INTERNATIONAL MONETARY FUND

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SINGAPORE

August 2023

2023 ARTICLE IV CONSULTATION—PRESS RELEASE; STAFF REPORT; AND STATEMENT BY THE EXECUTIVE DIRECTOR FOR SINGAPORE

Under Article IV of the IMF's Articles of Agreement, the IMF holds bilateral discussions with members, usually every year. In the context of the 2023 Article IV consultation with Singapore, the following documents have been released and are included in this package:

- A **Press Release** summarizing the views of the Executive Board as expressed during its August 23, 2023 consideration of the staff report that concluded the Article IV consultation with Singapore.
- The **Staff Report** prepared by a staff team of the IMF for the Executive Board's consideration on August 23, 2023, following discussions that ended on May 17, 2023, with the officials of Singapore on economic developments and policies. Based on information available at the time of these discussions, the staff report was completed on June 29, 2023.
- An **Informational Annex** prepared by the IMF staff.
- A **Staff Statement** updating information on recent developments.
- A **Statement by the Executive Director** for Singapore.

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International Monetary Fund
Washington, D.C.

PRESS RELEASE

PR23/295

IMF Executive Board Concludes 2023 Article IV Consultation with Singapore

FOR IMMEDIATE RELEASE

Washington, DC – **August 29, 2023:** The Executive Board of the International Monetary Fund (IMF) concluded the Article IV consultation[1] with Singapore.

Singapore's post-pandemic recovery is nearly complete. Strong economic fundamentals and the authorities' decisive policy responses, including an unprecedented policy stimulus, supported a rapid recovery from the COVID-19 shock. Following a sharp rebound of 8.9 percent in 2021, real GDP growth moderated to 3.6 percent in 2022, and weakened further to 0.4 percent (year on year) in 2023Q1, reflecting weaker global demand. Despite the solid post-pandemic recovery, consumer-facing services (except the retail sector) and construction, the hardest hit sectors during pandemic, remained below pre-pandemic levels. Inflation remained elevated and broad-based at about 5.7 percent in April 2023, despite recent signs of moderation. Inflation expectations, however, remain well-anchored.

Macro policies are appropriately tight to moderate price pressures in 2023. The Monetary Authority of Singapore (MAS) tightened monetary policy under its unique framework five consecutive times since October 2021, and has paused so far in 2023, given negative imported inflation and projected below-trend growth this year. The 2023 budget is appropriately tight with a surplus of 0.7 percent of GDP and combined with targeted support to mitigate the short-term impact of high inflation and the Goods and Services Tax (GST) rate increase for the most vulnerable.

Lower growth and elevated inflation define the near-term outlook. Growth is projected to moderate to 1.0 percent in 2023, reflecting largely weakening external demand. Inflation is projected to subside but remain elevated at 5.5 percent in 2023 reflecting some inflation persistence, the one-off effect of the GST rate hike, and continued relatively tight labor market. Over the medium term, the current account surplus is expected to decrease gradually as consumption and capital-related imports recover, notwithstanding a gradual pick up in foreign tourism flows post-pandemic.

Executive Board Assessment[2]

Executive Directors commended the authorities for the impressive post-pandemic recovery underpinned by strong fundamentals and a sound policy response. Directors noted, however, that Singapore's growth momentum is weakening and the outlook is subject to downside risks arising mainly from worsening external conditions, including a slowdown in trading partners,

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[1] Under Article IV of the IMF's Articles of Agreement, the IMF holds bilateral discussions with members, usually every year. A staff team visits the country, collects economic and financial information, and discusses with officials the country's economic developments and policies. On return to headquarters, the staff prepares a report, which forms the basis for discussion by the Executive Board.

[2] At the conclusion of the discussion, the Managing Director, as Chairman of the Board, summarizes the views of Executive Directors, and this summary is transmitted to the country's authorities. An explanation of any qualifiers used in summings up can be found here: http://www.IMF.org/external/np/sec/misc/qualifiers.htm.

and tightening global financial conditions. Inflation remains elevated, albeit moderating. In this context, Directors considered that near-term macroeconomic policies should focus on managing price pressures, while nurturing growth.

