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FROM AIMLESS STRAY TO CHARTING THE WAY: FINANCING POLICY REFORMS TO BOLSTER INDONESIA'S DOWNSTREAMING STRATEGY

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ABSTRACT

Purpose: A major impediment to the entry of domestic firms into these sectors is limited access to financing. This study seeks to analyze the constraints to financing access in Indonesia and to formulate policy recommendations to address them by employing an integrative literature review and comparative analysis of East Asian countries.

Methodology/approach: This paper employs an integrative literature review and comparative analysis to explore potential policy solutions for mobilizing capital for Indonesia's downstream industry.

Findings: Findings indicate that Indonesia's financial system, following substantial liberalization, now tends to favor projects with short-term returns over long-term downstream manufacturing projects that are critical for economic transformation.

Practical implications: Indonesia must direct its limited capital towards strategic downstream investments. The paper suggests three policy options: 1) providing direct preferential loans; 2) offering guarantees; and 3) injecting equity into targeted domestic firms.

Originality/value:

The recommendations come with several caveats, including robust governance, specific conditionalities, and stringent evaluation to ensure that financial support targets the most competitive enterprises that can meet the government's long-term development goals. This research found that while the

government's proactive financing presents inherent risk, the greater peril lies in inaction, which could further consign Indonesia to the middle-income trap.

Keywords: Development Financing, Downstreaming Industry, Industrial Policy, Invesment, Patient Capital

ABSTRAK

Tujuan: *Hambatan utama bagi masuknya perusahaan domestik ke sektor-sektor ini adalah terbatasnya akses terhadap pendanaan. Studi ini berupaya menganalisis hambatan terhadap akses pendanaan di Indonesia dan merumuskan rekomendasi kebijakan untuk mengatasinya dengan menggunakan tinjauan literatur integratif dan analisis komparatif negara-negara Asia Timur.*

Metodologi/pendekatan: *Makalah ini menggunakan tinjauan literatur integratif dan analisis komparatif untuk mengeksplorasi solusi kebijakan potensial untuk memobilisasi modal ke industri hilir di Indonesia*

Temuan: *Temuan menunjukkan bahwa sistem keuangan Indonesia, setelah terjadinya liberalisasi besar-besaran, kini cenderung lebih memilih proyek-proyek dengan keuntungan jangka pendek dibandingkan proyek-proyek manufaktur hilir jangka panjang yang sangat penting bagi transformasi ekonomi.*

Implikasi praktis*: Oleh karena itu, penulis berpendapat bahwa Indonesia perlu memastikan bahwa modal yang langka diarahkan pada investasi hilir yang strategis. Makalah ini menyarankan tiga pilihan kebijakan: 1) memberikan pinjaman preferensial langsung, 2) menawarkan jaminan, dan 3) menyuntikkan ekuitas ke perusahaan-perusahaan domestik yang menjadi sasaran.*

Orisinalitas: *Rekomendasi ini disertai dengan beberapa peringatan termasuk tata kelola yang kuat, persyaratan khusus, dan evaluasi yang ketat untuk memastikan bahwa dukungan keuangan menyasar perusahaan paling kompetitif yang dapat memenuhi tujuan pembangunan jangka panjang pemerintah. Penelitian ini menemukan bahwa meskipun pendanaan proaktif pemerintah mempunyai risiko yang melekat, risiko yang lebih besar terletak pada kelambanan tindakan yang selanjutnya dapat membawa Indonesia ke dalam perangkap negara berpendapatan menengah.*

Kata kunci: *Industry Hilir, Kebijakan Industri, Investasi Modal Jangka Panjang, Pendanaan Pembangunan*

INTRODUCTION

Indonesia has been undergoing premature deindustrialization over the past two decades as the share of manufacturing in the country's GDP continues to decline, from over 30% in 2002 to less than 19% in 2023 (ITC, 2024). Given the pivotal role that industrialization played in enabling the rise of today's developed countries from Europe to East Asia, the shrinking contribution of the manufacturing sector undermines Indonesia's long-term economic development. Indonesia should prioritize industrialization due to its positive correlation with economic growth, higher wages, service sector growth, enhancement of human capital and economic institutions, and the acceleration of technological accumulation (Helper et al, 2012; Su & Yao, 2017).

At this critical juncture, Indonesia requires a breakthrough to counteract the premature deindustrialization trend and facilitate economic structural transformation. In response to this pressing predicament, Indonesia has strived to promote resource-based industrialization through the so-called downstreaming strategy, which aims to reverse the premature deindustrialization trend and contribute to a galvanized structural transformation. With the strategy, the country leverages its abundant resources as a comparative advantage to stimulate investment in high-value-added industries.

The nickel ore export ban, first outlined in Mining Law No. 4 of 2009 and effectively enforced in early 2020, significantly advanced the downstream agenda. Since the implementation of this policy, the downstreaming strategy has yielded positive economic outcomes, with the value of nickel and its derivative exports rising from USD 7 billion in 2018 to USD 35 billion in 2023 (ITC, 2024). Furthermore, investment in the basic metal and metal goods industry sector increased from USD 2.9 billion in 2018 to USD 11.8 billion in 2023 (Ministry of Investment, 2024).

The lionshare of investment in the nickel downstream sector comes from foreign investors. Between 2017 and 2023, domestic investment in the basic metal and metal goods industry accounts for only around 13% of the total investment (Ministry of Investment, 2024). Foreign investment in the downstream nickel industry is important as developing countries like Indonesia often lack the technologies needed to establish a competitive manufacturing base. This study will give a contribution with several caveats, including robust governance, specific conditionalities, and stringent evaluation to ensure that financial support targets the most competitive enterprises that can meet the government's long-term development goals. This research sheds light on the government's proactive financing approach, which carries inherent risk. However, the greater risk lies in inaction, which could further condemn Indonesia to the middle-income trap.

The difference with the previous study is that relying solely on foreign investment for industrialization without ensuring technological diffusion to domestic enterprises is insufficient. This approach can result in suboptimal accumulation of technological and business expertise within domestic firms, hindering long-term economic development and innovation capacity (Lall, 2000; Amsden, 2001; Dunning & Lundan, 2008). Several papers have highlighted the importance of domestic capabilities, including the higher learning-by-doing effect (Greenwald & Stigltiz, 2006), higher economic growth (Fogel et al., 2011), higher local employment (Chang, 2010), and the bigger spillover effect (Chang, 2010; Aubert et al., 2011).

Numerous factors hinder the entry of domestic enterprises into downstreaming, with inadequate access to financing being one of the most formidable ones. The Ministry of Industry of Indonesia (2020) and the World Bank (2023) identified limited access to finance

as a major obstacle for domestic firms. In-depth interviews conducted by the authors with business practitioners further corroborate that domestic firms face significant challenges in securing adequate financing.

Given the inclinations of financing institutions to prioritize short-term returns and avoid high-risk projects, the nickel downstream industry's relatively restricted access to financing is not surprising. Financial institutions often perceive nickel processing manufacturing, a relatively nascent capital-intensive industry in Indonesia, as high-risk ventures. Accordingly, domestic enterprises aspiring to enter the sector may face more stringent financing conditions, including possibly higher interest rates or higher equity ownership prerequisites.

Given the emphasis on short-term returns and the risk aversion of financial institutions, governments must step in to provide 'patient' capital, specifically financing with longer terms and a more favorable interest rate for domestic enterprises. Current industrialized nations, including the United States (Mazzucato, 2013) and East Asian countries (Studwell, 2013), have historically adopted this approach. The availability of patient capital in these contexts enabled domestic manufacturers to enhance their competitiveness and achieve economies of scale. The experiences of the industrialized countries in the past sharply contrast with the practices observed in Indonesia.

The are several issues related to the downstreaming of nickel in Indonesia, first, the context of added value often overlooks the fact that added value requires additional labor and capital. An increase in added value means that additional labor or capital is needed in the nickel downstream sector. Due to the limited number of labor and capital originating from within the country, it is highly likely that the need for these two production factors will be met from other sectors, which results in a decrease in added value in those other sectors. Most of the research on Indonesia's nickel downstreaming tends to focus solely on economic aspects, particularly macroeconomic aspects at the national level. In addition, previous studies have focused more on the impact evaluation aspect of this downstream policy and have not directed their attention to policy reformulation analysis.

This paper aims to analyze the constraints to financing access in Indonesia, particularly in the nickel downstream industry, and also to examine possible options that the government can consider to remove the impediments to financing. The authors will begin by scrutinizing both theoretical and practical justifications for governments' actions to support financing access, drawing from a comparative analysis with East Asian countries. The paper ends with an extensive analysis of the policy measures to address the financing predicaments, including the governance and conditionalities required for the effective implementation of the proposals.

METHODS

This paper employs an integrative literature review and comparative analysis to explore potential policy solutions for mobilizing capital for Indonesia's downstream industry. Given the limited literature on industrial financing in Indonesia, an integrative literature review is suitable for developing initial conceptualizations or theoretical models. This method also provides an overview of the existing knowledge base, facilitates a critical review, and helps in the reconceptualization and expansion of the theoretical foundation of the topic as it evolves (Snyder, 2019). As Knopf (2006) suggests, relevant reports can originate from various sources, including books, academic journals, Indonesian regulations, reports, and various economic indicators. Snyder, (2019) emphasizes that writing an integrative literature review involves several key elements:

- Critical analysis involves evaluating the strengths and weaknesses of existing literature.

