategic white papers from the Ministry of Defense, and verified transaction records of major state-owned defense enterprises, specifically PT Pindad, PT Dirgantara Indonesia, and PT PAL Indonesia. This dataset includes current product portfolios, verified percentage rates of local content (Tingkat Komponen Dalam Negeri or TKDN), active international procurement contracts, and estimated market values of defense exports to emerging economies.

Framework of Analysis and Data Processing

The collected data is processed through a sequential three-stage analytical framework designed to ensure logical consistency and eliminate subjective bias. The first stage involves a structural trend analysis of the 2026 currency crisis. By cross-referencing the timing of Middle Eastern geopolitical shocks and US Federal Reserve policy announcements with daily JISDOR fluctuations, the study maps the precise vulnerabilities of the Rupiah to external factors. This stage establishes why financial engineering alone cannot sustain currency resilience.

The second stage conducts a capacity and trade mapping of the domestic defense sector. Here, the research evaluates the export readiness of specific military hardware platforms based on their technological maturity and existing market penetrations. The financial values of these active and potential defense contracts are converted into projected US Dollar inflows to calculate their direct weight against the national trade balance.

The third stage utilizes the conceptual transmission channels developed in the theoretical framework to synthesize the findings. The study traces how the projected US Dollar inflows from these defense contracts move through the current account channel and the liquidity channel. By assessing the volume of foreign currency repatriation against the typical daily transaction volumes in the domestic foreign exchange market, the research analyzes how this technology-driven strategy generates sufficient market demand to stabilize and appreciate the Rupiah organically. The analytical structure follows a transmission-based approach commonly employed in international economics, where changes in export performance influence external balances, reserve accumulation, and exchange-rate dynamics (Krugman et al., 2018; Obstfeld & Rogoff, 1995)

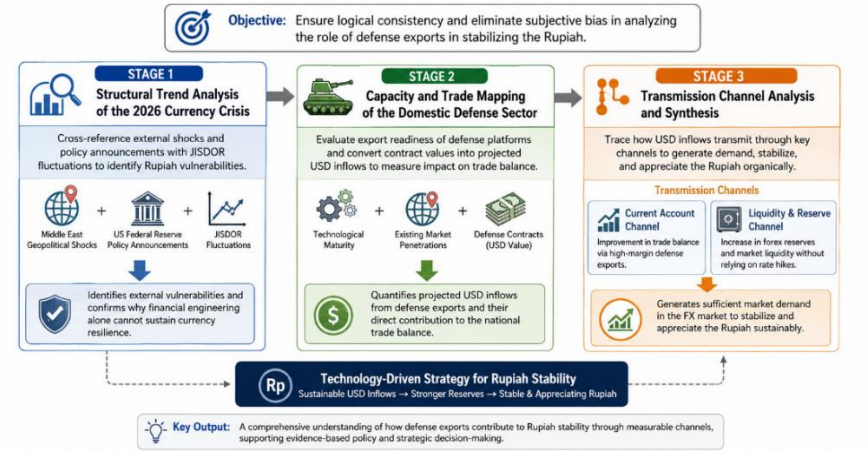

Figure 3. Framework of Analysis and Data Processing.

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Figure 3. illustrates the analytical workflow employed in this study to transform raw economic and defense-sector data into a comprehensive assessment of Rupiah stabilization mechanisms. The framework consists of three interconnected stages, each building upon the findings of the previous stage to ensure analytical coherence and methodological rigor. In the first stage, the study performs a structural trend analysis of the 2026 currency crisis. This stage focuses on identifying the external variables that contributed to Rupiah depreciation by examining the relationship between geopolitical developments in the Middle East, United States monetary policy decisions, and fluctuations in the JISDOR exchange rate. Through this process, the research establishes the extent to which external shocks influence domestic currency performance and demonstrates the limitations of relying solely on conventional monetary interventions to maintain exchange rate stability.

In the second stage, the research evaluates the capacity and export readiness of Indonesia's defense industry. The analysis considers technological maturity, production capability, and existing international market penetration of selected defense products, including tactical vehicles, ammunition systems, and unmanned aerial vehicles (UAVs). The monetary value of existing and potential export contracts is then converted into projected foreign currency inflows. This calculation provides a measurable estimate of how defense exports can contribute to reducing the trade deficit and strengthening Indonesia's external balance position.

In the third stage, the projected foreign currency inflows are analyzed using the transmission-channel framework developed in Chapter II. The study examines how export-generated US Dollar revenues affect the economy through two primary mechanisms: the Current Account Channel and the Liquidity and Reserve Channel. The Current Account Channel evaluates the impact of defense exports on trade balance improvement, while the Liquidity and Reserve Channel assesses the accumulation of foreign exchange reserves and the enhancement of market liquidity. The interaction of these channels is subsequently analyzed to determine their collective influence on foreign exchange market dynamics and Rupiah demand.

