

Navigating debt sustainability, structural shifts and economic headwinds

Background note for the 22nd Roundtable on Capital Market and Financial Reform in Asia

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Foreword

The background note assesses potential vulnerabilities to financial sector resilience in Asia. It focuses on non-financial private sector debt accumulation in the aftermath of the global financial crisis of 2008, combined with the rising importance of non-bank financial intermediaries for credit intermediation, and in the context of tighter monetary conditions, elevated inflation, slowing global growth and persisting geopolitical risks. It also suggests policy considerations to address debt sustainability challenges of distressed non-financial issuers and to mitigate procyclicality and excessive liquidity transformation in open-ended investment funds, with the goal of enhancing financial sector resilience and promoting inclusive and sustainable economic growth.

This note has been prepared by Caroline Roulet under the supervision of Robert Patalano of the OECD Directorate for Financial and Enterprise Affairs. The background note has benefited from comments and suggestions by participants to the 22nd Tokyo Roundtable, where it was presented during the second session on “Household and corporate debt in Asia: The rise of non-bank financial intermediation and its implication for financial resilience”.

Jointly organised by the Asian Development Bank Institute (ADBI) and the OECD, in co-operation with the Government of Japan, the 22nd Tokyo Roundtable was held in person on the 1st and 2nd of February 2023. Initiated in 1999 in the aftermath of the Asian financial crisis, the Roundtable offers a forum for regulators, policy makers, experts, scholars, private sector and international organisations to discuss topics of main interest for capital market reform in Asia.

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1 Overview

1.1. Indebtedness in non-financial private sector in Asia: deteriorating credit quality and debt sustainability concerns

In the aftermath of the 2008 Global Financial Crisis (GFC), there has been a surge in debt financing globally, including in the Asia region. While household debt has been the primary driver of indebtedness among private non-financial borrowers in the Asia region, corporates in the People's Republic of China (China) and other emerging Asian economies are also major contributors. Asian corporate debt represented almost half of global corporate debt outstanding in 2022, with Chinese corporates accounting for more than 30% of global outstanding debt. China's corporate and household debt-to-GDP ratios have also recorded the strongest growth against other regions over the past decade and are now among the highest globally.

Over the past decade, corporate debt accumulation combined with a persistent decline in corporate profitability led to the rise of highly leveraged non-viable firms, particularly in emerging Asian economies. In addition, the overlap with overcapacity sectors and state-owned enterprises (SOEs) in China may weigh on average productivity growth and crowd-out growth opportunities for more productive firms. In addition to the detrimental effects on the financial soundness of the banking system and other creditors, the presence of such non-viable companies is a sign of resource misallocation in the economy, as a significant share of funding has gone to firms that are unable to generate enough profits to repay their debts. A high share of these companies in an economy could deprive promising companies of financing opportunities, deter new entrants in the market and ultimately undermine the financial soundness of a range of financial intermediaries.

House prices, along with household debt, rose steadily throughout the COVID-19 pandemic, even in countries where valuations were already stretched and debt levels were already high. With the normalisation of the monetary policy, rising financing costs have contributed to moderating housing demand in a number of markets globally, including in some advanced Asian economies and China. The result has been weakening house price growth in some advanced Asian economies, and price declines in several emerging Asian economies and China. Declining housing prices combined with rising financing costs could increase debt service burdens for households, particularly in some advanced and emerging Asian markets where loan-to-income ratios are elevated.

1.2. The changing structure of Asian financial intermediation: Emerging risks from non-bank financial intermediation and open-ended investment funds

The structure of the financial sector in Asian economies has experienced profound changes in the past two decades, characterised by the rising share of non-bank financial intermediaries (NBFIs) and the growing importance of investment funds.

The increased holding of credit assets by NBFIs, combined with liquidity transformation in open-ended funds (OEFs), stand as particularly significant structural developments. In the context of a weakening

economic environment, increased levels of corporate and household indebtedness in the Asia region may complicate the path of debt sustainability. Potential risks may crystallise with the deteriorating credit quality of corporates and households, which may lead in turn to rising defaults with negative impacts on the resilience of debtholders. In particular, the vulnerability of OEFs to redemptions and outflows, cash needs and forced selling may increase if financial conditions tighten abruptly. Specifically, if deteriorating credit quality of corporates and households translates to high levels of share redemptions, some funds may have to liquidate assets into increasingly illiquid markets, which could amplify price movements, transmitting stress to other parts of the financial system.

1.3. Policy considerations

Post-crisis financial reforms have included the development and strengthening of macroprudential, microprudential, and regulatory tools that strive to contain credit exuberance and financial risks. Nevertheless, new sources of risk have emerged in the aftermath of the GFC amid debt accumulation and the rising importance of NBFIs. Considering the varied nature of the main vulnerabilities identified in the empirical analysis of this note, two sets of dedicated policy measures may be warranted, focussing on:

- **addressing debt overhang for a growing number of distressed issuers.** On the one hand, policies could consist of debt resolution measures for non-viable corporates and delinquent mortgages in the form of efficient insolvency systems for recovery and bank non-performing loan (NPL) resolutions strategies. For instance, resolving distressed non-financial private issuers' debt sustainability challenges is a first step in addressing debt vulnerabilities to promote efficient debt management and capital allocation in the economy and related gains. Notably, national insolvency and debt restructuring schemes could facilitate procedures to allow fundamentally non-viable corporates to exit the market while restructuring the debt of fundamentally viable corporates. Meaningful NPL resolution strategies are also critical in facilitating debt resolution of non-viable corporates and delinquent mortgages. Therefore, effective and efficient insolvency systems and debt restructuring procedures could help optimise recovery rates and limit the amount of subsequent losses for a range of investors and financial market products, which would help enhance the resilience of the financial system for sustained credit intermediation and sustainable economic growth. Additional measures may also consist of debt service suspensions and transparency initiatives to address debt sustainability challenges in LICs. For sovereign issuers in LICs, such tools could also strengthen bilateral or private creditors' trust, which would contribute to mitigating refinancing risk and promoting sustainable and inclusive economic development.
- **preventing excessive liquidity transformation in OEFs.** A comprehensive set of liquidity management tools (LMTs) and a framework for effective implementation would be needed to mitigate negative effects of redemptions and enhance the resilience of OEFs. Going forward, regulators in the region may have to determine whether they have sufficient LMTs and comprehensive policy frameworks in place to appropriately address liquidity transformation risks in OEFs, which would enhance investor protection and the resilience of the non-bank financial sector. Also, given the global scope for investment by OEFs, greater international regulatory coordination may be needed to ensure the effectiveness of the deployment of LMTs at the global level.

The rest of this note is structured as follows: **Section 2** documents the increasing indebtedness in non-financial private sector in the Asia region, including deteriorating credit quality and debt sustainability concerns. **Section 3** explores the changing structure of Asian financial intermediation, by highlighting the emerging risks from non-bank financial intermediation and open-ended funds. **Section 4** suggests a range of policy considerations to address debt sustainability of distressed corporates and sovereign issuers in LICs and threats to financial system resilience from distressed NBFIs.

2

Indebtedness in non-financial private sector in Asia: deteriorating credit quality and debt sustainability concerns

This section offers an analysis of long-term trends in debt accumulation and an assessment of debt sustainability for corporates and households. Over the past two decades, indebtedness of corporates and households has significantly increased globally, including in the Asia region. Nevertheless, declining profitability and subsequent rising share of highly leveraged non-viable corporates are raising debt sustainability concerns amid adverse economic conditions. Also, slowing growth in housing prices combined with rising financing costs could increase the risk of high debt service burdens for indebted households. Against a backdrop of tighter monetary conditions, slowing global growth, elevated inflation and persisting geopolitical risks, debt servicing pressures and refinancing risk are likely to increase for highly leveraged corporates and households, and possible wave of defaults could erode the resilience of a range of market products and intermediaries with detrimental effects for credit intermediation and economic growth.

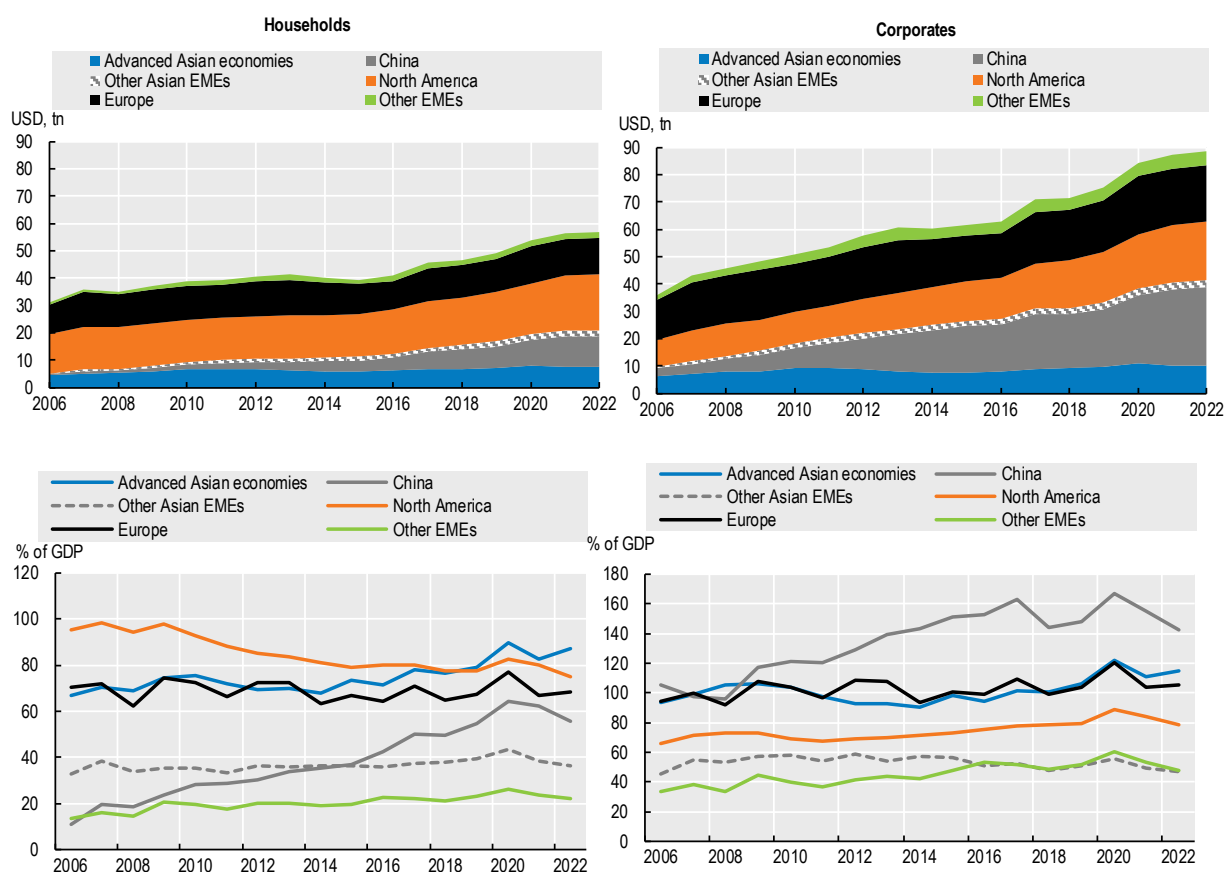
2.1. Overview of trends in household and corporate debt

Debt financing has experienced a surge globally over the past fifteen years. As a result, recent sharp rises in interest rates from very low levels in many markets and tightening financial conditions make the current conjuncture a particular concern. Over the past decade, global household and corporate debt has risen significantly from about USD 40 and USD 60 trillion in 2013 respectively to USD 57 and USD 90 trillion in 2022 (Figure 2.1). Indebtedness of private non-financial borrowers has also increased significantly in the Asia region over the past decade, mainly driven by rising indebtedness of households and corporates in China and some other emerging Asian economies. In particular, the share of total debt of Asian households and corporates in global debt has grown substantially to a large extent driven by rising household debt.¹ It is worth noting that Asian corporate debt represents almost half of global corporate debt outstanding in 2022, and Chinese corporate debt accounts for more than 30% of global outstanding amount. In nominal terms, corporate and household debt in China, and to a lesser extent in other emerging Asian economies, has experienced large growth over the past decade compared to other advanced and emerging economies. Nonetheless, household debt in China and in other emerging Asian economies has grown at

¹ Debt of Asian Households in total global debt has risen from 26% to 37% from 2013 to 2022. Also, debt of Asian corporates in total global debt has risen from 39% to 47% over the same period.

a higher pace than corporate debt.² As a share of GDP, Chinese corporate debt ratio is the highest globally, which stands at 142% in 2022, compared to 115% and 105% for corporates in other advanced Asian economies and in Europe. Otherwise, corporate debt to GDP ratios stands below 100% in North America and in emerging economies, including in emerging Asian economies. While household debt to GDP ratios stand below 100% in all regions, highest ratios prevail in advanced Asian economies, North America, Europe and China (ranging from 85% to 55%). A notable trend with respect to debt to GDP ratios is the strongest growth recorded in China over the past decade compared to all other regions.

