Frontier Market Economies

Promise, Performance, and Prospects

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WORLD BANK GROUP

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Executive Summary

Frontier market economies are a diverse group characterized by limited but meaningful access to international financial markets: greater than most developing economies but less than emerging markets. Today's frontier markets already account for more than one-fifth of the global population, and over the next 25 years, they are projected to add more to the global population than the rest of the world combined, yet they currently account for about 5 percent of global output (refer to figure ES.A). Frontier markets will therefore be pivotal to the global job creation agenda. Their access to financial markets also means they will be key to global private capital mobilization efforts.

Growing populations and access to global financial markets are building blocks of frontier markets' economic potential. Although frontier markets lag behind emerging markets on other development indicators, they also have advantages over other developing economies: they generally have larger physical capital stocks and better human capital. Many frontier markets also hold important natural resource endowments, including of minerals that will be important to new technologies and the energy transition.

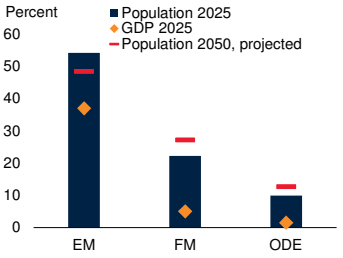
Yet despite their considerable economic potential, as a group, frontier markets' economic and development progress over the past quarter century has been modest. Real GDP per capita in the median frontier market is now less than one-third of that in the typical emerging market—a wider gap than in 2000. In the five-year period from the onset of the pandemic, high-income status moved further away for about 40 percent of frontier markets (refer to figure ES.B). On a per capita basis, average annual investment growth has fallen from over 5 percent in the 2000s to 2 percent in the early 2020s (refer to figure ES.C). Poverty rates in frontier markets have more than halved since 2000, but remain about five times those in emerging markets, and progress has slowed in the past decade. Life expectancy has risen, as have other human development indicators, such as education levels.

Inclusion in major international equity and bond indexes should attract investment and can

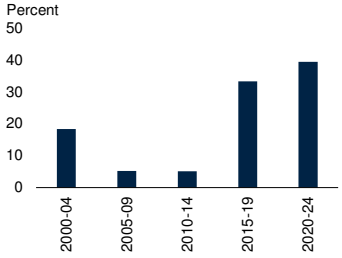
FIGURE ES Overview

Frontier markets' share of the global population is rising, but their share of global GDP remains low. High-income status has moved further from reach for a growing share of frontier markets in recent years. Growth of per capita investment has slowed in frontier markets, even as these economies have become more financially open. In both emerging and frontier markets, capital inflow surges have been associated with strong output growth, although surges are often followed by stops. Amid external and fiscal pressures, the number of frontier market sovereign default events has risen in recent years.

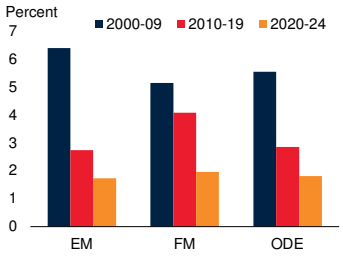
A. Shares of global population and GDP



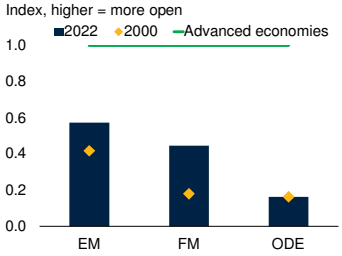
B. Share of frontier markets not converging to high-income threshold



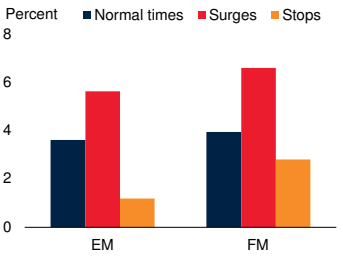
C. Annual growth of per capita investment



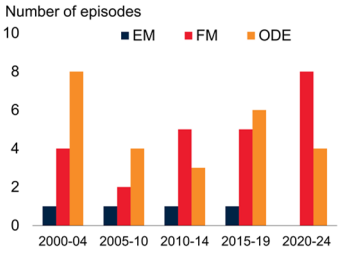
D. De jure financial openness



E. GDP growth around capital inflow episodes



F. 2000-24 sovereign default events



Sources: Chinn and Ito (2006); Haver Analytics; Kose et al. (2022); Organisation for Economic Co-operation and Development; UN Population Prospects (database); WDI (database); World Bank.
Note: EM = emerging markets; FM = frontier markets; ODE = other developing economies, neither EM nor FM. Unless otherwise stated, bars show country group medians for the 2012 baseline sample.

A. Sample includes 37 EMs, 56 FMs, and 57 ODEs, by 2025 classifications.

B. Bars show the share of the 39 FMs in the baseline 2012 sample not converging to high-income status over each period. An economy is converging if the ratio of its per capita income to the World Bank Group's annual high-income threshold is rising.

C. Sample includes 30 EMs, 34 FMs, and 42 ODEs. Bars represent period averages of median values in each group.

D. Financial openness is proxied by the Chinn–Ito Index, which measures capital account openness using the first principal component of variables on regulatory controls over current or capital account transactions, with 1 (normalized) indicating the most open. Balanced sample of 34 EMs, 37 FMs, and 69 ODEs.

E. Surges and stops are identified via the algorithm detailed in annex 4.3. GDP growth is measured as seasonally adjusted annualized rates based on real quarterly GDP data in local currency. Sample includes 24 EMs and 27 FMs.

F. Data cover sovereign defaults and restructurings with private creditors that occurred between 2000 and 2024 as documented in Asonuma and Trebesch (2016), Erce, Mallucci, and Picarelli (2022), Fitch Ratings (2025), Moody's Ratings (2025), and S&P Global (2025).

also incentivize sound policies. Frontier markets' share of global capital flows increased in the early part of the quarter century. Their openness to capital flows has risen but remains below that of emerging markets (refer to figure ES.D). Output growth in frontier markets has tended to rise substantially around capital inflow surges (refer to figure ES.E). Stops in capital flows—which often follow surge episodes—are often associated with a slowdown in output growth.

However, frontier markets' financial development and integration into the global economy remain partial, leaving opportunities unrealized as well as some notable vulnerabilities. Relatively underdeveloped and shallow domestic financial markets, with wider bank lending–deposit rate spreads than in emerging markets, as well as institutional and governance weaknesses, constrain their ability to productively use investment, and growth in capital stock per capita has been disappointing. Thin policy buffers (for example, in terms of fiscal headroom and foreign exchange reserves) and credibility gaps in governance and policy frameworks increase uncertainty for firms and investors, raise external financing costs, and amplify the adverse effects of shocks. The nature of frontier markets' external exposures is unfavorable relative to emerging markets. Portfolio flows tend to be more volatile; export baskets are more concentrated; and more debt is denominated in foreign currencies, alongside lower reserves cover. Fiscal pressures have also risen. In recent years, there have been more sovereign defaults in frontier markets than in all other countries combined (refer to figure ES.F).

Some frontier markets have achieved more rapid economic progress than others; although routes to success have varied, some common themes emerge from their experiences. The frontier markets that recorded the fastest average growth in GDP per capita over the last quarter century also recorded strong increases in capital stock per person relative to other frontier markets. They also improved governance, and they reduced banks' lending costs. In addition, these faster-growing frontier markets were more effective in containing growth in government debt.

These top-performing frontier markets are a diverse group that have adopted different development approaches: from encouraging investment into the energy sector (Kazakhstan), to pursuing value-added manufacturing (Viet Nam), to focusing on services- and tourism-driven growth (Rwanda): all sectors among those identified by the World Bank Group as having strong job creation potential. Many faster-growing frontier markets (such as Panama, for example) have made large infrastructure investments. Four economies (Bulgaria, Costa Rica, Panama, and Romania) reached high-income status and therefore graduated from frontier market status to emerging market classification between 2012 and 2025.

Policy makers in frontier markets should strive to leverage the benefits of financial market access effectively and foster job creation to capitalize on growing populations. They should look to *advance financial and trade integration while mitigating associated risks*, furthering integration while improving oversight capacity, developing local financial markets, and enhancing policy buffers and resilience. They must *bolster macroeconomic stability and credibility*, creating an enabling environment for business, investment, and effective financial integration. Policy makers should also seek to *catalyze investment and productivity growth*. Taking full advantage of growing populations and access to international finance requires investment in foundational infrastructure and human capital. Structural reforms are needed to help generate high-return investment opportunities and lay the groundwork for sustained productivity growth and job creation. Given frontier markets' heterogeneity, more granular policy prescriptions must account for individual economies' particular advantages and vulnerabilities. The international community also has an important role to play in fostering an environment in which frontier markets can thrive.

Frontier market economies are a subset of emerging market and developing economies that have meaningful but limited access to international financial markets. For global investors looking for returns beyond advanced economies, frontier markets represent a middle ground: they are less integrated into international financial markets than emerging markets but more integrated than other developing economies. These economies are home to 1.8 billion people today, about one-fifth of the world's total, and are projected to account for a larger share of global population growth than the rest of the world combined over the next 25 years. With some 230 million young people expected to reach working age by 2035 in frontier markets, they will play a critical role in addressing the jobs challenge facing developing economies. Many frontier markets possess valuable natural resources, and their populations are, on average, better educated and longer-lived than those in other developing economies. Growing working-age populations could create a sizeable demographic dividend—provided that sufficient jobs can be generated. Together with progress in international financial integration, these strengths point to considerable potential for rapid growth, job creation, and development. Yet although growth in some frontier markets has been relatively strong in the past quarter century, the group as a whole has not fully realized its potential. Progress in financial integration has brought benefits but remains partial, and these economies have also experienced greater vulnerability to sudden stops in capital flows and an increased incidence of sovereign defaults. There is no single path to success, but frontier markets that have recorded stronger growth over the last quarter century share some key features, including faster investment growth, improved institutions, and more contained government debt. Advancing financial development, alongside policies to bolster macroeconomic stability and catalyze investment, productivity, and job creation, can help frontier markets harness the gains from global financial integration while mitigating associated risks. Realizing frontier markets' potential is essential not only for these economies, but also for global job creation and development progress.

Introduction

Frontier market economies (hereafter simply "frontier markets") are a diverse subgroup of emerging market and developing economies (EMDEs) characterized by their intermediate position in terms of international financial integration. They have gained some access to international financial markets—less than emerging market economies, but more than other developing economies—and are sometimes referred to as "pre-emerging" (refer to box 4.1).[1] This chapter identifies frontier markets primarily by their inclusion in some widely tracked financial market indexes. Frontier markets are distinguished from emerging markets, which are part of higher-grade equity indexes or have high-income status. The chapter identifies 39 frontier markets as of 2012, and these provide the baseline sample for the analysis. Parts of the chapter also consider new entrants to the class, which had grown to 56 as of 2025.[2]

Frontier markets have significant economic potential, in terms of demographics, natural resources, and gains from financial integration. Understanding the challenges and prospects of today's frontier markets is central to addressing the jobs challenge confronting EMDEs: these economies are home to roughly 1.8 billion people, over one-fifth of the world's population, but account for about 5 percent of global output. More than 230 million young people in today's frontier market economies are expected to reach working age between 2025 and 2035. Between 2025 and 2050, total and working-age populations in frontier markets are both projected to grow by more than those of the rest of the world

Note: This chapter was prepared by Tommy Chrimes, Philip Kenworthy, Jiwon Lee, Kate McKinnon, Takuma Tanaka, and Hamza Zahid.

[1] Definitions vary, but frontier markets are generally considered "pre-emerging" economies with financial markets that are usually smaller and less liquid than those in emerging markets but that are still investable (refer to, for example, Chowdhury, Edmonds, and Walker 2015). The classification used in this chapter is based primarily on economies' inclusion in several key financial market indexes, supplemented by a per capita income level filter. "Other developing economies" refers to EMDEs that are not classified as emerging markets or frontier markets. This taxonomy is intended solely for the analysis in this chapter; it carries no implications for the operations or policies of the World Bank Group. Box 4.1 and annex 4.1 give full details on the classification.

[2] By 2012, all indexes used in this classification had been established. Using 2012 (roughly the midpoint of the quarter century) for the baseline also allows for assessment of frontier market performance over time. Where the 2025 sample of frontier markets is more instructive, this is made clear in the text and chart notes.

combined. This represents a large demographic dividend, provided that working-age people can find productive jobs. People in frontier markets are better educated and live longer than in other developing economies. Many frontier markets also boast significant natural resources, including tourism potential as well as commodities crucial to new technologies and the energy transition.

Inclusion in major financial market indexes can have significant consequences for EMDEs. A direct benefit is that index inclusion attracts capital into an economy's bonds and equities through a so-called "benchmark effect" (Raddatz, Schmukler, and Williams 2017). Given the large amount of assets benchmarked to prominent indexes relative to the size of many EMDE financial markets, these effects can be substantial. In bond markets, inclusion in global indexes can lower borrowing costs, improve market liquidity, and broaden the investor base. Equity market index inclusion can lower firms' cost of capital, stimulate increased investment and innovation, and improve risk-sharing, but may also generate relative losses for producers of tradables through currency appreciation.[3]

Indirect benefits of index inclusion and international financial integration can stem from the reforms that they incentivize—including strengthening the rule of law, enhancing financial regulation, and improving macroeconomic policy frameworks. Such reforms bring their own economic benefits, supporting long-term growth by promoting investment, improving allocative efficiency, and boosting total factor productivity (Adarov 2025; Kose et al. 2010). Although such benefits should themselves encourage reforms, index inclusion and deeper integration into global financial markets can provide additional incentives to advance effective reform efforts.

Amid relatively easy global financial conditions, borrowing premia for many EMDEs have followed a declining trend since early 2023. Despite high geopolitical uncertainty over 2025, sovereign bond spreads at the start of January 2026 were lower than a year before in 90 percent of frontier markets; in 62 percent, they were also lower than on the eve of the pandemic in early 2020. This has prompted an uptick in frontier market bond issuance. However, in the past, such issuance has not consistently resulted in strong growth and development.

There have been many studies on EMDEs and on various EMDE sub-groups, such as low-income countries (LICs) and economies in fragile and conflict-affected situations (FCS).[4] Yet frontier markets as a subgroup have tended to be overlooked in economic analyses. This chapter presents the first comprehensive analysis of economic developments and prospects in frontier markets. It addresses three main questions:

- How have frontier markets performed in terms of macroeconomic and development outcomes, relative to emerging markets and other developing economies, since 2000?
- In what ways do macro-financial conditions shape macroeconomic and development outcomes in frontier markets?
- What policies can frontier markets pursue to raise growth and create jobs while containing vulnerabilities?

Contributions

The chapter makes several contributions to the literature.

Overview of frontier markets' characteristics and performance. The chapter provides an overarching

[3] On the benefits of index inclusion, refer to Arslanalp and Tsuda (2015) and Raddatz, Schmukler, and Williams (2017). On wider international financial integration benefits, refer to Bekaert, Harvey, and Lundblad (2005) and Kose et al. (2009). In sovereign bond markets, inclusion in global benchmarks such as J.P. Morgan's EMBI is linked to lower yields and spreads, deeper investor bases, and greater efficiency (Arslanalp, Bornhorst, and Poplawski-Ribeiro 2020; Broner et al. 2021; Romero et al. 2021). Equity index inclusion and market liberalization raise firm valuations, reduce the cost of capital, and foster innovation and productivity via increased investment and analyst coverage (Bena et al. 2017; Henry 2003; Kacperczyk, Sundaresan, and Wang 2021; Yang et al. 2025).

[4] On EMDEs or emerging markets, refer to, for example, Kose and Ohnsorge (2024) and Magnus (2010). Studies on EMDE subgroups include those of LICs, such as Collier (2007) and World Bank (2025a); of FCS economies, such as Ganson and Wennmann (2016) and World Bank (2025b); and of small states, such as World Bank (2024a).

BOX 4.1 Financial market classifications of frontier market economies

Financial market classifications of emerging market and developing economies (EMDEs), such as distinctions between emerging and frontier market economies, can lead to substantial capital inflows to upgraded economies by signaling progress in market reforms and institutional development. However, major financial market index compilers take different approaches to classification. There is no universally accepted definition of frontier or emerging markets. This box outlines a simple, transparent approach for identifying frontier and emerging market economies, based primarily on economies' inclusion in certain key financial market indexes (and also taking account of income levels). The resulting taxonomy provides the basis for this chapter's analysis of economies that are at early stages of integration into global capital markets.

Across financial markets and international institutions, countries are often grouped—for example, by region, income levels, trade patterns, policy frameworks, or other specific characteristics. The World Bank Group has been influential in this nomenclature, and the term "frontier market" was coined in the early 1990s by the International Finance Corporation (IFC) and is now used widely across financial markets (IFC 2016).[a] Yet while there is a broad general understanding that frontier markets are "pre-emerging" economies with some degree of financial market access, there is no precise common definition. Different, if overlapping, approaches adopted by financial market index providers create definitional challenges for cross-cutting analysis. Categories, tiers, criteria, and processes differ between index providers, often with some qualitative element to assessment.[b] With the rapid expansion of index-based investing, inclusion or exclusion from emerging market or frontier market indexes can be consequential, both as a signal of market development and reform progress, and as a direct shaping force on capital flows.

Robust analysis of frontier market prospects therefore requires an approach that captures the effects of inclusion in widely followed indexes, while drawing clear and transparent distinctions between emerging markets, frontier markets, and other developing economies. Against this backdrop, this box addresses the following questions:

- How do financial markets categorize EMDEs for the purpose of index creation?
- What is a simple and analytically robust definition of frontier markets to study their macroeconomic performance and prospects, including relative to other EMDEs?

Country classifications by financial markets

Financial market classifications of EMDEs into *frontier markets* and *emerging markets* reflect index providers' assessments of factors deemed relevant to international portfolio investors. The specific parameters differ across providers, but major equity market indexes primarily consider a combination of market characteristics (the size, breadth, and liquidity of domestic equity markets) and market accessibility (regulations involving the ease of financial market transactions). In addition to quantitative criteria, qualitative judgments—such as assessments of institutional and regulatory frameworks—also play a role in determining index inclusion (Quisenberry and Griffith 2010).[c] For more detail on the parameters used for index classifications, refer to annex 4.1.

Conceptually, emerging markets are more advanced along the dimensions emphasized by index providers,

Note: This box was prepared by Tommy Chrimes, Philip Kenworthy, and Takuma Tanaka.

a. IFC had previously developed the term "emerging markets" (IFC 2016). IFC also developed a frontier markets index, which was subsequently acquired and recast by Standard & Poor's (Chowdhury, Edmonds, and Walker 2013).

b. A financial market index provider is a firm that defines and maintains market classifications and benchmarks used by investors and asset managers to measure performance and allocate capital. For country group indexes, providers set rules and criteria for index inclusion—such as market size, liquidity, accessibility, and institutional quality—and monitor adherence. Classifications can influence investment decisions, capital flows, and market perceptions, particularly given the growing rise of index-tracking funds and other passive investment strategies. The four index providers used in this classification include J.P. Morgan, which produces the J.P. Morgan Emerging Market Bond Index; MSCI (Morgan Stanley Capital International), which provides the MSCI Emerging Markets and Frontier Markets indexes; FTSE Russell, which publishes the FTSE Emerging and Frontier Market indexes; and S&P Dow Jones Indices, which maintains the S&P Emerging and Frontier Broad Market Index series.

c. For instance, regular assessments against market accessibility criteria require incorporating and summarizing qualitative feedback from market participants. These may include judgments concerning areas such as the stability of institutional frameworks and the efficiency of operational frameworks (MSCI 2025).

BOX 4.1 Financial market classifications of frontier market economies (*continued*)

while frontier markets are at an earlier stage of financial development and integration. An economy may graduate from one index to another (for example, from a frontier market index to an emerging market index) if its markets deepen and become more accessible. EMDEs not included in either emerging or frontier market indexes—here called "other developing economies"—typically have a limited presence in global capital markets. These financial market classifications tend to broadly correlate with income levels: other developing economies are, on average, the poorest group, emerging markets the most affluent, and frontier markets occupy an intermediate position. However, exceptions exist where capital market development has outpaced income levels or, conversely, where higher-income economies remain less integrated into global capital markets, often because of limited market size.[d]

A simple, unified classification of frontier and emerging markets

Drawing on the classifications of several prominent index providers, this box presents a simple and coherent categorization of frontier market economies, emerging market economies, and other developing economies. It incorporates the taxonomies of four major index providers and categorizes EMDEs as follows (refer to annex 4.1 for full lists of economies):

- Economies included in at least one emerging or frontier market equity index are categorized as *frontier market economies* if they appear in more frontier than emerging market equity indexes, and as *emerging market economies* otherwise.[e]
- Economies not included in an emerging or frontier market equity index but included in the J.P. Morgan Emerging Markets Bond Index (EMBI) Global are categorized as *frontier market economies*.
- Any EMDE classified as a high-income country according to the World Bank Group is listed as an *emerging market economy*.
- After applying the above rules, remaining EMDEs are categorized as *other developing economies*.

This classification approach offers several advantages for the analysis in this chapter. First, by drawing clear distinctions among different groups of countries, it allows for clean and consistent cross-country comparisons. Second, the exclusion of high-income economies from both the frontier market and other developing economy groups enables a focused examination of how capital inflows can support growth from modest income levels. Third, the approach incorporates information from both equity and bond indexes, recognizing that different economic and market structures across EMDEs can channel capital flows through different instruments. Fourth, by drawing on indexes from four separate major index providers rather than a single index, the approach captures a broad view of market access.

Indexes classifying EMDEs have grown and evolved over time. Some of the indexes used in this chapter did not exist in their current form in 2000. Accordingly, this chapter uses index membership and income levels in 2012 to form the baseline sample. This is roughly the midpoint of the quarter century covered in this chapter, and from thereon data for all four indexes are available. There were 39 frontier markets as of 2012 under the definition used here. By 2025, this number had risen to 56 economies.

Many new entrants to the frontier market group between 2012 and 2025 achieved this status through inclusion in J.P. Morgan's EMBI Global bond index. Six economies were also added in 2016 following MSCI's decision to include the Western African Economic and Monetary Union (WAEMU) countries as frontier markets. For a full set of movements between EMDE groups, refer to annex 4.1. Economies identified as moving from frontier to emerging status between 2012 and 2025 have done so by reaching high-income status. Viet Nam's anticipated 2026 reclassification by FTSE Russell would buck this trend (LSEG 2025).

The approach applied here, based primarily on financial market index providers' assessments, yields intuitive

d. For example, some index providers classify some high-income countries such as Bahrain, Estonia, Iceland, and Mauritius as frontier markets. Meanwhile, large but less affluent economies, such as India and Indonesia, are commonly classified as emerging markets by index providers.

e. Some index providers maintain additional distinctions between different tiers of emerging markets. The groupings in this chapter do not draw on these distinctions within the emerging markets group.

BOX 4.1 Financial market classifications of frontier market economies (*continued*)

patterns across various measures of economic development and financial integration. For example, per capita income in the median frontier market economy is less than one-third of that in the typical emerging market economy and more than double that of other developing economies. Similarly, portfolio liabilities—a measure of de facto financial openness—are negligible in other developing economies, about 7 percent of GDP in the median frontier market economy, and 33 percent of GDP in the typical emerging market economy.

analysis of the characteristics of frontier market economies. It documents how they have evolved since 2000, in terms of macroeconomic, structural, and development metrics. The chapter puts these characteristics and developments in context by comparing them with those of emerging markets and other developing economies. It also considers the movement of countries between these groupings.

Analysis of frontier markets' global financial integration. Despite their financial market access, there has been little analysis of frontier markets' exposure to global financial conditions. This chapter's analytical exercises address this gap. First, a study documents the exposure of frontier markets to surges and stops in capital inflows. Second, a dynamic factor model assesses the integration of frontier markets with the global financial cycle, highlighting vulnerabilities when global financial conditions tighten sharply. The chapter also examines the evolution and composition of debt in frontier markets.

Assessment of frontier market success cases and identification of policy priorities. The chapter examines which frontier markets have had stronger economic growth over the past 25 years, and the macroeconomic, financial market, and structural features that have been associated with this success. Selected case studies also consider economic characteristics and policies that may have contributed to strong performance. Drawing on lessons from these cases, together with an assessment of the advantages and challenges facing today's frontier markets and insights from the econometric exercises, the chapter identifies policy priorities to drive better growth outcomes and development progress in these economies.

Main findings

The chapter presents the following main findings:

Despite the considerable economic potential of frontier markets, as a group, their progress in growth and development over the past quarter century has been modest. Half of frontier markets recorded slower per capita GDP growth than the EMDE average. Real GDP per capita in the median frontier market is now less than one-third of that in the typical emerging market—a wider gap than in 2000. In the five-year period from the onset of the pandemic, high-income status moved further away for about 40 percent of frontier markets. Growth of per capita investment has more than halved since the 2000s. Poverty rates in frontier markets have reduced by more than half this century, but remain at about five times those in emerging markets, and progress has slowed in the past decade. Life expectancy has risen, as have other human development indicators, such as education levels. These indicators have also risen in other EMDEs.

Frontier markets' financial development and integration into the global economic and financial system remain partial—and modest in some respects—leaving opportunities and potential gains unrealized, as well as some notable vulnerabilities. Frontier markets' de jure financial openness has increased but remains below that of emerging markets. Meanwhile, the partial nature of frontier markets' financial development and international integration tends to heighten their vulnerabilities:

- First, frontier markets have more limited capacity than emerging markets to translate financial inflows into productive investment, given their relatively weak absorptive capacity.

This is reflected in relatively underdeveloped and shallow domestic financial markets, with wider lending–deposit rate spreads than in emerging markets, as well as institutional and governance weaknesses. Accordingly, growth in capital stock per capita has been disappointing.

- Second, thin policy buffers (for example, in terms of fiscal flexibility and foreign exchange reserves) and credibility gaps in governance and policy frameworks in frontier markets increase uncertainty for firms and investors, raise external financing costs, and amplify the adverse effects of shocks.

- Third, the nature of frontier markets' external exposures is unfavorable relative to emerging markets. Portfolio flows tend to be more volatile; export baskets are more concentrated; and more debt is denominated in foreign currencies, alongside lower reserves cover. These features generally increase balance-sheet risks.

Output growth in frontier markets has tended to rise substantially around capital inflow surges. Stops in capital flows see a slowing of output growth (though this impact appears to be larger in emerging markets than in frontier markets). This suggests that financial integration is good for growth, even though stop events are more likely in the wake of a surge. In recent years, there have been more sovereign defaults in frontier markets than in all other countries combined.

Some frontier markets have achieved more rapid economic progress than others; although routes to success have varied, some common themes emerge from their experiences. The frontier markets that recorded the fastest average growth in GDP per capita over the last quarter century recorded strong increases in capital stock per person relative to other frontier markets. They also improved governance, and their banks' lending–deposit spreads narrowed significantly. In addition, these faster-growing frontier markets were more effective in containing growth in government debt and debt-service burdens. These top-performing frontier markets are a diverse group that have adopted different development approaches: from encouraging investment into energy and commodities sectors (Kazakhstan), to pursuing value-added manufacturing and exports (Viet Nam), to focusing on services- and tourism-driven growth (Rwanda). Four economies (Bulgaria, Costa Rica, Panama, and Romania) reached high-income status and therefore graduated from frontier market status to emerging market classification between 2012 and 2025.

Policy makers in frontier markets should strive to leverage the benefits of financial market access and growing populations effectively, including by:

- *Advancing financial and trade integration while mitigating associated risks.* Furthering integration while improving oversight capacity, developing local financial markets, and enhancing policy buffers can help harness international investment, while expanding and diversifying exports can support resilience and development objectives.