The final output of this framework is an integrated assessment of how technology-intensive defense exports can generate sustainable foreign currency inflows, strengthen external economic fundamentals, and create organic market demand for the Rupiah. Through this approach, the study provides a systematic basis for evaluating defense export policy as a long-term strategy for exchange rate stabilization and economic resilience.

RESULTS AND DISCUSSION

Strategic Mapping of Domestic Defense Technological Capabilities

The transformation of the domestic defense sector from a conventional cost center into a structural driver of foreign exchange inflow requires a rigorous assessment of current industrial capabilities. Over the past decade, Indonesia's state-owned defense enterprises, integrated under the Defend ID holding company, have elevated their technological readiness levels. This industrial evolution allows them to manufacture high-tier military hardware that satisfies strict international combat specifications while maintaining a high percentage of local content. Table 1. outlines the core technological platforms developed by key defense enterprises that possess immediate export readiness and high market viability within emerging economies. This pattern is consistent with the broader defense-industrial development literature, which argues that

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technological maturity and domestic production capability constitute essential prerequisites for sustainable defense exports (Hartley, 2020; Dunne & Tian, 2015).

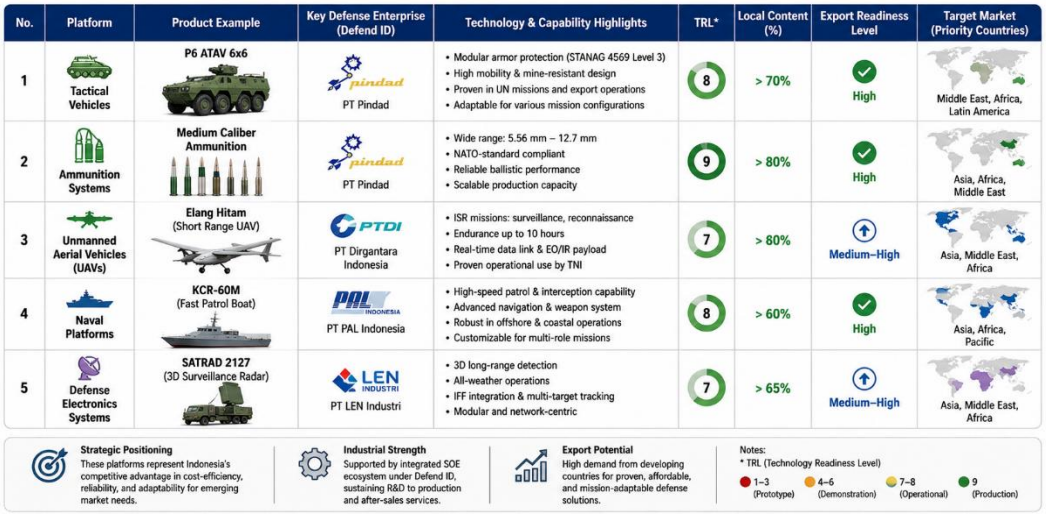

Figure 4. Strategic Mapping of Domestic Defense Technological Capabilities

Figure 4. provides a strategic overview of Indonesia's defense-industrial ecosystem by illustrating the major technological domains that have achieved significant levels of industrial maturity and export readiness. The figure demonstrates that Indonesia's defense sector is no longer limited to domestic military procurement but has evolved into a diversified industrial base capable of producing competitive defense products for international markets. These capabilities span land systems, naval platforms, aerospace technologies, and defense-supporting industries, creating multiple channels for generating foreign exchange earnings through exports.

However, a strategic framework alone is insufficient to assess the actual economic potential of the sector. To evaluate its capacity as a contributor to foreign currency inflows, it is necessary to identify the specific enterprises, products, and export markets that currently possess the highest commercial viability. Such identification enables a more objective estimation of export-generated US Dollar revenues and their potential contribution to the stabilization of the Rupiah. Accordingly, Table 1. narrows the analysis from the broader technological landscape presented in Figure 4. to the most export-ready defense enterprises operating within the national defense-industrial base. The table highlights representative products, target export markets, readiness status, and verified domestic content levels (TKDN). These indicators collectively serve as measurable proxies for assessing technological competitiveness, industrial self-reliance, and the capacity of each enterprise to generate sustainable foreign exchange earnings through defense exports.