- Synthesis involves the integration of existing ideas with new ones to create a new understanding or framework.
- Using logic and conceptual reasoning, one can clearly explain the development of the new synthesis or framework from the reviewed literature.
- Exploring future directions involves probing the future of the topic, including implications for policy and practice.

Additionally, to develop and test hypotheses and theories about causal relationships, comparative analyses establish systematic similarities and differences between observed phenomena (Berg-Schlosser, 2015). Comparative analysis in social policy involves not just examining policies within a single country but comparing the same phenomenon across two or more countries. This comparison helps researchers understand differences and similarities in policy implementation and outcomes, allowing them to identify patterns and factors that influence policies in various national contexts (Snyder, 2019). It uses comparative analysis to explore the evolution of policies over time, the influence of historical events, and the role of institutions and interest groups in shaping policy outcomes.

The integrative literature review and comparative study results are used to formulate policy recommendations, which constitute the main findings of this paper. We discover through these analyses the characteristics of East Asian countries that have successfully mobilized capital to support strategic industrial sectors, and how these features differ from the conditions in Indonesia. This comparison provides important insights that form the basis for developing policy recommendations that are also tailored to the Indonesian context to optimize the government's role in supporting the development of downstream industries in the country.

The comparative analysis includes both quantitative and qualitative data from various institutions regarding market capitalization, economic complexity, and loans or credit. We collected qualitative data through in-depth interviews with academics, government officials, and business leaders. These interviews allowed the researchers to explore respondents' perspectives, experiences, and detailed views on financing the industrial sector. These interviews further verified the insights from the integrative literature review (Bryman, 2012).

RESULTS

Theoretical Foundation for Government's Intervention in Providing Financing Support

Economic literature refers to active government intervention to promote structural transformation as industrial policy (Juhasz et al., 2023). Industrial policy often employs financing as a crucial tool (Studwell, 2013; Hauge, 2023). Many countries that successfully industrialized have utilized financing policies to mobilize capital into targeted sectors or activities. For instance, South Korea is renowned for providing preferential loans to specific industrial sectors, including the heavy and chemical industry (Cho & Kim, 1995; Chang, 2002; Choi & Levchenko, 2021; Juhász et al., 2022). Financing is critical due to three primary rationales, namely, information externality, coordination failures, and positive externality (Juhasz et al., 2023).

Diversifying an economy into new sectors presents significant challenges. Successful ventures in new sectors provide valuable 'information' to other businesses, encouraging their entry into these sectors. On the other hand, the initiating firm bears all associated costs when a venture fails. This dynamic results in a scenario where successful entries generate considerable positive social spillovers, while unsuccessful attempts lead to significant private losses. We refer to this phenomenon as information externality; the private sector may lack sufficient incentive to diversify due to the need to share the benefits of successful ventures

with others, while the costs of failure are disproportionately burdensome (Hausmann & Rodrik, 2003). In this context, access to financing becomes crucial. Without government intervention, both businesses and financial institutions are likely to adopt a conservative approach, directing resources toward low-risk investments in currently successful sectors rather than exploring new sectors essential for national development. Therefore, the existence of information externality offers a strong theoretical basis for government intervention, which aims to address this market failure by providing financial assistance for the entry of new sectors.

Coordination failure is another market failure that impedes economic transformation (Rodrik, 2004). Complex economic activities require multiple inputs to be profitable. For example, electric vehicle plants need basic infrastructure such as access to electricity, logistics, and transportation networks. Furthermore, EV plants are more likely to thrive if they are located near the manufacturing facilities of EV components, such as EV batteries and their constituent materials. Similarly, the proximity of EV battery manufacturing facilities to EV plants, which serve as their offtakers, enhances their profitability. In essence, investment in the upstream sector is contingent upon concurrent investment in the downstream sector, and vice versa; that is, if there is insufficient investment in the upstream, downstream investment may not occur, and if downstream investment is lacking, upstream investment is also likely to be absent. To prevent this suboptimal scenario, it is imperative for the government to intervene, particularly through mechanisms such as financing support, to facilitate and enable investment along the entire value chain, encompassing both upstream and downstream activities.

Finally, financing targeted sectors can produce positive externalities that generate wider spillover effects across the economy. The manufacturing sector, for instance, is positively associated with improvements in other economic sectors, such as the services sector. For example, the operation of the manufacturing sector can stimulate new logistical services to transport manufactured goods. Additionally, targeted sectors can provide quality jobs, thereby enhancing social welfare and cohesion (Rodrik & Sabel, 2022). Manufacturing also has the potential to increase knowledge spillover effects due to its high intensity of research and development activities (Helper et al., 2012). In summary, successful entry into higher value-added downstream industries engenders widespread multiplier effects, thereby warranting government intervention, including the provision of financing support.

The Evolution and Impact of Downstreaming Policy in Indonesia

As the country was grappling with protracted deindustrialization and persistent dependence on raw materials, the Indonesian government over the past few years has been determined to promote resource-bbased industrialization through the so-called downstreaming strategy. Mining Law No. 4 of 2009 initially promulgated the policy, aiming to impose an export ban on unprocessed mineral ores. However, the ban faced stiff resistance from many businesses, leading to its relaxation and delay. The strict implementation of the nickel ore export ban did not occur until early 2020.

As previously mentioned, the downstreaming policy has yielded a variety of positive economic outcomes following the total ban of nickel ore exports, including a substantial rise in investment into the nickel processing industry and a considerable increase in nickel-derived exports. Aside from the impact at the national level, downstreaming has also generated sizable economic impact at the local level in several nickel downstream industry hubs, such as in Central Halmahera Regency and in Morowali Regency. Previously, these

Eastern Indonesian regions trailed significantly behind Java, the economic hub of Indonesia. Downstreaming has enabled these erstwhile marginalized regions to be new centers of economic growth. In 2023, Central Halmahera's economy grew by 42%, significantly higher than the national average at 5.05%. In the 2020-22023 period, GDP per capita in Central Halmahera increased annually by more than 100%. In 2023, the real GDP per capita in Central Halmahera stood at almost Rp. 500 million, which was approximately 10 times higher than the national real GDP per capita.

Notwithstanding the positive economic impact, Indonesia still has not seized the utmost benefits from downstreaming because the industry remains heavily dominated by foreign investors (Patunru, 2023). Data from the Ministry of Investment (see Fig. 1) indicates that domestic investment in basic metals, metal goods, and transportation equipment in 2023 accounts for only 13% of total investments (Ministry of Investment, 2024)).

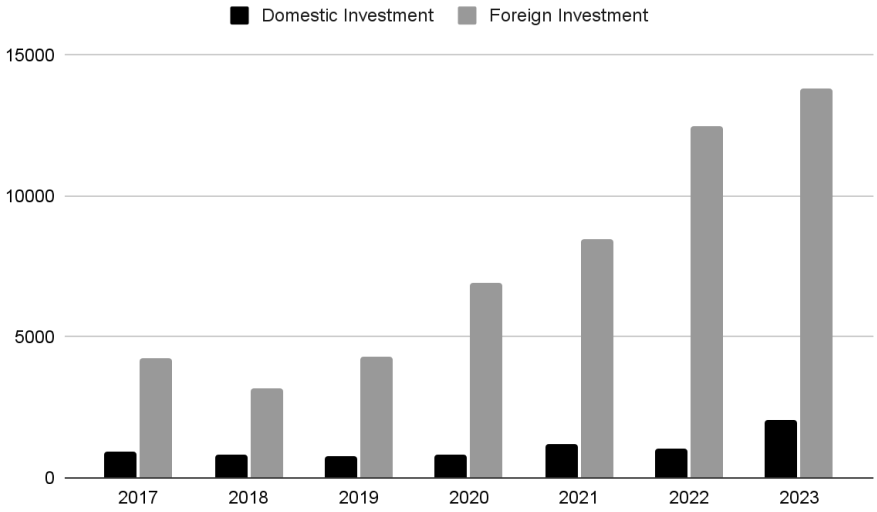

Figure 1. Investment realisation on basic metals, metal goods and transportation equipments

Source: Ministry of Investment of Indonesia

The dominance of foreign investment is evident in Indonesia's EV battery ecosystem. South Korean automaker Hyundai and battery giant LG Energy Solution are constructing Indonesia's first EV battery cell factory, with an annual production capacity of 10 GWh, expected to start production in 2024 (Reuters, 2024). This facility is part of a broader $9.8 billion investment in EV battery cell manufacturing Reuters, 2020)). Furthermore, Chinese battery giant CATL plans to invest approximately USD 6 billion in Indonesia (CATL, 2022).