- *Bolstering macroeconomic stability.* Macroeconomic stability and credibility strengthen the underpinnings of financial integration, including by reducing the risk premia sought by investors, and are important components of economic progress more broadly. Sound monetary and fiscal policies to cement price stability and fiscal sustainability are key for frontier markets' future prospects (as in other EMDEs).

- *Catalyzing investment, productivity growth, and job creation.* Taking full advantage of access to international finance requires investment in infrastructure and human capital. Structural reforms are needed to help generate high-return investment opportunities and set the stage for sustained productivity growth and job creation. Effective physical and digital infrastructure can lay the foundations for accelerating private investment, and better human capital can help ensure that growing working-age populations secure productive jobs. Enhancing governance and the business environment can also support these objectives. These are priorities across many EMDEs, but they are particularly important to enable frontier markets to capitalize on their demographic and resource endowments.

Given the heterogeneity of frontier markets, policy design must account for individual economies' particular advantages and vulnerabilities; this will shape the relative importance of these themes. Inclusion in major global financial market indexes is not a magic bullet, but it can incentivize reform and attract investment, thereby helping to sustainably boost job creation and living standards. The international community has an important role to play in fostering an environment in which these economies can thrive. With potential growth slowing elsewhere and working-age populations plateauing or declining in many advanced and emerging market economies, frontier markets will play a growing role in shaping global economic and development outcomes. The extent to which they can convert financial integration into sustained output growth and job creation will be critical.

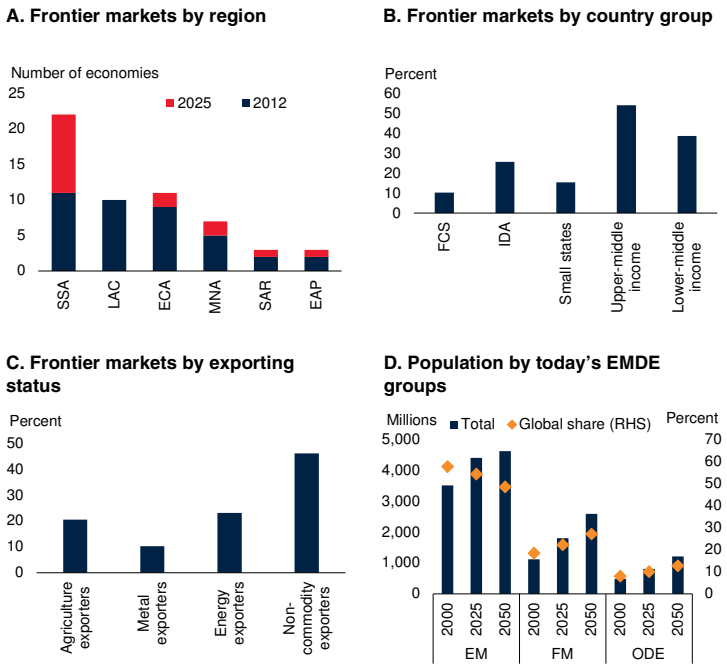
Characteristics of frontier markets

The baseline set of frontier markets in this chapter—those that met the criteria in 2012, midway through the period under analysis—comprises 39 economies that are diverse in their geographies and economic structures. Frontier markets are found in all six EMDE regions, with the largest numbers in Sub-Saharan Africa and the Latin America and the Caribbean region (refer to figure 4.1.A). Six frontier markets are classified as small states, and four as FCS (refer to figure 4.1.B). Frontier markets are generally middle-income countries, although this masks significant dispersion in income per capita. About one-quarter of frontier markets are members of the International Development Association (IDA).

Compared to other developing economies, frontier markets typically exhibit higher levels of market access and financial development. The median frontier market has more than double the physical capital stock per capita of the typical other developing economy. In addition, human capital—in terms of education and health metrics—is stronger in frontier markets than in other developing economies. Relative to emerging markets, however, important gaps persist across all of these areas.

FIGURE 4.1 Basic characteristics of frontier markets

Frontier markets exist in all six EMDE regions. They are mostly middle-income countries. About half of frontier markets are commodity exporters, many specializing in energy exports. The population of frontier markets, about 1.8 billion today, is set to rise to 2.6 billion by 2050. Frontier markets' share of the global population is projected to rise substantially over 2025–50, unlike that of emerging markets.



Sources: UN Population Prospects (database); World Bank.

Note: EAP = East Asia and Pacific; ECA = Europe and Central Asia; EM = emerging markets; FCS = fragile and conflict situations; FM = frontier markets; IDA = International Development Association; LAC = Latin America and the Caribbean; MNA = Middle East, North Africa, Afghanistan and Pakistan; ODE = other developing economies, neither EM nor FM; SAR = South Asia; SSA = Sub-Saharan Africa.

A. Sample includes 39 FMs in baseline 2012 classification, and 56 FMs as of 2025 classifications.

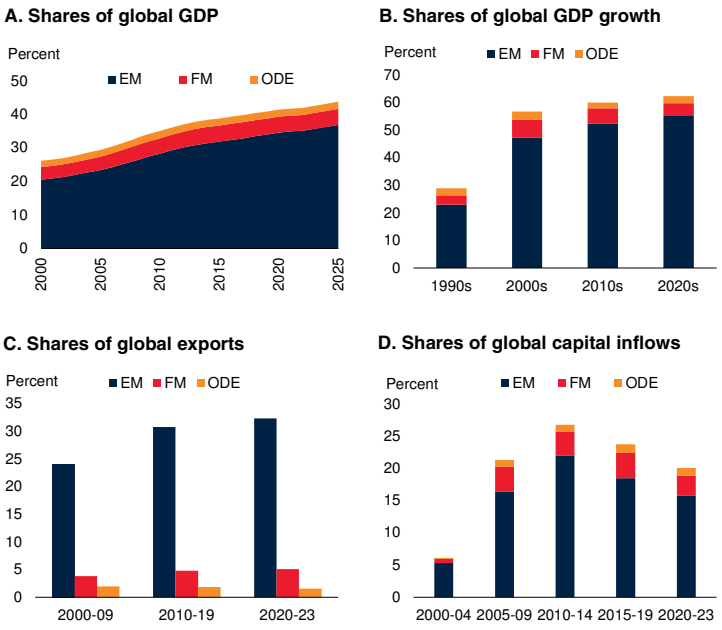
B.C. Sample includes 39 FMs, using baseline 2012 classification of economies based primarily on membership of key equity and bond market indexes. Income, FCS, IDA, and small states markers are based on 2025 World Bank Group classifications. Commodity exporters are economies where 2019 exports in the named area accounted for over 20 percent of total exports.

D. Sample includes 37 EMs, 56 FMs, and 57 ODEs, as of 2025 classification status. Bars show total population in millions. Orange diamonds show the share of total population.

About half of frontier markets have exports that are dominated by primary commodities, with the majority exporting industrial commodities, such as energy commodities and metals (refer to figure 4.1.C). Industrial activity in these economies is often substantially geared toward commodity extraction, and commodity revenues form an important part of tax bases. Relative to GDP, resource rents are especially large in frontier market energy exporters, although they are also sizeable in metal exporters—a pattern shared with other EMDE groups. Many frontier markets possess significant commodity endowments that

FIGURE 4.2 Frontier markets in the global economy

The baseline sample of frontier markets accounted for about 5 percent of global GDP in 2025, up from less than 4 percent in 2000, but their contribution to global growth remains small. Frontier markets' exports as a share of the global total also remain small, especially relative to emerging markets. Although the share of global capital flows to frontier markets remains modest, it has almost quadrupled since the early 2000s.



Sources: IMF Balance of Payments and International Investment Position (database); WDI (database); World Bank.
Note: EM = emerging markets; FM = frontier markets; ODE = other developing economies, neither EM nor FM. Sample includes 34 EMs, 39 FMs, and 80 ODEs, as of the 2012 baseline (the midpoint of the quarter century), unless otherwise specified.
A.B. Panels show the share of global GDP and GDP growth respectively. GDP aggregates are calculated using real U.S. dollar GDP weights at average 2010–19 prices and market exchange rates.
C. Panel shows exports of goods and services for each group of countries as share of total world exports during each average period. Sample includes up to 31 EMs, 38 FMs, and 66 ODEs.
D. Stacked bars show total capital inflows per country group as a share of the global total. Based on an unbalanced sample, including up to 32 EMs, 39 FMs, and 74 ODEs.

are globally relevant for new technologies and the energy transition. Solar energy potential is also generally high in frontier markets. However, their solar energy output remains quite modest. In addition, frontier markets often have significant natural capital that could support tourism.

Share of global population

The population of frontier markets as a group is large and growing. About 1.8 billion people live in frontier markets in 2025—over one-fifth of the global population (refer to figure 4.1.D). More than 230 million young people in these economies will reach working age between 2025 and 2035. While population growth is slowing in emerging markets, an increase of 783 million is projected for today's frontier markets over the next quarter century. This exceeds the increase projected for the rest of the world combined. It is about 100 million more than frontier markets' increase in the previous quarter century. By 2050, the population in today's frontier markets is forecast to grow to almost 2.6 billion—27 percent of the global total.

Growing populations represent large economic potential for both frontier markets and other developing economies. While the number of working-age people is expected to fall in both advanced economies and emerging markets between 2025 and 2050, in frontier markets it is expected to rise by 568 million. This is an increase of more than 50 percent, and more than three-quarters of the projected increase in the global working-age population.

Global economic footprint

Frontier markets' share of global output edged up from 3.8 percent in 2000 to 4.8 percent in 2025 (refer to figure 4.2.A). Compared to emerging markets, this remains modest: between 2000 and 2025, emerging markets' contribution to global GDP rose from 21 percent to 37 percent, largely driven by China and India. Despite the slight increase in their share of the global economy since 2000, frontier markets' contribution to global growth has declined, although it remains larger than that of other developing economies (refer to figure 4.2.B).

Frontier markets are relatively open to international trade. However, their share of global exports remains small. Between the 2000s and the early 2020s, it increased only from 4 to 5 percent, whereas that of emerging markets grew from 23 to 33 percent (refer to figure 4.2.C).

There has been a notable shift in the distribution of global capital inflows since the start of this century: EMDEs' share more than tripled, from 6 to 20 percent, between the early 2000s and the early 2020s (refer to figure 4.2.D). The share received by frontier markets grew fivefold but remained modest, rising from 0.6 to 3.1 percent (with the increase concentrated early in the quarter century). Emerging markets account for

most of the shift in EMDEs as a whole. The share of other developing economies increased, but only to just over 1 percent.

Frontier markets continue to lag behind both advanced economies and emerging markets in terms of openness to financial flows, in part owing to capital account restrictions. However, unlike other developing economies, frontier markets have liberalized their capital accounts significantly since 2000. A measure of de jure financial integration rose from 0.18 in 2000 to 0.45 in 2022—slightly above the level in the median emerging market in 2000 (refer to figure 4.3.A). Since the start of this century, frontier markets have maintained high levels of trade openness. Exports and imports together amounted to 78 percent of GDP in the median frontier market as of 2023, similar to ratios observed in both emerging markets and other developing economies (refer to figure 4.3.B).

Inward FDI positions in frontier markets increased from 17 percent to 21 percent of GDP between 2009 and 2023—significant, but smaller than the increases in emerging markets and in other developing economies (refer to figure 4.3.C). However, in the median frontier market, inward portfolio liabilities relative to GDP more than tripled over 2001–23, from 2 to 7 percent—a larger proportional rise than that in emerging markets (refer to figure 4.3.D).

Financial integration and financial development

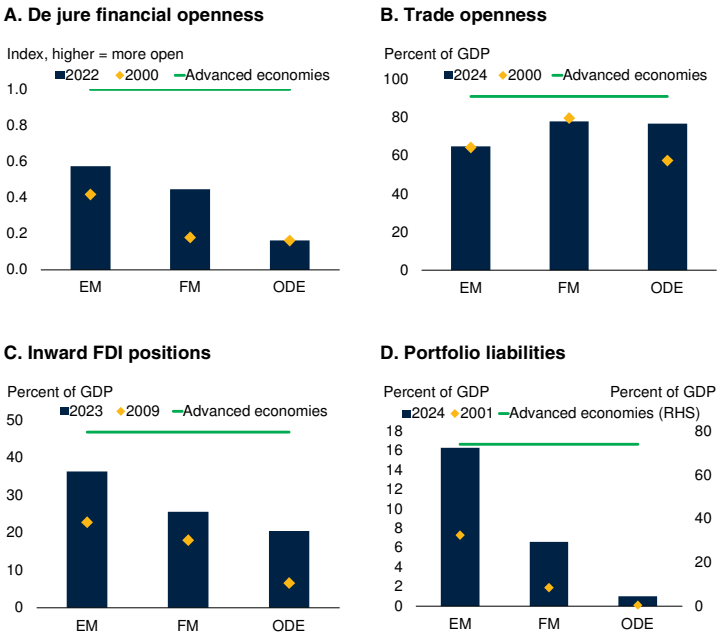
Access to global financial markets confers benefits on frontier markets, facilitating capital inflows to support investment, growth, and development. However, the composition and volatility of capital flows to frontier markets, together with the limited development of their financial markets and financial systems, can leave them vulnerable to shifts in sentiment, particularly in periods of global stress. This is the case even though their integration with the global financial cycle remains relatively limited.

Composition and volatility of capital inflows

The composition and dynamics of capital flows in frontier markets have evolved over the last 25 years. Total capital inflows to these economies, in proportion to GDP, jumped in the late 2000s. Over that decade as a whole, they were higher than in both emerging markets and other developing economies, but they have trended lower since then (refer to figure 4.4.A; Lane and Milesi-Ferretti 2018). In fact, in the first half of the 2020s, total capital inflows as a share of GDP

FIGURE 4.3 Financial and trade openness

There has been a pronounced increase in the de jure financial openness of frontier markets since 2000, leading to higher foreign direct investment and portfolio investment liability positions. Although frontier markets have not increased their openness to international trade significantly since 2000, they remain more open than emerging markets and slightly more open than other developing economies.



Sources: Chinn and Ito (2006); IMF Coordinated Direct Investment Survey (database); IMF Coordinated Portfolio Investment Survey (database); WDI (database); World Bank.

Note: EM = emerging markets; FM = frontier markets; FDI = foreign direct investment; ODE = other developing economies, neither EM nor FM. Green line shows the median value for advanced economies in the latest data available for each panel.

A. Financial openness is proxied by the Chinn–Ito Index, which measures a country's degree of capital account openness using the first principal component of variables on regulatory controls over current or capital account transactions, with a normalized value of 1 indicating the most open (Chinn and Ito 2006). Values are regional medians for 2000 and 2022, based on a balanced sample comprising 32 advanced economies, 34 EMs, 37 FMs, and 69 ODEs.

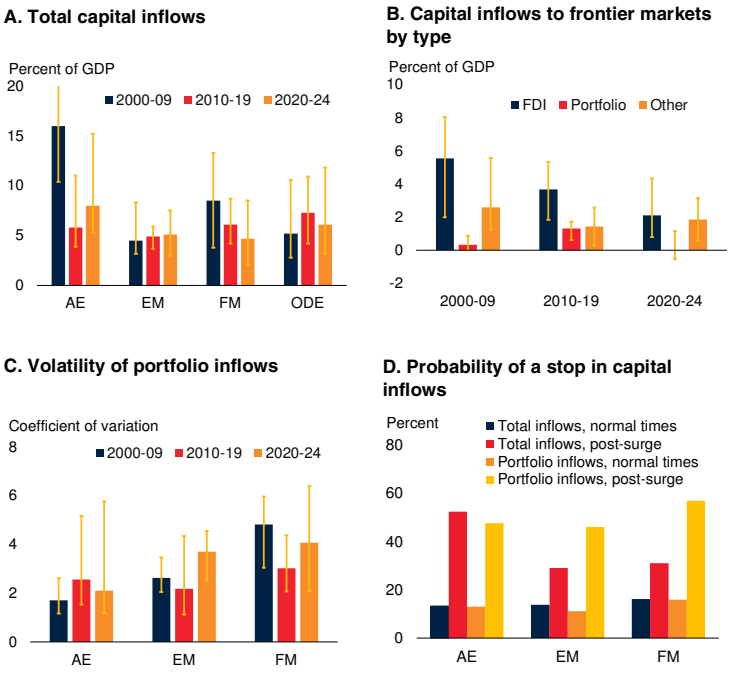
B. Trade openness is the sum of exports and imports of goods and services, expressed as a share of GDP. Values are aggregate medians, based on a balanced sample of 33 advanced economies, 26 EMs, 36 FMs, and 51 ODEs.

C. Inward direct investment positions represent the value of equity and debt instruments held by nonresident direct investors or their affiliated enterprises in resident enterprises. Positions are based on reported data where available, supplemented with derived data constructed from partner-reported outward investment to fill gaps. Values are aggregate medians for 2023 and 2009, based on a balanced sample of 33 advanced economies, 28 EMs, 31 FMs, and 54 ODEs.

D. Portfolio liability positions reflect the value of foreign-held equity and debt securities and are based on derived data constructed from partner-reported holdings of these instruments. Values are aggregate medians for 2001 and 2024, based on a balanced sample of 32 advanced economies, 34 EMs, 38 FMs, and 68 ODEs.

FIGURE 4.4 Capital inflows

Relative to GDP, capital inflows to frontier markets have trended downward since the 2000s. Portfolio inflows picked up in the 2010s but have been negligible in recent years, and FDI inflows have declined over time. Portfolio inflows have consistently been most volatile in frontier markets. Capital flow surges are often followed by stops, especially for frontier market portfolio flows.



Sources: Haver Analytics; World Bank.

Note: AE = advanced economies; EM = emerging markets; FM = frontier markets; ODE = other developing economies, neither EM nor FM. Sample includes up to 33 AEs, 25 EMs, 33 FMs, and 40 ODEs.

A. Bars show group medians of country-level period averages, given the unbalanced nature of the underlying time series. Orange whiskers indicate the interquartile range. Upper interquartile value for AEs is truncated.

B. Bars show the median value for frontier markets based on country-level period averages, given the unbalanced nature of the underlying time series. Orange whiskers indicate the interquartile range.

C. Bars show the median coefficient of variation, and orange whiskers indicate the interquartile range. The coefficient of variation is obtained as the standard deviation of quarterly capital inflows to each country over the specified period, divided by the absolute value of the mean inflows during the same period. Bar and interquartile range for ODEs are omitted due to negligible portfolio inflows.

D. Post-surge probability refers to the share of surge episodes followed by a stop within the subsequent 8 quarters after the surge ends, benchmarked against the probability of a stop during normal times—that is, within any forward-looking 8-quarter window outside surge and post-surge periods.

were lower in frontier markets than in all other country groups.

Foreign direct investment (FDI), which tends to be less volatile than other capital flows, has shrunk significantly, relative to GDP, in the median frontier market, to 2.1 percent in the first half of the 2020s, from 5.5 percent in the 2000s (refer to figure 4.4.B). Portfolio investment—the form of capital flow with the most direct link to financial market index inclusion—exhibits more volatility, reflecting greater sensitivity to short-term developments and shifts in global risk appetite (Forbes and Warnock 2012). Portfolio inflows to the median frontier market were close to zero in the early 2000s, increased to 1.3 percent of GDP in the 2010s, but fell back in the early 2020s, briefly turning negative during the global monetary tightening of 2022. Other inflows to frontier markets—primarily cross-border bank lending—have been somewhat more stable. Differences in the volatility of total capital inflows among the main country groups in the periods 2000–09, 2010–19, and 2020–24, appear unremarkable. However, the volatility of portfolio inflows was greater in frontier markets than in emerging markets or advanced economies in each of these periods (refer to figure 4.4.C).

Extreme movements in capital inflows—"surge" and "stop" episodes—have tended to be highly synchronized across different country groups (refer to box 4.2). They have been shaped both by global "push" factors and by domestic "pull" factors. Inflow surges have often been ignited by domestic factors. Higher credit ratings—often reflecting structural policy improvements—and stronger domestic growth both increase the chances of a surge in capital inflows. Surges can be beneficial to growth when channeled into productive investment, but they can also raise the chances of a stop, which can disrupt economic activity. For frontier markets in the period since 2000, the probability of a stop in aggregate capital inflows was almost twice as high (39 percent) in the aftermath of a surge episode than around non-surge periods (refer to figure 4.4.D).

Frontier markets become especially susceptible to capital flow stops during periods of global financial stress. This was evident during the 2008–09 Global Financial Crisis and in other episodes of tightening financial conditions, such as following U.S. monetary tightening shocks and spikes in risk aversion. Frontier markets are also vulnerable to contagion through financial and trade channels from stress in peer markets. For portfolio inflows specifically, the probability of a frontier market experiencing a stop rises from 16 percent in normal times to 57 percent after a surge. The share of frontier markets experiencing stops in portfolio inflows remained high in the 2010s, even

BOX 4.2 Incidence and drivers of surges and stops in capital inflows

Frontier markets have experienced frequent and pronounced surges and stops in capital inflows, especially in portfolio investment, reflecting deeper integration into global financial markets. Surges are common and are often followed by stops, highlighting heightened vulnerability to abrupt shifts in capital inflows. Capital inflow surge and stop episodes are shaped by both global "push" factors and domestic "pull" factors. For frontier market portfolio inflows, key global push factors include global risk sentiment and global growth, while domestic financial market depth is a significant pull factor. Contagion across country groups and through trade linkages further amplifies risks. Overall, the findings underscore the need for tailored policies that strengthen resilience to volatile capital inflows in response to global conditions, domestic fundamentals, and systemic spillovers.

While capital inflows—in the form of foreign direct investment (FDI), portfolio investment, or other investment—can support growth and development in emerging market and developing economies (EMDEs), their volatility can undermine macroeconomic stability, with long-term consequences (CGFS 2021). In particular, the risks associated with sudden "stops" in capital inflows are well recognized, including restricted access to external financing, depressed asset prices, financial sector stress, and declines in output growth (Gelos et al. 2022). Sharp increases in capital inflows—"surges"—are often associated with higher GDP growth for a time. They can also pose challenges by fueling credit booms and asset bubbles and by driving currency appreciations that erode export competitiveness. Surges may further increase the likelihood of abrupt stops and, in some cases, culminate in financial crises.[a]

A substantial body of research has examined extreme movements in gross capital flows—including surges and stops—and their macro-financial implications. Much of this literature has focused on understanding the incidence, synchronization, and drivers of such episodes across advanced economies and emerging markets. In contrast, frontier markets have received little attention, even as their financial integration has deepened. This box addresses the following questions:

- How does the incidence of extreme capital inflow movements in frontier markets compare with that in advanced economies and emerging markets?
- What are the roles of global "push" factors and domestic "pull" factors in influencing the likelihood of surges and stops?

Surges and stops in frontier market capital inflows

Extreme movements in capital inflows—namely, surges and stops—denote a sharp increase or decrease in gross capital inflows relative to a country's historical reference level.[b] To distinguish extreme shifts from cyclical swings, the analysis follows a statistical approach used in Forbes and Warnock (2012, 2021). A surge episode begins when the year-over-year change in four-quarter gross inflows exceeds two standard deviations above its 20-quarter rolling mean (threshold condition) and continues for all consecutive quarters while the change remains more than one standard deviation above the mean (continuation condition). Episodes are required to last more than one quarter (duration condition) and end when the change falls below one standard deviation above the mean (ending condition). Stop episodes are defined symmetrically, using the same conditions in the direction of sharp reductions in gross capital inflows.

The incidence of surges and stops highlights the synchronized nature of these episodes across country groups. For advanced economies, emerging markets, and frontier markets alike, the share of countries in surge episodes peaked in the last quarter of 2007 (refer to figure B4.2.1.A). The subsequent shift was rapid: amid the Global Financial Crisis, stops reached their highest incidence between 2008Q4 and 2009Q2 (refer to figure B4.2.1.B). During this period, over three-quarters of advanced economies, 60 percent of emerging markets, and about half of frontier markets experienced a sharp drop in capital inflows. Extreme capital inflow movements fell markedly after the crisis, but stop episodes picked up in the mid-2010s—particularly

Note: This box was prepared by Jiwon Lee and Kate McKinnon.

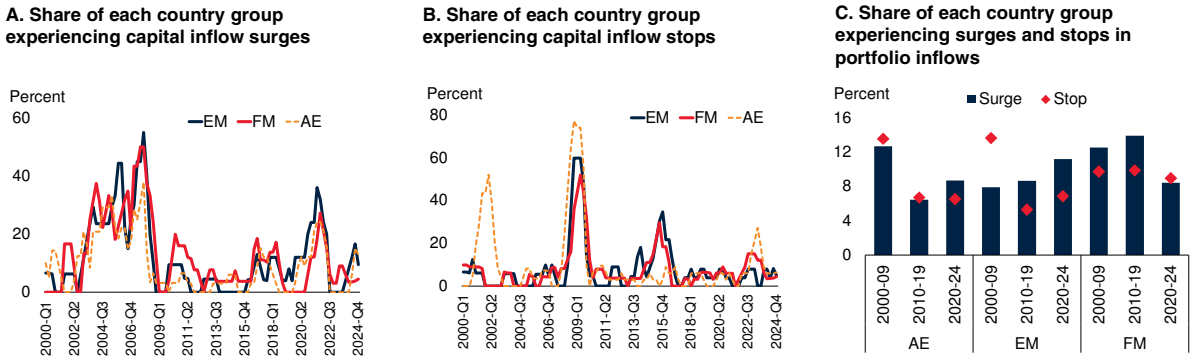
a. For evidence on the macro-financial risks associated with capital inflow surges—including increased vulnerability to abrupt stops and crises—refer to Blanchard et al. (2017); Forbes and Warnock (2021); Ghosh, Ostry, and Qureshi (2016); and Sula (2010).

b. Gross capital flows refer to total transactions between residents and nonresidents, usually measured as the net incurrence of liabilities (gross inflows) and the net acquisition of foreign assets (gross outflows). This contrasts with net capital flows, which refer to the balance of inflows and outflows.

BOX 4.2 Incidence and drivers of surges and stops in capital inflows (*continued*)

FIGURE B4.2.1 Share of countries experiencing surges and stops in capital inflows

Surges and stops in capital inflows have occurred in synchronized waves across country groups. Portfolio inflows in frontier markets have shown the highest incidence of surges and stops across most flow types and country groups, but the share of frontier markets experiencing surges has dipped in the 2020s.



Sources: Haver Analytics; World Bank.
Note: AE = advanced economies; EM = emerging markets; FM = frontier markets. Surge and stop episodes are identified following the methodology of Forbes and Warnock (2012; 2021), based on unbalanced quarterly data on capital inflows. The sample includes up to 34 AEs, 25 EMs, and 33 FMs.
A.B. Panels show the share of economies experiencing a surge or stop episode in each quarter during 2000Q1–2024Q4.
C. Bars show the average share of economies experiencing a surge episode in portfolio capital inflows in each quarter over the given time period; diamond markers indicate stop episodes.

among emerging and frontier markets. More recently, surge activity re-emerged under the accommodative financial conditions of the immediate post-pandemic period.

Portfolio inflows to frontier markets displayed distinct dynamics in the period after the Global Financial Crisis window, both relative to other flow types (FDI and other investment), and to patterns in advanced economies and emerging markets. In the 2010s, the share of frontier markets experiencing a portfolio surge or a stop in a given quarter averaged 14 percent and 10 percent, respectively, nearly double the rate in other groups (refer to figure B4.2.1.C). In the 2020s so far, the incidence of stops in frontier markets has remained elevated, while the incidence of surges fell sharply—unlike in advanced economies and emerging markets.

Surges can raise the risk of sudden stops by fueling overheating, risk-taking, and macroeconomic imbalances. These risks are amplified by shifts in global financial conditions, as surges often occur during periods of abundant liquidity and may reverse abruptly when conditions tighten. Consistent with this, the probability that surges in capital flows are followed by a stop within eight quarters varies markedly over time, exceeding 70 percent for surges ending in 2007 and 2008. For all country groups, stop episodes are more likely to occur following the end of a surge than during periods with no preceding surge. Surges in portfolio inflows to frontier markets are particularly prone to reversals, with the probability of a stop rising from 16 percent to 57 percent.