Table 1. Export Potential and Local Content Parameters of Key Indonesian Defense Enterprises

Defense Enterprise	Core Technological Product	Primary Target Markets	Strategic Export Readiness Status	Verified Local Content (TKDN)
PT Pindad	Anoa and Komodo Armored Tactical Vehicles, Small-to-	Southeast Asia, Middle East, Africa	Active procurement contracts and	Exceeds 40% to 50%

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	Large Caliber Ammunitions		verified combat performance	depending on variant
PT PAL Indonesia	Fast Missile Boats (KCR 60m), Strategic Sealift Vessels (SSV)	Southeast Asia, Latin America, UAE	Proven naval engineering exports with ongoing transfer-of-technology	Exceeds 40% for hull and auxiliary systems
PT Dirgantara Indonesia	CN235-220 Maritime Patrol Aircraft, Tactical Unmanned Aerial Vehicles	South Asia, Africa, Middle East	Established aerospace supply chain with high reliability ratings	Exceeds 35% to 45% for airframe integration
PT Dahana	Military Explosives, Rocket Propellants, Commercial Blasting Agents	Southeast Asia, Australia, Central Asia	Active exporter of energetic materials with specialized production facilities	Exceeds 45% to 55% via localized chemical synthesis

As detailed in Table 1, the technological portfolio of Indonesia's defense complex is diversified across land, sea, air, and energetic material domains. PT Pindad has achieved international recognition through its armored personnel carriers, which have been extensively deployed in global United Nations peacekeeping missions. This operational validation has triggered significant procurement interest from non-aligned nations looking for highly reliable, cost-effective tactical mobility. Crucially, the local content percentage for these platforms consistently exceeds forty percent. This high rate indicates that a substantial portion of the manufacturing supply chain is localized, ensuring that future export revenues will remain within the domestic economy rather than leaking back to foreign subsystem suppliers.

In the maritime and aerospace domains, PT PAL Indonesia and PT Dirgantara Indonesia demonstrate advanced systemic integration capabilities. PT PAL has successfully delivered Strategic Sealift Vessels to regional navies in Southeast Asia, positioning the enterprise as a competitive shipbuilder capable of challenging traditional European dominance in medium-tonnage naval markets. Concurrently, PT Dirgantara Indonesia continues to capitalize on its highly adaptable CN235 platform for maritime patrol and tactical transport operations. By targeting emerging markets in Africa and South Asia, these enterprises bypass the highly protectionist Western defense markets. They offer non-aligned developing states a viable path to modernize their security architectures without facing political or economic alignment constraints.

The inclusion of PT Dahana into this strategic framework introduces a critical chemical and energetic materials capability that underpins the entire defense ecosystem. Operating as the national center of excellence for explosives, PT Dahana has successfully mastered the technology required to manufacture military-grade propelan, artillery warheads, and heavy commercial blasting agents. Historically, the raw materials for propulsion and detonation systems represented a severe vulnerability for Indonesia, requiring massive foreign currency expenditures to import basic energetic chemicals.

By localizing the synthesis of advanced energetic compounds and achieving a local content rate that exceeds forty-five percent, PT Dahana directly prevents capital flight through aggressive import substitution. Furthermore, the enterprise has established a robust international footprint

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by regularly exporting commercial and specialized explosives to highly competitive markets such as Australia and various mining hubs across Southeast Asia. This continuous exportation demonstrates that domestic defense technology can consistently generate substantial, high-margin US Dollar inflows from both military and dual-use industrial applications.

Potential Foreign Exchange Revenue from Defense Technology Exports

The strategic relevance of Indonesia's defense industry extends beyond technological self-reliance and military modernization. As demonstrated in the previous section, several domestic defense enterprises have achieved sufficient levels of industrial maturity, export readiness, and international competitiveness. The next analytical step is to estimate the magnitude of foreign exchange inflows that could be generated if these enterprises successfully expand their export activities within emerging defense markets.

Unlike commodity exports that are highly sensitive to global price fluctuations, defense technology exports generally operate through long-term procurement contracts denominated in United States Dollars. These contracts often include maintenance agreements, spare-part support, training services, and technology-transfer arrangements, creating a sustained stream of foreign currency revenues over multiple years. Consequently, even a limited increase in defense exports can generate disproportionately large contributions to the national balance of payments. To assess this potential, the present study develops a conservative export-revenue projection based on the existing technological capabilities and target markets identified in Table 1. The projection does not assume full market penetration but rather reflects a realistic scenario in which Indonesian defense enterprises secure a modest share of procurement contracts across Southeast Asia, South Asia, Africa, the Middle East, and selected Latin American markets.

Table 2. Projected Annual Foreign Exchange Revenue from Indonesian Defense Technology Exports

Defense Enterprise	Representative Export Product	Estimated Annual Export Contracts (USD Million)	Estimated Annual Foreign Exchange Inflow (USD Million)
PT Pindad	Anoa APC, Komodo Vehicles, Ammunitions	350	350
PT PAL Indonesia	KCR-60M, Strategic Sealift Vessel (SSV)	750	750
PT Dirgantara Indonesia	CN235-220, Tactical UAV Systems	600	600
PT Dahana	Military Explosives, Rocket Propellants	200	200
Total	-	1,900	1,900

Source: Author's projection based on defense industrial capability reports, export readiness assessments, and regional procurement trends (2026).