Figure 2.1. Corporate and household debt by region



Note: These figures show household and corporate debt, including bonds and loans, for 48 countries grouped by region over the period 2006-2022. Data in 2022 are as of end-June.

Source: Bank for International Settlements, IMF World Economic Outlook database, OECD calculations.

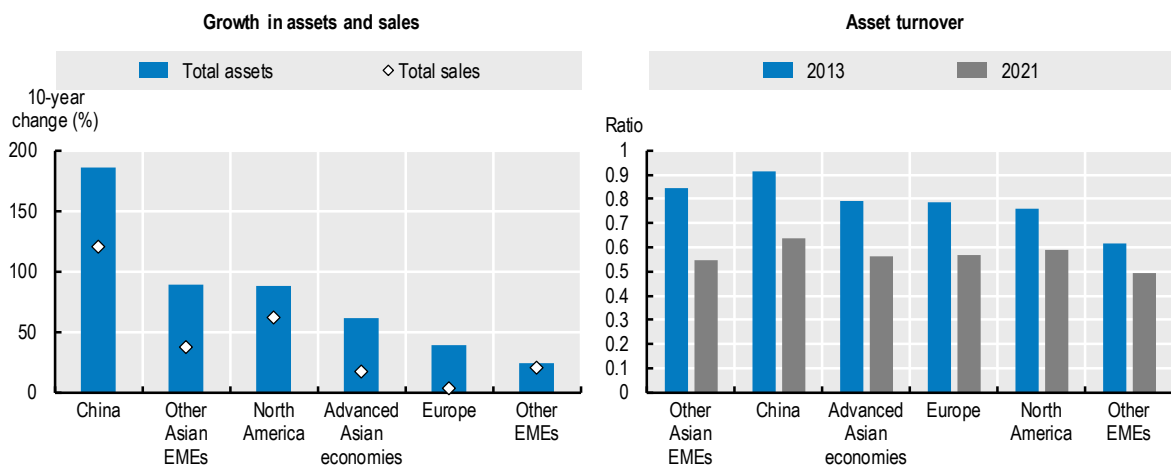
² Corporate debt in China has grown by 115% over the past decade, at an average annual rate of 10%. In other Asian emerging economies, corporate debt has grown by 40% over the past decade, at an average annual rate of 3%. As a comparison, over the same period, corporate debt has increased by 23%, 64%, 5% and 9% in Asian advanced economies, North America, Europe and non-Asian emerging economies.

Household debt in China has grown by 247% over the past decade, at an average annual rate of 16%. In other Asian emerging economies, household debt has grown by 65% over the past decade, at an average annual rate of 5%. As a comparison, over the same period, household debt has increased by 24%, 31%, 1% and 10% in Asian advanced economies, North America, Europe and non-Asian emerging economies.

2.2. Corporate leverage, profitability and the rising share of vulnerable firms

Over the past decade, the growth in total balance sheet of the non-financial corporate sector has not been associated with a corresponding growth in sales and profits, both globally and in the Asia region. For instance, the largest gap between assets and sales growth rates has been recorded in China and to a lesser extent in advanced and other emerging Asian economies (Figure 2.2). In particular, total assets of Chinese listed corporates have almost tripled over the past decade, while aggregate sales only doubled. In addition, turnover ratios have recorded substantial declines particularly in other emerging Asian economies and China, which may suggest possible overcapacity in certain industries, as well as a diminishing marginal productivity of capital (OECD, 2022^[1]).

Figure 2.2. Growth in assets, sales and operating efficiency indicator of listed corporates by region



Note: Financial statements data have been extracted from Refinitiv for a sample of 8276 listed corporates from 48 countries, which are included in the credit to the non-financial sector database of the Bank for International Settlements (as shown in Figure 2.1). 10-year percent change has been calculated using data in 2012 and 2021. Total sales include gross sales and other operating revenue, net of discounts, returns and allowances. Turnover ratio is measured as total sales divided by total assets.

Source: Refinitiv, OECD calculations.

Driven by the decrease in operating efficiency and profit margin, overall profitability of corporates globally has declined over the past decade and remains depressed for Asian companies, yet Asian corporates exhibit the highest profitability profiles compared to firms in other regions. After a significant decrease during the GFC, both net profit margin and ROE picked up in 2011 for corporates in all regions (Figure 2.3). In 2012, with the European sovereign debt crisis, profitability levels dropped substantially again, especially in advanced Asian economies and in China, reaching their lowest levels in 2016. After that, profitability started to increase gradually before the COVID-19 shock hit the global economy. In 2020, firms in most regions experienced a sharp drop in profitability, while profit margins and ROEs of Chinese and emerging Asian companies remain the highest in 2021 compared to corporates in other regions. Nonetheless, the profitability of Asian companies remain depressed as reflected by lower profit margins and ROEs in 2021 compared to ten year average ratios. In recent years, driven partly by global trade tensions, listed corporates in Korea, Japan, Singapore, Thailand and New Zealand have suffered a sharp drop in profitability.

Figure 2.3. Profitability of listed corporates by region and in selected Asian economies



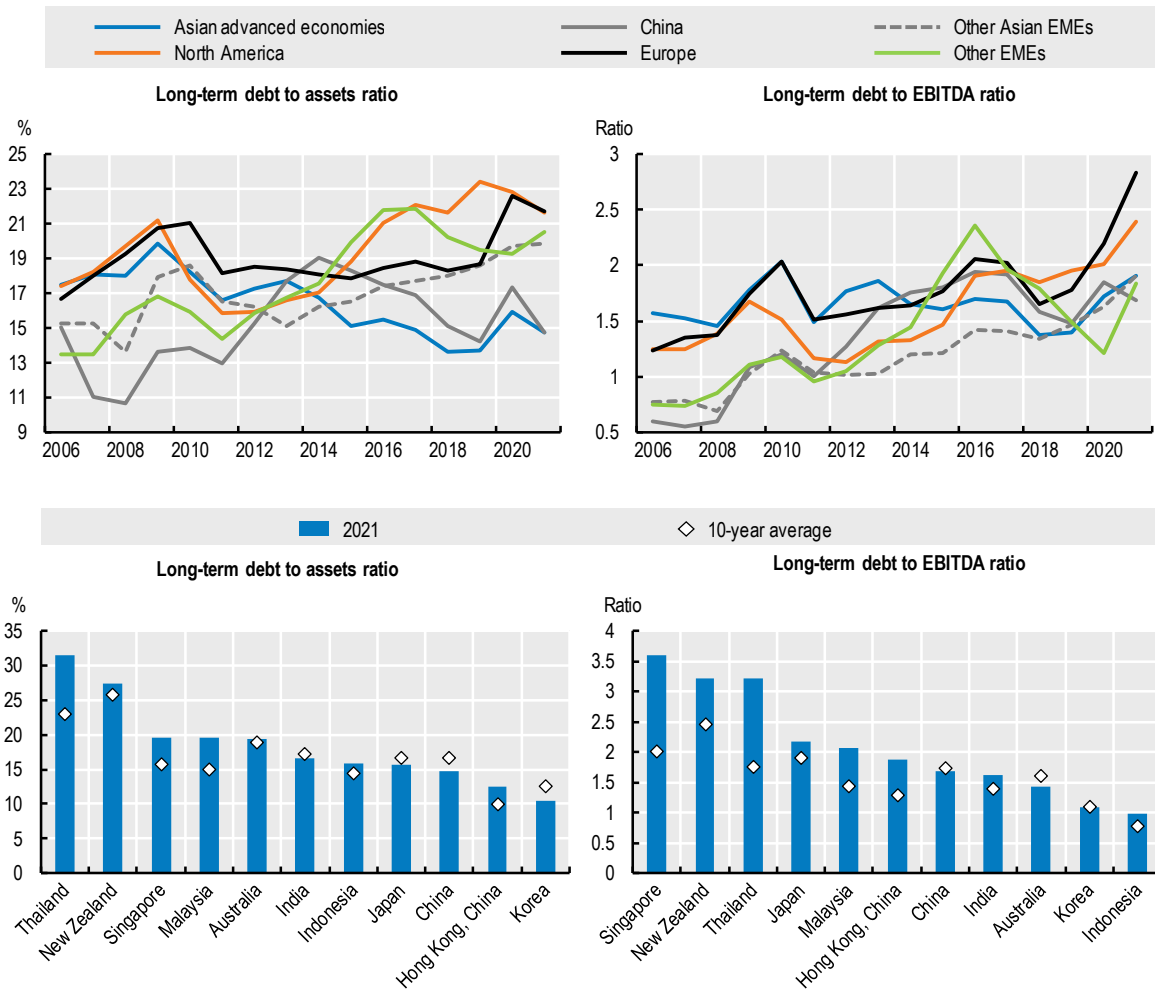
Note: Financial statements data have been extracted from Refinitiv for a sample of 8276 listed corporates from 48 countries, which are included in the credit to the non-financial sector database of the Bank for International Settlements (as shown in Figure 2.1). 10-year percent change has been calculated using data in 2012 and 2021. Net profit margin is defined as the ratio of net profit to net sales and return on equity as net income to total common shareholders' equity. 10-average of profit margin or ROE is calculated over the period 2012-2021. Source: Refinitiv, OECD calculations.

The financing structure of non-financial companies in Asia differs slightly from the structure in other regions. Data show that Asian corporates exhibit lower levels of leverage compared to corporates in other regions (Figure 2.4). Also, leverage has increased significantly for corporates in emerging Asian economies (particularly in Thailand and Malaysia) over the recent years. At the same time, leverage has declined for corporates in advanced Asian economies and China. For instance, corporates in advanced Asian economies and China exhibit the lowest levels of leverage in 2021 compared to corporates in other regions and in emerging Asian economies. Nevertheless, leverage ratios have increased following the COVID-19 shock and stand at more elevated levels in 2021 compared to historical averages notably in Singapore, Thailand, New Zealand, Malaysia and Hong Kong, China. Another common leverage indicator used to analyse companies' ability to serve their financial debt and other commitments is the debt-to-EBITDA³ ratio, which measures a company's indebtedness level against its revenue generation capacity, providing

³ EBITDA stands for earnings before interest, taxes, depreciation and amortization.

a proxy for the repayment capacity and debt sustainability of the borrower. Debt-to-EBITDA ratios have increased substantially for corporates in emerging Asian economies and China compared to firms in advanced Asian economies. Yet in 2021, debt-to-EBITDA ratios of Asian corporates remain lower than those of North American and European corporates. Nonetheless, similar to leverage ratios, debt-to-EBITDA ratios have increased following the COVID-19 shock and stand at more elevated levels in 2021 compared to historical averages notably in Singapore, Thailand, New Zealand, Malaysia and Hong Kong, China.