While foreign investment is crucial, the lack of participation of domestic enterprises in the nickel downstream industry value chain could impede Indonesia's long-term development, including by undermining the efforts to acquire essential new technology and know-how. We cannot underestimate the importance of national firms entering high-productivity and advanced technology sectors. High-income countries are characterized by the strong capabilities of their national firms, such as Samsung in South Korea, Toyota in Japan, and Nokia in Finland. A World Bank (2024)emphasizes the necessity for middle-income countries to infuse global and modern technology and business best practices into their domestic economies and transition toward an innovation-driven economy as they approach the global technology frontier. For example, domestic firms in South Korea, like Samsung, began their journey through technological infusion by licensing technologies from Sanyo and NEC in Japan, transitioning from manufacturing noodles to producing televisions for

domestic and regional markets (Choi & Shim, 2022). These national firms, in turn, spur innovation (Greenwald & Stiglitz, 2006), absorb a larger workforce (Chang, 2010), and enhance knowledge spillovers (Chang, 2010; Aubert et al., 2011).

Building national firms capable of manufacturing advanced technology and competing in the global market is challenging. Interviews conducted by the authors, including with experts, business practitioners, and ministry officials, highlight financing as a significant obstacle to domestic investment in manufacturing. Experts noted that successful industrialized countries often employ active government intervention to provide patient capital at low interest rates to targeted industries. Business practitioners reported difficulties in meeting commercial banks' loan requirements, such as the need to have capital equivalent to at least 30% of the total investment and high interest rates for industrial sectors. Ministry officials emphasized that increased financing for domestic firms could spur industrial upgrading.

DISCUSSION

The Trajectory of Industrial Financing in Indonesia

During Soekarno's administration (1950s), Indonesia had several institutions, such as state-owned banks, that could effectively contribute to the development of infant industries. However, the industrial policy and export performance objectives did not adequately link those institutions (Studwell, 2013). In 1957, President Soekarno sought to encourage financing for certain strategic sectors during economic downturns by removing legal guarantees of central bank independence and directing the state bank to allocate credits towards favored projects such as business nationalization from the Netherlands. wever, the capital allocation mostly went to unproductive sectors and did not manage to promote industrial upgrading.

From the 1970s to the 1990s, Indonesia adopted a market economy model characterized by a move toward a liberalized financial system. This period saw the imposition of credit ceilings on commercial banks, the establishment of strict budget constraints for ministries, the development of new legislation favoring multinational corporations, the liberalization of foreign investment, the reduction of central bank rediscounting for favored projects, and the liberalization of interest rates (Studwell, 2013). However, this financial market liberalization did not effectively direct capital into projects that are critical for long-term development. The deregulated financial system tends to prioritize projects that can reliably yield short-term returns, such as consumer credit, over strategic manufacturing projects. Therefore, the financial system failed to optimally live up to its role as an important intermediary to foster the development of the real economy, including the paramount manufacturing industry.

Financial deregulation significantly increased Indonesia's susceptibility to financial crises, a vulnerability that became particularly pronounced during the Asian Financial Crisis of 1997. During this period, the exchange rate dropped dramatically from 2,500 rupiah per dollar in July 1997 to 14,000 rupiah per dollar by July 1998 (Studwell, 2013). Extensive financial liberalization initiated the crisis by facilitating substantial private sector borrowing from international markets (Studwell, 2013), leading to a massive influx of capital into the country. While this influx of 'hot money' provided temporary support to the economy, it presented far greater risks than foreign direct investment (FDI), as it was prone to rapid withdrawal at the first sign of instability. Capital flight ensued following currency speculation that undermined the Indonesian rupiah and the collapse of the Thai baht. The private sector found itself unable to meet dollar-denominated debt obligations as the value of assets in

Rupiah depreciated sharply. This dire economic situation further dissuaded portfolio investors, who accelerated their capital withdrawal, thus initiating a vicious cycle. The exacerbating capital outflows led to a further decline in the value of the rupiah, and the severe currency depreciation inflicted considerable damage on the economy, worsening the trajectory of capital flight.

The crisis significantly affected the manufacturing sector, especially those industries that depend on imported raw materials and machinery, as their procurement costs skyrocketed due to the declining value of the Rupiah. Export-oriented manufacturing also suffered as access to international financing dried up. The decline in domestic demand and a deteriorating business environment further exacerbated this downturn ADB & Bappenas, 2019).

Indonesia adopted the IMF restructuring plan in response to the financial crisis to stabilize the economy and ensure full compensation to foreign creditors. This plan led to a comprehensive restructuring of the banking system, resulting in substantial profits for commercial banks and a more secure financial framework (Studwell, 2013). For instance, the ratio of non-performing loans (NPLs) dropped from approximately 27 percent in September 1997 to less than 4 percent by 2013 (Basri, 2018). While the financial system gradually improved, the real economy suffered from a more protracted deterioration.

Following the turmoil, the regulatory oversight of the banking sector underwent further strengthening. On one hand, the more prudent standards are important to ensure the health of the financial system. On the other hand, an overly stringent banking regulation that precluded the government's endeavor to support certain strategic projects inadvertently curtailed the role of banks in supporting the manufacturing industry. People then viewed government intervention to channel credits to strategic sectors as a slippery slope, increasing the risk of systemic turmoil and potentially triggering another financial crisis.

As the banks became more risk-averse and the regulatory standards became more stringent, the manufacturing sector faced more difficulties in securing financing. This is a significant contributing factor to the steady decline of manufacturing in our GDP, which reached a low of 18.67% in 2023 (BPS, 2024). During this period, the government did not actively participate in mobilizing capital for industrial projects. Instead, the government focused its efforts on reducing bureaucratic hurdles by implementing a one-stop service system to streamline both foreign and domestic investment (Basri, 2018).

The World Bank enterprise survey in 2023 also reflects the challenges the manufacturing industry faced in obtaining financing. The World Bank asked approximately 3000 enterprises in Indonesia of various sizes that operate in diverse sectors to name the biggest bottleneck they endure in developing their business in the country. The highest number of Indonesian enterprises identified access to financing as their number one problem (see Fig. 2). Around one-third of the Indonesian businesses believed that restrictive access to financing was the biggest quandary they faced.

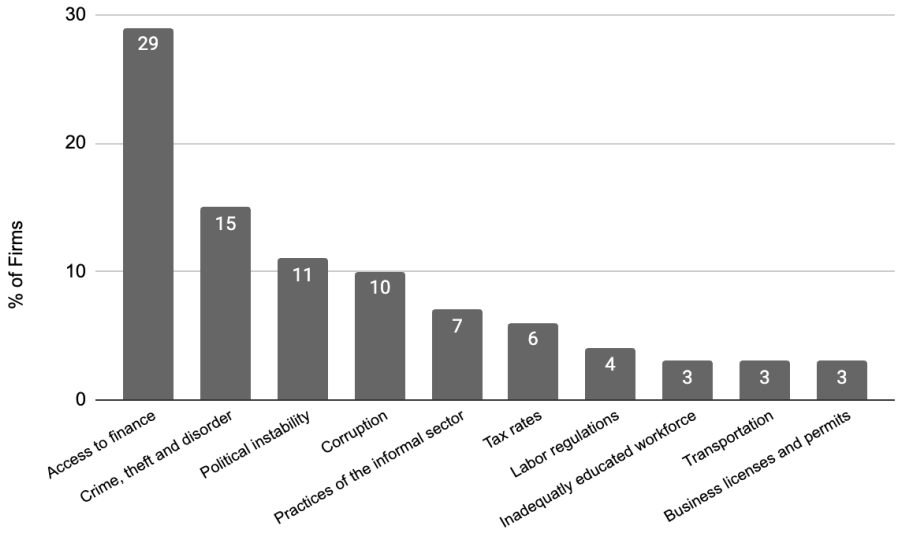

Figure 2. Top ten business environment constraints in Indonesia

Source: World Bank (2023)

Over the past several years, there have been signs that the government sought to play a more active role in channeling capital into direly needed strategic projects. The Yudhoyono administration established several national development financial institutions (NDFIs). However, their primary objective was to support potential private investors in executing development projects, reflecting a more passive form of state intervention. In contrast, the Jokowi administration adopted a proactive approach by significantly strengthening NDFIs (Kim, 2019). Government investment in NDFIs under Jokowi's administration tripled from 75.2 trillion rupiah during Yudhoyono's second term (2010-2014) to 235.5 trillion rupiah in Jokowi's first term (2015-2019). Under Jokowi, NDFIs played a crucial role in addressing Indonesia's economic challenges, which included the end of the commodity boom, sluggish manufacturing growth, and insufficient infrastructure development.

In the Jokowi era, NDFIs expanded the government's policy space by maintaining development finance under government control (Kim, 2019). Prominent NDFIs utilized extensively include *Sarana Multi Infrastruktur* (SMI), *Lembaga Manajemen Aset Negara* (LMAN), *Lembaga Pembiayaan Ekspor Indonesia* (LPEI), and *Lembaga Pengelola Dana Pendidikan* (LPDP), each with distinct mandates. For instance, SMI focuses on promoting infrastructure investment. Additionally, the government frequently employed state-owned enterprises for infrastructure project development and leveraged state banks and state-owned pension and insurance companies to finance such projects. In 2021, the administration established the Indonesia Investment Authority (INA) as the country's sovereign wealth fund.

The shift towards more proactive financing support has not led to a manufacturing renaissance in Indonesia. It is primarily because, thus far, the state intervention is mostly aimed at developing the infrastructure with scant attention given to industrial upgrading. There is a need for the government to expand the scope of its state-led financing beyond infrastructure. This is particularly evident from the successful case of East Asian countries, as we shall dissect in the following section.