These patterns—particularly the elevated incidence of surges—align with the expansion of portfolio inflows into frontier markets during the 2010s, driven in part by their inclusion in global equity and bond indexes and investors' growing search for yield and diversification. These extreme episodes highlight the vulnerability of frontier markets to volatile portfolio movements and associated risks. While total inflows in frontier markets tend to move more closely with global trends, portfolio inflows exhibit a more idiosyncratic pattern.

Drivers of surges and stops in capital inflows

To examine the drivers of surges and stops in capital inflows across countries, a regression model links these

BOX 4.2 Incidence and drivers of surges and stops in capital inflows (*continued*)

episodes to a broad set of global "push" and domestic "pull" factors, in line with those commonly identified in the related literature.[c] "Push" factors comprise indicators reflecting global risk, global economic policy uncertainty, oil prices, world GDP growth, U.S. long-term interest rates, and U.S. monetary policy surprises. "Pull" factors comprise domestic structural and macroeconomic indicators, including domestic real GDP growth, financial depth as measured by stock market capitalization, de jure financial openness, sovereign credit ratings, and exchange rate arrangements.

Two variables are added to capture potential contagion effects influencing the transmission of shocks within country groups or through trade linkages. First, a group-based dummy variable is constructed, which equals one if another country in the same group—advanced economy, emerging market, or frontier market—has an episode in the previous quarter. Second, a trade-contagion variable is constructed as the trade-weighted share of episodes among each country's trading partners. The regressions are estimated using a complementary log-log model (data and methodological details are provided in annex 4.3).[d]

The role of global push factors. Higher long-term U.S. interest rates lower the likelihood of capital inflow surges, consistent with tighter global financial conditions reducing the attractiveness of cross-border investment (Ghosh, Qureshi, and Sugawara 2014; Rey 2015). A rise in the U.S. monetary policy surprise measure—capturing shifts toward tighter-than-expected policy—is associated with a significantly higher likelihood of stop episodes. This aligns with related literature emphasizing the key role of monetary policy shocks in driving the global financial cycle (Miranda-Agrippino and Rey 2020).

Global sentiment is also strongly associated with the likelihood of extreme capital inflow episodes. Rising global risk—measured by the CBOE VIX—significantly increases the likelihood of an economy having a stop episode, consistent with literature highlighting the importance of push factors in explaining capital flow dynamics (Calderon and Kubota 2019; Forbes and Warnock 2012, 2021).[e] Domestic policy makers in frontier markets have little control over these global forces, underscoring the need for resilience-focused strategies.

The role of domestic pull factors. Domestic macroeconomic conditions and structural features also influence the probability of extreme capital inflow episodes. GDP growth is positively and significantly associated with surges, implying that stronger domestic performance increases the likelihood of capital inflow booms. When excluding the GFC and COVID periods, higher growth also significantly lowers the likelihood of stops. While not significantly linked to surges, more rigid exchange rate regimes are associated with a higher probability of stops.[f] The finding that better sovereign ratings are significantly associated with surges is intuitive: stronger credit quality lowers perceived risk and broadens investor demand (Emara 2015). De jure financial openness—the extent of capital account liberalization—is significantly associated with a higher likelihood of stops, once other variables are controlled; this heightened risk may be due to larger external positions and greater reliance on non-resident investors.

Contagion effects. The group-level contagion variable is positively and significantly associated with both surges and stops, indicating that capital flow episodes tend to cluster within country groups. This likely reflects structural commonalities across similarly classified economies, with vulnerabilities amplified by the "pipes"

c. For instance, refer to Calderon and Kubota (2019); CGFS (2021); Forbes and Warnock (2012, 2021); Ghosh, Ostry, and Qureshi (2016); and Ghosh, Qureshi, and Sugawara (2014).

d. Table A4.3.1 presents the baseline regression results, estimated using the full panel of countries between 2000Q1–2024Q4. A robustness exercise is carried out, whereby observations falling within the Global Financial Crisis (2008Q3–2009Q4) and the COVID-19 shock (2020Q1–2021Q2) are excluded; results are shown in table A4.3.2. For many push and pull variables, the direction and significance of the estimated effects show little change.

e. While oil price growth is not found to play a significant role in this specification, related work using different sample periods has found that higher oil prices are significantly associated with a greater likelihood of surges and a lower likelihood of stops (Forbes and Warnock 2021).

f. Further, exchange rate flexibility has been found to enhance resilience by supporting a faster recovery in capital inflows following external shocks and, more generally, to mitigate vulnerability to financial crises (Claessens and Kose 2017; Gelos et al. 2022).

BOX 4.2 Incidence and drivers of surges and stops in capital inflows (*continued*)

of the international financial system—global investors, asset managers, and other intermediaries whose activities can transmit shocks across borders (Carney 2019).[g] The trade-contagion variable is significant, underscoring that shocks can spread through financial channels and through real economic linkages. Overall, the results suggest that exposure to extreme capital flow episodes is shaped by global and domestic factors, as well as spillovers across peers.

The drivers of portfolio inflows to frontier markets

Unlike capital inflows to all economies, neither U.S. long-term yields nor monetary policy surprises have a significant effect on the likelihood of surges or stops in portfolio inflows to frontier markets. Increased global risk significantly reduces the likelihood of surges, while weaker global activity raises the likelihood of stops. Domestic characteristics also matter for stops: larger stock market capitalization is associated with a higher likelihood.

However, the effects of stock market capitalization and global GDP growth appear to be largely driven by major global stress episodes. Once observations from the GFC and COVID periods are excluded, these relationships disappear: in the non-crisis sample, higher stock market capitalization becomes positively associated with surges rather than stops.[h] Exchange rate arrangements do not significantly impact portfolio surges or stops in frontier markets, although in the non-crisis sample, more rigid exchange rate regimes are associated with fewer surges. Consistent with the broader sample, trade-weighted surges in partner countries remain significant correlates of frontier market portfolio surges, underscoring the role of trade partner spillovers; however, this relationship loses significance once global stress periods are excluded.

g. Active fund strategies often exhibit procyclical behavior, such as return-chasing and herding (Raddatz and Schmukler 2012). Benchmark-tracking funds, meanwhile, adjust exposures in response to market movements and follow mechanical index reweightings and reclassifications that can prompt large capital reallocations disconnected from underlying fundamentals (CGFS 2021; Puy 2016). These effects may be pronounced for frontier markets. Inclusion in benchmark indexes and limited analyst coverage may lead investors to see them as a homogeneous group, raising the risk of contagion when sentiment shifts or a shock hits one country.

h. This pattern could reflect boom–bust dynamics: rapid growth and buoyant equity markets often coincide with inflow surges that later reverse abruptly when global conditions deteriorate.

as it declined in advanced economies and emerging markets. This underscores the importance of resilience-enhancing policies to help cushion the disruptive impacts of capital flow reversals.

Limited financial market development

Financial market depth (the size and liquidity of credit and capital markets) is a key determinant of an economy's absorptive capacity—that is, its ability to channel domestic and foreign savings into capital accumulation. Across frontier markets, financial openness has risen, but financial market depth varies widely. In many cases, it has not kept pace with increasing access to international investors. Underdeveloped domestic-currency markets, constraints on the supply of domestic credit to the private sector, and institutional gaps all hinder the efficiency and breadth of financial intermediation. As a result, and despite improvements in some areas, funding costs remain high, bond spreads wide, and maturities relatively short. In turn, limited risk-bearing financing tends to slow capital accumulation in non-stress periods and limit shock absorption under stress.

Across EMDEs, there has been progress in utilizing financial markets: between 1990 and 2021, the number of firms issuing bonds or equity annually more than tripled, with domestic markets accounting for most of that issuance. Firms that gained access to capital markets accounted for almost two-thirds of the estimated employment gains from expanding capital markets (Meh and Schmukler 2025).

Broad indexes of financial institutions' and financial markets' development show that the median frontier market remains behind the median emerging market but ahead of other developing economies. Frontier markets made notable advances in the development of financial institutions over the century's first two decades but made no progress in the development of financial markets (refer to figure 4.5.A). These overarching indexes assessing financial development are broadly consistent with specific market and financial data. Stock market capitalization as a ratio to GDP was 18 percent in the median frontier market in 2020–23, far lower than in the median emerging market (51 percent) and comparable with the typical other developing economy (refer to figure 4.5.B). Domestic credit to the private sector was equivalent to 37 percent of GDP in the median frontier market in the early 2020s, lower than the median emerging market but higher than in other developing economies (refer to figure 4.5.C).

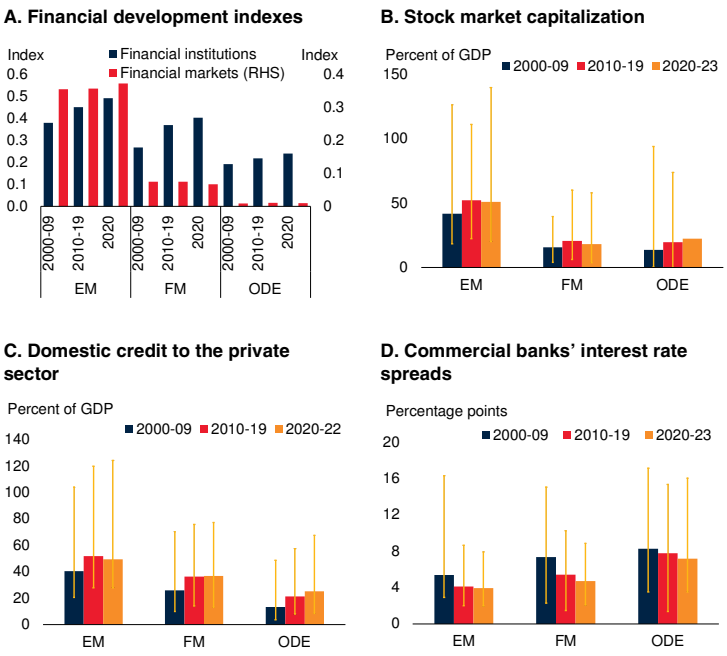
Banking sector efficiency indicators suggest continued constraints in frontier markets. Bank loan–deposit rate spreads in frontier markets have narrowed since 2010 but still generally exceed those in emerging markets, although they tend to be smaller than in other developing economies (refer to figure 4.5.D). Non-performing loans account for a larger proportion of banks' assets in the median frontier market than in emerging markets, though a smaller proportion than in other developing economies. Differences relative to emerging markets likely reflect a range of structural challenges in frontier markets, such as limited competition among lenders and large information asymmetries and monitoring costs (Ahokpossi 2013). More broadly, frontier markets' limited progress with financial development suggests that their access to external finance has not always translated into stronger domestic lending (IMF 2020; Ashraf 2018; Hauner, Prati, and Bircan 2013).

Integration with the global financial cycle

Frontier markets offer investors opportunities for portfolio diversification, particularly given evidence that variation in equity returns in these economies has been less correlated with the global financial cycle than in advanced economies or emerging markets (refer to box 4.3). Global factors explain only about 12 percent of the variance in equity returns in frontier markets during the period since 2000—several times lower than in both advanced economies (64 percent) and emerging markets (46 percent). A similar pattern exists for domestic credit growth: the global factor explains only 13 percent of its variance in frontier markets, compared with 51 percent in advanced economies and 25 percent in emerging markets. Country-specific factors explain most of the

FIGURE 4.5 Financial development

Frontier markets score lower than emerging markets but higher than other developing economies on the International Monetary Fund's Financial Development Index measures. Relative to GDP, stock market capitalization has remained low in the median frontier market, even compared with that in other developing economies, whereas domestic credit to the private sector ranks between levels in the other country groups. Interest rate spreads have narrowed in frontier markets, while remaining wider than those in emerging markets.



Sources: IMF Financial Development (database); WDI (database); World Bank.

Note: EM = emerging markets; FM = frontier markets; ODE = other developing economies, neither EM nor FM. Bars show period averages of country group medians, unless otherwise specified. Whiskers define the 10th and 90th percentile interval.

A. Indexes assess the development of financial institutions (such as banks and insurance firms) and financial markets (such as stock and bond markets), with a scale from 0 to 1 Sample includes up to 34 EMs, 38 FMs, and 72 ODEs for the institutions index and up to 23 EMs, 28 FMs, and 51 ODEs for the markets index.

B. Latest data available is 2023. Sample includes up to 26 EMs, 23 FMs, and 7 ODEs. The range in ODEs for the 2020–23 period is excluded for readability because of outliers in the data.

C. Latest data available is 2022. Sample includes 33 EMs, 39 FMs, and 72 ODEs.

D. Interest rate spread is the interest rate charged by banks on loans to private-sector customers minus the interest rate paid by commercial or similar banks for demand, time, or savings deposits. Latest data available is 2023. Sample includes 25 EMs, 32 FMs, and 58 ODEs.

BOX 4.3 The global financial cycle: Asset prices and credit growth

The comovement of frontier markets' equity returns and domestic credit growth with global financial conditions is limited relative to that in advanced economies and emerging markets. However, this comovement increases during global financial stress episodes. Across country groups, equity markets are more responsive than domestic credit growth to the global financial cycle.

Frontier markets have attracted increasing external investment, in part due to benchmark-driven portfolio inflows associated with index inclusion, but their exposure to the global financial cycle has received little specific research attention.[a] The global financial cycle—the tendency for asset prices, credit growth, and capital flows to move in tandem across economies—has become an important concept in international finance since the early 2000s.[b] This synchronization has been driven by increased global financial integration, which, in benign periods, can lower risk premia and ease financing, supporting cross-border capital allocation and some international risk-sharing (Kose et al. 2009). The same linkages, however, can make countries vulnerable during global stress episodes, when spikes in risk aversion and tighter global liquidity can feed through quickly to domestic financial conditions via wider sovereign and corporate spreads, sharp retrenchments and reversals in capital flows, and deleveraging by global banks and other intermediaries (Bruno and Shin 2015; Miranda-Agrippino and Rey 2022).

Frontier markets, where foreign investor participation has risen against a backdrop of shallow financial systems and thin domestic investor bases, may be particularly vulnerable to swings in global risk appetite, especially during periods of widespread stress such as the 2008–09 Global Financial Crisis and the COVID-19 pandemic (IMF 2020; Prates, Fritz, and de Paula 2023). The extent of such vulnerabilities and the conditions under which they crystallize have important implications for policy making. Against this backdrop, this box analyzes the influence of the global financial cycle on frontier markets by examining the comovement of equity returns and domestic credit growth. It addresses three questions:

- To what extent are frontier market financial conditions synchronized with global financial cycles?
- How has this exposure evolved over time?
- Do equity and credit channels differ across country groups and over time?

This analysis estimates two monthly dynamic factor models—one for equity returns and one for domestic credit growth—covering 63 economies (21 advanced economies, 24 emerging markets, and 18 frontier markets) over 2000–25. Each series is decomposed into a global factor, a group factor, and a country-specific component using a Bayesian state-space approach.[c]

- **Global factor** (common to all countries): captures universal drivers—for example, global risk appetite, major central bank policies, widespread commodity price shocks, and episodes of systemic financial stress that reverberate worldwide.
- **Group factor** (common within advanced economies, emerging markets, and frontier markets): captures shocks with more pronounced effects within a group—for example, the 2013 taper tantrum (emerging markets), euro-area sovereign debt crisis (advanced economies), and index inclusion and benchmark-driven portfolio reallocations (frontier markets).
- **Country-specific factor**: captures residual idiosyncratic components—for example, reflecting domestic policy decisions, institutional characteristics, political events, and localized economic shocks.

The results reveal three key patterns. First, compared with advanced economies and emerging markets, frontier market financial conditions are far less synchronized with global equity and credit cycles. Over 2000–25, global factors explain only 12 and 13 percent of the

Note: This box was prepared by Kate McKinnon and Hamza Zahid.

a. One recent example which bucks this trend is Prates, Fritz, and de Paula (2023).

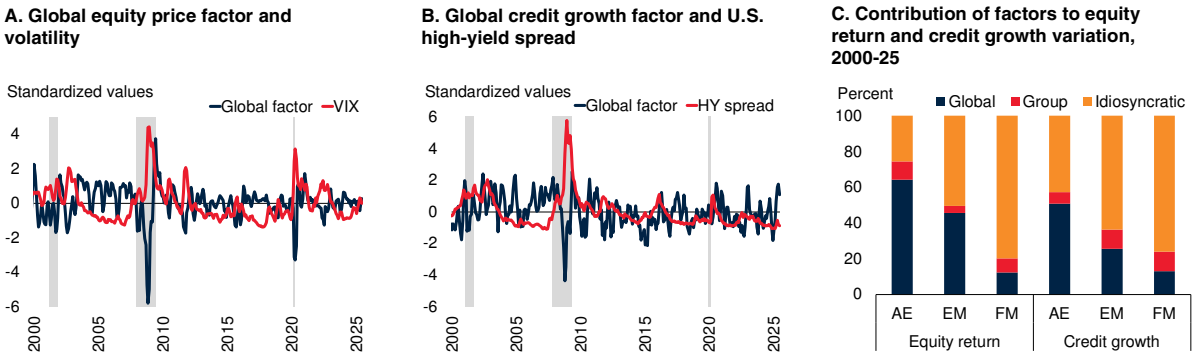
b. A wide body of literature documents this comovement and examines constraints it places on policy makers—refer to, for example, Cerutti and Claessens (2024), Claessens, Kose, and Terrones (2011), and Rey (2015).

c. Refer to annex 4.3 for more detail on the methodology and data sources.

BOX 4.3 The global financial cycle: Asset prices and credit growth (*continued*)

FIGURE B4.3.1 Frontier markets' exposure to the global financial cycle

An estimated global factor extracted from a large sample of equity returns and credit growth is closely connected to global market risk, especially during periods of global financial stress, consistent with evidence of a pronounced global financial cycle. Frontier markets are only moderately exposed on average, with most of the variance in equity returns and credit growth driven by idiosyncratic factors. However, during major global stress episodes such as the Global Financial Crisis, the euro area debt crisis, and the COVID-19 pandemic, frontier markets' equity markets—and, with a lag, their credit growth—move much more in step with this global factor.



Sources: CEIC Data (database); Federal Reserve Economic Data (FRED) (database); World Bank.
Note: AE = advanced economies; EM = emerging markets; FM = frontier markets. The global, group-specific, and idiosyncratic factors are estimated using a dynamic factor model with 21 AEs, 24 EMs, and 18 FMs.
A.B. Lines are standardized (z-scores). The estimated global factors are 3-month centered moving averages. Higher values of the Chicago Board Options Exchange Volatility Index (VIX) and the Intercontinental Exchange BofA U.S. High Yield Index option-adjusted spread (HY spread) indicate greater global risk and tighter global credit conditions, respectively. Gray bands denote NBER-dated United States recessions.
C. Bars show the share of variance in equity returns and domestic credit growth attributed to global, group-specific, and idiosyncratic factors, averaged across countries in each group.

variance in frontier market equity returns and domestic credit growth, respectively, compared with 64 and 51 percent for advanced economies and 46 and 25 percent for emerging markets. Second, frontier market synchronization with both global equity and credit cycles increases during global financial stress episodes, though it still lags that of other groups. Third, global influences are more cyclical in equity markets, including for frontier markets, where the global factor's variance share more than triples in the 2007–12 crisis period (covering the Global Financial Crisis and the euro-area debt turmoil), whereas comovement in domestic credit growth is more stable over time across all country groups. This may reflect country-specific credit market features—including regulatory constraints and lending standards—that buffer cyclical global shocks, while domestic equity prices can respond rapidly to global financial conditions (Cerutti and Claessens 2024).

Global factors

Estimates of the global equity price factor (GEPF) and the global credit growth factor (GCGF) capture related but distinct aspects of the global financial cycle. The GEPF, extracted from cross-country equity returns, primarily reflects global risk appetite (though looser funding can also lift equities). The GCGF, derived from credit growth, captures the availability and cost of international funding (yet still moves with broad sentiment). Together, these factors show how quickly investors reprice risk and how broadly global credit expands or contracts.

The GEPF plunges during major global stress episodes—the 2008–09 Global Financial Crisis, the euro-area sovereign debt crisis of 2011, and the onset of COVID-19 in 2020—before rebounding just as sharply (refer to figure B4.3.1.A). Extreme movements occur in only a small share of months but are more common than under a normal distribution; when they do occur, they are disproportionately large on the downside (Muir 2017; Rey 2015).[d] Correlation between the GEPF and the VIX reaches about –0.80 during stress episodes,

d. This finding is robust to smoothing the GEPF.

BOX 4.3 The global financial cycle: Asset prices and credit growth (*continued*)

consistent with evidence that global risk aversion dominates comovement in asset prices and credit conditions, especially amid global financial market stress (Miranda-Agrippino and Rey 2022). After the Global Financial Crisis, GEPF swings narrowed, reflecting compressed risk premia amid prolonged monetary policy easing in major advanced economies (Arteta et al. 2015). Correlation between the GEPF and the VIX falls to roughly –0.30 during the liquidity-abundant 2013–19 period, suggesting that while ample liquidity in key advanced economies can depress volatility indexes, it does not necessarily generate tighter global equity return comovement.[e]

The GCGF exhibits a similar boom-bust pattern and a high degree of persistence, indicating that peaks in the cycle tend to decay only gradually. The factor fell by almost three standard deviations during the late 2008 funding market freeze, dipped again during the euro-area sovereign debt episode, and fell briefly at the onset of COVID-19 (refer to figure B4.3.1.B). Its correlation with the U.S. high-yield spread was near –0.90 at the height of the Global Financial Crisis but close to zero during more benign periods. As with the GEPF, the GCGF features more frequent and severe contractions than a normal distribution would suggest, consistent with historical evidence (Jordà, Schularick, and Taylor 2013).

Global factor comovement by country group

For equity returns, all three country-group average series converge on the GEPF during the 2008–09 and early-2020 crises. Outside stress windows, average equity returns of advanced economies and emerging markets have tracked the GEPF fairly closely since 2000. Frontier market returns initially diverged markedly, but the gap with the GEPF has narrowed since 2009, suggesting gradual but still limited financial integration. For domestic credit growth, there is starker differentiation in the overall trajectories of the country group average series, which track the GCGF less closely and exhibit more limited convergence during crises.

Country-group differences are highlighted by variance decompositions (refer to figure B4.3.1.C):

Equity markets: The GEPF explains 64 percent of the variance in returns for advanced economies, 46 percent for emerging markets, and 12 percent for frontier markets. Idiosyncratic factors account for 25 percent of the variation in advanced economies, 50 percent in emerging markets, and 80 percent in frontier markets. Group-specific factors play a modest role (4 percent for emerging markets; 8 percent for frontier markets).

Credit markets: The GCGF captures 51 percent and 25 percent of domestic credit growth for advanced economies and emerging markets, respectively. In frontier markets, global factors explain only 13 percent of the credit variance, compared with about 76 percent for idiosyncratic forces. Group factors play a slightly larger role in credit growth than in equity returns (roughly 11 percent for emerging markets and frontier markets).

These results align with differences in market structure and integration channels. Advanced economies, with large and liquid financial markets and deep cross-border capital investment linkages, are tightly linked to global cycles in both equity and credit. Emerging markets have a sizeable but more limited global component and a larger role for country-specific forces. Frontier markets remain largely segmented, in line with more nascent financial integration; however, exposure to the global factors tends to rise during periods of global financial stress.

Changes in comovement over time

To trace how synchronization in equity markets and domestic credit conditions has evolved since the start of this century, variance decompositions are computed for four distinct phases of the global cycle: the pre-Global Financial Crisis period (2001–06), the Global Financial Crisis and euro-area debt turmoil (2007–12), the post-crisis low-rate period (2013–19), and the COVID-19 shock and subsequent tightening cycle (2020–25).

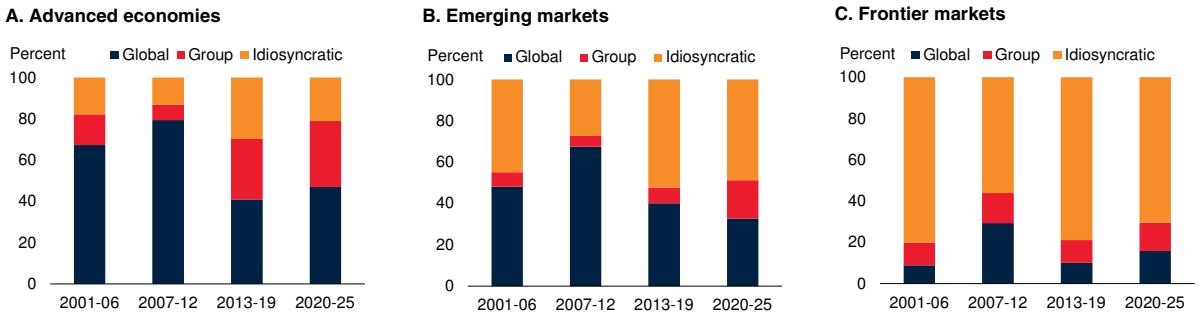
Frontier markets remain less connected to the global cycle in equity markets, but the role of the GEPF more than tripled, to almost 30 percent, during the 2007–12 window (refer to figures B4.3.2.A-C). Comovement in credit markets also peaked in this period, with the GCGF accounting for almost 22 percent of credit

e. The VIX, a U.S.-focused volatility measure, may overstate global risk perceptions if stress is focused on advanced economies, while the latent factor synthesizes information from more than 60 economies. This may explain the modest decoupling between the two series after the Global Financial Crisis.

BOX 4.3 The global financial cycle: Asset prices and credit growth (*continued*)

FIGURE B4.3.2 Variance decompositions of equity returns

In frontier markets, equity return variance is typically dominated by idiosyncratic shocks over longer windows, but vulnerability to global stress is underscored by the roughly tripled contribution of the global factor during the subperiod that includes the Global Financial Crisis. Equity returns in advanced economies and emerging markets are much more tightly tied to the global factor.



Sources: CEIC Data (database); World Bank.
Note: The global, group, and idiosyncratic factors are estimated using a dynamic factor model with monthly equity return data for 21 advanced economies, 24 emerging markets, and 18 frontier markets.
A.-C. Bars show variance attributed to global, group-specific, and idiosyncratic factors, averaged by country group.

growth variance. Across country groups, the GCGF's role in domestic credit growth was more stable over time (refer to figures B4.3.3.A-C).

Pre-Global Financial Crisis period (2001–06): Global factors accounted for about two-thirds of equity return variance and nearly 60 percent of credit growth variance in advanced economies, reflecting deep financial integration. Exposure was markedly lower in frontier markets: 9 percent in equity and 19 percent in credit markets. Emerging markets ranked in between.

Crisis era (2007–12): Synchronization increased across all groups, especially in equity markets, amid the common shock of the Global Financial Crisis. Frontier markets saw the most dramatic shift: the GEPF explained 29 percent of equity return variance, more than triple the pre-crisis share, while credit growth synchronization rose more modestly, to 22 percent.

Post-crisis low-rate period (2013–19): Group-specific influences became more visible in advanced economy equity markets, where regulatory reforms and monetary policies followed similar paths. In frontier markets, the global variance share for equities fell to near its pre-crisis level. Local credit conditions saw some decoupling across country groups.