Figure 2.4. Leverage of listed corporates by region and in selected Asian economies



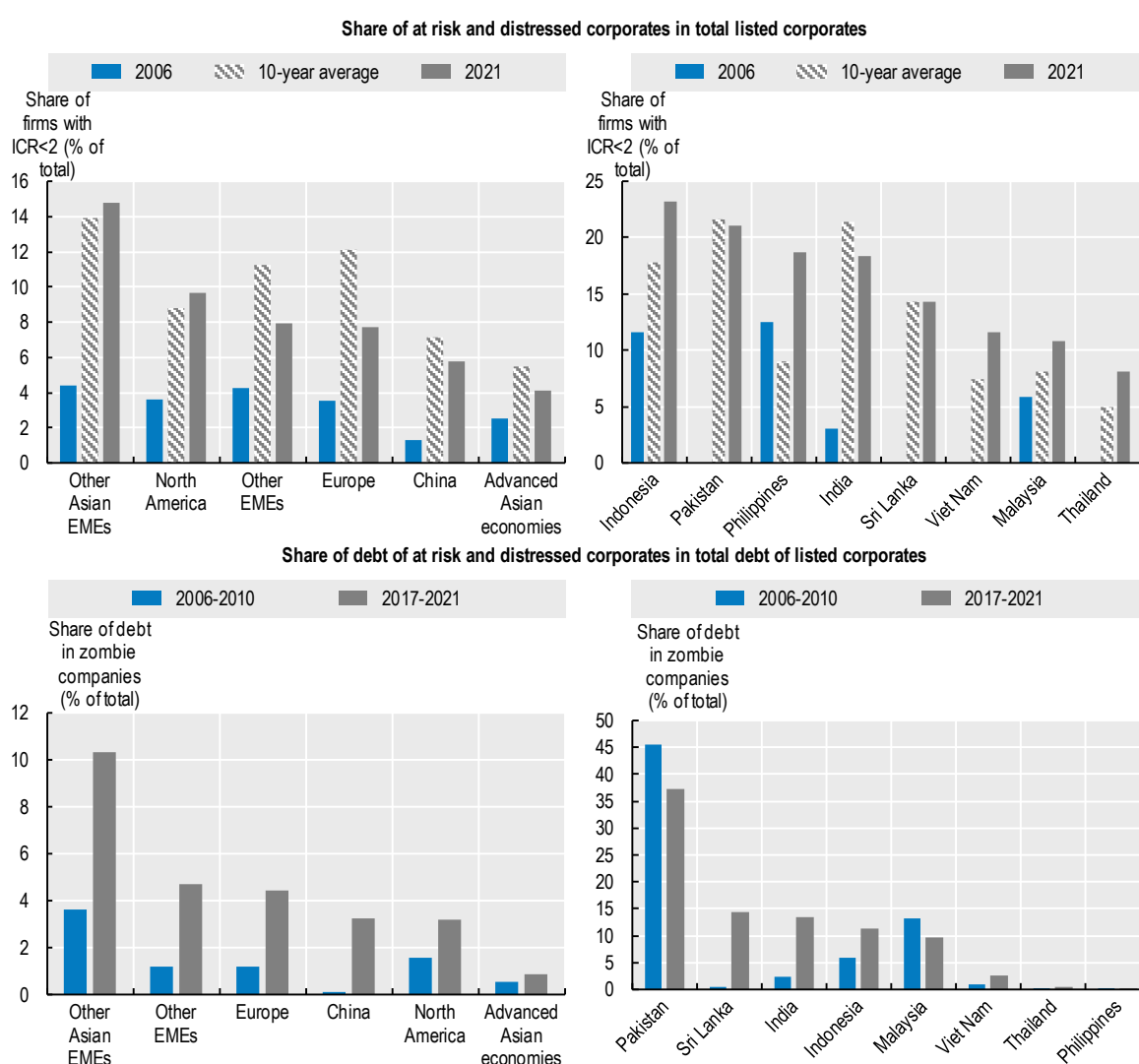
Note: Financial statements data have been extracted from Refinitiv for a sample of 8276 listed corporates from 48 countries, which are included in the credit to the non-financial sector database of the Bank for International Settlements (as shown in Figure 2.1). 10-average of long-term debt to assets or EBITDA ratio is calculated over the period 2012-2021. Source: Refinitiv, OECD calculations.

Increasing debt levels and a persistent decline in corporates' profitability have led to the rise of firms considered at risk or distressed⁴ due to deteriorating cash flows and the inability to make interest payments, thereby becoming more likely to default (Roulet, 2020^[2]). In the Asia region, the share of at risk

⁴ At risk and distressed corporates include firms with an interest coverage ratio (ICR) less than two for three consecutive years (Banerjee and Hofmann, 2018^[40]).

or distressed listed companies has increased over the past fifteen years, particularly in emerging Asian economies compared to other regions (Figure 2.5). In 2021, such shares stand at elevated levels in Indonesia, Pakistan, the Philippines and India compared to other emerging Asian economies. Also, the share of at risk or distressed listed companies has risen substantially for corporates in the Philippines, Indonesia, Viet Nam and Malaysia over the recent years, as reflected by more elevated shares in 2021 than compared to historical averages. Besides, at risk or distressed listed companies also account for a significant share of the total debt of listed corporates, particularly in emerging Asian economies. In 2021, at risk or distressed listed companies represent the largest share of the total debt of listed corporates particularly in Pakistan, and to a lesser extent in Sri Lanka, India, Indonesia and Malaysia. Nonetheless, most significant increases in such shares have been recorded in Sri Lanka, India, and to a lesser extent in Indonesia and Viet Nam over the period 2017-2021 compared to 2006-2010.

Figure 2.5. At risk and distressed listed companies by region and selected Asian economies

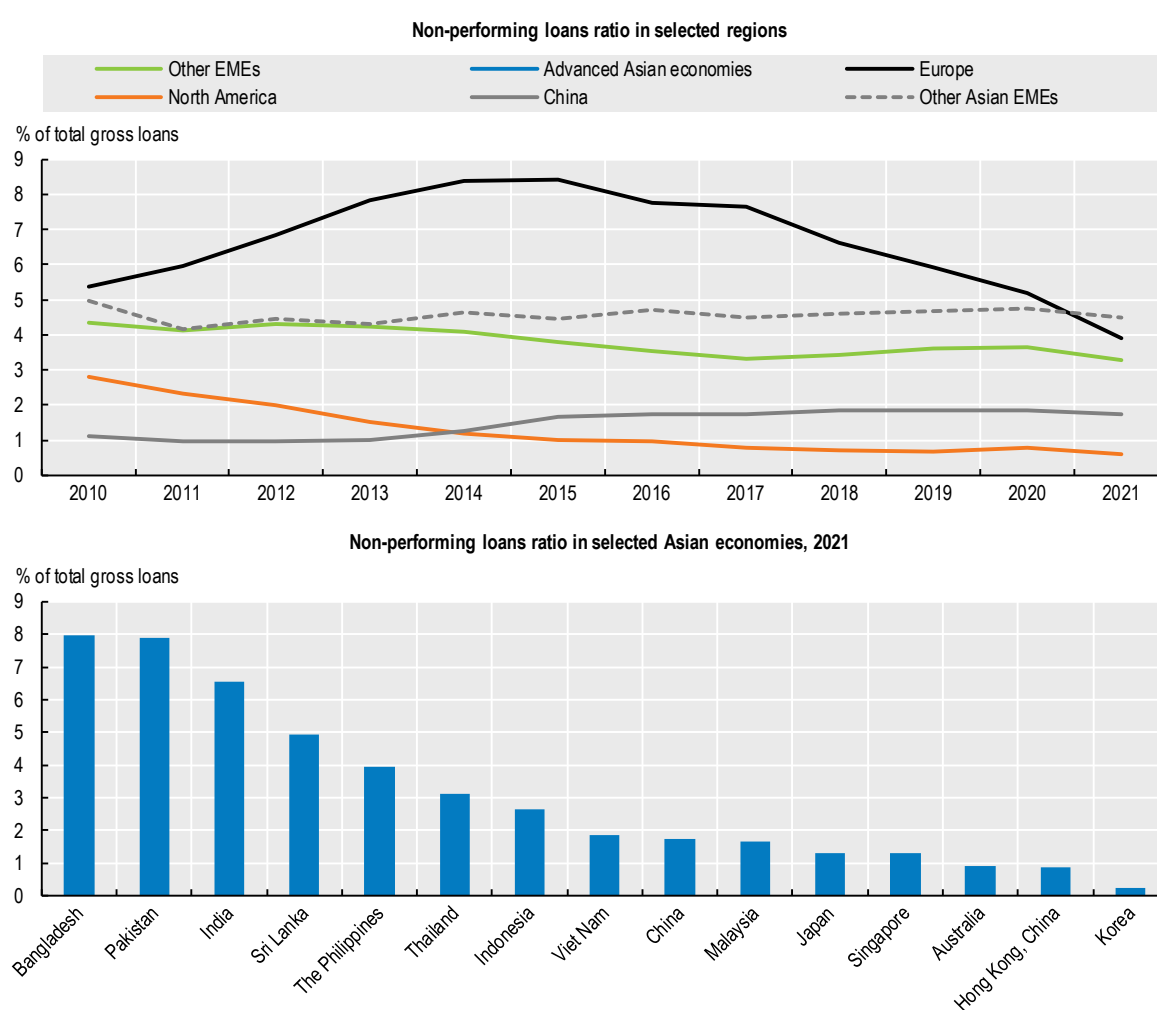


Note: The top figures show simple averages of at risk and distressed corporates as a share of total number of 12220 listed non-financial companies in 114 countries (Roulet, 2020^[2]). The bottom figures show simple averages of the debt held by at risk and distressed corporates as a share of total debt of listed non-financial companies. At risk and distressed corporates include firms with an interest coverage ratio (ICR) less than two for three consecutive years.

Source: Refinitiv, OECD calculations.

The rising share of non-viable corporates combined with substantial levels of non-performing loans are signs of capital misallocation in the economy (Lam et al., 2017^[3]; Gopinath, Kalemli-Ozcan and Karabarbounis, 2017^[4]) and declining business dynamism (Decker et al., 2016^[5]), as a significant share of funding is locked into firms that are unable to generate enough profits to repay their debts. In the Asia region, NPL ratio is higher in emerging Asian economies (particularly in Bangladesh, Pakistan and India, and to a lesser extent in Sri Lanka, the Philippines, Thailand and Indonesia in 2021) than in advanced economies and in China (Figure 2.6). While NPL ratios remained stable in advanced and emerging Asian economies over the past decade, the NPL ratio has increased in China. These trends are in contrast particularly to European economies, and to a lesser extent to North American and other non-Asian emerging economies, where NPL ratios have declined over the recent years.

Figure 2.6. Non-performing loan ratio in selected regions and Asian economies



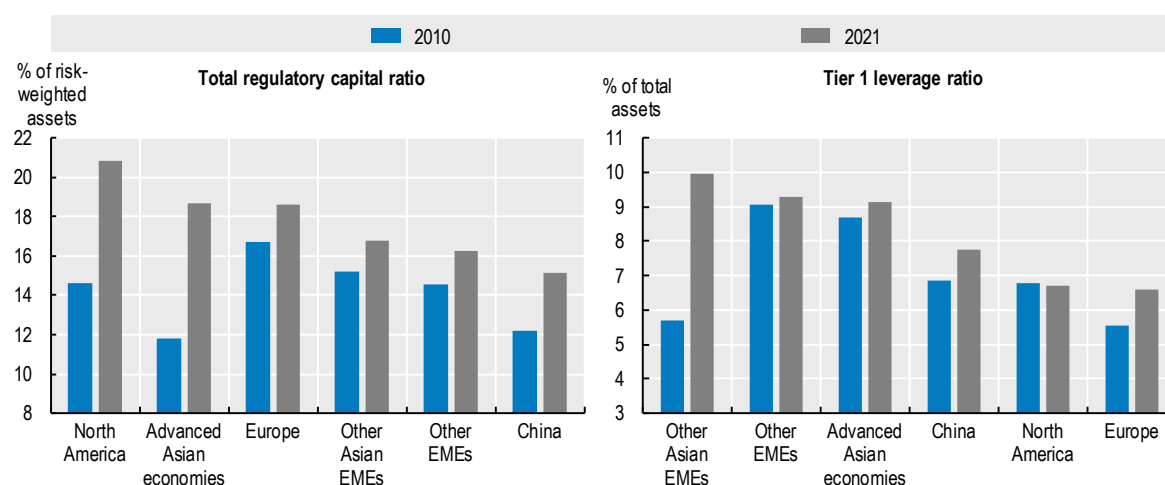
Note: Simple regional averages have been calculated.

Source: IMF Financial Soundness Indicators database, Bank of Japan, Refinitiv, OECD calculations.

Banks are playing an important role in the persistence of non-viable corporates, yet substantial bank capital buffers may help addressing these potential failures. Evidence shows that well-capitalized banks are less likely to maintain credit lines to non-viable businesses because they can provision non-performing loans without risking appearing under-capitalized. In that regard, the strengthening of banking capital ratios in

major banking systems following the GFC, including in the Asia region, could help reducing the number of non-viable corporates in these economies (Figure 2.7).