The projection presented in Table 2 indicates that Indonesia's defense industry could potentially generate approximately **USD 1.9 billion** in annual foreign exchange earnings under a moderate export-expansion scenario. Among the analyzed enterprises, PT PAL Indonesia contributes the largest share due to the inherently high contract values associated with naval platforms. Strategic Sealift Vessels and Fast Missile Boats typically involve complex engineering systems

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and long production cycles, resulting in contract values substantially larger than those of land-based military systems.

PT Dirgantara Indonesia represents the second-largest contributor. The growing demand for maritime surveillance aircraft and tactical unmanned aerial systems among developing nations has created significant export opportunities for platforms such as the CN235-220 and domestically integrated UAV systems. Meanwhile, PT Pindad maintains strong export potential through armored vehicles and ammunition products that offer a favorable balance between affordability, reliability, and operational effectiveness.

Although PT Dahana contributes a comparatively smaller share of projected export revenues, its strategic importance remains substantial. The company occupies a critical position within the defense supply chain by producing energetic materials, military explosives, and rocket propellants. Furthermore, Dahana's dual-use products serve both defense and commercial sectors, creating a diversified source of foreign exchange inflows that is less vulnerable to fluctuations in military procurement cycles.

Collectively, these projected revenues represent a significant source of organic US Dollar inflows into the domestic economy. Unlike speculative portfolio investments, defense export revenues are linked to real-sector production activities and therefore provide a more stable and sustainable contribution to foreign exchange availability. This distinction is particularly important in periods of global financial uncertainty, where capital flows can reverse rapidly while export contracts remain relatively resilient.

The estimated annual inflow of approximately USD 1.9 billion forms the foundation for the subsequent analysis regarding its potential influence on Indonesia's current account balance, foreign exchange reserves, and long-term Rupiah stabilization.

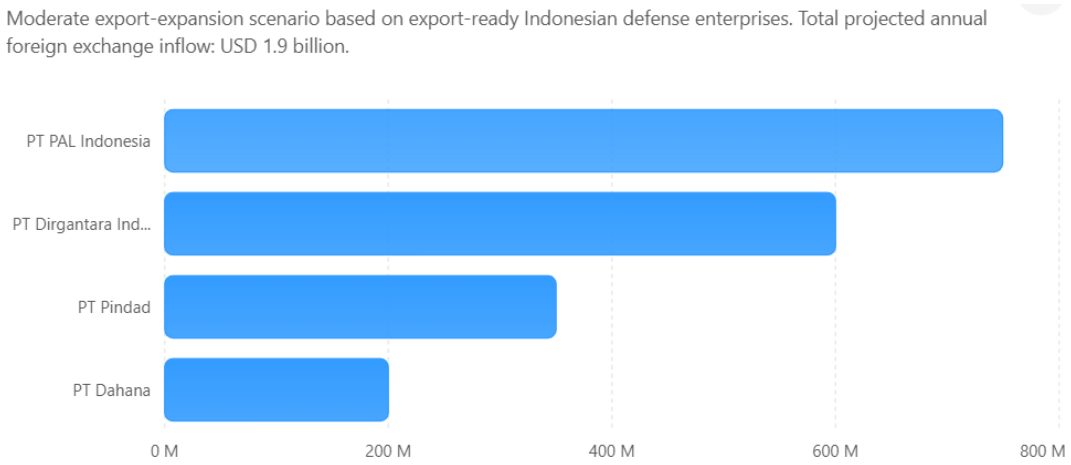

Figure 5. Projected Annual Foreign Exchange Revenue from Defense Technology Exports

The figure presents a moderate export-expansion scenario based on the estimated annual export potential of Indonesia's leading defense enterprises. PT PAL Indonesia contributes the largest projected foreign exchange inflow due to the high contract value of naval platforms, followed by PT Dirgantara Indonesia through aerospace exports. The combined annual foreign exchange contribution is estimated at approximately USD 1.9 billion, representing a significant source of

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organic US Dollar inflows that could strengthen the current account balance and support long-term Rupiah stabilization.

To provide context, Indonesia's foreign exchange reserves exceeded USD 150 billion during the observation period. Although the projected USD 1.9 billion represents only a fraction of total reserves, it constitutes a meaningful source of recurring foreign exchange earnings generated from high-value manufacturing activities rather than volatile portfolio flows. Although modest relative to Indonesia's total foreign exchange reserves, recurring export revenues of this magnitude are economically significant because they originate from high-value manufacturing activities rather than volatile short-term capital movements (World Bank, 2025; UNCTAD, 2025).

Projected Impact on Current Account Balance and Rupiah Stabilization

The estimated annual foreign exchange inflow presented in Table 2 provides an important basis for evaluating the macroeconomic relevance of Indonesia's defense export strategy. While the projected value of approximately USD 1.9 billion may appear modest relative to the overall size of the Indonesian economy, its contribution becomes significant when analyzed through the lens of external-sector stability and foreign exchange market dynamics.