Comparative Analysis

Indonesia has undergone numerous evolutions in its development financing schemes. However, as discussed in the previous section, the current instruments are inadequate to support industrialization. The absence of domestic firms that are able to produce complex goods in the value chain underscores the need for greater government support, including in financing, to bolster structural transformation.

As of August 2024, the five firms with the largest market capitalization in Indonesia are primarily from the financial sector. This stands in stark contrast to the trends observed in South Korea, where companies in the manufacturing sector dominate (see Table 1). This situation suggests that financial institutions in Indonesia are more focused on capital accumulation rather than fulfilling their intermediary role in supporting the real sectors, including manufacturing. The absence of governmental directives, such as guidance for state-owned banks, to extend credit to enterprises operating within higher value-added sectors, explains this phenomenon.

Additionally, data on trade-economic complexity (Stojkoski et al., 2023), which measures the knowledge accumulated in a population and expressed through trade activities, provide insights into Indonesia's productive capabilities. The economic complexity indicator is an important measurement to be considered as it positively correlates with higher GDP per capita (Hidalgo, 2021). In 2022, Indonesia's economic complexity ranked 67th out of 137 countries, lagging behind other ASEAN neighbors such as Singapore, Malaysia, Thailand, and Vietnam, which rank 6th, 24th, 29th, and 55th, respectively.

.

Indonesia	South Korea
Bank Central Asia (Financial service — $78.23 Billion)	**Samsung** (Electronics — $385.8 Billion)
Chandra Asri Petrochemical (Petrochemical — $52.51 Billion)	**SK Hynix** (Semiconductor — $87.42 Billion)
Bank Rakyat Indonesia (Financial Service — $43.83 Billion)	**LG Energy Solution** (Battery — $56.62 Billion)
Bank Mandiri (Financial Service — $39.29 Billion)	**Samsung Biologics** (Biomanufacturing — $47.37 Billion)
Bayan Resource (Mining — $35.13 Billion)	**Hyundai** (Automotive — $43.78 Billion)

Source: CompaniesMarketCap

The lack of access to financing is also evident in Figure 3, which illustrates the proportion of loans directed to the manufacturing sector relative to total loans. In 1955, 43% of total loans in Japan went to manufacturing, and in 1980, 54% of the loans in South Korea were channeled to manufacturing. These figures indicate significant support that the manufacturing companies received in East Asia from their financial system. In contrast to

Japan and South Korea, only 15% of total credit in Indonesia went to the manufacturing industry in 2022.

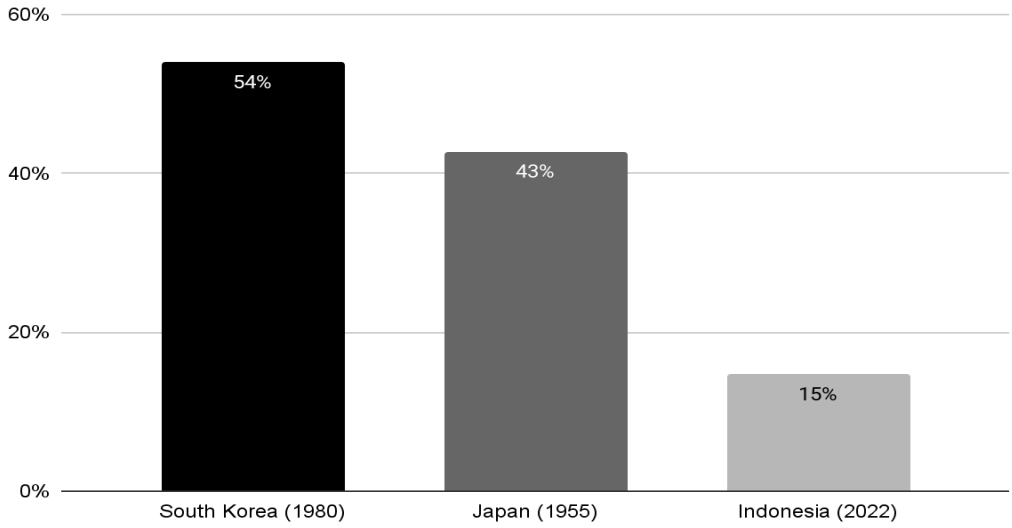

Figure 3. Loan in manufacturing relative to total loan

Source: South Korea (Cho & Kim, 1995), Japan (Ueno, 1976), Indonesia (Bank Indonesia, 2022)

The aforementioned comparison of three counties across different time periods is relevant because they are in a similar stage of economic development. The GDP per capita of South Korea in 1980, Japan in 1955, and Indonesia in 2022 were US$ 4,056, US$ 5,552, and US$ 4,247, respectively. In other words, at a similar level of economic development, a considerably higher share of total credit in South Korea and Japan went to the strategic manufacturing industry compared to Indonesia (Ueno, 1976; Cho & Kim, 1995; Bank Indonesia, 2022).

Indonesia's underperformance in channeling credit to the manufacturing industry is not just observable compared to the East Asian countries in the past, but it is also apparent if the country is compared with its fellow developing countries in the present. As illustrated in Figure 4, India's total loans to the manufacturing sector are significantly higher, averaging six times more than Indonesia's between 2010 and 2022.

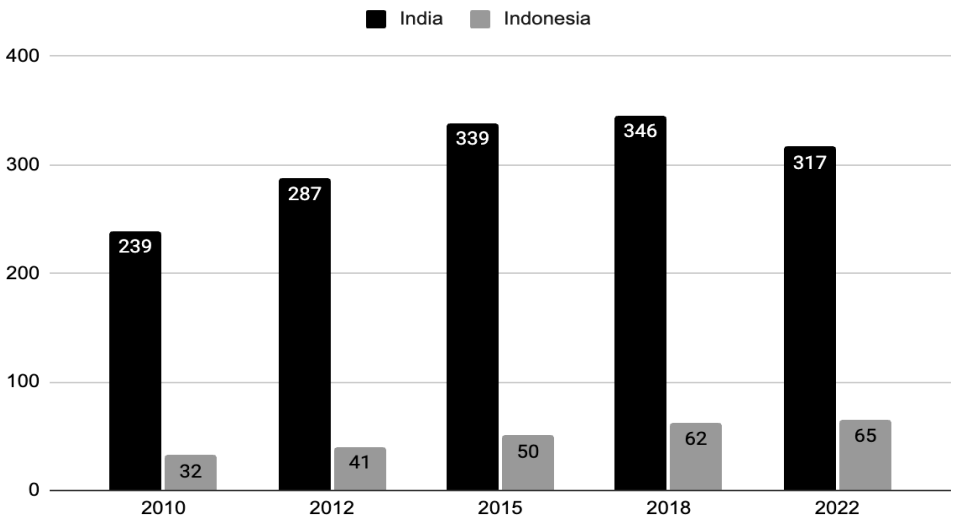

Figure 4. Total Loans in the Manufacturing Sector (in Billions USD)

Source: Author's analysis from Bank Indonesia and Reserves Bank of India

The issue of access to financing in Indonesia is well-documented in several reports. According to a report by the Ministry of Industry of the Republic of Indonesia (2020), there is a maturity mismatch between the manufacturers and the banks. The manufacturers need long-term loans, whereas the banks tend to only offer short-term or at best, medium-term loans. Additionally, banks impose higher interest rates and stringent equity ownership requirements due to their reliance on short-term deposits from customers.

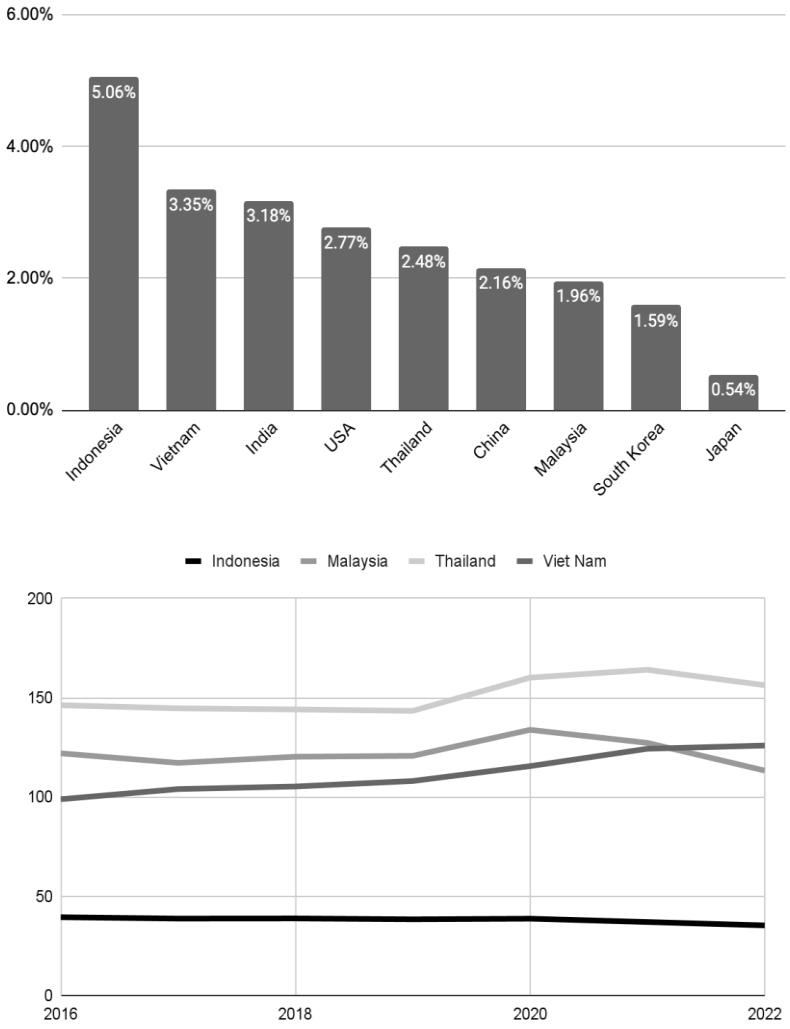

Figure 5 & 6. Net interest margin rate in 2021 (top) and domestic credit to private sector as percent of GDP (bottom)