Figure 2.7. Capital ratios of banks in selected banking sectors



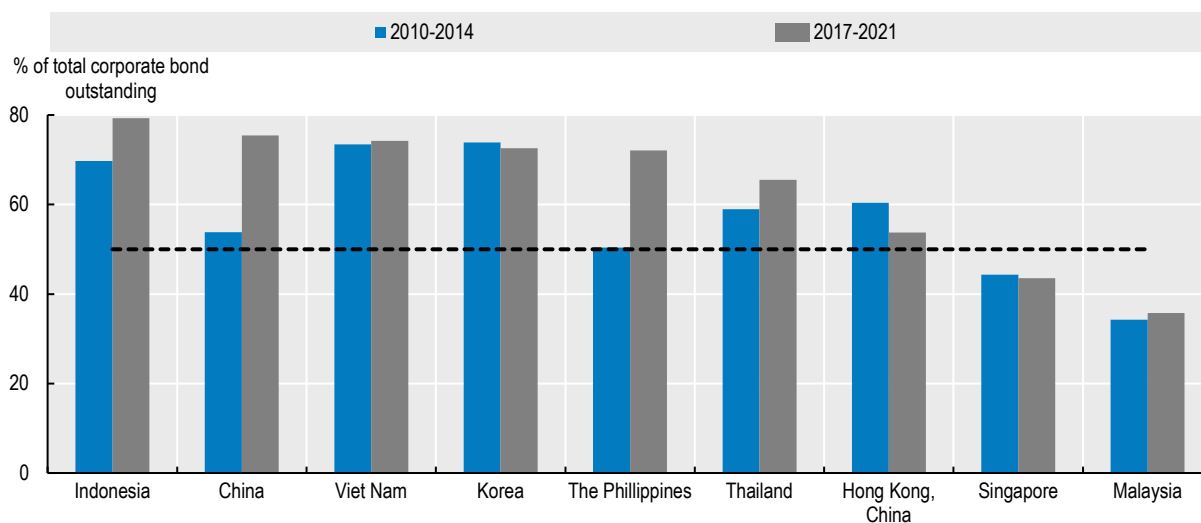
Note: Simple regional averages have been calculated.

Source: IMF Financial Soundness Indicators database, Bank of Japan, Refinitiv, OECD calculations.

A related source of concern is that firms that would typically exit or be forced to restructure seem to increasingly survive, and also overlap with overcapacity sectors and SOEs in China, which may weigh on average productivity and crowd-out growth opportunities for more productive firms (Adalet McGowan, Andrews and Millot, 2018^[6]). Aside from having detrimental effects on the financial soundness of the banking system, the presence of non-viable corporates could constraint credit access for viable and productive firms. It has been argued (Caballero, Hoshi and Kashyap, 2008^[7]) that the presence of non-viable corporates imposes a tax on healthy firms, who suffer reduced ability to generate profits and hence growth prospects, impacting aggregate growth. These problems may be symptomatic of impaired banks, which may be reluctant to recognize non-performing loans and realize losses on their balance sheets, and may rather “evergreen” loans to non-viable corporates (i.e., bank forbearance).

Debt servicing capacity of leveraged firms could be tested and a number of non-viable corporates could default, which may threaten the resilience of banks, structured finance products (such as collateralised loan obligations (CLOs) and commercial mortgage-backed securities (CMBS)) and investors exposed to these markets. Against a backdrop of tighter monetary conditions, slowing global growth, elevated inflation, corporate debt service ratios are likely to rise further amid rising costs and weakening earnings prospects (BIS, 2022^[8]). Also, the substantial share of outstanding corporate bonds are due to mature over the next five years, which means that corporates will have to get these bonds refinanced or use their own funds to repay the debt principal (Figure 2.8). For example, more than 50% of total outstanding corporate bonds will mature within the next five years in Indonesia (79%), China (75%), Viet Nam (74%), Korea (73%), the Philippines (72%), Thailand (66%) and Hong Kong, China (54%). Also, the duration of corporate bonds has shortened as reflected by the substantial increase in the share of bonds that will mature within the next five years particularly in China (22 percentage points) and the Philippines (22 percentage points), and to a lesser extent in Indonesia (10 percentage points). Therefore, debt servicing pressures and refinancing risk are likely to increase for highly leveraged and non-viable corporates in a higher interest rate environment with rising credit risk premia. These corporates may experience a wave of defaults that could be exacerbated under adverse economic conditions amid the largest energy crisis since the 1970s and persisting geopolitical event risks (OECD, 2022^[9]).

Figure 2.8. Corporate bonds due to mature over the next five years in selected Asian economies



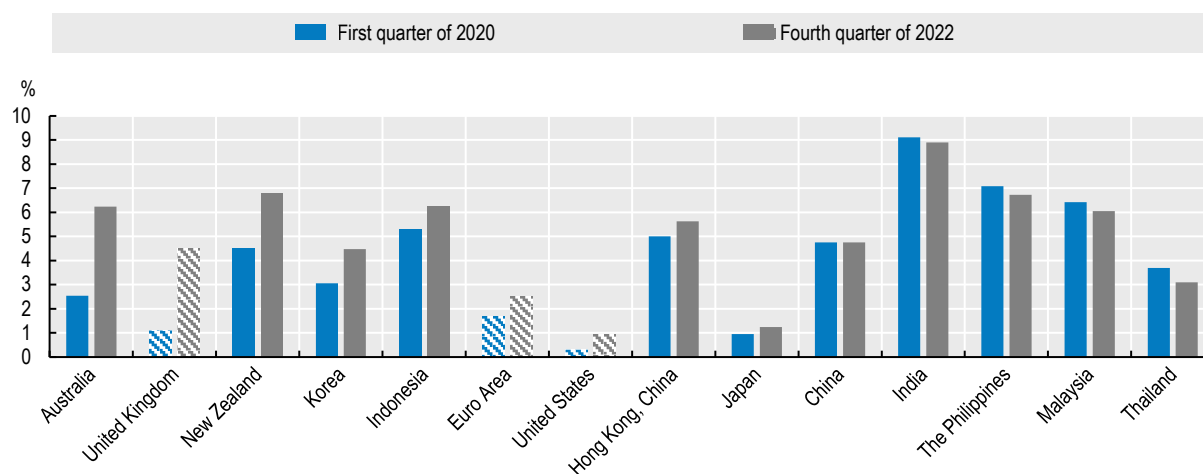
Note: This figure shows the average share of outstanding corporate bonds that are due to mature over the next five years in selected Asian economies. Calculations have been performed by country over the period 2010-2014 and 2017-2021. Data are expressed as a share of total outstanding corporate bonds.

Source: Refinitiv, AsianBondsOnline, OECD calculations.

2.3. Household debt, house prices and debt sustainability concerns

House prices, along with household debt, rose steadily throughout the COVID-19 pandemic, even in countries where valuations were already stretched and debt levels were already high. A range of factors can explain this strong and synchronised response of house prices. Exceptionally accommodative monetary conditions, a surge in household savings and unprecedented fiscal support all boosted housing demand during the pandemic, with housing supply temporarily curtailed by mobility restrictions and logistical bottlenecks. With normalising monetary policy, mortgage rates have risen significantly in major housing markets in 2022, including in some Asian markets (Figure 2.9). Notably, mortgage rates have increased substantially in Australia, the United Kingdom, New Zealand, Korea and Indonesia, and to a lesser extent in the Euro Area, the United States, Hong Kong, China and Japan.

Figure 2.9. Rising mortgage rates amid monetary policy normalisation in selected major housing markets

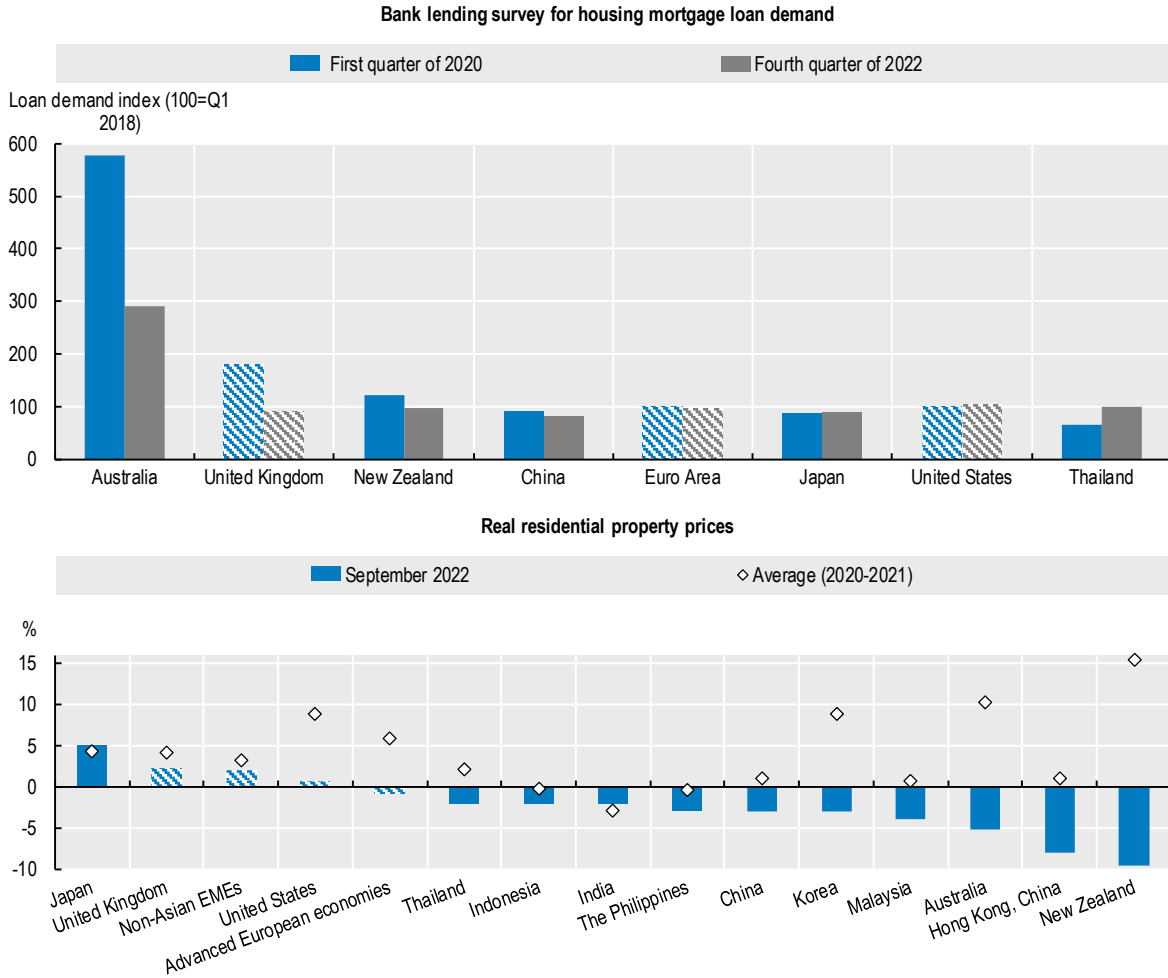


Note: This figure shows long-term fixed prime mortgage rates in selected economies during the first quarter of 2020 and the fourth quarter of 2022.

Source: Refinitiv, OECD calculations.

Rising financing costs have contributed to moderate housing demand as reflected by weaker loan demand to banks from households in 2022 in a number of jurisdictions (Figure 2.10). In the Asia-Pacific region, housing demand declined significantly in Australia, New Zealand and China. Slowing housing demand tends to weaken house price growth in many countries globally. Housing prices have even started to decline in most Asian economies, except in Japan.

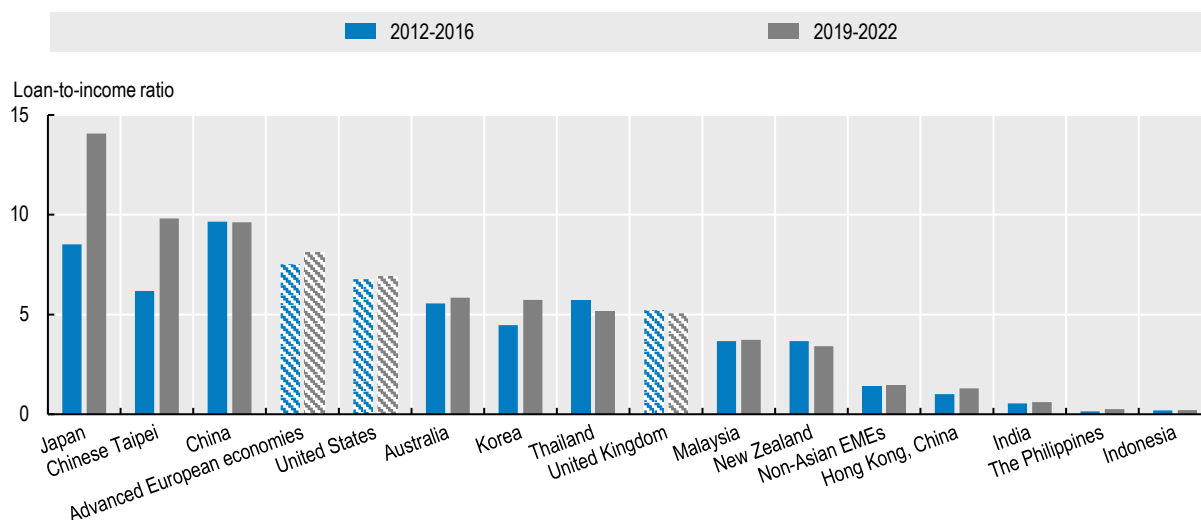
Figure 2.10. Housing loan demand and prices in selected major housing markets



Note: The top figure shows bank lending survey indices for housing mortgage loan demand in selected economies during the first quarter of 2020 and the fourth quarter of 2022. Comparable indicators are available for a limited number of major housing markets.
 Source: Bank for International Settlements, Refinitiv, OECD calculations.