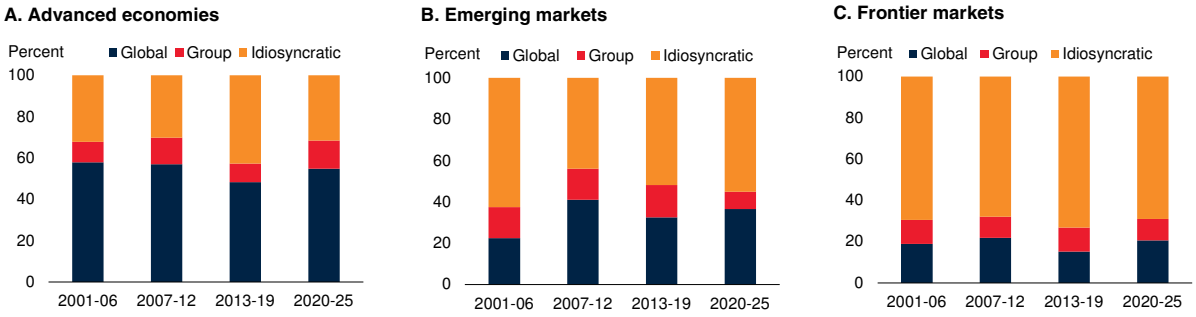
COVID-19 period and beyond (2020–25): The pandemic triggered short-lived re-synchronization but with a more heterogeneous aftermath than the Global Financial Crisis: rapid monetary and fiscal support helped stabilize local conditions, while the pace of reopening varied. Over the window, frontier market equity synchronization rose 5 percentage points, to 16 percent, while credit synchronization increased to 21 percent.

Three findings emerge from this analysis. First, frontier markets' local financial conditions remain relatively insulated from the global financial cycle. Country-specific forces account for almost four-fifths of equity return variance over the full period, highlighting substantial diversification opportunities for international investors. However, there is evidence of increasing integration over time, with frontier market equity returns more influenced by the global factor since the Global Financial Crisis; this trend will likely continue as benchmark-driven capital flows expand and domestic markets deepen. Second, while generally more insulated, frontier markets exhibit episodic vulnerability to the global financial cycle: exposure increases during widespread financial stress. Third, there is pronounced asset-class asymmetry in shock transmission, with global influences showing much greater cyclicality in equity

BOX 4.3 The global financial cycle: Asset prices and credit growth (*continued*)

FIGURE B4.3.3 Variance decompositions of credit growth

Frontier markets' credit growth is largely driven by idiosyncratic forces, with the global factor explaining around one-fifth of variance across periods. This global factor share rises modestly in windows that include the Global Financial Crisis and the COVID-19 pandemic. By contrast, on average, the global factor accounts for more than one-half of credit growth variance in advanced economies and about one-third in emerging markets.



Sources: CEIC Data (database); World Bank.
Note: The global, group, and idiosyncratic factors are estimated using a dynamic factor model with monthly credit growth data for 21 advanced economies, 24 emerging markets, and 18 frontier markets.
A.-C. Bars show variance attributed to global, group-specific, and idiosyncratic factors, averaged by country group.

returns than credit growth, including in frontier markets.

This episodic pattern—long periods of decoupling punctuated by sharp synchronization—poses complex macroeconomic stabilization challenges and requires a two-pronged policy approach. During calm periods, limited integration reduces the pass-through of external shocks. This provides scope to build resilience: strengthening oversight; building countercyclical capital and liquidity buffers; accumulating reserves; sharpening macroprudential tools; and developing deeper local-currency debt markets and a more stable domestic investor base. When global financial stress emerges, deploying such buffers and tools can help contain shocks, reducing the risk of sharp changes in domestic financial conditions.

variance in equity returns and domestic credit growth in frontier markets, with the global factor and group-specific factors accounting for the remainder.

The role of the global factor in frontier markets appears to have been markedly higher during global shock periods, though still lower than in other country groups. For frontier market equity returns, the share of variance explained by the global factor rose to 30 percent in the 2007–12 window that spanned the Global Financial Crisis and its immediate aftermath, about two-and-a-half times higher than its share over the 2000–24 period as a whole. The influence of the global factor on frontier market credit growth also appears to have been greater during global stress episodes, though to a lesser extent than equity returns.

Consistent with frontier markets' rising international financial integration, their sensitivity to the global financial cycle has increased somewhat over time, and spillovers from global financial turbulence onto frontier markets may intensify in future. Frontier markets' vulnerability to external shocks will vary, depending on factors such as the liquidity and currency denomination of an economy's external liabilities, the economy's institutional capacity, and its available policy

space. If domestic financial conditions are shaped more by the global financial cycle than by domestic policies and economic conditions, policy makers face a different challenge in developing effective responses (Rey 2015).

Fiscal positions, debt, and institutional quality

The ability of frontier markets to capitalize on their partial access to international financial markets, while mitigating associated risks, is constrained partly by their limited macroeconomic resilience. This limited resilience often reflects relatively weak institutional and fiscal capacity. Government debt has risen in the median frontier market, and the composition of frontier market liabilities suggests particular vulnerabilities.

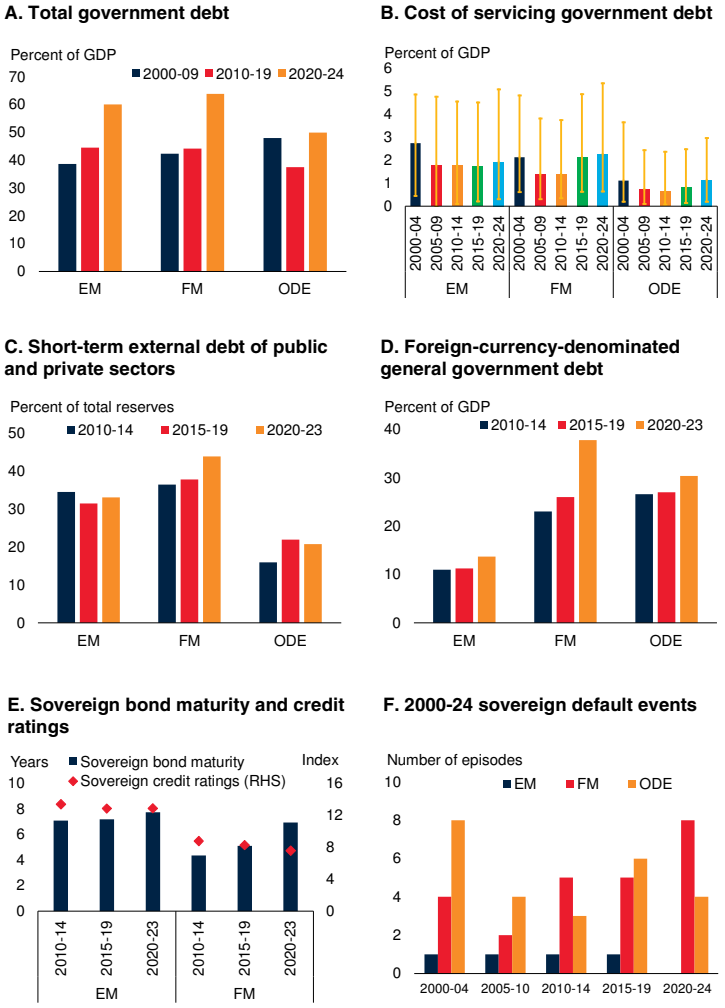
Rising debt is not necessarily undesirable if it finances productive investment. The ability to borrow is an opportunity afforded by market access, and the costs of debt may be justified by the returns, which can drive economic development. However, when rising debt burdens coincide with modest and declining growth in the capital stock per head and frequent sovereign defaults—traits exhibited more frequently among frontier markets—this is a concern. In addition, governance has improved in some areas over the last 25 years, but gaps relative to emerging markets and advanced economies remain large.

Fiscal positions and debt

In the median frontier market, expenditures as a proportion of GDP have risen, while revenues have remained flat (and are lower than in the typical emerging market). The result has been widening fiscal deficits and rising total government debt, with a sharp uptick in the early 2020s (refer to figure 4.6.A). There has also been a notable rise in debt-service ratios in frontier markets over time, with the median frontier market spending 2.5 percent of GDP on net interest payments, on average, in 2020–24, more than both emerging markets (1.8 percent) and other developing economies (1.2 percent) (refer to figure 4.6.B).

FIGURE 4.6 Government and external debt

Total government debt as a share of GDP has risen in the median frontier market, as have debt-servicing costs. Short-term external debt and foreign currency-denominated general government debt have also risen. Frontier market sovereign bond maturities have lengthened, but credit ratings have weakened since the early 2010s. There have been more sovereign defaults in frontier markets in recent years.



Sources: Asonuma and Trebesch (2016); Erce, Mallucci, and Picarelli (2022); Fitch ratings (2025); Kose et al. (2022); Moody's Ratings (2025); S&P Global (2025); WDI (database); World Bank.

Note: EM = emerging markets; FM = frontier markets; ODE = other developing economies, neither EM nor FM. Bars show period averages of country group medians, unless otherwise specified.

A. Bars represent general government gross debt as a share of GDP. Sample includes up to 34 EMs, 39 FMs, and 78 ODEs.

B. Debt-servicing costs are represented by net interest payments in percent of GDP. Net interest payments are computed as the difference between primary and overall fiscal balances. Sample includes up to 34 EMs, 39 FMs, and 75 ODEs. Whiskers show the 10th and 90th percentiles.

C. Short-term external debt is all debt having an original maturity of one year or less and interest in arrears on long-term debt owed to non-residents, in percent of total reserves. Sample includes up to 22 EMs, 35 FMs, and 61 ODEs.

D. Bars represent shares of general government debt denominated in foreign currency (percent of GDP). Sample includes up to 12 EMs, 14 FMs, and 14 ODEs.

E. Bars represent median maturity years of sovereign debt for EMDEs, derived from the J.P. Morgan EMBI Global index, for each group. The index covers sovereign and quasi-sovereign instruments denominated in U.S. dollars with a minimum issue size of $500 million and a maturity of at least 2.5 years at the time of entry. Sample includes up to 25 EMs and 18 FMs. Diamonds represent median sovereign ratings (index ranging from 1 to 21, with higher values indicating better ratings) that are averaged among Moody's, Standard & Poor's, and Fitch Ratings. Sample includes up to 30 EMs and 39 FMs.

F. Data cover sovereign defaults and restructurings with private creditors that occurred between 2000 and 2024 as documented in Asonuma and Trebesch (2016), Erce, Mallucci, and Picarelli (2022), Fitch Ratings (2025), Moody's Ratings (2025), and S&P Global (2025).

Moreover, frontier markets have relied relatively heavily on external, sometimes short-term funding. Short-term external debt as a share of total reserves and the share of foreign currency-denominated general government debt relative to GDP have both surged in frontier markets in recent years, and are higher than in emerging markets or other developing economies (refer to figures 4.6.C and 4.6.D). These developments may increase the vulnerability of frontier markets to risks, including shifts in global financial conditions and currency mismatches on government or corporate balance sheets.

At the same time, the average maturity of sovereign bonds has risen since the early 2010s in frontier markets—a broadly positive trend, with average maturity approaching the duration in emerging markets by the early 2020s. However, sovereign credit ratings in frontier markets have remained well below those in emerging markets, declining in both absolute and relative terms since 2010–14 (refer to figure 4.6.E). Together, these developments reflect frontier markets' greater access to capital markets relative to other developing economies, but their generally weaker macroeconomic policy frameworks and debt management capacity relative to emerging markets.

The upshot is that sovereign debt defaults and restructurings have been increasingly concentrated in frontier markets. Nearly two-fifths of frontier markets defaulted at least once between 2000 and 2024. There have been more sovereign defaults since 2020 in frontier markets than in all other countries combined (refer to figure 4.6.F).[5] Repeated defaults are also more common in frontier markets than in other country groups. History suggests that economies with a record of defaults are more likely to default again in the future than other economies with similar debt-to-GDP ratios (Asonuma 2016). Sovereign defaults lead to a range of negative outcomes, including wider spreads, reduced access to external finance, and damaged confidence among investors, firms, and consumers (Farah-Yacoub et al. 2022).

Institutional quality

Strong legal and institutional foundations are critical for an economy's ability to attract external financing, manage associated risks, and translate investment opportunities into sustained improvements in growth and development outcomes. Conversely, institutional weaknesses can reinforce financial market constraints by raising the risk premia required by investors, domestic or foreign, thus elevating financing costs and hindering the deepening of the domestic financial system (Adarov 2025).[6] Weak legal and institutional frameworks can also facilitate rent-seeking behavior. Such shortcomings can hamper the effective use of natural resource endowments. This is relevant across EMDEs, including frontier markets, where commodity exports typically account for a higher share of GDP than in other EMDEs (refer to figure 4.7.A). Attracting investment that can facilitate the responsible use of natural resources hinges partly on the stability, efficiency, and transparency of the policy environment, including regulatory systems and enabling infrastructure.

Frontier markets' performance since 2000 in raising institutional quality has been mixed. Between 2000 and 2025, estimates of bureaucratic quality in the median frontier market saw no improvement, even as emerging markets and other developing economies made some gains (refer to figure 4.7.B). The median frontier market did make progress in both the control of corruption and the investment climate (refer to figures 4.7.C and 4.7.D). However, as with other EMDEs, significant gaps relative to advanced economies persist on all three measures.

[5] These calculations draw on all sovereign defaults and restructurings between 2000 and 2024, as documented in Asonuma and Trebesch (2016), Erce, Mallucci, and Picarelli (2022), Fitch Ratings (2025), Moody's Ratings (2025), and S&P Global (2025). They use the 2012 classification of 39 frontier markets, of which 15 experienced a default episode between 2000 and 2024. In addition to this result, three more economies obtained frontier market status after 2012 and have subsequently experienced a default episode.

[6] Gaps in contract enforcement, creditor rights, and insolvency frameworks curtail lending volumes and raise risk premia (Djankov, McLiesh, and Shleifer 2007). Weaker enforcement and resolution frameworks reduce the value lenders attach to pledged assets, constraining credit and slowing recoveries (Haselmann, Pistor, and Vig 2010; Baldacci, Gupta, and Mati 2011). Political uncertainty and opacity can generate large risk premia, leading external lenders and investors to require extra compensation (Adarov 2025; Bekaert et al. 2014).

Macroeconomic and development outcomes

Over the past 25 years, macroeconomic and development performance across frontier markets has been mixed. Per capita GDP growth in the typical frontier market has been slightly higher than in emerging markets. However, after much progress early in the quarter century, poverty reduction has slowed over the last decade. The World Bank's high-income threshold has moved further away for a rising share of frontier markets. Growth of investment per capita has fallen since the 2000s, with capital stocks typically much lower than in emerging markets. Yet some key human development indicators have improved.

Headline macroeconomic performance

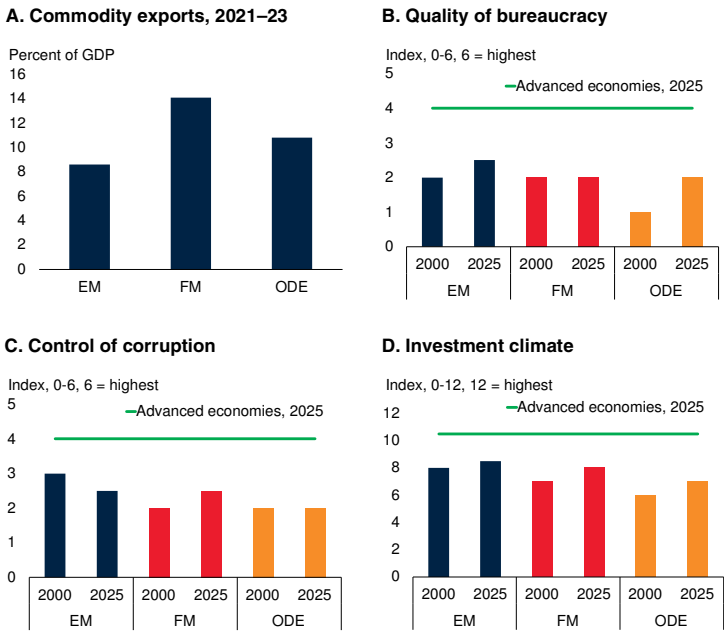
Over the past quarter century, GDP growth has weakened across country groups. In the median frontier market, average annual output growth halved from 5.0 percent in the 2000s to 2.5 percent in the first half of the 2020s (refer to figure 4.8.A). Growth of output per capita has also declined, and by more in frontier markets than in other EMDEs. In the median frontier market, it averaged 3.2 percent annually in the 2000s and 2.6 percent in the 2010s, both higher than in the typical emerging market or other developing economy. During the first half of the 2020s, however, median frontier market per capita GDP growth was 1.2 percent a year, the same as in both emerging markets and other developing economies (refer to figure 4.8.B).

Investment growth, a major driver of output growth, has followed a similar downward trajectory. Per capita investment growth more than halved between the 2000s and the first half of the 2020s across all EMDE groups, averaging just 2.0 percent in the median frontier market over 2020–24 (refer to figure 4.8.C). Export growth in the typical frontier market has also been subdued, weaker over the quarter century as a whole than in both emerging markets and other developing economies, with declining trends across all country groups (refer to figure 4.8.D).

Inflation has typically been somewhat higher in frontier markets than in emerging markets (refer to figure 4.8.E). The volatility of inflation has also often been higher in frontier markets. This partly reflects exchange rate pass-through dynamics: exchange rate volatility has risen sharply in recent years in both frontier markets and other developing economies, in part due to terms-of-trade shifts and thin policy and reserves buffers to counter currency pressures (refer to figure 4.8.F). Shocks that lead to currency pressures can then trigger larger exchange rate movements. These movements can pass through rapidly to domestic prices and balance sheets (Carstens 2019; Caselli and Roitman 2016). Many frontier markets are vulnerable to exchange rate instability given their limited capacity to hedge foreign-exchange risk,

FIGURE 4.7 Economic structure and institutional quality

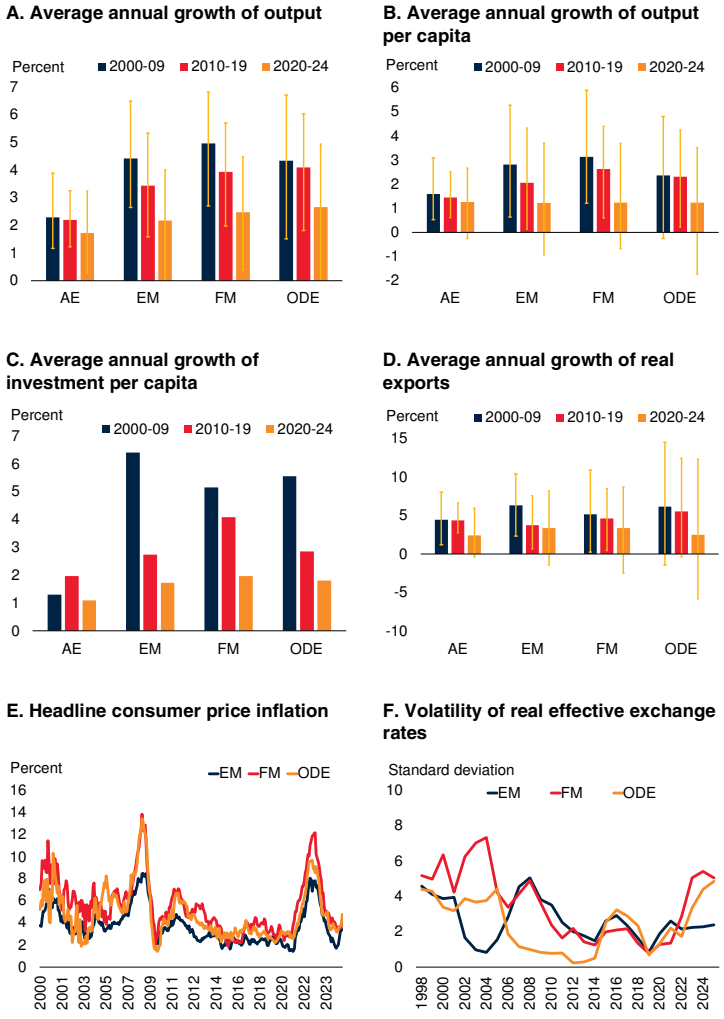
Commodity exports are a larger share of GDP in frontier markets than in emerging markets or other developing economies. Institutional progress in frontier markets has been mixed, with no change in bureaucratic quality since 2000 and modest improvements in control of corruption and the investment climate. Across EMDEs, significant institutional gaps remain relative to advanced economies.



Sources: ICRG (database); WITS (database); World Bank.
Note: EM = emerging markets; FM = frontier markets; ODE = other developing economies, neither EM nor FM.
A. Bars show GDP-weighted commodity exports as a share of GDP for each country group, average of 2021–23. Sample includes 30 EMs, 35 FMs, and 49 ODEs.
B.–D. Sample includes 34 AEs, 31 EMs, 35 FMs, and 37 ODEs. ODE medians should be interpreted cautiously, given the sample includes less than half of the 80 ODEs in the baseline classification. Bars show median index values across country groups for each year. The green line shows the median value across advanced economies for 2025. A higher index score is associated with (B) stronger, more independent, and capable bureaucracy, (C) lower corruption risk in ICRG's scheme, and (D) better investment climate (contract viability, profit repatriation, payment delays).

FIGURE 4.8 Economic growth, inflation, and volatility

Growth of both aggregate output and output per capita has followed declining trends across all country groups since the 2000s. Growth of per capita investment in frontier markets weakened less than in other EMDEs in the 2010s, but the slowdown has since become more pronounced. Export growth has slowed in frontier markets and in other EMDEs. Inflation has generally been higher in frontier markets than in emerging markets. Real effective exchange rate volatility has also risen sharply in frontier markets in recent years.



Sources: BIS (database); Ha, Kose, and Ohnsorge (2023); Haver Analytics; World Bank.
Note: AE = advanced economies; EM = emerging markets; FM = frontier markets; ODE = other developing economies, neither EM nor FM. Bars show period averages of country group medians, unless otherwise specified. Whiskers show the interquartile range.
A.B. Sample includes 34 AEs, 34 EMs, 38 FMs, and 78 ODEs.
C.D. Sample includes 34 AEs, 30 EMs, 34 FMs, and 42 ODEs.
E. Lines show median headline consumer price inflation from 12 months earlier, using monthly data. Last observation is March 2025. Sample includes up to 34 EMs, 39 FMs, and 72 ODEs.
F. Volatility is the 5–year rolling standard deviation of the annual group real effective exchange rate index. Lines are group medians. Sample includes 34 EM, 39 FMs, and 80 ODEs.

and particularly to currency depreciation given high levels of foreign-currency-denominated debt.

Convergence and poverty reduction

Growth in per capita output, even as it has moderated, has translated into large increases in real per capita GDP across EMDEs. Between 2000 and 2025, real annual GDP per capita in the median frontier market rose from $3,081 to $5,108. Over the same period, per capita output in the typical emerging market surged from $7,958 to $15,294 (refer to figure 4.9.A). The ratio of per capita GDP in frontier markets to that in emerging markets slipped from 39 to 32 percent. Beneath these overall trends, there is considerable diversity in both GDP per capita and population sizes across frontier markets (refer to figure 4.9.B).

Since 2000, most frontier markets have moved closer to the World Bank's high-income threshold. However, over the last decade, this convergence has slowed and, in many cases, reversed. In 2025, 45 percent of the 39 frontier markets in the baseline sample were further from high-income status than at the onset of the COVID-19 pandemic, underscoring the economic scars left by the series of shocks since 2020. The share of non-converging frontier markets had also jumped in the 2015–19 period amid commodity price weakness (refer to figure 4.9.C). In the median frontier market, per capita income is currently below 40 percent of the high-income threshold.

Frontier markets have made meaningful progress in reducing poverty since 2000. The share of people living on $3 per day or less more than halved between 2000 and 2024 (refer to figure 4.9.D). Yet poverty reduction in frontier markets has not been as rapid as in emerging markets, where poverty rates fell from levels somewhat above those in frontier markets in 2000 to levels far below them in 2024, largely reflecting advances in China and India. Over the past decade, as per capita GDP growth has slowed, reductions in poverty rates have tailed off in both frontier markets and other developing economies. Poverty rates remain significant in both groups, at 16 percent and 33 percent, respectively.

Physical capital accumulation and human development

Reflecting positive but moderating growth in per capita investment, the stock of physical capital per head in the typical frontier market rose by 61 percent over 2000–23. This was less than the increases experienced in both emerging markets (from a much higher base) and in other developing economies (refer to figure 4.10.A).

Frontier markets, like other EMDEs, have made progress in human capital development in recent years, though considerable gaps remain relative to emerging markets. The World Bank Group's composite Human Capital Index (HCI) measures the human capital a child is expected to acquire by age 18, relative to a benchmark of full health and education (on a 0–1 scale). In the typical frontier market, the HCI increased from 0.72 in 2010 to 0.75 in 2023. This remains below the level in emerging markets but above that in other developing economies (refer to figure 4.10.B).

Life expectancy in the median frontier market rose by six years between 2000 and 2023, reaching 74 years. This is closer to the 77 years recorded in emerging markets than to the 68 years in other developing economies (refer to figure 4.10.C). Average years of completed education have risen across all EMDE groups. In the median frontier market, they increased from 6.9 years in 2000 to 9.4 years in 2023 and remain positioned between emerging markets and other developing economies (refer to figure 4.10.D). These basic indicators of health and education standards have limitations but illustrate both progress and scope for further improvement among frontier markets.

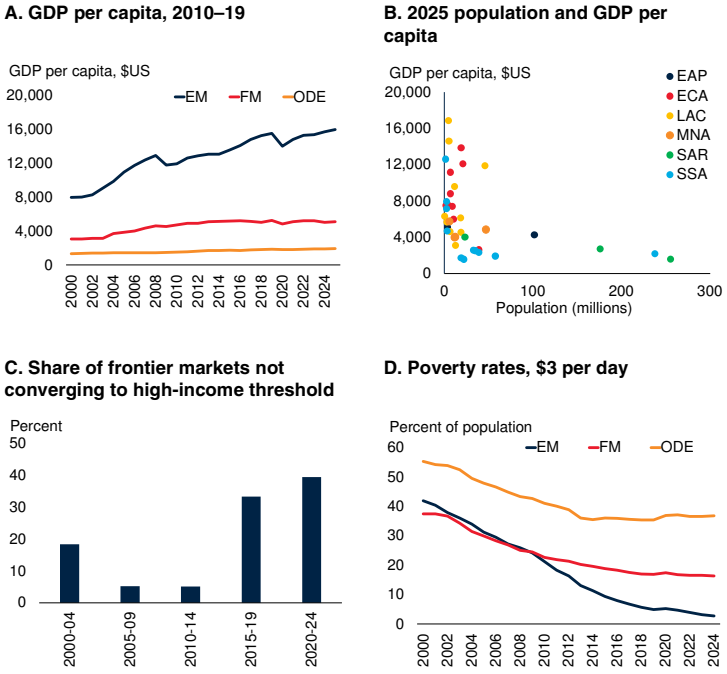
Sectoral composition of output and employment

Sectoral shares of output in frontier markets have shifted only gradually over time. The share of agricultural output in GDP averaged 8 percent in the median frontier market in the early 2020s. This was less than half the share in other developing economies but double the share in the typical emerging market. The share of services output in the median frontier market, at 62 percent, was similar to that in emerging markets but above that in other developing economies. The share of manufacturing output in GDP in frontier markets, at 28 percent, was similar to that in other developing economies but below that in emerging markets.