Source: Authors' analysis from Bankscope (top) and World Bank (bottom)

Indonesian banks' exceptionally high net interest margin (NIM) reflects their inability to fulfill their intermediary role in effectively supporting the real sectors. NIM, defined as the difference between the interest income generated from loans and the interest paid to depositors, serves as a crucial indicator of bank profitability. A higher NIM typically correlates with increased profitability for banks. As illustrated in Figure 5 (top), Indonesian banks exhibit the highest NIM among several countries in 2021, indicating strong profitability. While this elevated profitability benefits the banks, it obscures a more significant issue: their failure to adequately function as intermediaries for the real economy. Indonesian banks tend to retain capital rather than channel it toward economic development. Figure 5 (bottom) depicts Indonesia's notably low credit-to-GDP ratio compared to other ASEAN countries, further demonstrating this tendency. In essence, Indonesian banks exhibit a more conservative approach than their ASEAN counterparts, thereby highlighting their shortfall in fulfilling their responsibility to support the real sectors through effective credit allocation.

In order to reform the financial system so that it can effectively mobilize capital for productive sectors, Indonesia could gain valuable insights from East Asian countries,

including Japan. Japan developed institutions between 1949 and 1954 with the aim of accelerating economic growth. The Ministry of International Trade and Industry (MITI) wielded extensive control over the banking system and foreign exchange allocations, enabling it to direct preferential financing, select targeted industrial sectors, and influence bank-based industrial conglomerates (Johnson, 1982).

During that time, Japan employed a two-tiered development financing structure. Initially, the government exercised control through a mechanism known as rediscounting, in which the central bank extended loans to commercial banks. This mechanism expanded a commercial bank's loan book and profit potential while allowing the central bank to set borrowing criteria based on export performance and sectoral focus (Studwell, 2013). Implicit guarantees were not available to banks that deviated from MITI's guidelines and supported undesignated industries (Johnson, 1982; Mazzucato & Rodrik, 2023). In other words, the central bank in Japan was not fully independent, contrary to the conventional wisdom that a beneficial central bank needs to keep its distance from the government. The Japanese Central Bank, during the pinnacle of the industrialization drive, worked hand in hand with the government to help channel the scarce capital to the most important sectors. In contrast, today's Indonesian central bank must distance itself from the government's policies, focusing primarily on maintaining financial stability instead of promoting structural transformation.

The second tier involved the establishment of government-owned banks to supplement commercial banks in providing industrial loans. One of those banks was the Japan Development Bank (JDB), which provided long-term loans to private enterprises when commercial banks were unwilling to provide them. Although administratively under the Ministry of Finance, MITI played a significant role in the bank's policy-making by screening loan applications and estimating the annual capital shortfall between available and needed capital. For instance, in 1952, the Enterprises Bureau of Japan estimated that the steel industry required investments of JPY 42 billion, of which banks could source JPY 31.5 billion, with the JDB providing the remainder. MITI-designated strategic industries, such as power plants, ships, coal, and steel, received 83% of JDB financing during 1953-55, significantly contributing to investments in these sectors (Johnson, 1982).

Similarly to Japan, South Korea also actively directed capital to targeted sectors, particularly to the heavy chemical industries, including steel, nonferrous metals, shipbuilding, machinery, electronics, and petrochemicals (Chang, 2002; Choi & Levchenko, 2021; Juhász et al., 2022). South Korea implemented state control by permitting unlimited rediscounting of loans from nationalized banks, provided the government approved the project and the business owners adhered to export requirements. During the zenith of Korea's heavy and chemical industrialization drive from 1974 to 1980, the average real interest rate in the banking system was -6.7 percent (Studwell, 2013). To put it another way, companies received payment for their capital borrowing. Besides rediscounting, the South Korean government also heavily utilized the Korea Development Bank (KDB) to provide capital to the targeted industries (Lee, 2019).

Additionally, since domestic savings in South Korea were low (Cho & Kim, 1995), the South Korean government also used the government-owned Korea Development Bank (KDB) to secure cheaper funds from international sources and increase guarantees for Chaebol to borrow internationally. Because KDB was government-owned, there was an implicit government guarantee that strengthened KDB's credit rating and enabled the bank to access cheaper sources of funding.

The government in South Korea often refers to the preferential loans it steers to the most strategic sectors as "policy" loans. During the period of rapid growth in South Korea, policy loans accounted for nearly 58% of total loans (Cho & Kim, 1995). The support provided to industries was primarily based on export performance criteria, ensuring that the financed projects contributed significantly to the country's economic growth.

China, akin to Japan and South Korea, exhibits significant government involvement in its financial system. State-owned banks provide preferential loans to state-owned enterprises, and state-directed lending supports infrastructure, technology, and industrial projects aligned with government-planned objectives. Approximately 60 percent of Chinese banks are state-owned, enabling government control through regulations, the appointment of top executives, and the regular issuance of policy guidance, ensuring that banks align with policy goals. According to DiPippo et al. (2022), below-market credit in China in 2019 reached USD 125 billion.

Additionally, China has established government guidance funds (GGFs), which are public-private equity investors controlled by the government but managed professionally. GGFs aim to provide "patient capital" for long-term investments in priority sectors, particularly through capital injection to early-stage companies in nascent strategic sectors such as advanced semiconductors. In 2021, the establishment of 1,849 GGFs marked a total designated funding scope of USD 1.7 trillion. The central government launched the National Integrated Circuit Industry Fund in 2014, raising an initial USD 21.31 billion. Subnational governments control most GGFs, and as of mid-2020, central funds accounted for about 19 percent of the national total. The scale of GGF investments is substantial, supporting financing for new Chinese domestic firms entering new strategic sectors.

Drawing from the experiences of East Asian countries, the authors identified several key similarities and differences between these countries' financing policies for strategic manufacturing projects and the existing financing landscape in Indonesia. The analysis narrows down to four primary aspects:

1) Patient capital institutions: Manufacturing, particularly in developing countries, entails significant risks and substantial costs, which conventional banks typically avoid. Such investment necessitates capital that not only extends long-term financing but also tolerates risk, venturing into new sectors with higher value added. The governments of East Asian countries have taken the initiative to establish financial institutions or encourage private institutions to provide this type of capital, a move that the Indonesian government has yet to make.

2) State Control and Coordination: During the rapid industrialization period, the central banks in both Japan and South Korea collaborated closely with the government to direct the banks' credit towards projects that aligned with the government's priorities. Moreover, the state owned several key banks in both countries, enabling them to direct their credit towards strategic projects. Even commercial banks did not have much leeway to defy the government's guidelines because doing so would lead to the withdrawal of government guarantees or the coveted rediscounting from the central bank. Furthermore, these governments have robust coordination mechanisms with the private sector, enabling continuous evaluation, assessment of performance criteria, and resolution of bottlenecks faced by the private sector.

3) Prioritization: East Asian governments strategically prioritized financing support for certain industrial sectors, recognizing their greater value added and multiplier effects on a country's long-term economic development compared to other sectors. This prioritization

signaled various government-affiliated institutions, including government-owned banks and ministries responsible for infrastructure development, to collaborate closely in fostering the development of the targeted sectors. For example, China's five-year plans specify detailed industrial targets, guiding the financial sector on where to allocate funds. China's 14th five-year plan (2021-2025) explicitly called for further development of certain strategic manufacturing industries, including semiconductors, new energy vehicles, and biotechnology. The plan reaffirmed the government's commitment to providing financial support for investments in strategic industries, stating that it will "increase medium- and long-term loans and lines of credit for manufacturing, increase loans for technological transformation, and ensure equity investment and bond financing are more heavily weighted towards manufacturing."

4) Conditionality and Measurability: East Asian governments provide preferential assistance only to enterprises entering industrial sectors that align with their development plans. They also only prop up companies that are able to meet specific criteria set by the government, such as export performance. A robust monitoring mechanism is in place to assess measurable performance indicators and subsequently either reward or penalize these companies. For instance, the South Korean government mandated that private investors receiving preferential treatment must meet export performance benchmarks. Failure to do so results in the revocation of incentives. This approach allows the South Korean government to support successful initiatives and discontinue underperforming ones. With this conditionality, government intervention in financing does not constitute picking the winner stereotype, but it embodies weeding out the losers ethos.