Declining housing prices combined with rising financing costs could increase debt service burdens for households. Notably, loan-to-income ratios stand at elevated levels in some major housing markets, including in some Asian markets such as Japan and China (Figure 2.11). Loan-to-income ratios are also elevated, but to a lesser extent, in other Asian markets, including Australia, Korea, Thailand, Malaysia and New Zealand. Mortgage borrowers globally are suffering a cost of living shock which may potentially compromise their ability to repay their mortgages (OECD, 2022^[10]; OECD, 2022^[9]). For instance, the rise in prices has been far from uniform, partly due to varying sources of domestic energy consumption between countries. Also, elevated inflation and tightening monetary policy, which led mortgage rates to substantially increase in certain countries may erode the debt service capacities of low-income and subprime borrowers in particular (De Stefani, Laws and Soll, 2022^[11]). While mortgage interest rates have risen in many economies, the sensitiveness of mortgage borrowers to inflation and interest rate would depend on the prevalence of floating-rate loans and the level of household indebtedness (Van Hoenselaar et al., 2021^[12]).

Figure 2.11. Loan-to-income ratio in selected major housing markets



Source: OECD, World Bank, Refinitiv, OECD calculations.

Tighter financial conditions and lower incomes would erode debt servicing capacities of leveraged households and corporate borrowers that may result in deteriorating credit quality, rising refinancing or solvency risks. S&P Global Ratings estimates suggest that the trailing-12-month speculative-grade corporate default rates in the United States and Europe could reach 3.75% and 3.25%, respectively, by September 2023 (S&P Global Ratings, 2022^[13]). These would be more than double the 1.6% and 1.4% in September 2022, bringing defaults close to their respective long-term averages. And with so much depending on the length, breadth, and depth of a potential global economic downturn, forecasts under a pessimistic scenario suggest that default rates could increase to 6.0% and 5.5% in the US and Europe respectively.

3 The changing structure of Asian financial intermediation: Emerging risks from non-bank financial intermediation and open-ended investment funds

Over the past two decades, Asian economies have experienced rapid capital market growth and profound changes in the structure of their financial systems (OECD, n.d.^[14]). Notably, the growth of NBFIs and market-based finance reflects the increasing shift in financial intermediation from banks to NBFIs, which can be attributed in part to the tighter regulations on banks as well as bank balance sheet deleveraging following the GFC (IMF, 2015^[15]; Patalano and Roulet, 2020^[16]). A prominent development is the rising importance of investment funds and risks for financial sector resilience from OEFs that are performing liquidity transformation. In addition, debt accumulation of corporates and households has occurred concomitantly with increasing holdings of credit assets at investment funds.

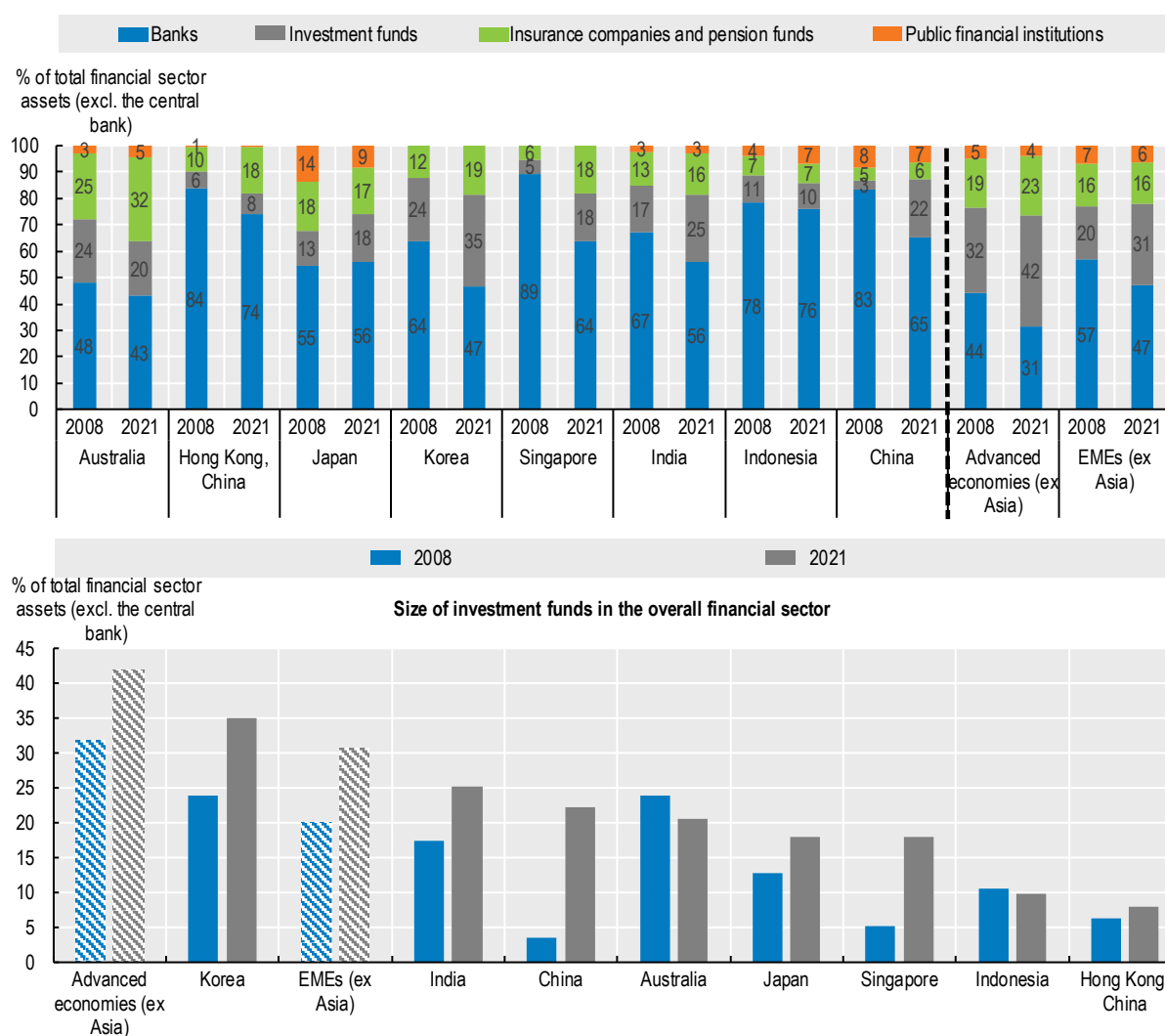
This section explores the changing structure of financial intermediation in the Asian financial sector, and focuses on the rising importance of investments funds over the past fifteen years. It analyses the extent to which a shift in risk sentiment, against a backdrop of deteriorating credit quality amid tightening financial conditions and eroding debt sustainability of corporates and households, may contribute to exacerbating vulnerabilities at OEFs. This enables a forward-looking assessment of the extent to which developments in the medium term may contribute to rising risks in the stability of financial intermediation and sustainable long-term growth with a view to informing policy discussions on economic opportunities and associated risks.

3.1. The changing structure of Asian financial sector: the increasing importance of non-bank financial intermediaries

The structure of the financial sector in Asian economies has experienced profound changes in the past two decades, which is characterised by the rising share of NBFIs and the growing importance of investment funds. While the financial sector in Asian jurisdictions are heterogeneous, the prominent but decreasing share of banks is a common feature of most markets over the past two decades. Figure 3.1 shows that that banks remain the single largest actor of the financial system in all Asian economies in 2020. Average shares of bank assets in total financial sector assets stand at 52% and 66% in advanced and emerging Asian economies respectively in 2021, which exceed average shares of bank assets in total financial sector assets of 33% and 50% in non-Asian advanced and emerging economies respectively. Nevertheless, the sharpest decreases in the share of banks in the overall financial sector assets between 2008 and 2020 are in Singapore (26 percentage points), China (18 percentage points), Korea (17 percentage points), India

(11 percentage points) and Hong Kong, China (10 percentage points), and to a lesser extent in Australia (5 percentage points) and Indonesia (3 percentage points). As a comparison, average declines in the share of banks stand at 13 percentage points and 10 percentage points in non-Asian advanced and emerging economies respectively. In parallel, the share of investment funds has strongly increased in most Asian economies over the past two decades and account for a substantial share of the financial sector in several jurisdictions that exceeds the share of other NBFIs (i.e., including pension and insurance companies). In particular, investment funds account for a substantial share of the financial system in Korea (35%), India (25%), China (22%) and Australia (20%). Also, investment funds have experienced significant growth particularly in China (18 percentage points), and to a lesser extent in Singapore (13 percentage points), Korea (11 percentage points), India (8 percentage points) and Japan (5 percentage points).

Figure 3.1. The structure of the financial sector by categories of financial institutions in selected economies



Note: These figures show the structure the financial sector for a sample of 29 countries included in the Global Monitoring Report on Non-Bank Financial Intermediation and related database of the Financial Stability Board.
Source: Financial Stability Board, OECD calculations.

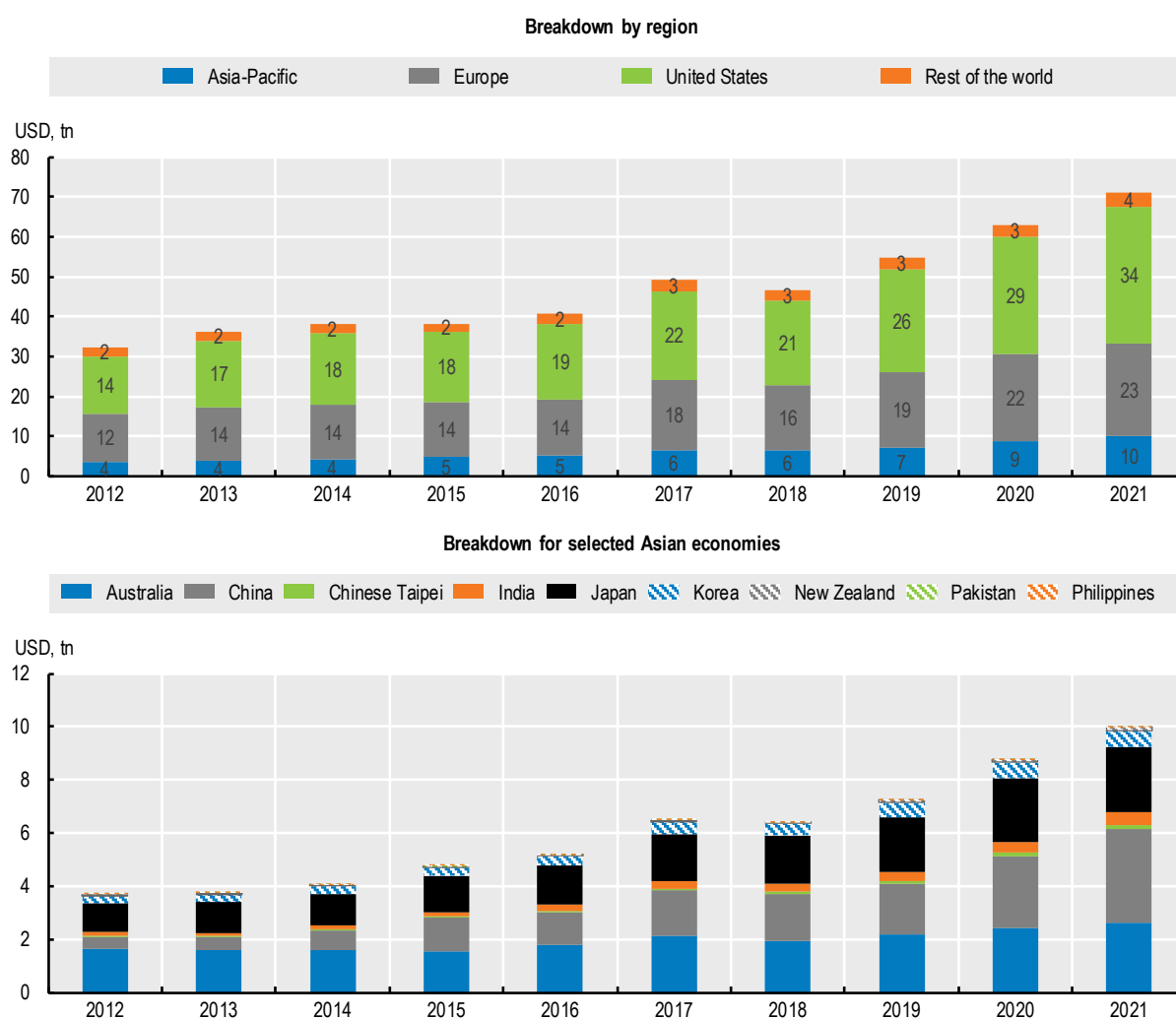
The emergence of the non-bank credit intermediation sector in Asia offers ample opportunities for additional funding sources, risk management and new investment vehicles that are tailored to the needs of actual market participants. However, resulting financial sector linkages further raise the potential for the transmission of financial shocks among products and financial intermediaries, with potential negative impacts on credit intermediation and economic growth going forward.