Effective shifts of resources both across these broad sectors and within them to more productive sub-sectors and firms can help drive aggregate job

FIGURE 4.9 Per capita GDP, convergence, and poverty rates

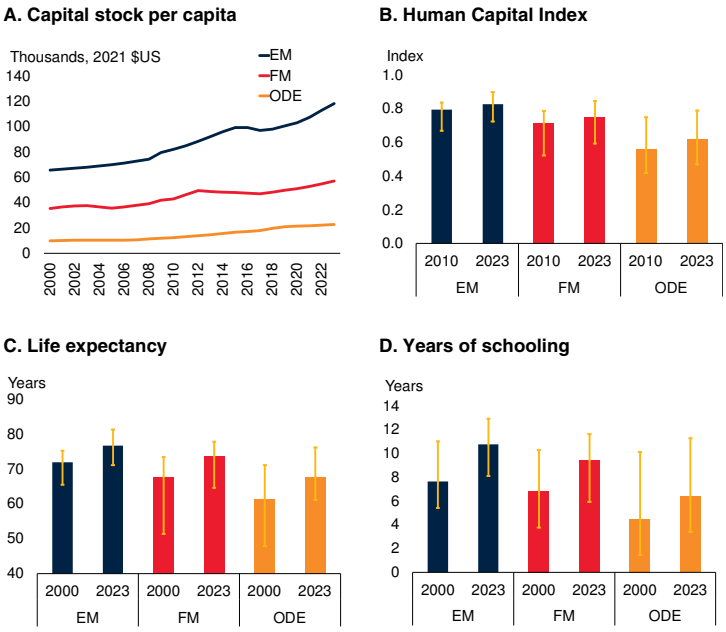
Since 2000, GDP per capita in the median frontier market has grown, but by less than in the median emerging market. In terms of both population size and per capita GDP, there is wide dispersion among frontier markets. Most frontier markets have made some progress toward high-income status since 2000, but the share failing to make such progress has increased in recent years. In 2000, frontier markets had lower poverty rates than both emerging markets and other developing economies. Poverty rates have declined since then, but progress has slowed in the second half of the period.



Sources: World Bank Poverty and Inequality Platform (database); WDI (database); World Bank.
Note: EAP = East Asia and Pacific; ECA = Europe and Central Asia; EM = emerging markets; FM = frontier markets; LAC = Latin America and the Caribbean; MNA= Middle East, North Africa, Afghanistan and Pakistan; ODE = other developing economies, neither EM nor FM; SAR = South Asia; SSA = Sub-Saharan Africa. Sample includes 34 EMs, 39 FMs, and 80 ODEs.
A. Lines show median real GDP per capita over time in average 2010–19 constant U.S. dollars, by country group.
B. Panel shows FM economies' real GDP per capita in average 2010–19 U.S. dollars and population in millions in 2025.
C. Bars show the share of FM economies in the baseline sample not converging to high-income status over each time range. An economy is converging if its per capita income, relative to the World Bank Group's annually updated high-income threshold, is rising.
D. Lines represent population-weighted poverty rates, measured using the $3 poverty line (2021 PPP), by country groups. Last observation is 2024.

FIGURE 4.10 Physical capital stock and human development

Since 2000, physical capital stocks per capita in frontier markets have been consistently smaller than in emerging markets but larger than in other developing economies, with emerging markets experiencing the fastest growth. Human capital indicators, including the World Bank's Human Capital Index, life expectancy, and years of schooling, have improved across all three EMDE groups, with frontier markets again positioned between emerging markets and other developing economies.



Sources: Feenstra, Inklaar, and Timmer (2015); UN Population Prospects (database); WDI (database); World Bank Human Capital Data Project; World Bank.
Note: EM = emerging markets; FM = frontier markets; ODE = other developing economies, neither EM nor FM.
A. Lines represent the median value of capital stock by capita per country group. Sample includes 34 EMs, 39 FMs, and 62 ODEs. Last data available is 2023.
B. Bars show median Human Capital Index (scale 0 to 1) within each group. Whiskers show the 10th and 90th percentiles. Original data source starts in 2010. Sample includes up to 34 EMs, 38 FMs, and 78 ODEs.
C. Bars represent median values of life expectancy in each group. Sample includes up to 34 EMs, 39 FMs, and 80 ODEs.
D. Bars show median of mean years of schooling within each group. Whiskers show the 10th and 90th percentiles. Sample includes up to 34 EMs, 39 FMs, and 70 ODEs.

creation, productivity improvements, and output growth (Bhorat et al. 2025; Meh and Schmukler 2025). Well-designed policies that promote the appropriate development of specific sub-sectors, including agribusiness, energy and infrastructure, healthcare, tourism, and value-added manufacturing, could offer routes to more resilient local growth and jobs (Development Committee 2025). An important challenge for all EMDEs, and for frontier markets in particular, is to adapt to, and take advantage of, technological, trade, and other developments in the global economy in ways that promote stronger growth, job creation, and development.

Burgeoning working-age populations could generate a significant demographic dividend in frontier markets, but this hinges on strong job creation. Amid slowing output growth (both globally and in frontier markets), this represents a major challenge for policy makers: average employment growth in frontier markets in the 2010s was lower than the projected growth in the working-age population over the coming decade, underscoring the importance of a focus on job creation. However, relative to other developing economies, frontier markets have advantages, including healthier and better educated populations, larger capital stocks, and better international market access. These advantages can provide a strong platform to meet these challenges and achieve better economic and development outcomes.

Features of frontier market success

Macroeconomic performance has varied among frontier markets over the past quarter century. As a group, frontier markets have struggled with weak investment and episodic vulnerability to global shocks. Yet some frontier markets have fared notably better than others.[7] Despite differing circumstances and growth models, quantitative analysis and case studies reveal some common distinguishing features among the frontier markets in which growth of per capita output has been relatively stronger over the past quarter century. These include faster investment growth and greater capital accumulation, larger improvements in governance, and better management of government debt.

Features of faster-growing frontier markets

Economies in the top quartile of frontier markets in terms of per capita GDP growth since 2000 display diverse characteristics. They are located in five of the six EMDE regions. Their population sizes vary widely. Faster growth of per capita GDP in the top-quartile frontier markets between 2000

[7] This analysis combines the baseline 2012 sample of 39 frontier markets plus those economies that had become frontier markets by 2025, for a sample of 62 economies. The top quartile in terms of growth performance consists of 15 economies (refer to annex 4.1).

and 2024 translated into much larger output increases across the period as a whole. In the median top-quartile frontier market, real GDP per capita almost quadrupled, rising from $1,522 in 2000 to $5,851 in 2024—more than double the increase in other frontier markets, where it rose from $2,111 to $3,810. Quantitative analysis shows that developments in the top-quartile frontier markets share several distinguishing features.

The median top-quartile frontier market registered more than twice the growth rate of investment per capita as other frontier markets over the quarter century since 2000 (refer to figure 4.11.A). Investment growth was higher in almost every individual year. This fed into much higher per capita capital stocks, which grew almost twice as fast in the top quartile as in other frontier markets, from an already higher base.

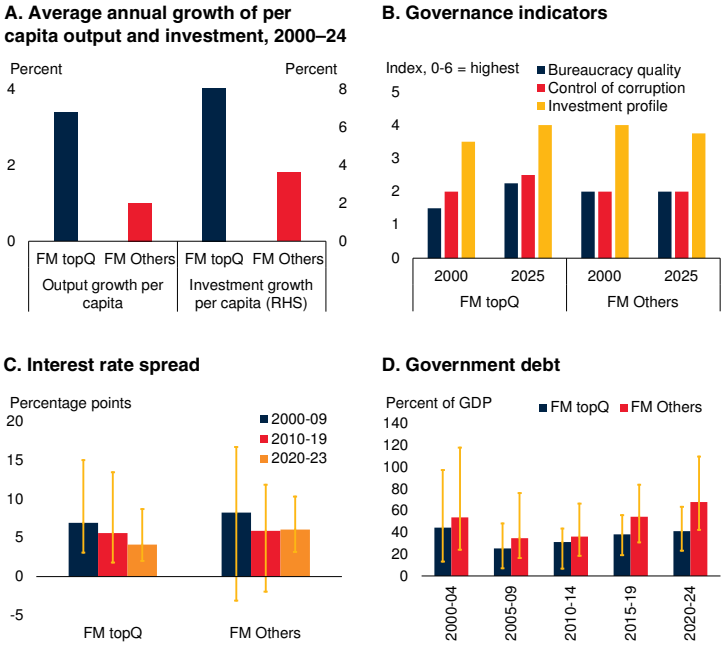
The top quartile of frontier markets is also characterized by larger improvements in institutional quality. Over 2000–25, the median top-quartile frontier market registered notable improvements in bureaucratic quality, control of corruption, and investment climate, while in the median other frontier economy there was scant progress on these measures (refer to figure 4.11.B). This is consistent with wider evidence linking institution-building and economic development (Acemoglu and Robinson 2012; Collier 2019).

Financial intermediation costs were notably lower among the faster-growing frontier markets. Spreads between banks' lending and borrowing rates narrowed by 2.8 percentage points, to 4.1 percent, in the median top-quartile frontier market between the 2000s and the early 2020s. This represents a larger decline than in other frontier markets (refer to figure 4.11.C).

Government debt burdens have grown across frontier markets in recent years, but the increases among faster-growing frontier markets have been more modest. Government debt-to-GDP ratios averaged 41 percent in the median top-quartile frontier market in the first half of the 2020s, compared with 68 percent in the median other frontier market (refer to figure 4.11.D). In part, this reflects higher revenues, relative to GDP, in the typical top-quartile frontier market, even as expenditures have risen across both groups.[8]

FIGURE 4.11 Characteristics of faster-growing frontier markets

In faster-growing frontier markets, per capita investment growth has also been higher. These faster-growing frontier markets have also registered improvements across governance indicators. Declines in banks' interest rate spreads have been larger, and increases in government debt-to-GDP ratios have been smaller than in other frontier markets.



Sources: ICRG (database); Kose et al. (2022); WDI (database); World Bank.
Note: FM topQ = frontier markets in the top quartile for average per capita GDP growth over 2000–24; FM Others = remaining frontier markets in the sample. This captures economies that were frontier markets in 2012 and those that have subsequently achieved frontier market status. Bars represent period averages of medians for each group, unless otherwise specified. Whiskers show the 10th and 90th percentiles.
A. Sample includes 11 FM topQ and 39 FM Others for output per capita, and 15 FM topQ and 47 FM Others for investment growth per capita.
B. The bureaucracy quality and control of corruption indexes range from 0 to 6, with 6 representing the highest score. The investment profile index was originally on a 0–12 scale, with 12 the highest score; for ease of comparison, it has been normalized to a 0–6 scale, with 6 the highest value. Sample includes 12 FM topQ and 40 FM Others.
C. Interest rate spread is the interest rate charged by banks on loans to private sector customers minus the interest rate paid by commercial or similar banks for demand, time, or savings deposits. Latest data available is 2023. Sample includes up to 13 FM topQ and 40 FM Others.
D. Data for 2024 is an estimate. Sample includes up to 15 FM topQ and 47 FM Others.

Lessons from case studies of faster-growing frontier markets

The experiences of five top-quartile frontier markets—Kazakhstan, Panama, Rwanda, Uzbe-

[8] This observation does not imply an absence of debt concerns among the top-quartile group, nor does it suggest that lower debt necessarily means faster growth. Debt-increasing fiscal positions were recorded in almost half of top-quartile frontier markets and over half of other frontier markets in 2020–24.

kistan, and Viet Nam—illustrate different paths to successful growth. They also point to the importance of mutually reinforcing financial, macroeconomic, and structural policies and reforms (refer to annex 4.2). Viet Nam has focused on strengthening export-oriented manufacturing, deepening its integration into global value chains. The growth strategies of Kazakhstan and Uzbekistan have been geared to their large resource endowments. Panama and Rwanda have both pursued services sector-focused development, but in different ways. Panama has done so as a small open economy with a relatively advanced financial sector, while Rwanda has developed services from a low base. Rwanda and Uzbekistan are both relatively new entrants to the frontier markets group, having been included in J.P. Morgan's EMBI Global bond index in 2022 and 2020, respectively. Meanwhile, Panama was classified as a high-income country (and thus an emerging market) for the first time in 2017, while FTSE Russell is poised to reclassify Viet Nam as an emerging market in 2026 (LSEG 2025).

Financial reforms in the case-study economies, including around the attainment of frontier status, have tended to focus on both reducing restrictions on foreign capital flows and enhancing financial market infrastructure, depth and regulation—balancing attracting new foreign financing with containing associated vulnerabilities. In several cases, country authorities prioritized the development of domestic stock markets, alongside the establishment of securities regulatory bodies, prior to index inclusion—Kazakhstan and Panama even before 2000, and later in Rwanda and Viet Nam. All five economies sought to attract FDI, with initiatives including loosening restrictions on foreign ownership and capital repatriation, establishing special economic zones, and enhancing investors' legal protections.

Portfolio inflows increased significantly following index inclusion in several of the case studies. Viet Nam experienced a marked rise in portfolio inflows after being added to global bond and equity indexes, with annual growth in these inflows peaking at 8.1 percent in 2007. More recent entrants to the frontier markets group—Rwanda (2022) and Uzbekistan (2020)—also saw large increases in portfolio inflows following index inclusion. However, FDI and bank lending have remained the dominant forms of external financing in all five cases, with FDI accounting for nearly half of all capital inflows since 2000.

Prudent macroeconomic policies are a further shared feature. Several countries have implemented reforms to bolster macroeconomic stability and the credibility of policy frameworks, attenuating risks to investors and reinforcing buffers. Monetary policy frameworks have been strengthened in some cases, enhancing the credibility of inflation control and potentially allowing more exchange rate flexibility for the absorption of shocks. For example, Kazakhstan and Rwanda adopted inflation targeting regimes in the second half of the 2010s, following preparatory reforms, while Uzbekistan unified its multiple exchange rates in 2017. Cautious fiscal management has also boosted investor confidence in several instances. Panama and Uzbekistan significantly reduced government debt-to-GDP ratios in the 2000s. Kazakhstan has maintained relatively low debt levels while using its oil fund as a countercyclical tool. Viet Nam's prudent debt management—and its maintenance of ample international reserves relative to external short-term debt—has kept debt-service costs manageable even as debt has increased.

Structural reforms, including trade liberalization, as well as investment in human capital and foundational infrastructure, have raised prospective returns on private investment, helping financial opening to support productivity and output growth. Trade liberalization has played a role, albeit to differing degrees across the cases. Viet Nam acceded to the WTO in 2007 and has signed multiple trade agreements, while Kazakhstan joined the WTO in 2015. Uzbekistan, in a late 2010s liberalization drive, lowered import tariffs and rationalized non-tariff barriers and customs procedures.

The World Bank Group has highlighted five sectors with particular potential for resilient job creation: infrastructure (including energy), agribusiness, healthcare, tourism, and value-added manufacturing (Development Committee 2025). Some of these sectors have been influential in driving broader economic growth. For example,

services, including tourism, have played a growing role in Rwanda's economy, while value-added manufacturing has been vital in Viet Nam. Development of energy resources has been important in Kazakhstan and Uzbekistan. In most of the five cases, infrastructure investment has formed a substantial part of public expenditure. It has been a key driver of growth in Rwanda, while infrastructure megaprojects in Panama have supported growth in the logistics sector. In Viet Nam, investment in education has been given particular emphasis, with strong outcomes, though there is scope for more improvement (OECD 2025).

Sustained output growth often coincided with efforts to improve governance, including via regulatory quality and legal frameworks, which boosted confidence among foreign investors and domestic firms. Rwanda's steps to streamline regulation and build state capacity have made it one of the most welcoming business environments in its region (Boyce et al. 2025). Panama has maintained a competitive tax and regulatory environment, while also recently taking steps to improve financial transparency. Viet Nam's multifaceted Doi Moi drive, starting in the 1980s, included actions to rationalize regulations and reduce price controls.

Policy priorities for frontier markets

Debate over policy reforms to advance economic development has evolved over recent decades (Besley, Bucelli, and Velasco 2025). There is consensus that macroeconomic stability and economic efficiency are crucial for sustainable growth, and policy reforms have significantly improved economic performance in EMDEs (Chari, Henry, and Reyes 2021). Greater access to international financial markets provides options to advance economic development. Additional financing is vital for frontier markets, where significant investment gaps persist. Despite the promise conveyed by demographics, natural resources, and partial market access, economic progress in frontier markets has been mixed and has slowed. Unlocking additional financing and using it effectively to boost growth, increase resilience, and advance development can help frontier markets achieve their economic potential.

Priorities to unlock this potential span three related areas: advancing integration with international financial markets while minimizing associated risks through appropriately designed reforms; bolstering macroeconomic stability via improvements to policy frameworks and institutional capacity, addressing domestic imbalances and building resilience to external shocks; and catalyzing investment and productivity growth, including through investment in foundational infrastructure and human capital, to enhance potential output and job creation prospects. The hierarchy of these themes and the specific measures within them, as well as optimal sequencing, will hinge on country circumstances. Progress across these areas can reduce uncertainty for investors, attract financing, and help translate market access into greater private investment, higher productivity, and strong job creation. International support will remain important to help these efforts in frontier markets.

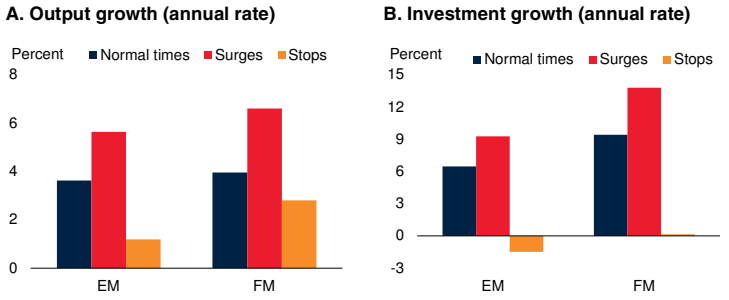
Advancing financial and trade integration while managing external vulnerabilities

Across EMDEs, investment growth has tended to be faster in economies with larger capital inflows (Adarov 2025). Capital inflows tend to ease financing constraints, lower funding costs, foster technology transfer, and promote risk sharing. Such benefits are more likely to materialize in economies with sufficient financial depth, strong institutional quality, and credible policies (IMF 2022; Kose et al. 2009; Prasad, Rajan, and Subramanian 2007). Several emerging markets that have experienced sustained high growth, including Chile, the Republic of Korea, Malaysia, and Uruguay, have done so partly on the basis of reforms that opened the capital account and deepened the financial sector (World Bank 2024c).

Larger capital inflows tend to be associated with substantial increases in output and investment growth. However, surges in capital inflows also raise the risk reversals and sudden stops, which depress economic activity and investment (refer to figures 4.12.A and 4.12.B; Ghosh et al. 2014).

FIGURE 4.12 Growth during capital inflow surges and stops

Both emerging markets and frontier markets have experienced pronounced swings in economic activity around extreme movements in capital inflows. Frontier markets have experienced sharper rises in real GDP growth than emerging markets during surges: nearly three-quarters higher than normal. Sudden stops have been associated with weaker output and investment growth across country groups.



Sources: Haver Analytics; Organisation for Economic Co-operation and Development; World Bank.
Note: EM = emerging markets; FM = frontier markets.
A.B. Surges and stops in capital inflows are identified using an algorithm described in annex 4.2. GDP and investment growth are seasonally adjusted annualized growth rates based on real quarterly GDP and investment data in local currency terms. Sample includes 24 EMs and 27 FMs for GDP, and 21 EMs and 16 FMs for investment growth.

Thin financial markets in many frontier markets mean that even a moderate retrenchment by foreign investors can trigger sharp asset-price adjustments. Stop events in frontier markets become more likely both during periods of global financial stress, when frontier market conditions become more closely correlated with the global financial cycle, and when other frontier markets face crises. These developments are generally outside domestic policy makers' direct control. However, frontier markets can reduce the risk of sudden stops and limit costs when they occur through policies that reduce domestic and external imbalances and build effective buffers and toolkits during good times.

Building domestic financial market depth and resilience

Greater financial market depth—reflecting larger and more liquid credit and capital markets—together with more robust institutions and stronger legal and regulatory foundations, is associated with lower borrowing costs; in turn, this supports investment and growth (Bekaert et al. 2014). Policies to develop local financial markets and encourage domestic investor participation can help mitigate exposures to external financial market volatility (IMF 2020; IMF and World Bank 2021). Gains from capital market liberalization also tend to be larger where local institutional investors are already active (Cortina et al. 2023).

The depth and liquidity of capital and credit markets can be enhanced by policies that strengthen financial intermediary capacity and infrastructure (World Bank 2024b). Actions that reduce trading costs in capital markets—such as developing exchanges, streamlining trading processes, and investing in market infrastructure—can also help, as shown, for example, in Kazakhstan and Rwanda. Frontier markets' elevated interest rate spreads can be curbed by policies to promote competition among lenders, including privatization of state banks. Kazakhstan and Uzbekistan both made progress on this. Development of domestic capital markets can be particularly helpful for smaller, more capital-constrained firms, which are important in frontier markets. Constraints facing small firms specifically can also be eased by policies such as exemptions or ramp-up periods in the application of regulations, or even, in some cases, the establishment of size-segmented stock exchanges (Meh and Schmukler 2025).

Developing domestic-currency debt markets and lengthening bond maturities can improve external debt dynamics, alleviating balance-sheet currency mismatches and rollover risks and thereby helping to contain fiscal vulnerabilities. Key elements of domestic-currency bond market development include establishing a benchmark yield, maintaining secondary market liquidity, and expanding a retail investor base (IMF and World Bank 2020). Technical assistance by international organizations and domestic-currency debt issuances by international financial institutions may be helpful (IMF and World Bank 2021).

Adjusting to evolving international trade patterns

Trade has helped fuel rapid expansions in many EMDEs since 2000. Amid declining potential growth globally, uncertainty about the labor implications of artificial intelligence, and a

proliferation of trade-restrictive measures, export-led growth models that powered EMDE structural transformations in the past may be harder to execute now. Nonetheless, increasing openness to international trade can boost growth, including by reducing input costs and promoting efficiency gains. Higher exports increase earned foreign exchange, which can help manage exposures associated with financial integration. Developing exports could also help attract FDI, which is generally a more stable form of financing and can also facilitate technology and skills infusions that support development (World Bank 2024d). Frontier markets may be able to unlock new trade opportunities by reducing regulatory and trade barriers in domestic markets, pursuing agreements with regional and other partners, and leveraging digital technology to expand services trade (World Bank 2025a).

Policies that support diversification of exportable production, including through services development, can reduce exposure to terms-of-trade shocks. This is particularly relevant to frontier markets, where in many cases exports are concentrated in specific products or markets, leaving vulnerabilities should adverse shocks crystallize in these areas. Diversification can reduce exposure both in terms of products and destinations. Successful export diversification is contingent on other interlocking reform areas, with links to governance, education, and infrastructure improvements (Salinas 2021).

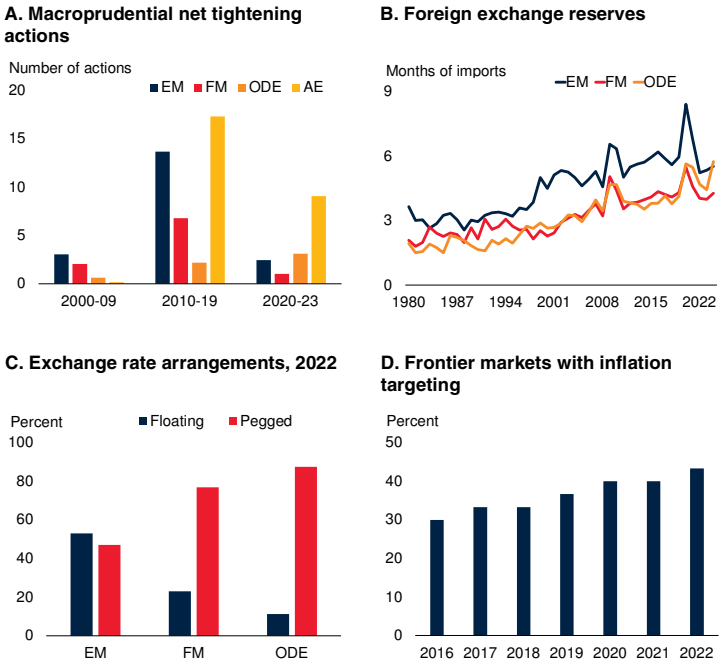
Buffering exposure to external shocks

In the event of financial shocks, buffers developed in good times can be deployed to dampen transmission to domestic financial conditions and the real economy. These may include financial buffers for addressing disorderly financial tightening, foreign exchange reserves to absorb currency pressures, and fiscal and monetary policy tools, underpinned by credible macroeconomic policy frameworks. Effective financial supervision and regulation, including capital buffer requirements, are cornerstones of effective risk management. In addition, rapid deployment of liquidity support and macroprudential easing can limit forced deleveraging when shocks hit. Macroprudential frameworks also offer tools to lean against credit booms and contain foreign-currency mismatches before they become systemic risks. However, perhaps reflecting more limited toolkits and capacity, frontier markets have tightened macroprudential policies less frequently than emerging markets (refer to figure 4.13.A).

Adequate foreign exchange reserves should form part of an economy's financial resilience toolkit. Such reserves, in proportion to imports, have been on a rising trend across EMDEs, but have been consistently lower in frontier markets than in

FIGURE 4.13 External buffers and policy tools

Macroprudential tightening became more common in the 2010s across all country groups but remains relatively infrequent in frontier markets. Frontier markets tend to hold smaller foreign exchange reserves, relative to imports, than emerging markets, though holdings have trended up in all three EMDE groups since the 1980s. Most frontier markets retain some form of currency peg, although inflation targeting has become more common in recent years.



Sources: IMF AREAER (database); IMF Integrated Macroprudential Policy (iMaPP) (database), originally constructed by Alam et al. (2019); WDI (database); World Bank.
Note: AE = advanced economies; EM = emerging markets; FM = frontier markets; ODE = other developing economies, neither EM nor FM. Sample includes 34 AEs, 34 EMs, 39 FMs, and 80 ODEs, unless otherwise specified.
A. Net tightening actions are calculated as the sum of policy action indicators across 17 macroprudential policy instruments in a given period, where each instrument is coded 1 for a tightening, –1 for a loosening, and 0 for no or neutral action. Bars show the average number of net tightening actions by country group.
B. Lines show median foreign exchange reserves in total months of imports. Sample includes up to 27 EMs, 23 FMs, and 41 ODEs.
C. Bars show the share of economies with floating versus pegged exchange rate regimes in 2022.
D. Bars show the share of FMs with inflation targeting regimes for each year.

emerging markets (refer to figure 4.13.B). Holding reserves is costly and using them to manage exchange rates is unlikely to be effective unless the exchange rate objective is consistent with economic fundamentals, including macroeconomic policies. Moreover, deploying reserves effectively in pursuit of such objectives is not always straightforward. However, reserves can be useful in helping to contain exchange rate volatility; in signaling, and buying time for, policies of macroeconomic adjustment; and in limiting the risk of self-reinforcing financial sector strains.

Appropriate levels of foreign exchange reserves depend on the structural and institutional characteristics of individual economies, particularly their exchange rate arrangements. With a credible inflation targeting regime, a flexible exchange rate, and limited foreign currency debt, large reserve buffers may not be necessary to mitigate risks. However, most frontier markets have some form of pegged currency arrangement (refer to figure 4.13.C). The credibility of such a regime may require significant reserve holdings, particularly if the economy is relatively open to capital flows. Reserves are also more likely to be needed if foreign currency liabilities are sizeable, to mitigate domestic currency depreciation risks.

Approaches to international financial integration

There is wide dispersion in the extent of capital account controls among frontier markets, with little change overall since the early 2000s. The speed and extent of liberalization, and its sequencing with related measures, must be carefully calibrated and tailored to country conditions. Some large emerging markets have made strong economic progress while retaining some restrictions on capital flows. Episodes such as the Asian financial crisis show that rapid integration into global financial markets can allow economic imbalances to build up and give rise to instability (World Bank 2017). Although not a substitute for necessary macroeconomic adjustments, certain capital flow management measures can be useful in specific circumstances, including to contain financial stability risks (IMF 2022).

Yet experience also shows that capital account liberalization can be successful when appropriately designed, implemented, and sequenced alongside macroeconomic and structural reforms. A crisis can act as a catalyst for such processes: Korea's reforms from the late 1990s saw extensive restructuring of the banking sector, strengthening of supervisory systems, development of the domestic-currency bond market, and the accumulation of foreign exchange reserves, all of which enabled Korea to rejoin global financial markets from a position of greater resilience (Batten and Szilagyi 2007). Malaysia's Financial Sector Masterplan and Capital Market Masterplan showcase the importance of appropriate sequencing—particularly ensuring that domestic financial markets and regulatory capacity are sufficiently robust before gradually expanding cross-border linkages (World Bank 2017).