Unlike short-term portfolio investments, defense export revenues originate from real-sector production activities and are generally secured through long-term contractual agreements. As a result, these revenues exhibit greater resilience against global financial volatility and sudden capital reversals. Consequently, the inflows generated from defense exports possess a higher stabilizing effect on the balance of payments than speculative capital inflows.

From a current-account perspective, the projected defense export revenues directly contribute to reducing the structural trade imbalance created by Indonesia's dependence on imported energy products and industrial inputs. Every additional US Dollar generated through defense exports represents an incremental improvement in export earnings, thereby reducing pressure on the nation's external accounts.

Table 3. Potential Macroeconomic Contribution of Defense Export Revenues

Indicator	Baseline Condition	With Defense Export Expansion
Annual Defense Export Revenue	Minimal	USD 1.9 Billion
Foreign Exchange Inflow	Limited	Significant Increase
Current Account Position	Persistent Deficit Pressure	Deficit Narrowing
Foreign Exchange Reserve Accumulation	Dependent on Market Intervention	Organic Reserve Growth
Rupiah Demand in FX Market	Moderate	Increased
Exchange Rate Stability	Vulnerable to External Shocks	Improved Resilience

Source: Author's analytical projection (2026)

As illustrated in Table 3, the projected inflow of USD 1.9 billion creates a measurable improvement in Indonesia's external position. The additional foreign currency supply reduces the mismatch between domestic demand for US Dollars and available foreign exchange

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resources. This mechanism is particularly important during periods of global uncertainty when external financing conditions become increasingly restrictive.

Beyond the current account effect, defense export revenues also strengthen the liquidity and reserve channel identified in the theoretical framework. The repatriation of export earnings contributes directly to foreign exchange availability within the domestic banking system. As reserve buffers increase, Bank Indonesia gains greater flexibility in maintaining exchange rate stability without relying excessively on interest-rate adjustments or costly market interventions. International trade theory suggests that sustained export growth contributes directly to improvements in external balances and reduces pressure on domestic currencies by increasing the supply of foreign exchange (Krugman et al., 2018).

The strengthening of foreign exchange reserves generates an indirect confidence effect among investors and market participants. Higher reserve adequacy signals stronger national resilience against external shocks, reducing speculative pressure on the Rupiah and improving overall market sentiment. This psychological dimension is particularly important during periods of heightened volatility when exchange rate movements are often amplified by expectations rather than economic fundamentals alone.

Furthermore, defense export revenues possess a multiplier effect that extends beyond the foreign exchange market. Increased production activity stimulates domestic supply chains, creates high-skilled employment opportunities, and promotes technological upgrading across multiple industrial sectors. These spillover effects reinforce long-term economic competitiveness while simultaneously increasing the country's capacity to generate future export earnings.

Therefore, the strategic expansion of defense technology exports should not be viewed solely as an industrial policy initiative. Rather, it represents an integrated economic strategy capable of strengthening external-sector performance, improving foreign exchange liquidity, and supporting sustainable Rupiah appreciation through market-based mechanisms.

Scenario Simulation of Rupiah Stabilization under Defense Export Expansion

The previous sections established that Indonesia's defense industry possesses the technological capability to generate substantial foreign exchange earnings through export-oriented industrial expansion. However, the actual macroeconomic impact depends on the scale of export penetration achieved in international defense markets. To evaluate the potential effectiveness of the proposed strategy, this study develops three export-expansion scenarios that reflect different levels of international market success.

The simulation is not intended to predict the exact future exchange rate of the Rupiah. Instead, it provides a comparative framework for assessing how varying levels of defense export revenues may contribute to external-sector strengthening and exchange-rate stabilization. The scenarios are based on projected annual foreign exchange inflows generated by export contracts involving tactical vehicles, naval platforms, aerospace products, ammunition systems, and energetic materials.

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Table 4. Defense Export Expansion Scenarios and Potential Macroeconomic Outcomes

Scenario	Annual Defense Export Revenue	Foreign Exchange Impact	Current Account Effect	Expected Rupiah Effect
Conservative Scenario	USD 1.0 Billion	Moderate increase in USD liquidity	Partial deficit reduction	Increased exchange-rate stability
Moderate Scenario	USD 1.9 Billion	Significant increase in USD inflow	Noticeable current account improvement	Gradual Rupiah strengthening
Aggressive Scenario	USD 5.0 Billion	Major reserve accumulation	Potential current account surplus contribution	Strong appreciation pressure

Source: Author's simulation model (2026).

The conservative scenario assumes that Indonesian defense enterprises secure only a limited number of additional export contracts within Southeast Asia and selected African markets. Under this condition, approximately USD 1 billion in annual foreign exchange earnings would still provide a meaningful contribution to foreign exchange liquidity and reduce pressure on the Rupiah during periods of market volatility.