3.2. Rising liquidity risks from open-ended fixed-income investment funds amid deteriorating credit quality of assets

Worldwide total net assets of regulated funds have seen robust growth over the past decade, including in the Asia region. The increase in total net assets reflects a substantial increase in the value of the underlying securities held by the funds (Investment Company Institute, 2022^[17]). However, over the same period, global demand for regulated funds, as measured by net sales,⁵ has also been significant. Demand for regulated funds has been driven by multiple factors, including investors' demand for professionally managed and well-diversified products offering access to capital markets, as well as by the increasing depth and liquidity of global capital markets. While the total net assets of regulated US OEFs is the largest globally in 2021 (USD 10 trillion), the size of regulated OEFs in the Asia-Pacific region has more than tripled over the past decade, rising from USD 4 trillion in 2012 to USD 10 in 2021 (Figure 3.2). Also, regulated Chinese OEFs are of prominent importance in the region as they account for 35% of the total net assets of regulated Asian OEFs in 2021, followed by Australia (26%) and Japan (25%).

⁵ Net sales are calculated as the difference between total sales and total redemptions plus net exchanges.

Figure 3.2. Regional distribution of total net asset value of regulated OEFs



Note: Regulated OEFs include mutual funds, exchange traded funds (ETFs), and institutional funds.

Source: International Investment Funds Association, Investment Company Institute (2022^[17]).

The rising size of the OEF industry worldwide has been coupled with increasing holdings of credit assets. Investment funds' holdings of credit assets have increased significantly since 2008 (USD 31 trillion) and amounted to USD 53 trillion in 2021 (Figure 3.3). Among the several types of investment funds, the share of credit assets held by other investments funds – which include equity funds, fixed income funds and other funds⁶ – has continuously risen over the period from 2008 to 2020 (from 18% to 30%). In 2021, other investments funds are holding the largest share of credit assets. Yet, drivers of credit growth differ across financial institutions based on their business models. In fact, bank business models involve extending loans to borrowers, whereas investment funds, in aggregate, are less involved in direct provision of credit through lending. For example, investments funds are investing in relatively less liquid credit market products – such as corporates bonds, MBS, CLOs – and shares in real estate investment trusts (REITs). Notably, investors' reach for yield over the past decade has supported the growth of forms of collective investment vehicles

⁶ Other funds include mixed funds, referenced investment funds, external debt investment funds, currency funds, asset allocation funds, etc. These funds can be close-end or OEFs.

in real estate finance (OECD, 2021^[18]), which has supported the expansion of REITs and MBS markets globally, including in the Asia region.

Figure 3.3. Credit assets held by banks and other financial intermediaries



Note: In the top figure, other financial intermediaries (OFIs) include investment funds, captive financial institutions and money lenders (CFIMLs), central counterparties (CCPs), broker-dealers, finance companies, trust companies and structured finance vehicles. In the bottom figure, other investment funds include equity funds, fixed income funds and other funds such as mixed funds, referenced investment funds, external debt investment funds, currency funds, asset allocation funds, etc.

Source: Financial Stability Board (2022^[19]).

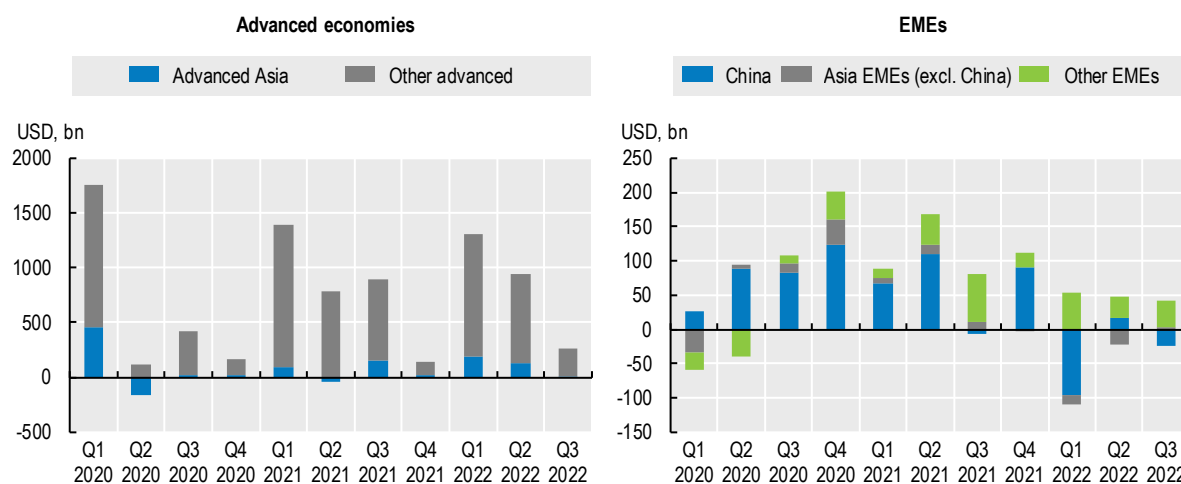
Credit assets held by OEFs are of particular importance to financial sector resilience because of liquidity transformation in OEFs, which can give rise to vulnerabilities that may amplify or transmit shocks (IMF, 2022^[20]; ECB, 2022^[21]). A mismatch arises if OEFs give their investors the option of short-term redemptions, while at the same time investing in assets that cannot easily be liquidated at short notice. Existing evidence suggests that a larger liquidity mismatch makes it more difficult for funds to meet sudden, large redemption requests from investors, increasing the risk of procyclical asset sales and fund suspensions in response. This is because OEFs sometimes invest in markets and products – including credit assets – with relatively shallow liquidity, hold limited liquid asset buffers and offer daily redemptions to their investors. Such redemptions, especially if abrupt and large, may force these funds to sell less liquid

assets. Forced sales can further amplify losses and adverse price dynamics, especially if market liquidity is deteriorating. This contributes to volatility in asset markets and potentially threatens financial sector resilience. These concerns particularly prevail as central banks normalize monetary policy amid heightened uncertainty about the outlook. A disorderly tightening of financial conditions could trigger significant redemptions from these funds, and negative performance could trigger further outflows, precipitating adverse liquidity dynamics. Amid high inflation and the normalisation of monetary policy, these vulnerabilities are more likely to materialise than in the past (ECB, 2022^[21]).

While OEFs are subject to some regulation in most jurisdictions, they are subject to less stringent regulation than banks (FSB, 2022^[22]). OEFs are required to post the mark-to-market net asset value (NAV) of their portfolios at the end of each trading day and must conform to investor protection mechanisms, including limitations on leverage, daily valuation and liquidity requirements, prohibitions on transactions with affiliates, and rigorous disclosure obligations. Also, creations and redemptions of OEFs' shares are aggregated and executed just once per day at NAV. Some emergency measures can be used by fund managers and regulators to mitigate the downward spiral from massive redemptions, funds' deleveraging and liquidation of assets at fire sale prices. In jurisdictions where investment funds play a more significant role in credit intermediation, OEFs that are not sufficiently resilient to shocks could slow the flow of credit to the wider economy, especially during downturns (FSB, 2022^[19]).

In an environment of deteriorating credit quality of corporates and households, the vulnerability of OEFs to redemptions and outflows, cash needs and forced selling may increase. Most recent data on portfolio and other inflows highlight significant outflows from emerging Asian economies, and China in particular (Figure 3.4). A disorderly tightening in global financial conditions and rising defaults of corporate or households could trigger losses for a range of credit market products (such as declining valuation of REITs' shares, MBS, corporate bonds, CLOs) that could accelerate fund outflows and worsen financial conditions in the region.

Figure 3.4. Capital flows to Asian versus non-Asian advanced and emerging markets



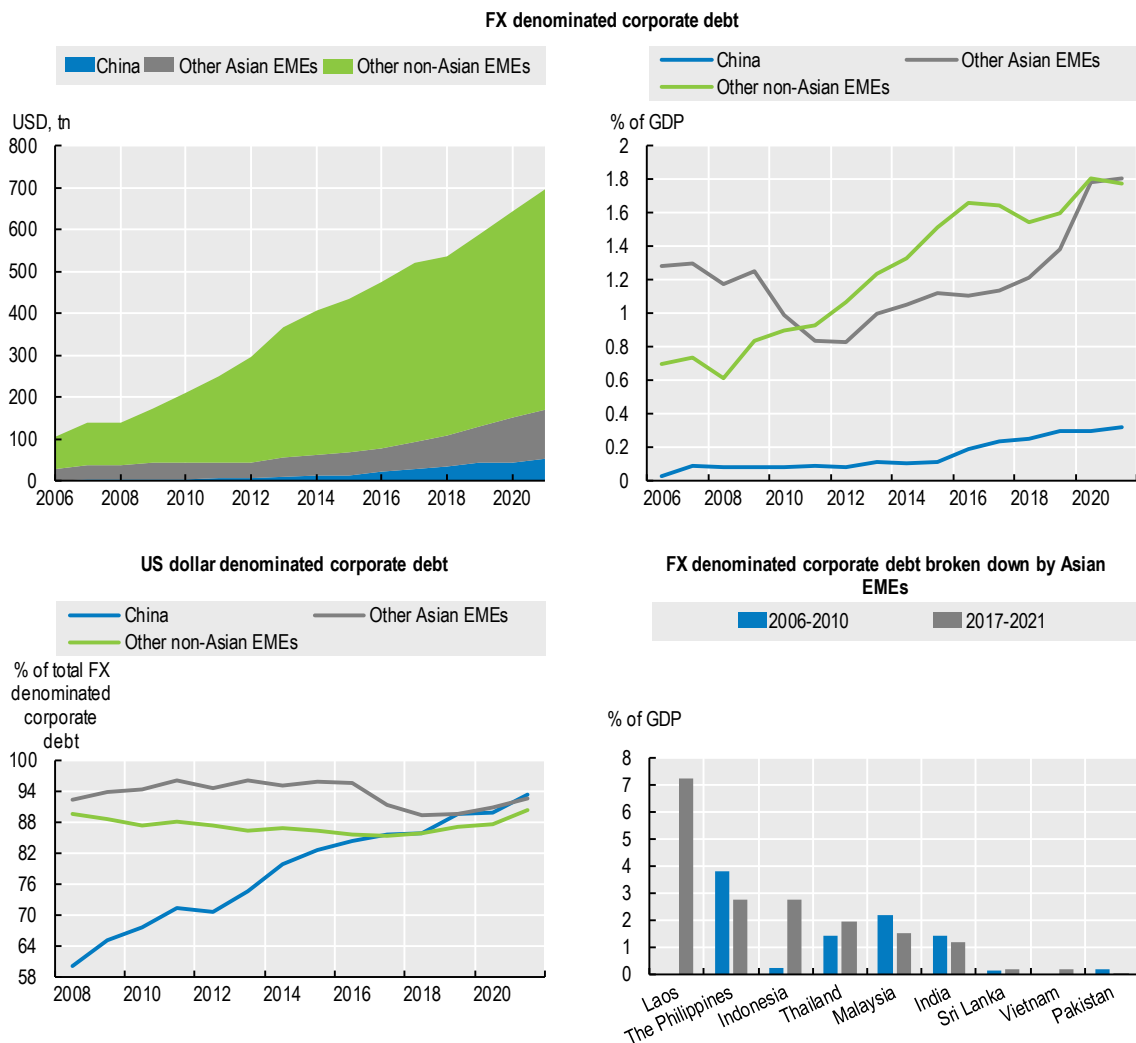
Note: These figure show portfolio (including equity and debt instruments) and banking inflows in advanced versus emerging economies.