Characteristics	**East Asian Countries**	**Indonesia**
Patient Capital Institutions	• Japan, South Korea, and China have their own development bank to provide direct patient capital to targeted sectors. • The Central Bank in Japan and South Korea implemented a rediscounting mechanism to direct loans into strategic sectors. • China also establishes government guidance funds to inject capital into potential firms. • South Korea provides guarantees for investors.	• Indonesia currently has several national development financial institutions, including SMI, INA, and PII, but the capital directed towards the strategic industrial sector remains limited. • Despite the dominance of state-owned banks, their lending activities do not significantly focus on industrial sectors. • Consequently, the availability of patient capital for strategic manufacturing including in downstreaming is limited.
State Control and Coordination	• The Central Bank in Japan and South Korea did not work independently but collaborated closely with the government to	• Despite the state being the majority shareholder, the state did not exert effective control over state-owned

	steer the banks to support strategic investments. • During the apex of industrialization, several key banks in South Korea and Japan were owned by governments, enabling the state to directly guide the credit allocation. • Today, some of China's largest banks and equity investment funds are also owned by the government, and as such the state can also directly influence the direction of credit provision. • The governments of Japan, South Korea, and China strategically planned industrial development, controlled projects, rigorously evaluated loan applications, and coordinated efforts with relevant stakeholders.	banks in terms of guiding the allocation of credit. • The government also has a number of non - bank financial institutions including PT. SMI or INA, but the state did not direct these institutions to support financing for strategic manufacturing including in the downstream industry • Coordination between government agencies and between the government and industry is suboptimal;
Prioritisation	• In their early development stages, Japan and South Korea prioritised the heavy chemical industry, focusing on sectors such as steel, shipbuilding, machinery, petrochemicals, and electronics. • China has heavily prioritised several cutting-edge manufacturing sectors including new energy vehicles, semiconductor and biotechnology. • The prioritisation from these governments acted as a strong signal for financial institutions to channel their capital into the favoured sectors.	• Although roadmaps for industrial development exist, their objectives are often not tangible and are often not synchronised across various ministries • The sectoral selection by the government carries limited influence for financial institutions to follow through even including ones that the government owns.
Conditionality and Measurability	• In Japan, South Korea, and China, policy incentives are accompanied by conditionalities. • Eligibility for rediscounts, preferential loans, and interest rate subsidies is based on several key criteria including export performance and is limited to targeted sectors. • Following the provision of the financing support, the government carried out rigorous monitoring and evaluation mechanisms.	• As previously discussed, the Indonesian government does not actively guide capital allocation to manufacturing. There were some measures to support preferential loan for some manufacturing sectors during the Soekarno and Soeharto era, but it did not come with conditionalities linked to industrial upgrading, consequently the loan was often wasted and did not lead to structural

Table 2. Comparison between East Asian Countries and Indonesia

	transformation

Source: Johnson (1982); Studwell (2013); Kim (2019)

Policy Proposals towards a more Pro-Downstreaming Financing Policies

The comparative analysis in the previous section shows that the availability of patient capital is one of the most important common denominators behind the success of East Asian countries' industrialization. This section will examine three viable policy options to address the issue of patient capital in Indonesia in order to better support the diversification of domestic enterprises into strategic downstream industries. The summary of the three policy measures is as follows:

Table 3. Summary of policy proposals towards a more pro-downstreaming financing policies

Instrument	Explanation
Channelling direct preferential loan from government-owned banks to strategic downstream industries	Provision of preferential loan to domestic enterprises entering strategic downstream industry. The loans may be extended by a newly formed development bank or by the government's special mission vehicles (SMV) with elevated mandate
Extending government guarantee to commercial credit that goes to strategic downstream industries	Extending government guarantee including through government's special mission vehicle towards credit channelled by commercial banks to domestic enterprises diversifying into strategic downstream industry.
Equity injection from government-affiliated investment funds	Capital investment from the government's special mission vehicle or investment fund towards new domestic ventures diversifying into strategic downstream industry.

Channelling direct preferential loan from government-owned banks to strategic downstream industries

Drawing lessons from the East Asian countries, channeling preferential credit directly from the government-owned or government-controlled banks to aspiring domestic enterprises in the strategic manufacturing sectors is a potent way to foster industrialization. As previously explained, Indonesia's deregulated financial system has made the banks cautious and hesitant to provide financing to the crucial downstream industry.

Indonesia does have several state-owned banks that may serve as vehicles to channel the direct loan to strategic downstream industry. Nevertheless, harnessing these banks may engender political reservations because some perceive them to be prone to inefficient or even corrupt practices. To that end, an alternative that the government may explore is establishing a new development bank with clear objectives to support downstream industry along with robust governance and vigorous oversight.

The establishment of the new development bank needs to consider the following factors:

1) Ownership: The institution could have a mixed ownership structure, with the government as the majority shareholder and other entities such as multilateral development banks and

private institutions holding minority stakes. This arrangement aims to ensure that the bank aligns with the government's development agenda while also strengthening its capital endowment, enabling it to provide long-term financing for projects.

2) Mandate: The proposed institution needs a clear mandate that aligns with the entry and diversification of domestic enterprises into strategic downstream industries. The following sections will elaborate on the potential sectors to which the bank may lend.

3) Main business**:** The development bank's primary product or business is the provision of preferential loans that feature longer maturity dates and favorable interest rates to domestic enterprises that meet certain criteria.

In addition to establishing a new development bank, the government may also assess the possibility of elevating existing Special Mission Vehicles (SMVs) to act as the intermediary for the direct preferential loan. Currently, Indonesia does have a number of SMVs, most of which focus on infrastructure financing (PPKIM, 2013), such as PT Sarana Multi Infrastruktur (SMI). The government may upgrade these SMVs to be conduits for direct concessional loans.

While some may challenge the government's intervention to channel direct credit to certain strategic sectors, this is not a novel practice. East Asian countries heavily resorted to this type of policy, steering government-owned banks to provide favorable loans to certain strategic manufacturing sectors, as extensively recounted in previous sections. In addition to the international benchmarks, there have also been similar precedents in Indonesia, including in recent times. SMI in Indonesia offers both commercial and public financing with flexible schemes, long-term tenures, and innovative financing products for infrastructure projects. Infrastructure and manufacturing are not identical, but they carry some similarities, including the need for long-term financing. Furthermore, it is widely believed that both infrastructure and strategic downstream industry are critical for the country's national economic development in the long run. Therefore, the government's intervention to support financing into downstream industry should not be viewed negatively.

Providing direct loans to downstream industry does pose certain risks, such as resource misallocation, susceptibility to rent-seeking activities, and potential political capture by elites. In 1991, Bapindo, a state-owned bank, provided credit to a fictitious petrochemical project to the tune of USD 430 million after lobbying and obtaining approval from influential figures (CNBC Indonesia, 2023). These past mistakes should not deter the government from extending direly needed financing support for strategic downstream industry. Instead, they should serve as a learning opportunity for the government to improve the governance, monitoring, and evaluation of the financing support, which are paramount for the success of similar interventions in the future.

Specifically, the Bapindo case underscored the necessity to restructure the bank's risk management, given that the credit in question lacked collateral, a breach of prudent banking practices that heightened moral hazard for the borrower. Robust governance and strong surveillance should still govern the provision of direct loans to strategic downstream industries to mitigate the risk of rent-seeking practices.

Extending government guarantee to commercial credit that goes to strategic downstream industries

Another potential strategy to improve financing access for the development of downstream industries is to extend government guarantees to bank loans for domestic enterprises entering strategic downstream industries. The perception of heightened risk in the downstream industry, which forces banks to charge high interest rates, is a major factor behind the limited financing. Government guarantees help mitigate the risk, which would encourage banks to offer loans with more favorable requirements for businesses in downstream industries.

In Indonesia, government guarantees for certain strategic projects are not necessarily unique. Indonesia has implemented the scheme to finance infrastructure and MSMEs. As of today, Indonesia's government guarantee scheme for infrastructure has supported the financing of 52 projects, including 34 public-private partnership (PPP) projects and 18 non-PPP projects, with a total value of Rp 503 trillion (Bisnis Indonesia, 2024). In infrastructure projects, PT Penjaminan Infrastruktur Indonesia (PII) and/or the Ministry of Finance serve as the insurers. Other than infrastructure projects, the government also offered guarantees for credit flowing to micro and small businesses. Between 2007 and 2014, the government implemented a guarantee scheme for micro and small businesses through PT Jaminan Kredit Indonesia (Jamkrindo) and PT Asuransi Kredit Indonesia (Askrindo).

The importance of infrastructure development and the empowerment of small businesses justifies the government's proactive provision of financing support through guarantees. However, the emergence of domestic enterprises in strategic downstream industry is no less critical, and the government should accordingly also extend a similar guarantee scheme for this objective. One possible mechanism that the government may replicate in implementing the guarantee program for downstream industry is the guarantee scheme for corporations that was authorized by the government as a part of the national economic recovery program, or PEN. For the program, the government mandated one of its special mission vehicles, namely PII, to act as the guarantor. The program came with robust governance. For instance, there was a limit to the guarantee coverage for PII; PII's guarantee also had a secondary loss limit guarantee entrusted to Indonesia Exim Bank, or LPEI; there was a clear setting of the guarantee premium; and there were a few other safeguard guidelines.