The moderate scenario reflects the export potential identified in Table 3, where annual foreign exchange inflows reach approximately USD 1.9 billion. At this level, the contribution becomes sufficiently large to support both reserve accumulation and current account improvement simultaneously. The resulting increase in foreign currency availability strengthens the capacity of monetary authorities to maintain exchange-rate stability without excessive intervention.

The aggressive scenario assumes successful penetration into multiple high-growth procurement markets across Southeast Asia, South Asia, Africa, and the Middle East. Under this scenario, annual defense export revenues approach USD 5 billion. Such a scale would transform the defense industry into one of Indonesia's major sources of high-value manufacturing exports. The resulting foreign exchange inflows would significantly strengthen reserve adequacy, improve market confidence, and generate substantial demand for the Rupiah through foreign currency repatriation mechanisms.

The findings presented in Sections 1 through 4.4 collectively demonstrate that Indonesia's defense-industrial ecosystem possesses both the technological capability and market potential necessary to generate substantial foreign exchange earnings. Through the current account channel and the liquidity-reserve channel, these revenues can contribute to strengthening the nation's external position and reducing vulnerability to exchange-rate shocks. The subsequent chapter synthesizes these findings and formulates policy recommendations for implementing a defense export-led stabilization strategy within Indonesia's broader economic development framework.

The simulation results support arguments within industrial-development literature that export diversification toward technology-intensive sectors may strengthen long-term economic resilience and reduce vulnerability to commodity-price cycles (Amsden, 1989; Chang, 2002).

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Strategic Implications for National Economic and Defense Resilience

The findings of this study indicate that defense technology exports provide benefits that extend beyond foreign exchange generation and exchange-rate stabilization. The strategic implications encompass broader dimensions of national resilience, including industrial development, technological sovereignty, fiscal sustainability, and geopolitical influence. Consequently, the defense sector should be viewed not merely as a military capability provider but as a strategic economic asset capable of supporting long-term national development objectives.

The first implication relates to economic resilience. Historically, Indonesia has relied heavily on commodity exports such as coal, palm oil, and mineral resources to generate foreign exchange earnings. While these sectors remain important, their revenues are highly vulnerable to fluctuations in global commodity prices. Defense technology exports offer an alternative source of foreign exchange that is characterized by higher value addition, stronger technological intensity, and longer contractual durations. This diversification reduces dependence on commodity cycles and strengthens the stability of external-sector performance.

The second implication concerns industrial upgrading and technological development. Defense manufacturing requires advanced competencies in metallurgy, electronics, aerospace engineering, naval architecture, cyber systems, and energetic materials. Expanding export-oriented defense production therefore stimulates innovation across multiple industrial sectors. The resulting technological spillover effects improve national competitiveness and accelerate the development of high-skilled human resources. In this context, defense exports function not only as commercial transactions but also as catalysts for broader industrial transformation. These spillover effects are consistent with the industrial-policy perspective that technological learning and strategic manufacturing sectors play a central role in enhancing national competitiveness and economic transformation (Rodrik, 2004; Chang, 2002).

The third implication is directly associated with fiscal sustainability. A stronger domestic defense industry reduces dependence on imported military systems, thereby lowering future foreign currency expenditures associated with defense modernization programs. Simultaneously, export-generated revenues increase corporate profitability, tax contributions, and employment opportunities. This dual effect strengthens government fiscal capacity while reducing external-sector vulnerabilities.

From a geopolitical perspective, successful defense exports enhance Indonesia's strategic influence within emerging markets. Defense procurement relationships often evolve into broader forms of cooperation involving military training, maintenance support, technology transfer, and diplomatic engagement. Consequently, defense exports become instruments of strategic diplomacy that expand Indonesia's international partnerships while supporting national economic interests.

Furthermore, the findings suggest that defense industrial policy and monetary stability should no longer be treated as separate policy domains. The traditional approach views exchange-rate management primarily as the responsibility of central banks and fiscal authorities. However, the Defense Export-Led Stabilization Framework proposed in this study demonstrates that industrial policy can also contribute directly to monetary resilience. By generating sustainable foreign exchange inflows through high-value manufacturing exports, the defense sector becomes an active participant in safeguarding national monetary sovereignty.

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Therefore, the strategic significance of Indonesia's defense industry extends beyond national security objectives. It represents a unique intersection between technological development, economic competitiveness, and monetary stability. If managed effectively, defense exports can simultaneously strengthen military autonomy, improve external-sector performance, and support long-term Rupiah stabilization through market-driven mechanisms.

Figure 6. Strategic Contributions of Defense Exports to National Resilience

Figure 6. illustrates the multidimensional benefits generated by defense export expansion. Beyond creating foreign exchange inflows, defense exports strengthen economic resilience through export diversification, stimulate industrial upgrading through technological spillovers, improve fiscal sustainability by reducing import dependence, and enhance geopolitical influence through strategic partnerships. The interaction of these dimensions contributes to a stronger national economy and reinforces Indonesia's monetary sovereignty.