Source: OECD Monthly Capital Flow dataset, OECD calculation.

Rising credit assets holdings of investment funds, combined with increasing external corporate debt financing and weakening exchange rates, could make portfolio flows more susceptible to global financial conditions than before, accentuating the procyclicality in capital flows and difficulties for some issuers in EMEs to refinance their maturing debt. The overall rise in non-financial sector debt has been reflected in

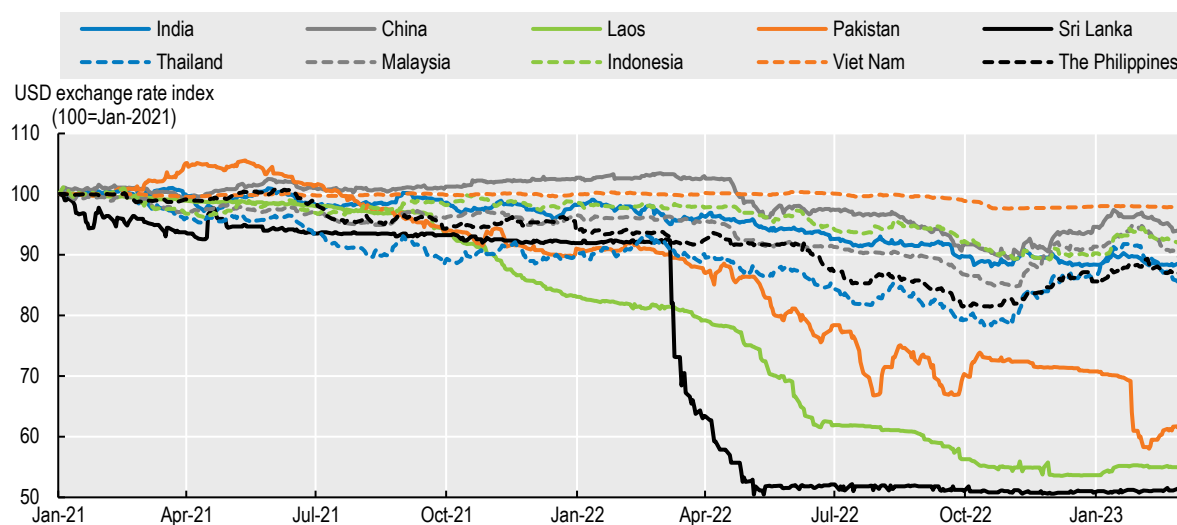
an increase in external corporate debt mainly in non-Asian emerging economies, with a large share denominated in foreign currency and mainly in US dollar (Figure 3.5). Nevertheless, trends are heterogeneous among emerging Asian economies. For instance, China exhibits much lower share of foreign currency denominated corporate debt in total GDP than compared to other Asian emerging economies (0.3% versus 1.8% respectively at end-2021). In contrast, the share of foreign currency denominated corporate debt in total GDP has continuously risen since 2012 in other emerging Asian economies and stands at similar levels compared to non-Asian emerging economies in 2021. In other emerging Asia economies, the share of foreign currency denominated corporate debt in total GDP has continuously risen since 2012 and stands at similar levels compared to non-Asian emerging economies in 2021. Foreign currency denominated corporate debt ratios are the highest in Laos, the Philippines, Indonesia, and to a lesser extent in Thailand, Malaysia and India among Asian markets. In addition, domestic currency has depreciated significantly against the US dollar in a number of emerging Asian economies amid tightening monetary policy and rising interest rates in major advanced economies, particularly in Sri Lanka, Laos, Pakistan, and to a lesser extent in Thailand and the Philippines (Figure 3.6).

Figure 3.5. Foreign currency denominated corporate debt in Asian and other emerging economies



Source: Bank for International Settlements, IMF World Economic database, OECD calculations.

Figure 3.6. Exchange rates of selected emerging Asian economies against the US dollar



Source: Refinitiv, OECD calculations.

Overall, the structure of the financial sector in Asian economies has experienced profound changes in the past two decades, which is characterised by the rising share of NBFIs and the growing importance of investment funds. Major concerns relate to increasing levels of indebtedness of corporates and households in the region and increasing holdings of credit assets combined with liquidity transformation in OEFs in a context of a weakening economic environment, which may complicate the path of debt sustainability. Potential risks may crystallise with an increase in losses due to deteriorating credit quality of corporates and households, which may lead to rising defaults with negative impacts on the resilience of debtholders. In particular, the resilience of OEFs may be tested if financial conditions tighten abruptly. An adverse shock may trigger significant redemptions at OEFs, which could have negative spillovers to a range of market products and intermediaries with negative impacts for credit intermediation and economic growth.

4 Policy considerations

Post-crisis financial reforms have included the development and strengthening of macroprudential, microprudential, and regulatory tools that strive to contain credit exuberance and financial risks. Nonetheless, the low interest rate environment in the aftermath of the GFC has contributed to reduce the cost and improve the availability of external funding for many issuers globally, including by boosting asset prices and cash flows. Against this backdrop, new sources of risks have emerged amid the rising importance of NBFIs, and of OEFs in particular that are increasingly holding credit assets. Such structural shifts in financial intermediation contributed to encourage debt accumulation of sovereigns, corporates and households in many jurisdictions over the past decade. Higher interest rates and elevated inflation contribute to rising cost of debt, which combined with lower incomes, would erode debt servicing capacities of leveraged borrowers and lead to deteriorating credit quality, rising refinancing or solvency risks. A broad-based rise in credit losses could trigger sharp valuation corrections of a range of market products and test the resilience of various types of financial intermediaries with negative impacts on sustained credit intermediation and economic growth.

In the previous sections, two main vulnerabilities of varied nature have been identified:

- Rising debt sustainability concerns amid deteriorating credit quality of indebted households and leveraged corporates as financial conditions tighten and economic prospects weaken.
- Rising risk of redemptions and liquidity shortages at OEFs that are performing liquidity transformation and increasingly holding credit assets.

Therefore, this section details the two arrays of dedicated policy measures that may be warranted to, focusing on:

- **addressing debt overhang for a growing number of distressed issuers.** On the one hand, these policies could consist of debt resolution policies for non-viable corporates and delinquent mortgages in the form of efficient insolvency systems for recovery and bank NPL resolutions strategies. In addition, policies may consist of debt service suspension and transparency initiatives to address debt sustainability challenges of sovereign issuers in LICs.
- **preventing excessive liquidity transformation in OEFs.** These policies aim to promote an adequate use of LMTs and a comprehensive framework for an effective implementation of these tools to mitigate liquidity mismatch in OEFs.

4.1. Policies to address debt sustainability of distressed issuers

4.1.1. Debt resolution policies for non-viable corporates and delinquent mortgages

Resolving non-viable firms is a first step in addressing debt vulnerabilities and raising productivity gains to support sustainable growth. Also, meaningful resolution strategies of delinquent loans to non-viable corporates and mortgages are critical to ensure that banks can continue to intermediate credit and support an economic recovery. Therefore, policy considerations could focus on two main areas: the importance of efficient insolvency systems for recovery, and bank-NPL resolutions strategies (Bénassy-Quéré, 2021^[23]).

4.1.1.1. *Efficient insolvency systems for non-viable corporates*

The speed and efficiency of restructuring procedures are key elements to facilitate debt resolution of non-viable corporates (Andrews, Adalet McGowan and Millot, 2017^[24]), which could help limiting the amount of subsequent losses for creditors to preserve their resilience and credit intermediation capacities. OECD empirical analysis (2021^[25]) suggests that a country's insolvency regime and its level of enforcement are likely to affect, among other things, costs incurred during and the length of the insolvency process, whether a company emerges from the proceedings as a going concern or whether its assets are sold piecemeal, and as a result, the ultimate recovery rates. Therefore, it is important to design insolvency regimes that facilitate an orderly exit or restructuring of distressed firms by giving creditors, debtors and other investors the right incentives to take appropriate actions promptly after financial difficulties arise, thereby enhancing the likelihood of a successful restructuring. Although insolvency regimes vary significantly between different countries, several international best practices have emerged, including: (i) a clear trigger to induce either the debtor or the creditor to initiate insolvency proceedings; (ii) the possibility to choose between an efficient liquidation and an opportunity to rehabilitate, depending on which one of the two options maximises firm value; and (iii) a design that discourages debtors and debtholders' strategic behaviour that would result in suboptimal overall outcomes (Adalet McGowan and Andrews, 2018^[26]). It is worth noting that early procedures, also known as safeguard procedures (i.e., before cessation of payments) could facilitate the rehabilitation of a distressed company and mitigate significant social welfare costs, such as layoffs and bankruptcy (Epaulard and Zapha, 2020^[27]). For instance, the European directive on restructuring and insolvency (European Parliament, 2019^[28]) intends to provide additional guidance to shorten safeguard procedures, develop early warning systems and confidential procedures (conciliation, ad hoc mandate), provide reliable statistical information on survival rates and, finally, by facilitating the adoption of debt restructuring plans with an increased role of creditors compared to shareholders and incentive voting rules. Supportive measures, in developing economies in particular, may include reinforcing accounting and audit rules to provide timely and accurate financial information, raising the standards of appraisers for asset valuation, and developing efficient credit registers (Lam et al., 2017^[29]). Greater transparency could facilitate the distinction between viable and non-viable companies to implement efficient corporate governance reforms (i.e., divestment and a change of management), encourage deleveraging and impose tighter budget constraints to help distressed firms returning to viability. Overall, effective and efficient insolvency systems and restructuring procedures for non-viable corporates could help optimising recovery rates and limiting the amount of subsequent losses for a range of investors and financial market products (i.e., corporate bonds, CLOs, CMBS), which would contribute to enhance the resilience of the financial system and credit intermediation capacities of banks and NBFIs to the real economy.

Although reforms to improve insolvency frameworks are desirable, the actual performance of an insolvency framework is greatly dependent on the efficiency of the judicial system within which it applies (OECD, 2021^[25]). In addition to the cross-country differences that may exist, the efficiency of the judicial system may temporarily be overloaded due to an extraordinary surge in default cases that need to be resolved.⁷ Countries with limited public resources and dysfunctional judicial systems are particularly vulnerable as these challenges may increase the costs of formal bankruptcy proceedings and push companies and investors more towards out-of-court arrangements (such as distressed exchanges) even if such arrangements are not the optimal choice for their specific case. Moreover, failures in restructuring procedures and insolvency systems could lead to substantial delays in the initiation of insolvency processes, which could in turn, increase costs, erode the final value of the firm and make it less likely that viable firms are successfully restructured. This could increase further the amount of losses from a range

⁷ Overwhelmed bankruptcy courts could increase time constraints, which might limit the effective handling of the cases, therefore leading to higher costs. Moreover, the smaller firms tend to be liquidated more than the larger firms in the case of busy courts rather than restructured (Iverson, 2018^[41])

of creditors and investors, which could erode their resilience and their ability to intermediate credit with negative impacts for sustainable economic development in these jurisdictions.