Bolstering macroeconomic stability

Access to external capital markets is likely to durably lower financing costs and promote stronger growth only when accompanied by macroeconomic stability and associated policy frameworks. These are pillars of strong and durable growth for all economies, but especially for frontier markets, where they can help in establishing investor confidence, reducing risk premia, attracting additional financing, and containing instability during episodes of stress. Credible fiscal and monetary policies are thus critical complements to an effective strategy to take advantage of access to international markets while mitigating associated risks.

Monetary policy

Low and stable inflation is key to macroeconomic stability and is the primary responsibility of monetary policy. Monetary policy frameworks have been enhanced in many frontier markets, but credibility gaps remain larger and more common than in emerging markets and advanced economies. Central bank independence in frontier legislative frameworks has risen, and a growing share of frontier markets use inflation targeting (refer to figure 4.13.D). Experience across EMDEs suggests that stronger monetary frameworks support lower inflation volatility, better-anchored

inflation expectations, and consequently less pass-through from external shocks to domestic inflation (Ha, Kose, and Ohnsorge 2019).

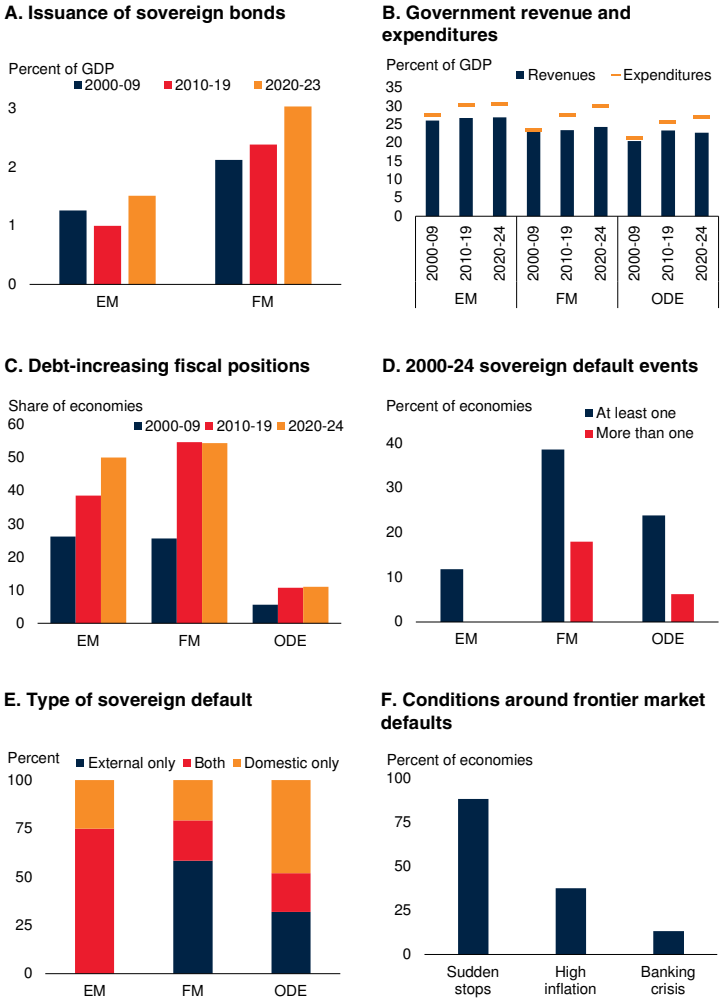
However, most frontier markets have not adopted inflation targeting. In these cases, exchange rate policies are more important for inflation and output stabilization efforts, and exchange rate stabilization may provide an anchor to secure macroeconomic stability (Carstens 2019). In some cases, such as small economies that are very open to international trade or economies with exports dominated by a dollar-denominated commodity, a prudently managed peg to a major, stable currency or currency basket may be viable. That said, in commodity exporters, shifts toward greater flexibility have often taken place in the aftermath of commodity price shocks, with more disruptive effects than a planned transition (Al-Sadiq, Bejar, and Ötker 2021). More generally, pegged exchange rates can easily lead to currency misalignments, which can be difficult and costly to correct. Indeed, pegged exchange rates are associated with more sudden stops. Country circumstances matter, but in many cases, a gradual move toward more exchange rate flexibility—when the technical capacity of the central bank and broader financial system allow—with an independently-administered inflation target as the nominal anchor, is a desirable long-term objective.

Fiscal policy

High public-sector debt and large budget deficits limit fiscal flexibility, reducing scope to provide countercyclical support to demand and activity when adverse shocks occur. Adverse debt dynamics are associated with higher sovereign risk premia, creating a feedback loop in which elevated borrowing costs further constrain fiscal headroom (Baldacci, Gupta, and Mati 2011; Jaramillo and Weber 2013). Frontier market sovereign bond issuance has risen over time, averaging 3 percent of GDP in the median frontier market in the early 2020s, notably higher than in the typical emerging market (refer to figure 4.14.A). Rising debt is not necessarily problematic if it funds initiatives that foster durably higher growth. Well-managed borrowing can create opportunities to advance development. However, high debt and large

FIGURE 4.14 Fiscal developments

Sovereign bond issuance has risen in frontier markets. Government revenues, relative to GDP, in the median frontier market have changed little since the early 2000s, even as expenditures as a proportion of GDP have increased. As a result, a majority of frontier markets have debt-increasing fiscal positions. Frontier markets also experienced more default events than other EMDEs over 2000–24; these were often external defaults, accompanied by sudden stops in capital flows.



Sources: Asonuma and Trebesch (2016); Dealogic (database); Erce, Mallucci, and Picarelli (2022, 2024); Fitch ratings (2025); Kose et al. (2022); Laeven and Valencia (2020); Moody's Ratings (2025); World Economic Outlook (database); S&P Global (2025); World Bank.

Note: EM = emerging markets; FM = frontier markets; ODE = other developing economies, neither EM nor FM. Sample includes 34 EMs, 39 FMs, and 80 ODEs, using 2012 classifications, unless otherwise specified.

A. Bars show the median value of sovereign bonds issued in percent of GDP for each country group. Sample includes up to 30 EMs and 26 FMs.

B. Bars (dashes) represent period averages of median government revenue (expenditure) as a percent of GDP in each group. Sample includes up to 34 EMs, 39 FMs, and 77 ODEs.

C. Bars show the share of economies in each group with a primary balance sustainability gap of less than zero. The primary balance sustainability gap is calculated as the difference between the primary balance and the debt-stabilizing primary balance. Sample includes 29 EMs, 38 FMs, and 18 ODEs.

D.–F. Data cover sovereign defaults and restructurings with private creditors that occurred between 2000 and 2024 as documented in Asonuma and Trebesch (2016), Erce, Mallucci, and Picarelli (2022), Fitch Ratings (2025), Moody's Ratings (2025), and S&P Global (2025).

E. "Both" indicates simultaneous external and domestic defaults.

F. Bars show the share of sudden stops, high inflation, and banking crises that occurred in the same year as, or one year before or after, a default. Where samples are smaller than the number of default cases (24), this reflects data limitations. A sudden stop of capital inflows is defined as two standard deviations from the historical average, as defined in box 4.2 (15 out of 17 cases). High inflation is defined as annual consumer price inflation exceeding 20 percent (9 out of 24 cases). Data on systemic banking crises are for 2000–17, based on Laeven and Valencia (2020) (2 out of 15 cases).

deficits may become unsustainable, undermining macroeconomic stability.

Large deficits, growing debt, and rising debt-servicing costs have been a feature of many EMDEs in recent years, including many frontier markets. Government expenditures as a share of GDP have risen, averaging 30 percent in the median frontier market over the early 2020s, on a par with emerging markets (refer to figure 4.14.B). Revenues, however, have remained at a lower level, about 24 percent of GDP. Most frontier markets have therefore recorded debt-increasing fiscal positions in the 2010s and the early 2020s (refer to figure 4.14.C).

Frontier markets have been more prone to default or restructuring events than emerging markets or other developing economies: almost two-fifths experienced default between 2000 and 2024 (compared with one-eighth of emerging markets and one-quarter of other developing economies); frontier markets have also been more likely to experience multiple defaults (refer to figure 4.14.D). Many sovereign defaults are precipitated by a confluence of pre-existing macroeconomic vulnerabilities and imbalances (IMF 2021). External defaults are often linked to capital flight, while domestic defaults are often associated with financial instability and banking crises (Erce, Mallucci, and Picarelli 2024). Most frontier market defaults have included an external element (refer to figure 4.14.E).

Sudden stops of capital inflows have occurred in most of these frontier market defaults, while more than one-third of frontier market defaults coincided with high inflation (over 20 percent annually, usually alongside sharp capital outflows), with external defaults often linked to currency depreciation (refer to figure 4.14.F). A few frontier market default instances were accompanied by banking crises (refer to Laeven and Valencia 2020). Sovereign debt defaults and restructurings have serious implications for macroeconomic and development outcomes, as well as future credibility with potential investors (Farah-Yacoub et al. 2022).

Securing fiscal sustainability should therefore be prioritized in many frontier markets. Sustainably boosting domestic revenue mobilization can reduce fiscal risks and create space for investment in key services and infrastructure to enhance long-run productivity and growth. This may include expanding the tax base, strengthening tax administration, reducing exemptions, and selectively increasing tax rates while minimizing distortions (IMF and World Bank 2024). On expenditures, policy makers should seek to improve the efficiency of government services and replace broad subsidies with support targeted to the vulnerable. Medium-term budget frameworks, fiscal rules, and independent fiscal councils can help promote fiscal credibility and sustainability. However, the effectiveness of such policies hinges on their design and implementation (chapter 3; Fatas, Gootjes, and Mawejje 2025).

Commodity-exporting EMDEs, including many frontier markets, face distinct fiscal challenges because of commodity prices' volatility and their impact on fiscal revenues. Commodity exporters often exhibit procyclical fiscal policy, sometimes reflecting overly optimistic reassessments of potential growth during commodity booms (Arroyo Marioli and Vasishtha 2025). Establishing formal, transparent stabilization funds to save windfalls can bolster stability and resilience. Botswana (a frontier market) and Chile (an emerging market) are examples that have been relatively successful at converting resource rents into lasting economic gains. In some cases, natural resource booms have helped expedite graduation to higher income classifications (World Bank 2025a).

Catalyzing productivity growth through structural reforms

Macroeconomic stability, institutional capacity, and sound financial sector policies would help ensure that frontier markets' integration into international financial markets promotes growth and development. Alongside these, policy makers can take complementary steps to generate investment growth and enhance productivity. Structural reform is important for all EMDEs. When combined with policies to harness the benefits of financial integration, it could be catalytic in driving investment and job creation in frontier markets.

Such reforms include strengthening institutions and governance; developing effective foundational infrastructure and human capital; improving the functioning of markets, including by increasing competition and reducing monopoly power (including that of state-owned enterprises); and raising openness to international trade. Private investment can also be boosted by steps to develop strong physical and digital capital, particularly infrastructure, alongside improved human capital. These measures can raise prospective returns on private investment, making it more likely that frontier markets' access to international finance will translate into investment that boosts output, productivity, and job creation.

Governance, institutions, and the investment climate

Building effective and efficient governance systems is critical for a business-enabling environment, reducing uncertainty and building investor confidence, which can in turn generate growth and job creation. Improvements in economies' sovereign credit ratings, rising net capital inflows (as a share of GDP), and reforms enhancing investment profiles have a positive effect on investment growth (Adarov 2025). Enabling reforms are multifaceted and context-specific, but they encompass areas such as increasing regulatory quality, enhancing market-based competition (including for state-owned enterprises), ensuring predictable, well-implemented legal frameworks that avoid placing unnecessary burdens on firms, and delivering reliable public services (World Bank 2024b).

Substantial gaps in governance persist between frontier markets and emerging markets. The benefits of good governance are indicated, for example, by evidence that more robust institutions and legal foundations, along with greater market depth, are associated with lower borrowing costs and longer maturities of domestic-currency debt (Bekaert et al. 2014). Emerging markets that have experienced sustained periods of high investment growth and economic transformation, including Chile, Korea, Malaysia, and Uruguay, show common reform themes, including measures that deepen the financial sector, restore liquidity, and open the capital account (World Bank 2024c).

In addition, faster-growing frontier markets have tended to make more progress on governance indicators than other frontier markets. Further governance-related reform options include strengthening financial regulation and oversight, digitizing interactions between the private and official sectors, and boosting transparency to reduce corruption risks. Transparency can also help showcase potential returns to investors, for example in equity investments in infrastructure (Chari, Henry, and Mauro 2025). Better governance and institutions are key to boosting investment, including FDI, which has been in retreat globally in recent decades (Adarov and Pallan 2025). Attracting more FDI to complement portfolio and debt flows can ameliorate external vulnerabilities (Ghosh, Ostry, and Qureshi 2016; Sula 2010).

Strengthening physical and human capital

Strong investment growth is a vital ingredient for raising output. The private sector has a vital role, given limited public resources in frontier markets; this role hinges on risk-adjusted returns justifying the needed investments (Adarov 2025). The enabling environment, including effective government services, infrastructure, and human capital, is key.

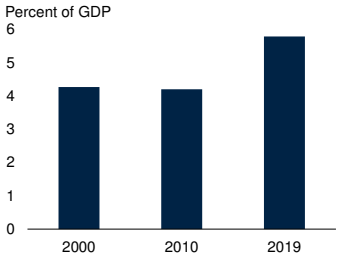
There is substantial scope to improve foundational infrastructure in frontier markets, which can unlock private investment and foster job creation (Development Committee 2025). Public sector support for, or direct investment in, well-executed foundational infrastructure can expand accessible markets, increase connectivity, and reduce transaction costs for firms, consumers, and workers (World Bank 2024a). Infrastructure investment can underpin development gains linked to natural capital and resource wealth, including tourism. Tourism's contribution to frontier markets' GDP has risen since 2000 (refer to figure 4.15.A). Connectivity could unlock more growth in the sector; benefits include job creation, greater inclusion, and poverty reduction, including via ancillary activities (Christie et al. 2013).

Enhanced infrastructure could also help frontier markets capitalize on energy opportunities. Many

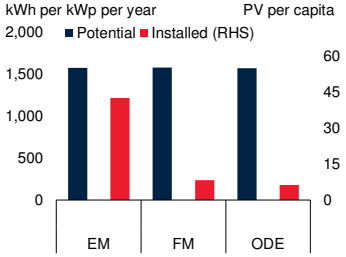
FIGURE 4.15 Natural resources

Tourism's contribution to frontier markets' GDP has risen since 2010, but the sector may have greater potential. Today's frontier markets, particularly in Africa and South Asia, have strong solar energy potential, but production remains limited. A sizable share of today's frontier markets are dependent on energy exports. Some frontier markets supply large shares of the global output of various minerals important for new technologies and the energy transition.

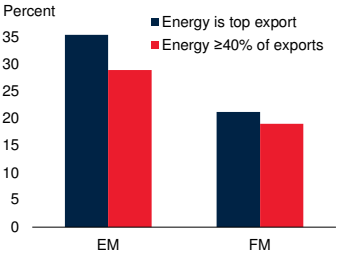
A. Contribution of tourism to GDP in frontier markets



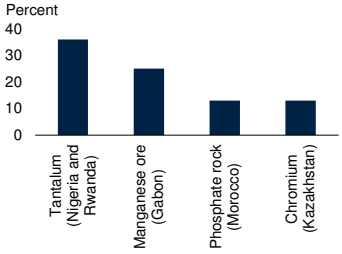
B. Solar photovoltaic (PV) potential and installed capacity



C. Share of countries with high energy dependence



D. Selected frontier markets' share of global mine output in key transition minerals



Sources: SolarGIS World Bank Global Solar Atlas; U.S. Geological Survey (USGS); World Bank.
Note: EM = emerging markets; FM = frontier markets; ODE = other developing economies, neither EM nor FM based on 2025 classifications. Sample size varies based on data availability.
A. International tourism receipts as a share of GDP; unweighted average for FMs in 2000 (36 FMs), 2010 (49 FMs), and 2019 (46 FMs), based on available data from the 2025 sample of 56 FMs.
B. PV potential measures solar resource quality (yield): the estimated annual electricity generated by a standard 1-kWp PV installation, based on sunlight and environmental factors (SolarGIS PVOUT; kWh/kWp/year, left axis). Installed PV is installed solar PV capacity per person in 2018 (Wp per capita, right axis). Bars show group means for EMs, FMs, and ODEs.
C. Share of countries based on 2021–23 average export composition. Sample includes only economies with data on GDP, total exports, and energy, metals, and agriculture breakdowns (31 EMs and 47 FMs).
D. Selected frontier markets' share of global mine output in the respective commodity; latest USGS year available (2023). Shares are computed as the sum of output across the frontier market(s) shown divided by world total (rounded).

frontier markets have substantial solar energy potential that, if realized, could help close energy deficits and support development. Yet infrastructure shortfalls, together with limited institutional capacity, have kept frontier market solar energy production well below potential, and low relative to emerging markets (refer to figure 4.15.B). Solar -generating capacity can be installed at relatively modest scale in a decentralized manner, utilizing mature technologies. With the right infrastructure and institutional strengthening, challenges to broad solar adoption in frontier markets should be surmountable.

Enhanced transport infrastructure can help with the discovery, development, and export of fuels and mineral deposits. Energy commodities represent at least 40 percent of exports in about one-fifth of today's frontier markets, less than emerging markets but still substantial (refer to figure 4.15.C). In addition, many new technologies—from renewable energy and electric vehicles to telecommunications infrastructure and consumer electronics—require inputs of particular metals and minerals (World Bank 2023).

Frontier markets already account for significant shares of global mining output in several key transition minerals. For example, Gabon accounts for almost one-quarter of global manganese output, a key input for battery technology and steel production; Morocco produces about one-eighth of mined phosphate rock, relevant for fertilizer and battery chemistry; and Nigeria and Rwanda between them provide over one-third of global tantalum, an important metal for digital technologies (refer to figure 4.15.D). Beyond current production, meanwhile, Bolivia and Argentina are home to the world's largest lithium resources (USGS 2025). Lithium has become a priority for many technology firms and electric vehicle manufacturers. Increasing demand for specific commodities could provide new opportunities for growth and development in relevant economies (Andreoni and Avenyo 2023; IEA 2022). Effective development of these resources will depend on adequate infrastructure, as well as on institutions, transparent revenue management, and appropriate skills development.

A healthy, educated, and skilled labor force is also vital to investment and output prospects. Investment in human capital to foster a productive workforce can include short-term interventions, such as the retraining of displaced workers, as well as longer-term policies on education and healthcare. Frontier markets have made some notable progress in these areas, but educational attainment, for example, generally remains lower than in emerging markets. A focus on integrating underrepresented groups, particularly women, into

the workforce, by developing skills and opportunities and addressing restrictive social norms, could significantly boost growth and development, especially in some regions (Gatti et al. 2025). Optimal education and training in any economy will necessarily depend on the evolution of labor demand. Ensuring that growing working-age populations are equipped to find productive work must be a key objective for frontier market policy makers.

Productivity-enhancing shifts of resources across and within sectors have been a feature of economic progress in frontier markets and beyond. Economies that have made sustained progress often deployed different strategies at different income levels. (World Bank 2024d). At low income levels, boosting investment alone may succeed, but as incomes rise the focus often shifts toward investment combined with technology infusion, and later toward innovation. Amid global shifts in trade patterns and policies, technological innovation, and climate change, growth models will need to continue to adapt and evolve.

Support for frontier markets from the international community

Frontier markets generally remain eligible for official development assistance but are increasingly transitioning away from the most concessional forms of international support. Continued targeted external support, including via market development initiatives such as the World Bank Group's Joint Capital Markets Program (which includes several frontier markets), can support private sector growth and job creation. Development finance, including through the IDA private sector window where relevant, can help raise private investment by supporting new sectors and financing structures, providing guarantees, and showing the viability of innovative transactions, setting examples for private investors.

International partners have a vital role in supporting capacity development in frontier markets. Drawing on cross-country expertise, they can help develop appropriately tailored and robust policy approaches and institutions that foster credibility and investor confidence, including through stronger macroeconomic and financial sector policy frameworks. Beyond capacity development and financing, the international community can help to foster a global economic environment in which frontier markets can thrive. Spillovers from large economies and shifts in global sentiment can have large impacts on frontier markets, given their limited and sometimes fragile market access. Policy and regulatory consistency among large actors can help limit volatility that could be particularly destabilizing for frontier markets. With their potential for greater economic and financial integration, frontier markets would be beneficiaries of a more stable and predictable global trading system.

ANNEX 4.1 Classification of economies

This chapter classifies EMDEs into three groups: emerging markets, frontier markets, and other developing economies. As detailed in box 4.1, the classification approach is based primarily on economies' categorization by four prominent index providers—three for equity markets (FTSE Russell, MSCI, S&P Dow Jones Indices) and one for bond markets (from J.P. Morgan). In addition, EMDEs that are high income are automatically classified as emerging markets. [9]

Countries can enter or exit an index or category at different points in time, reflecting changes in their classification by index providers or income level (refer to tables A4.1.1-5 for full classification details). Unless indicated otherwise, this chapter uses country groupings in 2012 as the baseline sample. This year is roughly the midpoint of the quarter century covered in the chapter, and data for all four indexes are available from this point. This approach allows frontier market performance to be tracked over time. In some cases, use of the 2025 sample is more informative; this is noted explicitly in the text and chart notes.

Across equity index providers, classification criteria are primarily based on the size and liquidity of domestic equity markets and market accessibility, augmented by additional criteria—such as income levels and credit ratings—that are indicative of broader development.[10] The index provider categorizations that are used to determine the classifications in this chapter are:

FTSE Russell equity market classifications: Economies are classified as frontier, emerging (with a further subdivision between secondary emerging and advanced emerging), or developed. In the FTSE Russell classifications, the change from unclassified to frontier depends on market quality criteria and a credit rating no lower than speculative grade. The change from advanced emerging to developed depends on meeting minimum investable market capitalization and securities count, as well as achieving high income status under World Bank Group thresholds and holding an investment-grade credit rating.

MSCI equity market classifications: Economies are classified as frontier, emerging, or developed. In the MSCI classifications, the change from unclassified to frontier depends on market accessibility criteria and having at least one investable firm meeting size and liquidity requirements. A transition from emerging to developed depends on a per capita income threshold, complying with more stringent market accessibility criteria, and having at least five investable firms that meet higher size and liquidity requirements.

S&P equity market classifications: Economies are classified as frontier, emerging, or developed. In the S&P classifications, the change from unclassified to frontier depends on meeting market structure and accessibility criteria, as well as criteria indicating a sufficient degree of macroeconomic stability. The change from emerging to developed depends on meeting a per capita income threshold for two consecutive years, as well as more advanced market structure and accessibility criteria.

J.P. Morgan EMBI membership: This broad bond index captures both emerging and frontier market economies. Securities are included if they represent outstanding issuance of sovereign or quasi-sovereign debt with a face value of at least $500 million, denominated in U.S. dollars, and with at least six months until maturity. In addition, initial maturity must be at least 2.5 years, and daily pricing must be available. An exclusion criterion based on GNI per capita and purchasing power parity cost of living omits countries considered too affluent to be emerging markets.[11]

[9] Economies for which forecasts are not provided in the *Global Economic Prospects* report—because of, for example, a lack of data—are also excluded from the sample.

[10] The details of assessment frameworks nonetheless vary across index providers (FTSE Russell 2024; MSCI 2025; S&P Dow Jones 2024).

[11] J.P. Morgan also maintains an external bond index dedicated to frontier markets—NEXGEM, a subsection of EMBI. However, NEXGEM is not used as a classification input in this chapter because the index was new in 2012—the chapter's baseline sample year—having been launched in December 2011, with many EMBI economies also being added to NEXGEM in the subsequent years.

TABLE A4.1.1 Classification of frontier markets, emerging markets, and other developing economies: 2012 baseline sample

Region	Frontier markets	Emerging markets	Other developing economies	
East Asia and Pacific	Mongolia Viet Nam*^z	China Indonesia Malaysia Philippines Thailand	Cambodia Fiji Kiribati Lao PDR Marshall Islands Micronesia, Fed. Sts. Myanmar Nauru	Palau Papua New Guinea Samoa Solomon Islands Timor-Leste Tonga Tuvalu Vanuatu
Europe and Central Asia	Azerbaijan Belarus Bulgaria*^z Georgia Kazakhstan*^ North Macedonia* Romania*^z Serbia*^ Ukraine*^	Croatia Hungary Latvia Lithuania Poland Russian Federation Türkiye	Albania Armenia Bosnia and Herzegovina Kosovo	Kyrgyz Republic Moldova Montenegro Tajikistan Uzbekistan
Latin America and the Caribbean	Argentina*^z Belize Bolivia Costa Rica Dominican Republic Ecuador*^ El Salvador Guatemala Jamaica*^ Panama*^	Antigua and Barbuda Bahamas, The Barbados Brazil Chile Colombia Mexico Peru St. Kitts and Nevis Trinidad and Tobago Uruguay	Dominica Grenada Guyana Haiti Honduras	Nicaragua Paraguay St. Lucia St. Vincent and the Grenadines Suriname
Middle East, North Africa, Afghanistan and Pakistan	Iraq Jordan*^z Lebanon*^ Pakistan*^z Tunisia*	Bahrain Egypt, Arab Rep. Kuwait Morocco Oman Qatar Saudi Arabia United Arab Emirates	Afghanistan Algeria Djibouti Iran, Islamic Rep.	Libya Syrian Arab Republic West Bank and Gaza Yemen, Rep.
South Asia	Bangladesh* Sri Lanka*^z	India	Bhutan Maldives	Nepal
Sub-Saharan Africa	Angola Botswana* Côte d'Ivoire*^ Gabon Ghana*^ Kenya* Mauritius* Namibia*^ Nigeria*^z Senegal Zambia*^	Equatorial Guinea South Africa	Benin Burkina Faso Burundi Cabo Verde Cameroon Central African Republic Chad Comoros Congo, Dem. Rep. Congo, Rep. Eritrea Eswatini Ethiopia Gambia, The Guinea Guinea-Bissau Lesotho	Liberia Madagascar Malawi Mali Mauritania Mozambique Niger Rwanda São Tomé and Principe Seychelles Sierra Leone South Sudan Sudan Tanzania Togo Uganda Zimbabwe
Total	39	34	80	

Source: World Bank.

Note: For the frontier markets column, * indicates classification as a frontier market based on membership of at least one frontier equity index; ^ indicates economies that are included in J.P. Morgan's EMBI Global and at least one frontier equity index; z indicates frontier markets that are members of all four providers' indexes. Frontier markets without a superscript are classified solely on the basis of their membership in J.P. Morgan's EMBI Global.