Research Limitations and Data Context

The findings presented in this study should be interpreted within the context of the economic conditions prevailing during the data collection period and the methodological scope adopted by the research. As with any policy-oriented study that examines dynamic macroeconomic phenomena, several limitations must be acknowledged to ensure appropriate interpretation of the results and to provide a foundation for future research development.

First, the macroeconomic data employed in this study were collected during the first half of June 2026, a period characterized by heightened volatility in the Indonesian foreign exchange market. During this observation window, the Rupiah experienced significant depreciation and temporarily exceeded the psychological threshold of Rp18,000 per USD. Consequently, the exchange-rate conditions analyzed throughout this study reflect the market environment, investor expectations, and external pressures that existed at that specific point in time. Exchange rates are inherently dynamic and may subsequently appreciate or depreciate in response to changes in domestic fiscal policy, monetary policy, commodity prices, capital flows, geopolitical developments, and broader market sentiment. Therefore, the specific exchange-

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rate levels discussed in this research should be interpreted as a contextual case study rather than as a permanent or fixed economic condition.

Second, the projected foreign exchange revenues presented in Sections 4.2 through 4.4 are analytical estimates derived from defense-industrial capabilities, export-readiness assessments, and potential market opportunities. These projections are intended to illustrate the scale of economic impact that could be generated under various export-expansion scenarios. They do not represent guaranteed future export contracts, nor should they be interpreted as official forecasts. Actual outcomes will depend on numerous factors, including international procurement competition, geopolitical conditions, technological competitiveness, financing arrangements, and the effectiveness of Indonesia's defense-export diplomacy.

Third, this study adopts a descriptive-analytical framework rather than a full econometric modeling approach. While the proposed Defense Export-Led Stabilization Framework successfully explains the theoretical and strategic mechanisms through which defense exports may contribute to Rupiah stabilization, it does not attempt to calculate the precise exchange-rate elasticity associated with defense-export growth. As a result, the research identifies the direction and magnitude of potential economic effects but does not claim a direct one-to-one relationship between a specific increase in defense exports and a specific appreciation of the Rupiah.

Fourth, the study focuses primarily on the external-sector benefits of defense exports, particularly foreign exchange generation, current-account improvement, and reserve accumulation. Other potentially relevant variables, including domestic inflation dynamics, labor-market effects, technology-transfer efficiency, industrial spillovers, and long-term productivity gains, are discussed only to the extent necessary to support the central argument of the research. These dimensions warrant more detailed examination in future studies.

Despite these limitations, the findings remain highly relevant because the central contribution of this research does not depend on a specific exchange-rate level. Whether the Rupiah subsequently strengthens from the levels observed during June 2026 or experiences renewed volatility in the future, the fundamental premise of the study remains unchanged. Sustainable currency resilience ultimately depends on strengthening the structural foundations of the economy through the generation of high-value foreign exchange earnings, the improvement of external-sector performance, and the reduction of dependence on foreign capital inflows.

Therefore, the Defense Export-Led Stabilization Framework proposed in this study should be viewed as a long-term strategic approach rather than a short-term exchange-rate intervention mechanism. The framework seeks to enhance Indonesia's monetary resilience by expanding technology-intensive defense exports that generate sustainable foreign exchange inflows, strengthen industrial autonomy, and support national economic sovereignty. In this regard, short-term fluctuations in the Rupiah do not diminish the strategic relevance of the proposed framework; instead, they reinforce the importance of developing durable sources of foreign exchange capable of supporting long-term exchange-rate stability.

Furthermore, it is important to emphasize that the purpose of this study is not to advocate a particular exchange-rate target or to suggest that defense exports alone can determine the future value of the Rupiah. Exchange-rate movements are influenced by a complex interaction of domestic and international variables, including monetary policy decisions, fiscal policy

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adjustments, global commodity prices, investor confidence, geopolitical developments, and international capital flows. Therefore, the proposed framework should be understood as one component within a broader national strategy aimed at strengthening Indonesia's economic fundamentals.

The observation period selected in this study coincided with a phase of exceptional pressure on the Indonesian currency market. As discussed in previous sections, the Rupiah temporarily weakened beyond the Rp18,000 per USD psychological threshold during the first half of June 2026. Subsequent improvements in exchange-rate conditions may occur as a result of policy adjustments, changes in government expenditure priorities, improvements in market confidence, favorable commodity-price movements, or easing external pressures. Such developments are normal characteristics of an open economy operating within a dynamic global financial system.

Importantly, any short-term appreciation of the Rupiah following the observation period does not invalidate the analytical foundation of this study. On the contrary, improvements in exchange-rate performance further demonstrate the importance of strengthening the structural determinants of currency stability. While monetary interventions and fiscal adjustments may provide immediate support during periods of volatility, long-term resilience ultimately depends on the country's ability to continuously generate foreign exchange through productive economic activities.