The PEN guarantee program for corporations sets a strong precedent that Indonesia could replicate for the downstream manufacturing industry, given the significant similarities among its beneficiaries, which are large domestic enterprises. Furthermore, PII's extensive experience in both corporate and infrastructure loan guarantees positions them as the ideal agency to carry out the government guarantee program for the downstream manufacturing industry. Many countries have implemented a government guarantee for credit in certain strategic sectors as a policy instrument. One of the most successful government guarantee programs is the Green Credit Guarantee (GCG) program by the Swedish government. The Swedish government tasked the Swedish National Debt Office (SNDO) to issue a guarantee of up to 80% for investment that contributed to lower the emissions (Algers, 2024). By doing so, the SNDO managed to attract carbon-reducing investment. For instance, the SNDO approved a green credit guarantee for H2 Green Steel, securing a €1.2 billion loan.

Government guarantees play a crucial role in enhancing the creditworthiness and bankability of downstream manufacturing projects, as previously explained. Irwin (2007) also notes that private investment with a guarantee might be better than private investment alone. For instance, Brazil's six railway projects, enabled by government-backed credit guarantees, have

yielded significant economic gains. Without the guarantee, those projects would have been considered unprofitable and, as a result, would never have taken off. The case against government guarantees, however, also warrants careful attention. People often associate a government guarantee with moral hazard, believing that it encourages the beneficiary to take more risks because the government shares the risk. The issue with guarantee is also associated with the fiscal burden of the government, which could lead to a crisis.

Extending government guarantees could potentially mitigate the risks involved. For instance, Cangiano et al. (2006)explained that strengthening conditionality and requirements is necessary to deter predatory lending arising from government guarantees. With sturdy governance and surveillance, government guarantees can play an important role in expanding financing access for domestic enterprises entering downstream industries.

Equity injection from government-affiliated investment funds

The third policy option to support the financing of the downstream manufacturing sector entails equity injections. The previous two policies aimed to ease the flow of loans or credits, but this measure focuses on another financing path: stock ownership of corporations that diversify into strategic downstream industries. Two primary approaches can achieve this: expanding the mandate of the Indonesia Investment Authority (INA) and establishing government guidance funds (GGFs).

Indonesia established INA as its sovereign wealth fund. As of 2023, INA's total assets, including contributions from co-investors, amount to USD 9.5 billion. Currently, INA's primary investment targets do not yet encompass the downstream manufacturing industry. In 2023, INA concentrated its portfolio, totaling USD 3.2 billion, on digital sectors (33.5%), green energy (14.5%), healthcare (14.5%), and transport and logistics (4.4%) (INA, 2023).

Given INA's lack of footprint in the downstream manufacturing sector, the Indonesian government could expand the institutions' mandate to also support equity financing for strategic downstream industries such as electric vehicles, batteries, solar panels, and semiconductors. INA's support would provide local firms with the necessary capital to start their ventures in the strategic downstream industry. Moreover, INA’s investments could provide a positive signal to attract private investors.

There are numerous sovereign wealth funds globally, some of which provide equity financing for key domestic enterprises in the strategic manufacturing industries. Khazanah Nasional Berhad (KNB) from Malaysia, for example, performs this function. The Malaysian Government has tasked KNB to invest in emerging sectors that can enhance national growth and competitiveness. To this end, KNB has allocated USD 1.5 billion across six strategic sectors aligned with national interests. For instance, Khazanah has made equity investments in key national firms such as Proton (automotive), Cenviro (waste management), CIMA (cement industries), and Tenaga Nasional (renewable energy).

Another alternative that the government can explore is providing equity investment through government guidance funds (GGFs), which have thrived in China. The government owns the majority stakes in GGFs, which are essentially semi-public investment funds. According to Ge et al. (2023), GGFs are more likely to invest in targeted industries, in earlier stages of corporate development, have longer holding periods, and produce higher corporate innovation compared to non-GGFs. Furthermore, Zhang et al. (2024) noted that GGFs did not exhibit a crowding-out effect on private investors, which could be attributed to their diverse investment segments. The government directs GGFs to provide patient capital,

managed professionally, akin to venture funding. A notable example is the National Integrated Circuit Industry Fund, which focuses on semiconductor firms and reaches USD 22.6 billion. GGFs also operate at the local levels, such as the Shenzhen Qianhai Mother Fund, which provides capital to medical, biochemical, and energy firms.

GGFs can achieve dual objectives: generating profits and mobilizing capital toward the government's targeted sectors. GGFs would function akin to public venture capital (VCs), which would invest in early-stage ventures with significant growth potential. Unlike traditional banking, which measures success by loan repayments and interest earned, GGFs realize profits through the growth of new ventures in which they have invested, aiming to exit by selling stakes during an initial public offering (IPO) or through acquisitions at higher valuations.

National and local governments can inject capital and attract venture capital or private equity to co-invest in sectors identified as priorities by the government, such as manufacturing. Within the GGF framework, the government would maintain control to plan investments, determine targeted sectors, approve projects, and decide on capital allocations. For other equity investors, the government's backing of the funds provides an implicit guarantee and signals a strong commitment to the GGF's success.

However, INA and GGF carry several risks, including the potential for inefficient resource allocation, private sector crowding out, and corruption. If accountable and well-founded governance fails to support the combination of large capital reserves and extensive state intervention, INA and GGF become particularly vulnerable to these issues (Wei et al., 2023). However, governments in other countries have successfully managed these risks. Vigorous assessment of the business ventures, clear and measurable targets, steady evaluation, and monitoring mechanisms are some of the ways in which government-backed equity injection can reach the objective of promoting strategic downstream industries while mitigating the risks.

The three policy proposals differ from each other and complement each other.

As depicted in Figure 6, different policies serve their respective distinct functions. Equity injections are more suitable for the experimental development and early industrial commercialization phases, functioning similarly to venture capital. In these earlier stages, companies' owners often lack the basic equity to get their business off the ground; this is where the government-backed investment funds step in. Direct loans, offered through development banks and special mission vehicles, are more suitable for projects in the industrial commercialization phase or those with a higher level of viability, including those where the enterprises have already secured initial funds. Finally, sectors that are more mature but still perceived to carry higher risks can benefit from loan facilitation through government guarantees.

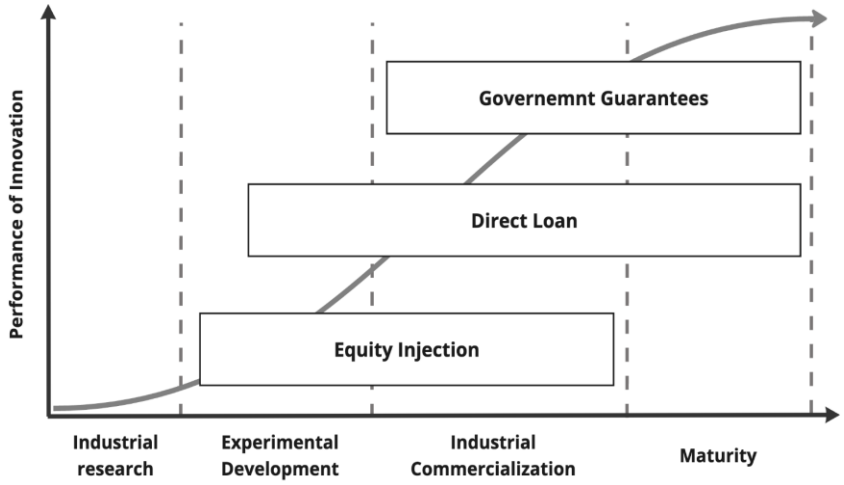

Figure 7. Innovation S-Curve with relevant financing policies

Sources: Author's Analysis

	Direct loans	Government Guarantee	Equity Injection
Financial instruments for enterprises	Loan from government's owned banks	Guaranteed loan from private banks	Equity from government-backed funds
Main targets	Early stage enterprises in nascent downstream industries with very high risk	Established enterprises in downstream sectors that are not fully developed with high risk	Mature enterprises in rapidly developing downstream sectors with moderate-high risk
Influence to firms	Indirect influences on firm's management	Indirect influences on firm's management	direct influences on firm's management
Efficacy	High as the financing support is primarily contingent on the discretion of government	Moderate, because the financing support needs active participation of private banks	High as the financing support is primarily contingent on the discretion of government
Fiscal burden to Government	High, with the government-linked capital outlay in advance	Moderate, with possible capital deployment at the end of projects in the case of failures	High, with government-linked capital outlay in advance

Table 4. Comparison of the Three Policy Proposals

Sources: Authors' analysis

Table 4 provides a comparative summary of various financing policies aimed at supporting national firms in downstream manufacturing. As previously mentioned, a significant distinction among the three options lies in the distinct stages of corporate development and the appropriate financing support for each stage. Additionally, each policy exerts varying

degrees of influence on firms. Equity injections allow the government to exert significant control over firm management, while direct loans and loan facilitation only allow for more indirect government control through various conditionalities.