TABLE A4.1.2 Classification of frontier markets, emerging markets, and other developing economies: 2025 sample

Region	Frontier markets	Emerging markets	Other developing economies	
East Asia and Pacific	Mongolia*^ Papua New Guinea Viet Nam*	China Indonesia Malaysia Nauru Palau Philippines Thailand	Cambodia Fiji Kiribati Lao PDR Marshall Islands Micronesia, Fed. Sts. Myanmar	Samoa Solomon Islands Timor-Leste Tonga Tuvalu Vanuatu
Europe and Central Asia	Armenia Azerbaijan Georgia Kazakhstan*^z Kyrgyz Republic Montenegro North Macedonia* Serbia*^ Tajikistan Ukraine Uzbekistan	Bulgaria Hungary Poland Romania Russian Federation Türkiye	Albania Belarus Bosnia and Herzegovina Kosovo Moldova	
Latin America and the Caribbean	Argentina*^ Bolivia Dominican Republic Ecuador*^ El Salvador Guatemala Honduras Jamaica*^ Paraguay Suriname	Antigua and Barbuda Bahamas, The Barbados Brazil Chile Colombia Costa Rica Guyana Mexico Panama Peru St. Kitts and Nevis Trinidad and Tobago Uruguay	Belize Dominica Grenada Haiti Nicaragua St. Lucia St. Vincent and the Grenadines	
Middle East, North Africa, Afghanistan and Pakistan	Iraq Jordan*^z Lebanon Morocco*^z Pakistan*^z Tunisia* West Bank and Gaza*	Bahrain Egypt, Arab Rep. Kuwait Oman Qatar Saudi Arabia United Arab Emirates	Afghanistan Algeria Djibouti Iran, Islamic Rep. Libya Syrian Arab Republic Yemen, Rep.	
South Asia	Bangladesh* Maldives Sri Lanka*^z	India	Bhutan Nepal	
Sub-Saharan Africa	Angola Benin*^ Botswana* Burkina Faso* Cameroon Côte d'Ivoire*^z Ethiopia Gabon Ghana*^ Guinea-Bissau* Kenya*^z Mali* Mauritius* Mozambique Namibia*^ Niger* Nigeria Rwanda Senegal*^ Tanzania* Togo* Zambia*^	Seychelles South Africa	Burundi Cabo Verde Central African Republic Chad Comoros Congo, Dem. Rep. Congo, Rep. Equatorial Guinea Eritrea Eswatini Gambia, The Guinea	Lesotho Liberia Madagascar Malawi Mauritania São Tomé and Principe Sierra Leone South Sudan Sudan Uganda Zimbabwe
Total	56	37	57	

Source: World Bank.

Note: For the frontier markets column, * indicates classification as a frontier market based on membership of at least one frontier equity index; ^ indicates economies that are included in J.P. Morgan's EMBI Global and at least one frontier equity index; z indicates frontier markets that are members of all four providers' indexes. Frontier markets without a superscript are classified solely on the basis of their membership in J.P. Morgan's EMBI Global.

TABLE A4.1.3 Number of economies in each classification (as of 2012 and 2025)

	Frontier markets	Emerging markets	Other developing economies	Advanced economies
2012	39	34	80	34
2025	56	37	57	37

Source: World Bank.

TABLE A4.1.4 Classification changes between 2012 and 2025

Classification changes	Economies
From EM to AE[a]	Croatia (2023), Latvia (2014), Lithuania (2015)
From EM to ODE[b]	Equatorial Guinea (2015)
From EM to FM[c]	Morocco (2014)
From FM to EM[d]	Bulgaria (2023), Costa Rica (2024), Panama (2017)*, Romania (2019)*
From FM to ODE[e]	Belarus (2023), Belize (2022)
From ODE to EM[f]	Guyana (2022), Nauru (2015)*, Palau (2016)*, Seychelles (2014)
From ODE to FM[g]	Armenia (2014), Benin (2016), Burkina Faso (2016), Cameroon (2017), Ethiopia (2015), Guinea-Bissau (2016), Honduras (2014), Kyrgyz Republic (2025), Maldives (2022), Mali (2016), Montenegro (2025), Mozambique (2014), Niger (2016), Papua New Guinea (2018), Paraguay (2014), Rwanda (2022), Suriname (2016), Tajikistan (2018), Tanzania (2014), Togo (2016), Uzbekistan (2020), West Bank and Gaza (2017)

Source: World Bank.
Note: Years in parentheses following economy names are the years the classification changed for that economy. An asterisk following the year indicates that, for one or more years after the initial classification change, an economy reverted to upper-middle-income status; however, these economies are all classified as high-income as of 2025. AE = advanced economy; EM = emerging market; FM = frontier market; ODE = other developing economy that is neither EM nor FM.
a. All these economies were reclassified as advanced economies in the respective years upon joining the euro area.
b. The economy's status was changed from high-income to upper-middle-income in 2015.
c. All three equity index providers moved Morocco to their frontier indexes between 2013 and 2015, citing declining liquidity or access.
d. All these economies reached high-income status.
e. Both economies were removed from J.P. Morgan's EMBI Global.
f. All these economies reached high-income status.
g. MSCI granted frontier market status to the Western African Economic and Monetary Union (WAEMU) economies in 2016, meaning that Benin, Burkina Faso, Guinea-Bissau, Mali, Niger, and Togo became frontier markets under this chapter's classification. Côte d'Ivoire and Senegal were already frontier markets as of 2012. FTSE Russell added West Bank and Gaza to its equity index. The remaining economies joined J.P. Morgan's EMBI Global in the years in parentheses following their names.

TABLE A4.1.5 Top quartile analysis for combined 2012 and 2025 frontier market samples

Category	Count	Economies
Frontier markets top quartile	15	Armenia, Azerbaijan, Bangladesh, Belarus, Bulgaria, Ethiopia, Georgia, Kazakhstan, Mongolia, Panama, Romania, Rwanda, Tajikistan, Uzbekistan, Viet Nam
Other frontier markets	47	Angola, Argentina, Belize, Benin, Bolivia, Botswana, Burkina Faso, Cameroon, Costa Rica, Côte d'Ivoire, Dominican Republic, Ecuador, El Salvador, Gabon, Ghana, Guatemala, Guinea-Bissau, Honduras, Iraq, Jamaica, Jordan, Kenya, Kyrgyz Republic, Lebanon, Maldives, Mali, Mauritius, Montenegro, Morocco, Mozambique, Namibia, Niger, Nigeria, North Macedonia, Pakistan, Papua New Guinea, Paraguay, Senegal, Serbia, Sri Lanka, Suriname, Tanzania, Togo, Tunisia, Ukraine, West Bank and Gaza, Zambia

Source: World Bank.
Note: This table combines the baseline 2012 sample of 39 frontier markets (including those which subsequently moved to other groupings), plus those economies that had attained frontier market status as of 2025. The top 25 percent in terms of average per capita GDP growth over 2000–24, 15 economies, are included in the "top quartile."

ANNEX 4.2 Frontier market case studies

This annex examines selected frontier markets that have delivered relatively strong per capita output growth over 2000–24. The examples are drawn from the top quartile of economies in terms of per capita GDP growth since 2000 (refer to annex 4.1). Country circumstances matter: factors that contributed to success in one context may not be applicable in another. Nevertheless, lessons for other frontier markets do emerge. For each economy considered, the case study addresses the following questions:

- How did the economy evolve?
- How did capital flows and financial development evolve, and was this associated with inclusion in major indexes?
- What policy choices supported these outcomes?

The five case studies represent a diverse set of economies in terms of geography, economic structure, and per capita income—Kazakhstan, Panama, Rwanda, Uzbekistan, and Viet Nam.[12]

Kazakhstan

Economic performance

Kazakhstan's growth over the past 25 years has been driven by abundant oil and gas resources, alongside a gradual shift toward more market-oriented institutions. Per capita growth has moderated over time—from 8 percent in the 2000s to 3 percent in the 2010s, weighed down by lower oil prices and subdued domestic demand. It subsequently slowed further to 1.6 percent over 2020–24. Compared to regional oil-exporting peers, Kazakhstan has nonetheless sustained higher per capita growth overall since 2000.

Over the past two decades, Kazakhstan's growth has been driven by large-scale investment—especially in energy and infrastructure—and productivity gains following post-Soviet reforms (OECD 2016). In the 2000s, demand was supported by strong investment fueled by foreign direct investment in oil and gas, public infrastructure spending, and expanding domestic credit. Consumption also benefited from rising real wages and consumer loans. Employment and economic activity shifted away from agriculture toward extractive and service sectors. Buoyed by unusually rapid investment growth in the early 2000s and further solid gains thereafter, capital stock per capita rose by 48 percent between 2000 and 2023, reaching among the highest levels in upper-middle-income countries (refer to figure A4.2.1.A). Favorable external conditions and fiscal restraint saw government debt rise only gradually—from 10 percent of GDP in the 2000s to 25 percent over 2020–24.

Alongside robust growth, Kazakhstan has achieved substantial reductions in poverty (World Bank 2025c). By 2008, the share of people living in extreme poverty ($3.00 in 2021 PPP) had fallen below 1 percent and has since remained close to zero, while income inequality also declined. The Human Development Index (HDI) rose from 0.69 in 2000 to 0.84 in 2023, placing the country in the "very high" category. This represents a key competitive advantage. Over this period, life expectancy increased by around 10 years, tertiary education enrollment nearly doubled, and access to clean water improved. Internet access also grew rapidly, supporting digital inclusion.

Capital flows, financial development, and index inclusion

Kazakhstan was included in J.P. Morgan's EMBI Global in 2007. It was added to the MSCI and S&P Frontier Markets indexes in 2007 and 2008, respectively, and was subsequently included in the FTSE Frontier Index in 2017, the year in which the Astana International Exchange was launched. However, market liquidity, sectoral diversity, and investor participation remain limited, hampering progress toward emerging market status. Capital inflows have fluctuated significantly since 2000, influenced by commodity cycles, global financial

Note: Case study preparation was led by Jiwon Lee and Takuma Tanaka, with contributions from Marie Albert, Tommy Chrimes, Alen Mulabdic, Edoardo Palombo, and Collette Wheeler.

[12] Data on poverty and inequality are drawn from the World Bank's Poverty and Inequality Platform. Where decade averages are used in the text, these are based on a simple average of years for which data is available within the given time range. This public, survey-based data is not always strictly comparable over the full time span presented.

conditions, regional shocks, and FDI in large-scale oil and gas developments (ADB 2021). Inflows peaked at 42.5 percent of GDP in 2006, driven by cross-border bank lending amid high oil prices and strong growth expectations (refer to figure A4.2.1.B). The 2008–09 Global Financial Crisis triggered a sharp drop in short-term flows and exposed vulnerabilities in the banking sector. Since then, aggregate portfolio flows have been limited or negative, with inflows dominated by sovereign and state-owned enterprise borrowing.

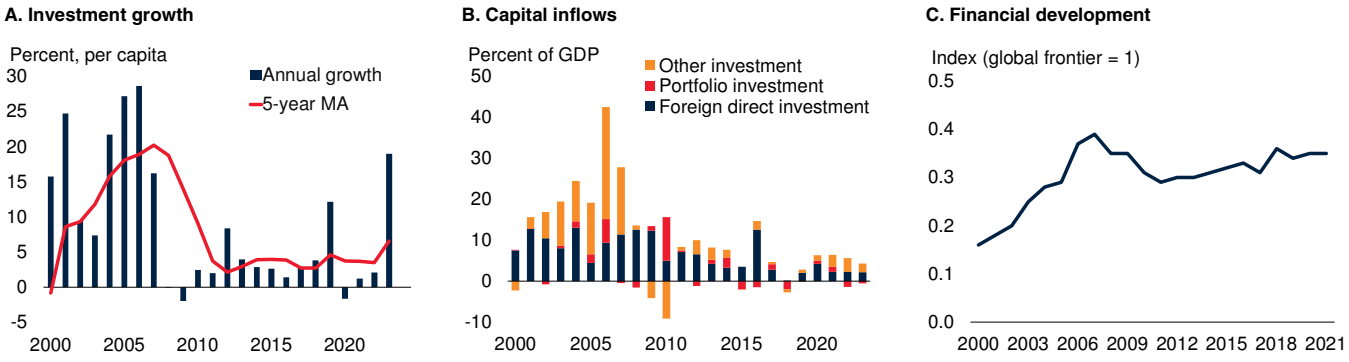
Financial development progressed rapidly in the early 2000s, foreshadowing index inclusions in 2007 and 2008, but progress has since stalled. The Financial Development Index rose from 0.16 in 2000 to 0.39 in 2007, and private sector credit expanded to 59 percent of GDP (refer to figure A4.2.1.C). However, the 2008–09 Global Financial Crisis exposed structural weaknesses, including high non-performing loans, related-party lending, and overreliance on foreign funding. These weaknesses left a lasting impact on the country's financial development. Despite policy efforts to deepen capital markets in recent years—such as the creation of the Astana International Financial Centre—the financial sector remains dominated by state-owned banks, with limited SME financing and highly concentrated credit markets (IMF 2024a).

Policy drivers

Kazakhstan's policy approach combined state-led development with gradual liberalization, supporting financial market integration while enhancing buffers to external shocks. Policy efforts, including the "Kazakhstan 2050 Strategy" in 2012, have aimed to build a resilient, diversified economy by bolstering macroeconomic stability, enhancing trade integration, improving institutions, and deepening financial markets. Macroeconomic frameworks have evolved significantly, with the 2015 adoption of inflation targeting and a floating exchange rate boosting monetary policy credibility and flexibility. The prudent management of oil revenues through the National Fund has helped support countercyclical fiscal policy.

Trade integration accelerated with Kazakhstan's 2015 accession to the World Trade Organization (WTO) and the Eurasian Economic Union, expanding market access and committing the country to tariff reductions and trade facilitation reforms (WTO 2019). Non-oil exports—particularly agriculture, metals, and manufacturing—have expanded gradually, supported by improved regional connectivity. Institutional reforms have focused on the business environment, legal frameworks, and governance improvements (OECD 2023). Efforts include enhancing contract enforcement, reducing regulatory

FIGURE A4.2.1 Kazakhstan: Economic performance



Sources: Haver Analytics; International Monetary Fund; WDI (database); World Bank.
Note: MA = moving average.
A. Bars show annual growth of per capita investment; lines represent the 5–year moving average of the annual growth rate.
B. Bars show annual gross capital inflows from balance of payments data in percent of GDP. Positive values indicate an increase in foreign liabilities, while negative values indicate repatriation of capital.
C. Bars show Financial Development Index, normalized so that 1 = intertemporal frontier and 0 = the lowest intertemporal reading.

burdens, expanding e-governance, and promoting transparency, but the consistent implementation of reforms remains a challenge.

Kazakhstan made progress on capital market development through phased capital account liberalization, alongside measures to ease foreign ownership restrictions and to strengthen market infrastructure. Post-independence reforms before 2000—including bank privatization, development of a multi-pillar pension system, and the creation of the Kazakhstan Stock Exchange—fostered market depth. Targeted reforms ahead of Kazakhstan's 2017 inclusion in the FTSE Frontier Index eased capital repatriation restrictions. Subsequent reforms included a framework for the Astana International Financial Centre based on English common law and the creation of a new regulatory agency to improve supervisory clarity.

Panama

Economic performance

At almost $17,000 (in 2010–19 constant prices) in 2025, Panama has the highest per capita GDP among the frontier markets in this chapter. This reflects the country's generally strong growth between 2000 and 2019, averaging more than 4 percent per capita. Panama reached high-income status by 2017 and therefore graduated from the frontier markets grouping. However, per capita growth and convergence have slowed over the last decade, and Panama's economy was hit hard by the COVID-19 pandemic (World Bank 2024e). Investment, including from abroad, has fueled significant capital deepening: capital stock per capita more than quadrupled between 2000 and 2023 (refer to figure A4.2.2.A). Government debt dynamics improved through much of the 2010s before the pandemic-related surge. Public debt service as a share of GDP also declined from the mid-2000s, remaining below 2 percent for most of the 2010s.

Panama was an open trading economy at the turn of the century and has remained so, although trade openness—total exports and imports as a share of GDP—has declined somewhat from 140 percent in 2000 to 90 percent in 2023. The economy is services-oriented, with the share of workers engaged in the services sector remaining stable over the period at about two-thirds. This economic structure reflects the country's status as both a transport and logistics hub and a regional financial center.

Panama has made substantial progress across several important development measures over the past 25 years. The share of the population living in extreme poverty ($3.00 in 2021 PPP) has fallen by three-quarters, from 15 percent in the 2000s to less than 4 percent.[13] Inequality has also fallen, with the Gini score declining from 57 in 2000 to 49 in 2023. Life expectancy has risen from 73 in 2000 to 80 in 2023, and electricity access is now close to universal, up from 81 percent in 2000. However, human capital remains low by regional and international standards (World Bank 2024e).

Capital flows, financial development, and index inclusion

Panama was an early member of J.P. Morgan's EMBI and was included in the S&P Frontier Market Index from its launch in 2008. S&P also launched a Panama-specific equity index in 2008. Panama is not included in the MSCI or FTSE frontier equity indexes.[14]

Capital inflows have been substantial in Panama, averaging about 15 percent of GDP over the period (refer to figure A4.2.2.B). Foreign direct investment (FDI) has formed a large part of these inflows and was positive in every year since 2000, except in 2020. Portfolio flows have also been substantial, at more than 3 percent of GDP in the average year, reflecting Panama's integration into global financial systems. Other capital inflows have also been relatively large.

Even in 2000, Panama scored well on financial development relative to most frontier markets, and progress has largely continued (refer to figure A4.2.2.C). Domestic credit to the private sector had risen above 100 percent of GDP by 2020,

[13] The income aggregate in Panama includes imputed rent only from 2008 onward; earlier welfare aggregates are therefore not directly comparable to more recent aggregates.

[14] MSCI launched a standalone Panama index as part of its May 2017 semi-annual index review.

although much of this is to established companies. Small firms still report challenges in accessing credit, and individuals' access to financial products remains limited (World Bank 2024e).

Policy drivers

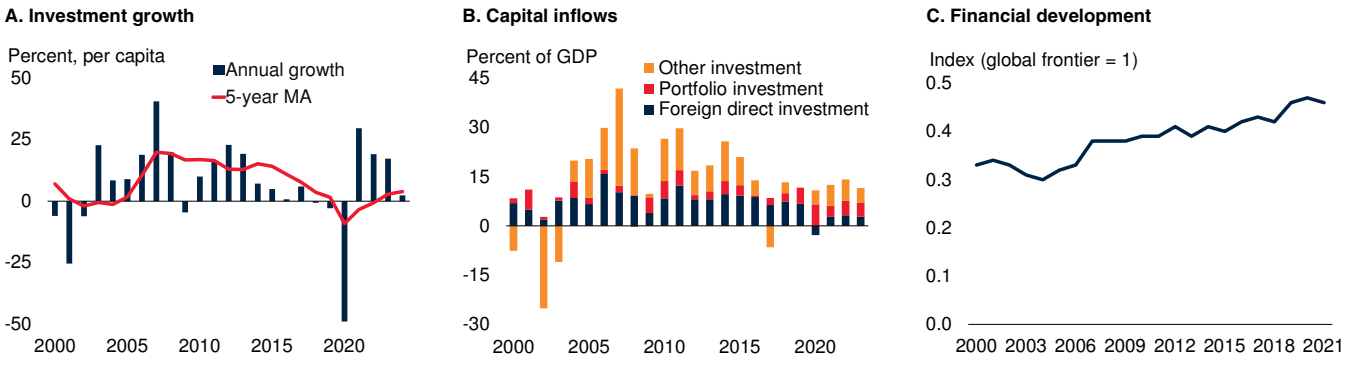
Panama's macroeconomic success has been underpinned by a long period of macroeconomic stability, together with an outward-looking economic model. The geography of the Panama Canal (of which Panama assumed full control in 2000) and the development of associated infrastructure has helped establish the country as a hub for trade, transport, and logistics, consistently attracting investment (World Bank 2024e). Aside from 2020, Panama has run a current account deficit every year since 2000, financed by steady capital inflows, including the reinvestment of foreign-owner dividends.

The authorities have maintained a growth-friendly macroeconomic environment, with low inflation and declining government debt prior to a debt surge due to the COVID-19 pandemic (World Bank 2024e). As a dollarized economy for more than a century, Panama does not operate an independent monetary policy. Nevertheless, inflation has remained below 2 percent for most of the period since the mid-2010s. Dollarization has likely aided monetary stability, but other idiosyncratic and policy factors also play important roles. Dollarization may have been more effective in Panama because the economy is not a large producer of goods (Moreno-Villalaz 2005).

The financial sector in Panama has long been open and competitive, without restrictions on entry or capital flows, and the banking system is large relative to the economy (Moreno-Villalaz 2005). Lacking currency-issuing powers, deposit insurance, or a lender of last resort, Panama relies on banks self-insuring through large capital and liquidity buffers. The generally smooth functioning of this system has avoided major banking crises over the past three decades (IMF 2024b). A range of measures to enhance financial transparency contributed to Panama's removal from the list of jurisdictions under enhanced monitoring by the Financial Action Task Force in 2023 (World Bank 2025d).

Low taxes and a competitive regulatory environment have historically contributed to Panama's attractiveness as an investment destination. In addition, public investment, including several infrastructure "megaprojects," propelled rapid growth in the construction sector from the late 2000s and further strengthened the trade and logistics sectors (World Bank 2024e). However, amid growing spending pressures, government revenues may need to increase; the tax-to-GDP ratio is the lowest in the region. More broadly, slowing growth suggests the country's growth

FIGURE A4.2.2 Panama: Economic performance



Sources: Haver Analytics; International Monetary Fund; WDI (database); World Bank.
Note: MA = moving average.
A. Bars show annual growth of per capita investment; lines represent the 5–year moving average of the annual growth rate.
B. Bars show annual gross capital inflows from balance of payments data in percent of GDP. Positive values indicate an increase in foreign liabilities, while negative values indicate repatriation of capital.
C. Bars show Financial Development Index, normalized so that 1 = intertemporal frontier and 0 = the lowest intertemporal reading.

model may need to evolve further, with renewed focus on productivity growth, human capital development, and diversification likely to be important.

Rwanda

Economic performance

Rwanda has made substantial economic progress since 2000, emerging as one of Africa's most dynamic economies. Real GDP per capita has grown by 245 percent since 2000, propelling Rwanda to the brink of middle-income status (World Bank 2025a). Per capita growth has nonetheless moderated, declining from 6.1 percent in the 2000s to 4.6 percent in the 2010s, and to 4.2 percent over 2020–24. Even so, Rwanda has continued to grow considerably faster than Sub-Saharan Africa as a whole, reflecting a diversified economic base and relatively strong institutional capacity (Aragie et al. 2024).

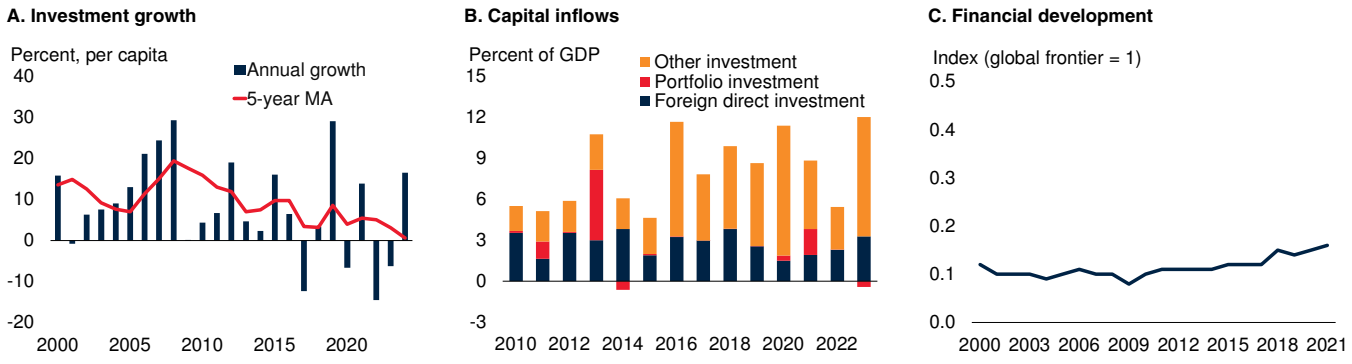
Sustained economic progress has been supported in part by a strategic focus on infrastructure investment. Investment as a share of GDP rose from 12 percent in 2000 to 23 percent in 2022, reflecting strong per capita investment growth for much of the period (refer to figure A4.2.3.A). As a result, capital stock per capita increased fivefold between 2000 and 2023. This investment drive was accompanied by higher government borrowing, particularly from the mid-2010s and again during the post-pandemic recovery, with government debt averaging 66 percent of GDP over 2020–24. Rwanda has also made progress in poverty reduction and various social development metrics, including schooling attainment, life expectancy, and maternal and child health. Extreme poverty ($3.00 in 2021 PPP) fell from 82 percent in 2000 to 64 percent in 2016, while inequality, as measured by the Gini index, fell materially between the 2000s and 2010s. Despite these gains, poverty rates remain high relative to some comparable economies.

Capital flows, financial development, and index inclusion

As of 2025, Rwanda features in an Africa-focused equity index and a standalone country index of S&P, but is not included in the major global frontier market equity indexes considered in this study. This absence likely reflects constraints related to market size, liquidity, and accessibility. However, Rwanda debuted in J.P. Morgan's EMBI in August 2021, with $620 million of issuance. Issuance of $400 million in 2013 was below the threshold for EMBI inclusion.

Rwanda has sustained robust growth in capital inflows, which rose from an average of 7.5 percent of GDP in 2010–19 to 9.3 percent in 2020–23 (refer to figure A4.2.3.B). Almost two-thirds of Rwanda's capital inflows in the 2020–23 period have been classified as "other investments,"

FIGURE A4.2.3 Rwanda: Economic performance



Sources: Haver Analytics; International Monetary Fund; WDI (database); World Bank.
Note: MA = moving average.
A. Bars show annual growth of per capita investment; lines represent the 5–year moving average of the annual growth rate.
B. Bars show annual gross capital inflows from balance of payments data in percent of GDP. Positive values indicate an increase in foreign liabilities, while negative values indicate repatriation of capital.
C. Bars show Financial Development Index, normalized so that 1 = intertemporal frontier and 0 = the lowest intertemporal reading.

reflecting bank transactions. Foreign direct investment (FDI) has also been a consistent source of capital, accounting for 2.8 percent of GDP on average between 2010 and 2023, signaling confidence in Rwanda's business environment and long-term prospects. Rwanda's capital inflows have been more volatile than those of some peer economies, reflecting shallow capital markets (Tang et al. 2022). Portfolio inflows exceeded 1 percent of GDP in three years since 2010. The largest increase occurred in 2011, reaching 5.1 percent, when the stock exchange began operations, despite its exclusion from major global frontier market indexes. The other two large portfolio inflows occurred in 2013 and 2021 and were mainly driven by international sovereign bond issuance.

Rwanda has made some gains in financial development, with the Financial Development Index rising from 0.12 in 2000 to 0.16 by 2021 (refer to figure A4.2.3.C). Domestic credit to the private sector as a share of GDP more than doubled, from 11 percent in the 2000s to 24 percent over 2020–24, mainly explained by progress in the early 2010s that coincided with financial market reforms. While the financial sector remains nascent, the gradual trajectory toward deeper intermediation reflects efforts to expand access to financial services.

Policy drivers

Rwanda's development path so far this century has reflected wide-ranging macroeconomic, structural, and financial reforms. Early efforts to improve efficiency in the banking sector, liberalize the capital account, and reduce trade barriers helped raise productivity by steering the economy toward a more market-based allocation of resources (Coulibaly, Ezemenari, and Duffy 2008; Malunda and Musana 2012). Milestones in capital market development were reached with the incorporation of Rwanda Stock Exchange Limited in 2005, the establishment of the regulatory Capital Market Authority in 2007, and the exchange's launch for trading in 2011. Over this period, Rwanda also implemented comprehensive investment liberalization measures, with no limits on foreign ownership or control, or capital transfers. Further reforms sought to reduce excessive tax and regulatory burdens on firms. The country has become one of the more competitive business environments in the region.

Policy frameworks have provided a clear roadmap for Rwanda's transformation into a knowledge-based, services economy, including through the government's Vision 2020 and Vision 2050 strategies (IMF 2005). Rwanda adopted a public investment strategy focused on high-potential sectors: health and education, growth-enhancing physical infrastructure, and agro-processing and tourism services (Redifer et al. 2020). These are all sectors which the World Bank Group has highlighted as having particular potential for resilient job creation globally (Development Committee 2025). Participation in the East African Community also helped to bolster regional trade integration. Rwanda's service-led growth has also benefited from skill upgrades and digital skills training.