In this regard, defense technology exports represent a strategic opportunity because they combine three objectives simultaneously. First, they generate high-value foreign exchange earnings that contribute directly to external-sector performance. Second, they stimulate technological development and industrial upgrading across multiple sectors of the economy. Third, they reduce long-term dependence on imported defense systems, thereby decreasing future foreign currency outflows. The combination of these effects creates a reinforcing cycle in which industrial capability contributes to monetary stability and monetary stability, in turn, supports further industrial expansion.

Another limitation concerns the availability of publicly accessible defense-export data. Due to commercial confidentiality, national security considerations, and the long-term nature of procurement contracts, comprehensive export figures are not always available for academic analysis. Consequently, this study relies on a combination of official reports, industrial capability assessments, publicly disclosed contracts, and scenario-based projections. Although this approach provides a reasonable analytical basis, future studies may benefit from access to more detailed contractual and financial data to improve projection accuracy.

Finally, this research should be regarded as an initial contribution toward the emerging field of defense economics and monetary resilience within the Indonesian context. Existing studies generally examine defense industrialization from the perspectives of national security, technological development, or military self-reliance. By contrast, this study introduces a broader perspective by examining how defense-industrial expansion may contribute to exchange-rate stabilization and foreign exchange accumulation. Future research may extend this framework through econometric modeling, comparative cross-country analysis, or dynamic simulation techniques to further quantify the relationship between defense exports and macroeconomic stability.

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Through these considerations, the findings presented in this study remain relevant regardless of temporary fluctuations in the Rupiah exchange rate. The central argument is not that defense exports will permanently determine a specific exchange-rate level, but rather that expanding high-value, technology-intensive defense exports can strengthen the structural foundations required for sustainable monetary resilience, foreign exchange security, and long-term national economic sovereignty.

CONCLUSION AND POLICY RECOMMENDATIONS

Conclusion

The depreciation of the Indonesian Rupiah during periods of global economic uncertainty highlights the limitations of relying exclusively on conventional monetary instruments to maintain exchange-rate stability. While interest-rate adjustments and foreign exchange interventions remain important policy tools, their effectiveness is often constrained by external factors such as geopolitical tensions, capital-flow reversals, and global monetary tightening. Consequently, long-term currency resilience requires structural solutions capable of strengthening the real economy and generating sustainable foreign exchange earnings.

This study proposed the Defense Export-Led Stabilization Framework as an alternative approach for enhancing monetary resilience through the expansion of Indonesia's defense technology exports. By integrating theories of exchange-rate determination, defense economics, and industrial autonomy, the study demonstrates that the defense sector can evolve from a traditional fiscal burden into a strategic source of foreign exchange generation and macroeconomic stability.

The analysis of Indonesia's defense-industrial ecosystem revealed that several domestic enterprises, including PT Pindad, PT PAL Indonesia, PT Dirgantara Indonesia, and PT Dahana, have achieved significant levels of technological maturity, export readiness, and market competitiveness. Their product portfolios encompass land systems, naval platforms, aerospace technologies, ammunition systems, and energetic materials capable of serving both domestic and international markets. These capabilities provide a credible foundation for expanding defense exports to emerging economies across Southeast Asia, South Asia, Africa, the Middle East, and Latin America.

Furthermore, the study estimates that a moderate export-expansion scenario could generate approximately USD 1.9 billion in annual foreign exchange inflows. These revenues contribute directly to the improvement of the current account balance, the accumulation of foreign exchange reserves, and the strengthening of domestic foreign currency liquidity. Through the transmission channels identified in the proposed framework, defense exports create market-driven demand for the Rupiah and reduce dependence on costly monetary interventions.

The scenario analysis further indicates that increasing defense export performance can significantly enhance Indonesia's external-sector resilience. Even under conservative assumptions, defense exports provide meaningful support for foreign exchange availability and exchange-rate stability. Under more aggressive expansion scenarios, the sector possesses the potential to become a major contributor to national foreign exchange earnings and industrial competitiveness.

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Ultimately, this study concludes that defense technology exports should not be viewed solely as instruments of military modernization. Rather, they represent strategic economic assets capable of supporting monetary stability, strengthening industrial autonomy, improving external-sector performance, and reinforcing national economic sovereignty. The proposed Defense Export-Led Stabilization Framework therefore offers a new perspective on the relationship between defense industrial policy and macroeconomic resilience in developing economies. The findings are broadly consistent with defense-economics literature emphasizing the wider economic contributions of technologically advanced defense industries beyond their traditional security functions (Sandler & Hartley, 1995; Hartley, 2020). The proposed framework may serve as a foundation for future quantitative studies seeking to evaluate the empirical relationship between defense-export performance and exchange-rate dynamics in emerging economies.

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