The efficacy of these policies in promoting high-quality domestic firms also varies. Equity injections and direct loans are more effective because they entail straightforward government action that is not contingent on other stakeholders. Commercial banks' willingness to utilize the program influences the execution of government guarantees. However, this potential efficacy comes with a higher fiscal burden. Both equity injections and direct loans necessitate an upfront capital disbursement, resulting in a higher fiscal allocation. On the other hand, in the case of guarantee, the fiscal burden comes at the end of the financing program, which could also be avoided altogether if the enterprises succeed.

The pro-downstreaming financing policies are governed

We need to equip the three policy proposals above with vigorous governance to eventually support Indonesia's structural transformation through the development of strategic downstream industries. First, there must be clear guidelines on sectoral prioritization. The government must channel the scarce capital it has at its disposal to downstream industry sectors that can generate significant multiplier effects and meaningfully contribute to the country's structural transformation. These sectors, among others, include:

- Electric vehicle batteries and their constituent materials are used for nickel downstreaming.
- The downstreaming of silica sand and bauxite utilizes solar photovoltaic modules.
- Electronics for tin and copper downstreaming.
- Biofuels, such as bioethanol and sustainable aviation fuel, are used downstream for palm oil and corn.

Businesses applying for this program should meet strict criteria in addition to sectoral prioritization. The enterprises should be domestic, with more than half of their equity owned by Indonesian nationals. Moreover, the enterprises should possess specific track records and credentials, such as experience in the manufacturing industry, to demonstrate their potential for competitiveness in the strategic downstream industries. In other words, a firm with low financial capacity and no prior manufacturing experience would not be eligible for the financing program, even if they declare their intention to enter the prioritized downstream industries.

The government should not absolve the enterprises after they receive financing support. The government should impose clear conditionalities on the recipient of the financing support. Some of these conditionalities may include:

- The business must commence operations X years after receiving financing support.
- The business needs to continuously increase production year after year.
- The business needs to be competitive in the domestic market after Y years, as seen in their increasing share in the domestic market.
- The business needs to be competitive in the international market after Z years, as can be reflected in their increase in exports.

Companies that fail to meet these targets will receive warnings and adjustments in the financing support they get. If the failures persist, the government should eventually have the ability to discipline the firms and ultimately cut them off from the financing program.

That being said, if a firm fails, the government should conduct a thorough assessment and evaluation of these failures. The government should impose punitive measures if a thorough evaluation reveals that internal factors, not external conditions, are the cause of the firm's underperformance. If, however, the problem lies beyond the firms' control, then the government should also step up and extend more assistance. The government must closely work together with firms to understand the bottlenecks the ventures face and collaborate to address them. For instance, the government could assist firms struggling to thrive in downstream sectors by facilitating patent acquisitions or forming partnerships with foreign universities for research.

The pro-downstreaming financing policy presents both feasibility and risks.

From the implementation perspective, the above pro-downstreaming financing policies present both challenges and opportunities. The first issue pertains to the source of capital. Regarding this matter, it's important to note that governments in many other countries have successfully mobilized funding for development financial institutions, such as development banks or government-linked investment funds. Therefore, it would not be out of the ordinary if the Indonesian government were to take a similar approach. Furthermore, the Indonesian government could secure international funds with lower interest rates because of an implicit government guarantee. Additionally, the Indonesian government has successfully reclaimed investment grade ratings from various credit rating agencies. The pro-downstreaming financial institutions, such as Indonesia's development bank or SMVs, can then productively channel these cheaper funds. Additionally, the government could optimize its existing financial resources, either from the state budget or from government-owned assets, to facilitate pro-downstreaming financing policies.

Second, an issue arises regarding the agency responsible for implementing the pro-downstreaming financing policies. In this regard, Indonesia is better positioned compared to many other developing countries because the country has a number of government-linked and even government-owned financial institutions, including several state-owned banks, SMVs, and sovereign wealth funds. In contrast, the Philippines, a neighboring country with which Indonesia shares many things in common, does not have any state-owned financial institutions. The Philippines recently tried to establish its own sovereign wealth fund but eventually decided to backtrack. Admittedly, the management of Indonesia's financial institutions over the past decades has had several challenges. However, we also need to acknowledge that these state-owned institutions have improved considerably. As previously pointed out, two of Indonesia's largest enterprises are state-owned banks. Given the existence of these institutions and Indonesia's extensive experience in managing and enhancing them, Indonesia can effectively leverage these assets to implement pro-downstreaming financing policies. The Indonesian government can upgrade these institutions and equip them with new mandates to implement the pro-downstreaming financing policies. Alternatively, with the experience and the lessons it has learned from past mistakes, the government can also establish new financial institutions, including a development bank, to support the implementation of the pro-downstreaming financing policies.

Finally, it is also important to note that not all of the projects that get financing support from these proposals will be successful; some, or perhaps most, may fail as part of the process. This is not due to the stigma that "governments cannot pick winners," but because in general the success of new entrants in new high-risk businesses is not guaranteed. We also observe this in the private sector, where 80% of new firms financed by venture capital fail (Forbes, 2023). Therefore, the risk of failure in supporting new entrants is not something unique to the government. Instead of completely eliminating the risk of failures, which even private sector investors cannot do, pro-downstreaming financing policies should aim to anticipate and mitigate such risks. As previously discussed, it is crucial to establish robust governance. The government needs to establish an iterative governance mechanism, whereby periodical evaluations of both failures and successes serve as inputs for refining and improving policy implementation (Rodrik & Sabel, 2022).

CONCLUSION

Indonesia's agenda for structural transformation through the downstreaming strategy still has significant shortcomings. A major hindrance that prevents the country from reaping the optimal result is the lack of participation of domestic companies in the downstream value chain. Without a significant footprint of the domestic enterprises, the greatest value-added from downstreaming would continue to go to foreign investors, which currently dominate the sector. The country's financial system, which is reluctant to provide the so-called patient capital, primarily drives the subdued presence of our domestic enterprises in the downstreaming industry. People increasingly recognize that the rapid industrialization of East Asian countries would not have been possible without the availability of patient capital and the proactive government support that facilitated it. Japan, South Korea, and China share similar characteristics in furnishing patient capital to the strategic manufacturing industry: the state exercises control and coordination, aligns capital mobilization with national development plans, imposes conditionalities through performance-based rewards and penalties, and rigorously evaluates the outcomes of their financing supports. In contrast, Indonesia's deregulated financial system tends to prioritize capital flow to investments that yield short-term profits and shy away from longer-term investments that are considered risky, including downstream manufacturing projects. Although the Indonesian government has made efforts to direct capital towards productivity-enhancing projects, it has primarily focused on infrastructure development thus far. The banks dominate the financing for the critical downstream manufacturing industry, while the government has a secondary role.

Learning from the East Asian countries' success, the authors propose three key policy recommendations to advance Indonesia's development agenda through a more favorable financing landscape. Firstly, they suggest creating a new development bank or enhancing the current Small and Medium Enterprises (SME) to finance downstream industry projects directly using preferential loans. Concessional credit would play a crucial role in encouraging Indonesia's domestic private sector to venture into higher-productivity downstream industries. Second, the government could offer guarantees for credit allocated to downstream industries, thereby encouraging commercial banks to finance these sectors. Government guarantees would enhance the creditworthiness and bankability of high-risk industrial projects, thereby increasing the confidence of commercial banks to provide lending. Finally, the government of Indonesia could establish government guidance funds (GGFs) or expand the mandate of INA to inject capital into new firms in the downstreaming industries. GGF

and INA can act as public venture capitalists who will help channel patient capital to aspiring domestic enterprises in the downstreaming industries.

Implementing the above policies does entail risks and challenges. Some would oppose the idea because of the ordeal of the Asian financial crisis, which in reality was triggered by financial system liberalization, not because of the government's excessive intervention. The authors acknowledge the challenges but argue that they should not deter the government from supporting the downstreaming industry more actively. The authors argue that they can and should mitigate these challenges by establishing a robust governance mechanism. This mechanism should include stringent guidelines on the downstream sectoral targets, scrupulous eligibility criteria for the enterprises, meticulous performance conditionalities on the beneficiaries, and most importantly, a rigorous evaluation system with rewards and penalties. This governance does not completely eliminate the risk of failures. Instead of retreating from failures, view each mistake as a chance for learning and improvement to achieve the desired objectives.

While a more proactive government in steering scarce capital into the strategic downstream industry presents its own risk, perpetuating the business as usual poses an even greater threat of depriving the ability of our country to fully capitalize on the flourishing downstream industry. Rather than serving as a springboard for growth, maintaining our financial system status quo risks transforming the downstream industry into another layer of the middle income trap that our people would struggle to be free from.

The limitations of the research emphasize that, while the government's proactive financing carries inherent risks, such as the potential for misallocation of resources, the greater danger lies in inaction. If the government fails to act and provide financial support, Indonesia may remain trapped in a cycle of stagnation, known as the middle-income trap. This situation occurs when a country is unable to transition from a middle-income status to a high-income status, limiting its economic potential and growth. Future studies on financial support in Indonesia are crucial for fostering a competitive business environment. By implementing robust governance, specific conditionalities, and stringent evaluations, the government can ensure that financial resources effectively target enterprises capable of contributing to long-term development goals.

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