Fiscal policy has supported growth via a focus on infrastructure and human capital investment, albeit at the cost of rising debt levels over the 2010s. Earlier, debt forgiveness in the mid-2000s had dramatically reduced the debt burden, generating fiscal headroom that enabled the subsequent government-led investment drive (IMF 2005; Redifer et al. 2020). Debt levels have surged further in the 2020s, reflecting the economic costs of the COVID-19 pandemic and subsequent shocks. Inflation eased and stabilized in the 2010s compared to the 2000s, though it jumped following the pandemic due largely to supply shocks. As financial deepening progressed, the link between reserve money and inflation weakened, leading the central bank to switch its monetary policy targeting from monetary aggregates to inflation in 2019, coupled with greater exchange rate flexibility (IMF 2019).

Uzbekistan

Economic performance

Uzbekistan recorded average annual per capita growth of 4.7 percent between 2000 and 2024, high relative to other current frontier markets. This included a period between 2004 and 2015 when per capita GDP increased by between 5 and 8 percent each year. Uzbekistan has a longstanding

goal of achieving upper-middle-income status by 2030.

Since a new president took office in 2016, the government has advanced a rapid reform agenda aimed at transitioning to a new growth model (World Bank 2022). During this period, Uzbekistan unified the exchange rate, eliminated exchange rate restrictions, and liberalized trade and many prices for goods and services—all of which helped attract sizable capital inflows. Output growth has benefited from these reforms, as well as from favorable commodity prices and strong remittances, with per capita investment growth generally buoyant since the mid-2000s (refer to figure A4.2.4.A). Meanwhile, inflation has trended downward from about 20 percent annually in early 2018 to high single digits by the end of 2023. Headline government debt appears manageable, but broader external borrowing needs to be contained to ensure debt sustainability (IMF 2025).

Robust growth in both output and employment—the latter growing at an average of 3.7 percent annually during 2018–23—has underpinned a sharp decline in official estimates of extreme poverty. Extreme poverty ($3.00 in 2021 PPP) fell from an estimated 94 percent in the early 2000s to under 5 percent in the early 2020s.

Capital flows, financial development, and index inclusion

Uzbekistan is a relatively recent entrant into global financial indexes. The country's first international bond issuance, totaling $1 billion, prompted its inclusion in J.P. Morgan's EMBI Global in March 2019. Uzbekistan is not included in the major equity indexes.

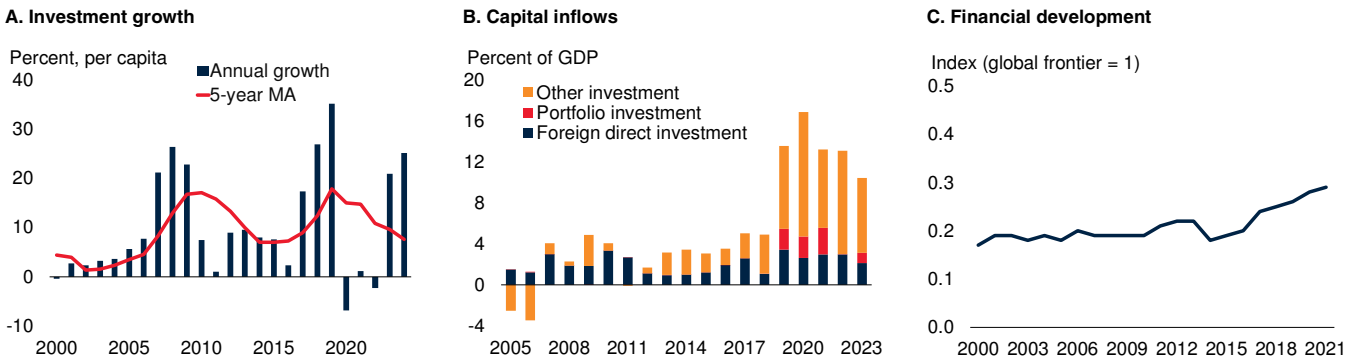
Capital inflows have surged in recent years. Total inflows jumped to 14 percent of GDP in 2019 and have since stabilized at above 10 percent, having previously been in the –2 to 5 percent range (refer to figure A4.2.4.B). FDI inflows have been relatively stable, averaging 2 percent of GDP between 2005 and 2023. Increases in portfolio inflows have been linked to occasional bond issuances. Following more than a decade of limited portfolio inflows, a jump in 2019 (2.0 percent of GDP) reflected international sovereign bond issuance linked to inclusion in J.P. Morgan's EMBI. This inclusion paved the way for subsequent international issuance of corporate bonds by state-owned enterprises, including banks and energy companies. Uzbekistan also issued Sustainable Development Goal bonds in 2021, becoming the second country in the world to do so (UNDP 2021). Other investment inflows accounted for most of the increase in total capital inflows since 2019, driven largely by loans, particularly from multilateral institutions. Given this composition, aggregate capital flows to Uzbekistan have not been significantly affected by global shocks to date.

Progress in financial development picked up in the late 2010s, in conjunction with wider economic reforms (refer to figure A4.2.4.C). The headline Financial Development Index increased from 0.20 in the early 2010s to 0.29 in 2021. This trend was driven largely by increasing sophistication of financial institutions rather than capital markets. Amid rising bond issuance and capital market reforms, domestic credit to the private sector climbed to above 30 percent of GDP in the 2020s, from about 10 percent in the early 2010s. Recent macroprudential measures have targeted consumer lending to help bolster financial stability (IMF 2025). Despite gradual reforms of state-owned enterprises, state banks continue to dominate the financial sector, accounting for about two-thirds of banking system assets as of 2024 (IMF 2024c).

Policy drivers

Uzbekistan's development has had multiple phases over the past quarter century, reflecting an evolving development process underpinned by significant reform efforts. In the early 2000s, the economy was characterized by limited integration with the global economy, but benefited from supportive prices for key commodities—notably gold, gas, and cotton—exported to a relatively small number of partners. Despite an "unorthodox" economic strategy, relative macroeconomic stability was a feature of this period; reliance on the Russian Federation as a trading partner also declined significantly (Anderson, Ginting, and Taniguchi 2020).

FIGURE A4.2.4 Uzbekistan: Economic performance



Sources: Haver Analytics; International Monetary Fund; WDI (database); World Bank.
Note: MA = moving average.
A. Bars show annual growth of per capita investment; lines represent the 5–year moving average of the annual growth rate.
B. Bars show annual gross capital inflows from balance of payments data in percent of GDP. Positive values indicate an increase in foreign liabilities, while negative values indicate repatriation of capital.
C. Bars show Financial Development Index, normalized so that 1 = intertemporal frontier and 0 = the lowest intertemporal reading.

Since 2017, the economic policy agenda has featured ambitious reform and transition efforts that have underpinned substantial progress toward a more market-oriented economy, spurring capital inflows (IMF 2025). Combined with buoyant remittances and another period of favorable commodity prices, these reforms have underpinned resilient growth despite regional and global challenges.

Progress toward a more open and competitive economy has continued, but important challenges remain. Growth decomposition exercises show that capital deepening has played a crucial role in driving growth over much of the past quarter century, but this driver is likely to become less potent as the country climbs the income ladder. Sustaining growth is likely to require a greater focus on technical change and productivity-enhancing policies (World Bank 2024d). In this regard, efforts to enhance private sector dynamism and diversify the economy will be important. Conducive reforms could include addressing the still large role of state firms and banks, facilitating the entry and exit of private firms, and improving governance, transparency, and policy implementation capacity (IMF 2025).

Viet Nam

Economic performance

Viet Nam ranks among the 10 fastest-growing economies globally over the twenty-first century so far. Annual GDP per capita growth averaged more than 5 percent over 2000–24, with graduation from low- to lower-middle-income status in 2009. Economic progress over this period coincided with rapid export expansion, industrialization, and growing capital inflows. The sum of exports and imports as a share of GDP increased from 110 percent in 2000 to 166 percent in 2023. This was accompanied by a large shift in employment: the share of workers employed in agriculture fell from 65 percent in 2000 to 33 percent in 2023, while the share in the industrial sector rose from 12 percent to 31 percent. Robust investment growth, albeit with a gradual slowdown over time, saw capital stock per capita increase more than sevenfold between 2000 and 2023 (refer to figure A4.2.5.A). This sustained growth was supported by a generally favorable macroeconomic environment—low unemployment, moderate fiscal and current account deficits, and benign debt levels—albeit with bouts of high inflation in 2008 and 2011 (World Bank 2025a).

Viet Nam has made significant development progress in recent decades. The share of the population living in extreme poverty ($3.00 in 2021 PPP) fell sharply from 29 percent in the 2000s to 1.5 percent in the 2020s.[15] Access to electricity reached 100 percent in 2017, up from

[15] There is a break in welfare aggregates survey comparability for Viet Nam in 2010.

88 percent in 2000. Educational outcomes have improved substantially, while life expectancy has also increased modestly. Overall, Viet Nam ranks in the top quartile of EMDEs on Sustainable Development Goals performance indicators (Baum 2020; World Bank 2024f).

Capital flows, financial development, and index inclusion

Viet Nam was first added to J.P. Morgan's EMBI in 2005, following its debut international sovereign bond issuance. Subsequently, the country was included in all three frontier equity indexes considered in this study—FTSE Russell, MSCI, and S&P—when they were launched. In October 2025, FTSE Russell announced plans to upgrade Viet Nam to secondary emerging market status in September 2026, subject to an interim review in March 2026 (LSEG 2025).

Overall capital inflows as a share of GDP have been relatively stable in recent years, moderating to around 5 percent after peaking at 20 percent in 2007 (refer to figure A4.2.5.B). Foreign direct investment (FDI) has remained a dominant source of financing and investment growth, averaging about 4–5 percent of GDP. Portfolio inflows were kickstarted by capital market integration, reaching 1.5 percent of GDP in 2005 following the inaugural bond issuance and then rising to 8.1 percent of GDP in 2007, coinciding with the country's inclusion in major equity indexes. Since 2010, however, portfolio inflows have been much smaller, averaging less than 1 percent of GDP. Since 2000, Viet Nam has not experienced a severe capital flow reversal.

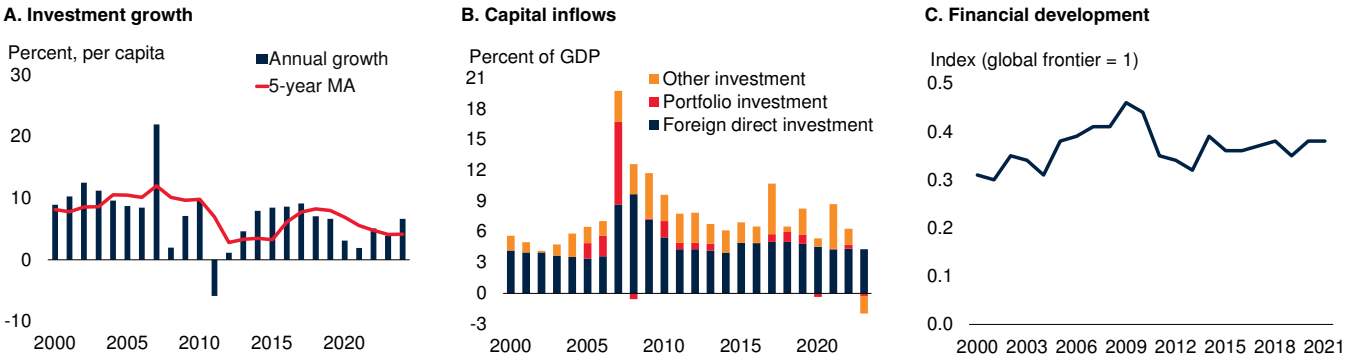
Viet Nam has also made progress in domestic financial deepening. Domestic credit to the private sector grew rapidly, from 35 percent of GDP in 2000 to 126 percent in 2022. On some measures, however, overall financial development has been more modest, with limitations in capital market efficiency largely offsetting improvements in financial institutions, as reflected in the aggregate Financial Development Index (refer to figure A4.2.5.C).

Policy drivers

Viet Nam's solid economic growth has been underpinned by a sustained focus on economic reform under Doi Moi ("renovation"), which began in 1986. Over this period, reforms have focused on transforming the economy into a more market-oriented system (Nguyen 2024; World Bank 2025a). Manufacturing and exports have been key to sustained growth, with the profile of value-added manufacturing evolving as the economy has developed.

Trade liberalization advanced significantly, including accession to the WTO in 2007 and the

FIGURE A4.2.5 Viet Nam: Economic performance



Sources: Haver Analytics; International Monetary Fund; WDI (database); World Bank.
Note: MA = moving average.
A. Bars show annual growth of per capita investment; lines represent the 5–year moving average of the annual growth rate.
B. Bars show annual gross capital inflows from balance of payments data in percent of GDP. Positive values indicate an increase in foreign liabilities, while negative values indicate repatriation of capital.
C. Bars show Financial Development Index, normalized so that 1 = intertemporal frontier and 0 = the lowest intertemporal reading.

conclusion of free trade agreements with major trading partners during the 2000s (World Bank 2024f). A simplified trade licensing regime, lower tariffs, and reduced non-tariff barriers supported rapid export growth (World Bank 2012). Deregulation and reform of state-owned enterprises spurred private sector development, enhancing competition and efficiency (Dang, Nguyen, and Taghizadeh-Hesary 2021). Legal and administrative reforms to strengthen private ownership and investor protection, reduce price controls, and simplify business registration aided both domestic firms and foreign investors, sustaining FDI inflows (Duong and Thanh 2011). Public investment in human capital also increased: spending on education rose from 3.5 percent of GDP in 2000 to 6 percent in 2015, alongside growth in the number of schools and teachers (Baum 2020). Literacy reached 96 percent by 2019. Continued emphasis on education—including targeted investment in foundational learning and vocational skills—has supported manufacturing-led growth and upgrading into higher-value industrial activities, though scope for further improvement remains (OECD 2025).

Sound macroeconomic policies, encompassing both fiscal and monetary policy, have helped safeguard macroeconomic stability (World Bank 2025a). The authorities have demonstrated agility in responding to shocks, weathering the Global Financial Crisis through accommodative fiscal and monetary policies and subsequently tightening conditions to contain inflation while preserving growth momentum (An and Thanh 2024; IMF 2014). Alongside macroeconomic stability, financial market reforms supported Viet Nam's inclusion in major international indexes. From the late 1980s, the authorities took steps to liberalize foreign exchange markets and ease restrictions on foreign ownership and capital and profit repatriation. Capital market deepening in the 1990s and 2000s then led to the launch of exchanges in Ho Chi Minh City and Hanoi, supported by the establishment of a formal stock market regulatory authority (Vuong 2019).

ANNEX 4.3 Data and methodology for empirical exercises

This annex describes the data and methodological framework used for the exercises in boxes 4.2 and 4.3. The former estimates the effect of various factors on the likelihood of an economy being in a capital inflow surge or stop episode, while the latter sheds light on the global financial cycle, using two dynamic factor models to show the relative roles of global, group-specific, and country-specific factors in equity returns and credit growth.

Stops and surges: Data and sample

The analysis is based on quarterly data on capital inflows from IMF Balance of Payments Statistics, obtained from Haver Analytics. Episodes of capital inflow surges and stops are identified using a threshold-based approach that identifies large deviations in gross capital inflows relative to a backward-looking trend, as described in box 4.2. The resulting binary indicators take a value of one in periods classified as a surge or stop and zero otherwise. The relationship between these extreme capital inflow episodes and a set of explanatory variables is examined, with global, domestic, and contagion-related factors—and the variables used to proxy them—informed by the related literature.

Global "push" factors. All variables used to proxy global push factors are constructed from quarterly data. For series originally available at higher frequencies, quarterly averages are taken before applying subsequent transformations. Two variables are used to capture shifts in global sentiment: global risk, measured by the CBOE VIX index, and global economic policy uncertainty, measured using the index developed by Baker, Bloom, and Davis (2016); both are expressed as year-over-year percentage changes.

The aggregate year-over-year global growth rate is calculated using real GDP growth rates, weighted by each economy's share of global GDP in U.S. dollars at average 2010–19 prices and market exchange rates. Oil prices are measured as the year-over-year percentage change in the U.S. dollar average of Brent crude, WTI, and Dubai spot prices. Shifts in long-term interest rates are captured by changes in the 10-year U.S. Treasury yield, obtained from Haver Analytics. U.S. monetary policy shocks are measured using the orthogonalized monetary policy surprise index developed by Bauer and Swanson (2023), which isolates unanticipated changes in policy around FOMC announcements. To mitigate reverse causality and endogeneity concerns, global explanatory variables are lagged by one quarter.

Domestic "pull" factors. Local GDP growth is measured by the year-over-year percentage change in quarterly real GDP in local currency terms. Financial market development is proxied by stock market capitalization, measured as the value of listed domestic companies as a share of GDP and serving as an indicator of equity market size and development; data are sourced from the World Bank's World Development Indicators database. De jure financial openness is measured by the Chinn-Ito Index (Chinn and Ito 2006), based on the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER), with higher values indicating fewer restrictions on cross-border capital flows. The exchange rate regime is captured by a dummy equal to one for economies whose de facto exchange rate arrangement is classified as a peg or other tightly managed regime in the AREAER and zero otherwise.

Sovereign ratings are measured by the quarter-over-quarter change in long-term foreign currency ratings from Moody's, S&P, and Fitch, sourced from Bloomberg. Daily ratings from these agencies are converted into numeric values and averaged to obtain quarterly values. Higher values indicate lower credit ratings. Structural variables (annual data) are lagged by four quarters. Other variables (quarterly data) are lagged by one quarter.

Contagion. A group contagion indicator is used to capture potential spillover effects from peers. The indicator is built for each episode type and equals one if an economy in the same classification group—advanced economy, emerging market, frontier market, or other developing economy—has a surge or stop episode. A trade-contagion variable is based on the trade-weighted average of episodes in an economy's trading partners (refer to Forbes and Warnock 2012). Contagion variables are lagged by one quarter.

Stops and surges: Methodology

The factors influencing the probability that an economy experiences a surge or a stop in a given quarter are estimated using a complementary log-log regression, following Forbes and Warnock (2012, 2021). In this setup, $e_{\{it\}}$ is a binary variable that equals one if country i is experiencing a surge (or stop) episode in quarter t, and zero otherwise.

The probability of an episode is modeled as

$$\Pr(e_{\{it\}} = 1) = F(X^{\{G\}}_{\{t-k\}}\beta^{\{G\}} + X^{\{D\}}_{\{i,t-k\}}\beta^{\{D\}} + X^{\{C\}}_{\{i,t-k\}}\beta^{\{C\}}),$$

where $X^{\{G\}}_{\{t-k\}}$ denotes a vector of global "push" factors, $X^{\{D\}}_{\{i,t-k\}}$ denotes a vector of domestic "pull" factors, and $X^{\{C\}}_{\{i,t-k\}}$ denotes a vector of contagion measures, lagged by k quarters, depending on the variable. The complementary log-log regression is appropriate for modeling rare binary events such as capital inflow surges and stops, as it allows for a skewed probability distribution.

This assumes that $F(z) = 1 - exp[-exp(z)]$.

Separate regressions are estimated for surges and stops with country fixed effects. Table A4.3.1 reports baseline results for the full 2000Q1–2024Q4 panel. Table A4.3.2 reports robustness results excluding Global Financial Crisis (2008Q3–2009Q4) and COVID-19 shock (2020Q1–2021Q2) observations. Robust standard errors are clustered at the country level.

Global financial cycle: Methodology

The analysis estimates two separate dynamic factor models (DFMs)—one for monthly equity returns and one for monthly domestic-credit growth—for a panel of 63 advanced economies, emerging markets, and frontier markets over 2000–25.[16] For each financial variable, the DFM decomposes every economy's fluctuations into three orthogonal components: a global factor common to all economies; a group factor common to each country group; and a country-specific factor.

Post-estimation computations show the share of unconditional variance attributable to the global, group, and idiosyncratic components for each economy. Averaging these shares across economies within each group and period allows assessment of how strongly financial variables comove with the global cycle; whether comovement has strengthened or weakened across four subperiods (2001–06, 2007–12, 2013–19, 2020–25); and whether integration is deeper in the equity returns channel than in the credit growth channel.[17]

Tail-risk statistics (skewness, kurtosis, Jarque–Bera) are calculated on the raw monthly factors, while persistence is measured using six-month moving averages to reduce high-frequency noise.[18] The equity factor is heavily left-skewed (–1.98) with fat tails (excess kurtosis = 12.9), so normality is rejected (Jarque–Bera $p < 0.01$). The credit factor is nearly symmetric (skew = –0.16) with fat tails (excess kurtosis = 1.39), and normality is rejected in the monthly raw series (Jarque–Bera $p < 0.01$).

The data set comprises 63 economies (21 advanced economies, 24 emerging markets, and 18 frontier markets).[19] Equity indexes and bank-credit aggregates are taken from CEIC Data and converted to log differences. Economies are classified based on the criteria discussed at the chapter's outset; the full list is presented in annex 4.1.

[16] Implementation follows the Bayesian state-space approach of Kose, Otrok, and Whiteman (2003). A single-factor specification was also estimated, but, consistent with Ha et al. (2025), results indicate that equity and credit cycles need separate global factors to adequately capture their distinct dynamics. Studies typically proxy the global financial cycle by extracting common factors from cross-country data. Two main tools are principal component analysis (PCA) and dynamic factor models (DFMs). PCA provides a static view, identifying linear combinations of contemporaneous data that explain the most cross-sectional variance. DFMs embed these latent factors in a state-space framework, allowing them to change over time and be estimated using Kalman filtering; thereby capturing both cross-sectional links and time-series dynamics.

[17] Sub-periods are defined to match four distinct phases of the global cycle: the pre-Global Financial Crisis period (2001–06), a single crisis period covering the Global Financial Crisis through the euro-area debt crisis (2007–12), the low-rate period (2013–19), and the pandemic-to-tightening phase (2020–25). Combining the highly correlated 2007–12 months avoids splitting the peak stress episode, while the roughly six-year length of each period maintains sample balance. Results are robust to alternative breakpoints.

[18] Monthly AR(1) coefficients are 0.36 for equity and 0.08 for credit; three- and twelve-month smoothing raise them to 0.80 and 0.73, and to 0.96 and 0.94, respectively, with the equity factor consistently more persistent than the credit factor.

[19] The dataset is not fully balanced due to data constraints, notably for frontier markets in the 2000s. The Bayesian state-space approach of Kose, Otrok, and Whiteman (2003) is extended to handle ragged panels and missing observations.

TABLE A4.3.1 Drivers of surges and stops in capital inflows

Period	Full (2000Q1-2024Q4)			
Sample	All economies		Frontier markets	
Type of capital inflows	Total		Portfolio inflows	
Type of episodes	Surges	Stops	Surges	Stops
A. Global "push" factors				
VIX	0.00	0.01***	-0.01*	0.01
Economic policy uncertainty	-0.01***	0.01*	-0.01	-0.00
Oil price	0.00	0.00	0.00	0.01
World GDP growth	0.02	0.04	-0.09	-0.17*
U.S. long term interest rate	-0.30***	-0.14	-0.13	-0.03
U.S. monetary policy surprise	-0.15	2.11*	-3.31	-0.01
B. Domestic "pull" factors				
Stock market capitalization	0.00	0.00	-0.00	0.01*
Financial openness	0.15	1.56**	0.60	0.58
Local GDP growth	0.03*	-0.04	0.03	0.08
Pegged exchange rate	0.07	0.62***	-0.85	0.22
Sovereign ratings	-0.74***	0.18	-0.04	0.48
C. Contagion				
Group contagion	0.88***	0.38*	0.05	0.74
Trade contagion	2.87***	4.64***	4.05**	0.00
Observations	4214	4158	825	836

Source: World Bank.
Note: The table reports estimated coefficients from complementary log-log (cloglog) regressions of capital inflow surge and stop episodes on a set of global "push" factors, domestic "pull" factors, and contagion variables. The dependent variable is binary, taking a value of 1 if a surge or stop episode occurs and 0 otherwise. The pegged exchange rate variable is binary and equals 1 for countries with a de facto peg and 0 otherwise. Statistical significance is based on robust standard errors clustered at the country level. *, **, and *** denote significance at the 10, 5, and 1 percent levels, respectively.

TABLE A4.3.2 Drivers of surges and stops in capital inflows, excluding the Global Financial Crisis and COVID-19 periods

Period	Full Excluding the Global Financial Crisis and COVID-19 Periods			
Sample	All economies		Frontier markets	
Type of capital inflows	Total		Portfolio inflows	
Type of episodes	Surges	Stops	Surges	Stops
A. Global "push" factors				
VIX	0.00	0.01***	-0.01*	0.00
Economic policy uncertainty	-0.01***	0.00	0.00	-0.00
Oil price	0.01	-0.01*	0.00	0.01
World GDP growth	0.01	-0.01	-0.03	-0.17
U.S. long term interest rate	-0.27**	-0.08	-0.12	-0.09
U.S. monetary policy surprise	-2.13	-0.44	2.64	7.46
B. Domestic "pull" factors				
Stock market capitalization	0.00	0.02***	0.01*	0.00
Financial openness	0.10	2.04**	-0.21	1.26
Domestic GDP growth	0.04**	-0.10**	0.02	0.08
Pegged exchange rate	0.10	0.82***	-1.12*	0.03
Sovereign ratings	-0.79***	-0.02	-0.04	0.50
C. Contagion				
Group contagion	0.89***	0.47**	0.66	0.95
Trade contagion	2.92***	3.42***	2.90	-1.19
Observations	3560	2904	694	705

Source: World Bank.
Note: The table reports estimated coefficients from complementary log-log (cloglog) regressions of capital inflow surge and stop episodes on a set of global "push" factors, domestic "pull" factors, and contagion variables. The dependent variable is binary, taking a value of 1 if a surge or stop episode occurs and 0 otherwise. The pegged exchange rate variable is binary and equals 1 for countries with a de facto peg and 0 otherwise. Statistical significance is based on robust standard errors clustered at the country level. *, **, and *** denote significance at the 10, 5, and 1 percent levels, respectively.

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Frontier markets—a subset of emerging market and developing economies characterized by meaningful but limited access to international financial markets—have considerable promise. Already home to one-fifth of the world's population, but only 5 percent of its output, today's frontier markets are projected to account for most of the global population increase to 2050. Many frontier markets have large natural resource endowments. Relative to other developing economies, they also have more physical capital, healthier and better-educated workforces, and stronger institutions. Access to international markets provides financing opportunities. Outcomes in frontier markets will be pivotal for global job creation and development progress.

As a group, frontier markets' economic outcomes since 2000 have not fully delivered on this promise, however. Per capita output and investment growth in the median frontier market halved between the 2000s and the early 2020s. Poverty reduction progress has slowed. Financial openness has increased, and frontier markets' share of global capital flows has risen, but financial integration remains partial. Surges in capital inflows support growth but are often followed by disruptive stops. Although sovereign debt maturities have increased, the composition of frontier markets' debt implies vulnerabilities. Around 40 percent of frontier markets have defaulted since 2000. In the five years from 2020, frontier markets experienced more defaults than all other economies combined.

To capitalize on frontier markets' potential, a multi-faceted policy approach is required. Some frontier markets have fared better than others, and faster-growing frontier markets since 2000 share some key features: stronger investment growth, more improved institutions, and better-contained government debt. Advancing financial integration while improving oversight capacity, developing local financial markets, and enhancing policy buffers can help harness investment; expanding and diversifying exports can support resilience and development. Bolstering macroeconomic stability and enhancing policy credibility can provide a platform for effective financial integration. Catalyzing investment and productivity growth, including via strong foundational infrastructure, is essential to helping frontier markets capitalize on their market access, demographic potential, and resource endowments.

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