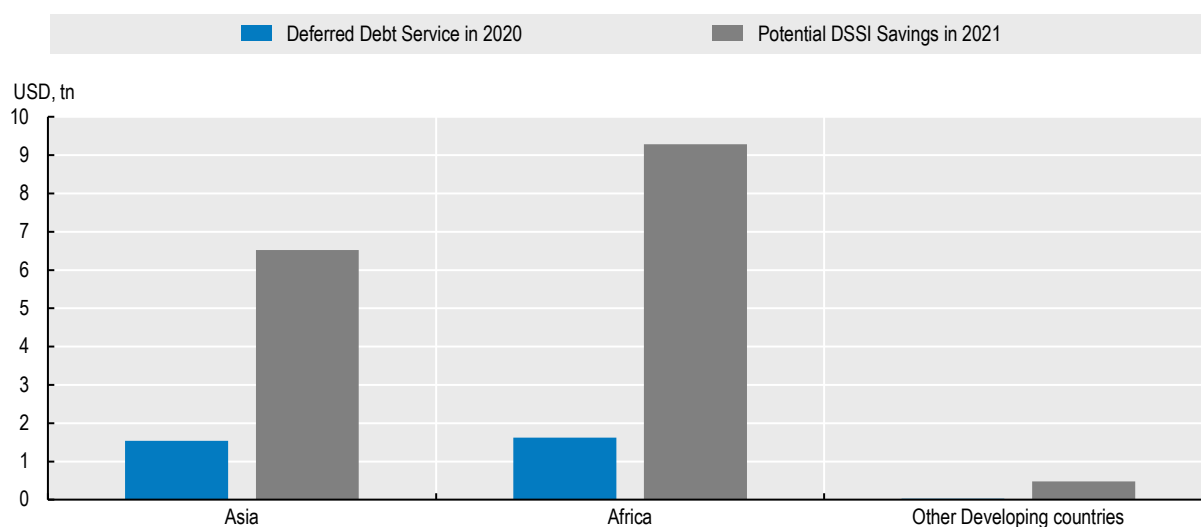
4.1.1.2. The importance of NPL resolution strategies

Continuous efforts by regulators to strengthen reviews of regulatory policies (such as loan classification, bank capital, collateral valuation) and prudential reporting would foster banks' proactive NPL resolution and facilitate debt resolution of non-viable corporates and delinquent mortgages. Indeed, meaningful NPL resolution strategies are critical to ensure that banks can continue to intermediate credit and support an economic recovery. In order to improve the efficiency of existing tools and expand the array of possible solutions, high-level policy considerations have been put forward in an OECD report (2021^[30]) including: i) strengthened frameworks governing debt collection, insolvency and debt restructuring; ii) the development of secondary NPL markets; and iii) cooperation initiatives for bank NPL resolution strategies. The complexity associated with strategies at the bank-level with market-based solutions calls for a comprehensive approach that effectively balances the incentives, costs and risks of key stakeholders, including banks, investors and distressed debt funds, and national authorities, and also includes a range of legal acts aimed at facilitating insolvency and enforcement frameworks. The success of the various solutions to dispose of NPLs would ultimately rely on developing strategies that include varying measures in different areas of the market, enhanced transparency and comparability of NPL data, all while consumer and debtor protections are upheld. Last but not least, in economies suffering from overcapacities at SOEs, suspensions of implicit government support on credit access and allowance for greater corporate defaults would help to address existing debt overhang and also improve the efficiency of new credit (Lam et al., 2017^[29]).

4.1.2. Debt service suspension and transparency initiatives to address sustainability challenges of sovereign issuers in LICs

The G20 and major international organisations have launched initiatives to address rising debt sustainability challenges in many LICs following the COVID-19 shock. In 2020, the G20, jointly with the World Bank and the International Monetary Fund, have established the Debt Service Suspension Initiative (DSSI) to tackle the liquidity problems of many sovereign issuers in LICs, which expired in December 2021. For instance, developing African and Asian economies have benefited the most from deferred debt services in 2020 and 2021, in almost equal proportions (Figure 4.1). Nonetheless, the debt situation in many LICs has worsened amid tightening monetary conditions since the end of 2021 (Malloch-Brown, 2022^[31]). A rising number of LICs are prone to debt distress amid a possible contraction of external financing from China combined with widespread capital flights and weakening exchange rates in a higher interest rate environment. To address such challenges, a second initiative has been launched, which is known as the Common Framework for Debt Treatment beyond the DSSI (Common Framework) to help mitigate debt crises. While 48 LICs participated in the DSSI among the 73 eligible to the initiative, only three African countries, (i.e., Chad, Ethiopia and Zambia) have used the Common Framework. Indeed, the implementation in these three countries has been a challenge (Berensmann et al., 2022^[32]), mainly due to the lack of participation of some bilateral and private creditors, creditor coordination problems and the lack of transparency of debt contracts.

Figure 4.1. Use of DSSI by low-income countries



Note: This figure shows aggregate use of DSSI in the 48 out of 73 eligible countries that participated in the initiative before it expired at the end of December 2021. The 48 countries have been grouped into three regional sub-groups. The estimates are current as of February 28, 2022. Estimated deferred debt service are preliminary, based upon reports from borrowers to the World Bank's Debtor Reporting System (DRS). Many DRS reporters have indicated that agreements on deferral had been reached with G-20 and Paris Club creditors but that administrative steps to identify precise amounts deferred were still ongoing, and that data reported were their preliminary estimates. Also, potential DSSI savings are defined as estimated debt-service payments owed to all official bilateral creditors as per the World Bank Debtor Reporting System (DRS) and International Debt Statistics definitions and classifications. Estimates are derived from annual IDS projections based on end-2020 external public and publicly guaranteed debt outstanding and disbursed. Data for South Sudan, Micronesia, Tuvalu, Kiribati, and Marshall Islands are not available.

Source: World Bank, OECD calculations.

As debt transparency is crucial for a range of stakeholders (such as borrowers, creditors and the official sector), the Debt Transparency Initiative (DTI) launched by the OECD could help assessing debt dynamics and sustainability to promote resilience of the financial system in LICs and beyond (OECD, 2022^[33]). The DTI intends to operationalise the Institute of International Finance (IIF) Voluntary Principles for Debt Transparency (IIF, 2019^[34]) by collecting, analysing and reporting debt data relevant to LIC public sector borrowing from private sector lenders (i.e., including financial institutions and bond investors). Transparency on these factors can help better assess the distribution of public debt by type of owners and levels of sovereign indebtedness to inform strategic decisions for public debt management in countries that may be more fragile to changes in interest rates or exogenous shocks that can destabilise them. Also, detailed information about collateral and guarantees would help to assess the effectiveness of mitigating factors of their credit risk exposure and could improve resilience. Moreover, improved transparency can help reduce the debt burden in the medium and long term by improving lenders' trust in the borrower and lowering the cost of debt. In addition, transparency on the level of exposure to sovereign sector by type of lenders can help better assess the involvement of the banking sector versus other financial intermediaries in public debt financing. Going forward, greater debt transparency will facilitate debt restructuring and public debt management in LICs, which would strengthen bilateral or private creditors' trust, mitigate refinancing risk and promote sustainable economic development.

4.2. Liquidity management tools and a comprehensive policy framework to mitigate liquidity transformation in open-ended funds

Given the rising importance of OEFs – which are performing liquidity transformation and are increasingly investing in credit assets – an unexpected shock could threaten the resilience of the financial system and disrupt the credit intermediation channel to the real economy. This sub-section discusses policy considerations to address risks related to liquidity transformation in OEFs.

Considerable efforts have been made to address vulnerabilities at OEFs given their rising importance and their significant role for credit intermediation in certain jurisdictions (FSB, 2017^[35]; IOSCO, 2018^[36]), yet further policy considerations would be needed to mitigate liquidity mismatch and strengthen loss absorption capacities. In particular, a comprehensive set of LMTs would be needed to mitigate negative effects of redemptions and enhance the resilience of OEFs. In that regard and building on the lessons of the March 2020 market turmoil, international regulatory bodies have suggested further policy considerations to promote an adequate use of LMTs (FSB, 2021^[37]; IOSCO, 2021^[38]) and a comprehensive framework for an effective implementation of these tools to mitigate liquidity mismatch in OEFs (FSB, 2022^[39]).

LMTs include various mechanisms aimed at reducing the likelihood of destabilising redemptions or mitigating the impact of large redemptions. There are two different mechanisms aimed at mitigating:

- **the risk of large destabilising redemptions from OEFs in episodes of stress** (including by reducing the first mover advantage) for redeeming investors. These tools can be grouped into three categories based on their intended outcomes; i) imposing on redeeming investors the cost of their redemptions, ii) strengthening loss absorption capacities of OEFs; and iii) reducing threshold effects.
- **the impact of large redemptions by reducing OEFs liquidity transformation.** These tools aim at reducing liquidity transformation in OEFs, including i) limits on eligible assets; and ii) additional liquidity requirements and escalation procedures.

Among the several LMTs, policy tools that limit vulnerabilities ex-ante by reducing the risk of investor runs may be preferable to those that attempt to mitigate the impact of such runs once they are underway (IMF, 2022^[20]). For instance, liquidity management tools that limit redemptions do not address the intrinsic first-mover advantage problem associated with some OEFs. In addition, while strengthened cash and liquid assets buffers may give funds the flexibility to respond to shocks, these tools do not necessarily reduce the risk of investor runs and hence may also be insufficient to address the threats to financial system resilience associated with less liquid OEFs. For instance, liquidity management tools that limit redemptions do not address the intrinsic first-mover advantage problem associated with some OEFs. In addition, while enhancing cash and liquid assets buffers may give funds the flexibility to respond to shocks, these tools do not necessarily reduce the risk of investor runs and hence may also be insufficient to address the threats to financial system resilience associated with less liquid OEFs. However, LMTs that are imposing directly to redeeming investors the cost of their redemptions (i.e. such as swing pricing or antidilution levies) could reduce investor runs and mitigate the risk of sudden disruptions at OEFs stemming from the first-mover advantage. To enhance their effectiveness, national authorities would have to encourage a widespread adoption of such price-based tools by OEFs and use appropriate calibration methodologies.

While a wide range of LMTs is available that could potentially mitigate the vulnerabilities associated with OEFs and strengthen the resilience of the financial system, a wide and effective implementation of these tools is still lacking in many jurisdictions. Therefore, a comprehensive policy framework, which promotes an adequate use of LMTs, would be needed to help better addressing liquidity mismatch in OEFs. In that regard, the FSB has published a report that includes such a policy framework with four components based on their intended outcomes (FSB, 2022^[39]):

- **reducing structural liquidity mismatch.** The revision of FSB Recommendation intends to provide greater clarity regarding the redemption terms that OEFs could offer to investors, based on the liquidity of their asset holdings. Specific requirements would be applied to OEFs depending on the liquidity characteristics of their investment portfolio.
- **reducing shock amplification and transmission through use of LMTs.** Measures would ensure that investors bear the costs of liquidity associated with fund subscriptions to achieve greater inclusion in funds' constitutional documents and use of anti-dilution LMTs. In addition, a more consistent approach to the use of LMTs by fund managers would require more transparency from fund managers on the LMTs available to each OEFs they manage and on the use of these LMTs in normal and stressed market conditions. Moreover, fund managers may educate investors to help them better understanding these disclosures and incorporate them in investment decisions.
- **enhancing regulatory reporting, data availability and public disclosure.** More comprehensive databases would help to identify notable gaps (i.e., in terms of dealing frequency, notice periods, settlement periods, and investor characteristics) to perform an in-depth analysis of structural liquidity mismatch at OEFs. Also, greater availability of data on the use of LMTs could enhance risk monitoring and the effectiveness of policy responses. Improvements in cross-border data sharing and consistency have been also highlighted in FSB recommendations, which would be beneficial in monitoring risks throughout the global financial system.
- **ensuring adequacy of stress testing.** FSB recommendations would encourage authorities to use fund and system-level stress testing. In particular, further collaboration among national authorities could facilitate experience sharing on the design and use of such stress tests to inform vulnerability assessments and policy development.

National authorities would have to assess current gaps in policies to address vulnerabilities at OEFs and identify areas to implement suggested revised recommendations. Since the GFC, major central banks have provided extensive emergency liquidity support to stabilise financial markets conditions during stress episodes. Given remaining vulnerabilities and persisting gaps in the regulation of OEFs while they are benefiting from such support, more stringent regulation may have to be implemented for OEFs to promote adequate liquidity management practices and strengthen financial system resilience. Also, given the global scope for investment of OEFs, greater international regulatory coordination may be needed to ensure the effectiveness of the deployment of LMTs at the global level.

Overall, resolving debt sustainability challenges of distressed non-financial issuers is a first step in addressing debt vulnerabilities to promote efficient debt management and capital allocation in the economy, which underpin productivity gains for sustainable and inclusive economic development. Notably, national insolvency and debt restructuring schemes could facilitate procedures to allow fundamentally non-viable firms to exit the market while restructuring the debt of fundamentally viable corporates. Also, meaningful NPL resolution strategies are critical to facilitate debt resolution of non-viable corporates and delinquent mortgages. Therefore, effective and efficient insolvency systems and debt restructuring procedures could help optimising recovery rates and limiting the amount of subsequent losses for a range of investors and financial market products, which would contribute to enhance the resilience of the financial system for sustained credit intermediation and sustainable economic growth. Last but not least, debt suspension services and DTI could be effective tools to address debt sustainability challenges in LICs and strengthen bilateral or private creditors' trust, which would contribute to mitigate refinancing risk and promote sustainable and inclusive economic development. An important component to preserve the flow of credit to the economy is a resilient financial system, which could be disrupted by the rising importance of OEFs given their exposure to funding liquidity shortages and redemptions. Going forward, regulators should determine whether they have sufficient LMTs and comprehensive policy frameworks to take heed of liquidity transformation risks in OEFs, which would enhance investor protection and the resilience of the non-bank financial sector. This is the new frontier that must be crossed to make progress towards a more

resilient global financial system, sustained credit intermediation, and sustainable and inclusive economic growth.

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