Directors broadly agreed that fiscal policy in 2023 is appropriately constrained while allowing for temporary and targeted support to the most vulnerable impacted by the high cost of living. It was also noted that, given the softening in private consumption and large external surpluses, there is some scope for flexibility to help boost domestic demand. Should downside risks materialize, Directors agreed that fiscal policy should be the first line of defense.

Directors noted that Singapore's external position remained substantially stronger in 2022 than warranted by fundamentals and desired policies, while acknowledging the uncertainties around the external sector assessment (ESA) estimates. They concurred that Singapore is well-positioned to increase spending to address medium- and long-term challenges, which will also help reduce the large external surpluses. Higher public investment will lower net public saving, while an expansion of social services in areas such as healthcare and unemployment support would help reduce households' precautionary savings and support stronger consumption.

Directors supported the authorities' tight monetary policy stance and concurred that monetary policy should maintain its tightening bias and continue to focus on reining in inflation. Further timely and data-dependent tightening may be needed if persistent inflation risks damaging the basis for sustained growth.

Directors agreed that the financial sector remains sound and welcomed the authorities' commitment to safeguard its stability. They encouraged the authorities to continue monitoring highly leveraged corporates, particularly SMEs, and households, as well as liquidity positions in banks and non-bank financial institutions. Directors considered that the tight macroprudential stance should generally be maintained and further tightened as needed to prevent a rise of systemic financial risks, including in the residential housing market. They took positive note of the progress made in implementing the 2019 FSSA recommendations and encouraged continued enhancement of the AML/CFT framework.

Directors welcomed the authorities' longer-term policy commitments to accelerate Singapore's economic transformation toward a green, digital, and more inclusive economy, as illustrated by steps already taken in the FY2023 budget. In particular, they underscored the importance of climate-related measures and active labor market policies to prepare the country for sustained, resilient growth.

Singapore: Selected Economic and Financial Indicators, 2017–24

Nominal GDP (2022): US$466.7 billion

Population (2022): 5.6 million

GDP per capita (2022): US$82,794

Main goods exports (2022, percent of total non-oil goods exports): machinery & transport equip. (63.1 percent); chemical products (14.4 percent); and misc. manufactured articles (9.8 percent).

Top three destinations for goods exports (2022, percent of gross goods exports): China (12.4 percent); Hong Kong SAR (11.2 percent); and Malaysia (10.0 percent).

							Projection	
	2017	2018	2019	2020	2021	2022	2023	2024
Growth (percentage change)								
Real GDP	4.5	3.6	1.3	-3.9	8.9	3.6	1.0	2.1
Total domestic demand 1/	5.9	1.1	2.0	-9.8	9.5	4.4	2.2	2.7
Final domestic demand 1/	3.9	0.7	2.7	-10.0	9.8	4.8	2.2	2.7
Consumption	3.2	3.9	2.9	-7.5	5.8	6.6	1.7	2.7
Private consumption	3.1	4.1	2.8	-13.1	6.6	9.7	2.1	1.8
Gross capital formation 1/	10.8	-3.6	0.4	-14.0	16.7	0.6	2.9	2.7
Gross fixed investment	5.1	-5.0	2.3	-14.8	18.0	1.6	3.1	2.8
Change in inventories (contribution to GDP growth, percentage points) 1/	1.6	0.3	-0.5	0.0	0.0	-0.2	0.0	0.0
Net exports (contribution to GDP growth, percentage points) 1/	1.1	2.7	0.4	2.5	3.3	0.6	-0.5	0.2
Saving and investment (percent of GDP)								
Gross national saving	45.4	40.5	40.8	39.1	41.1	41.3	39.4	38.1
Gross domestic investment	27.3	24.8	24.6	22.6	23.1	21.9	22.8	22.9
Inflation and unemployment (period average, percent)								
CPI inflation	0.6	0.4	0.6	-0.2	2.3	6.1	5.5	3.5
CPI inflation, excluding food and energy 2/	-0.7	-0.1	0.4	-0.3	2.4	6.1	5.0	3.4
MAS core inflation 2/	1.5	1.7	1.0	-0.2	0.9	4.1	3.9	2.8
Unemployment rate	2.2	2.1	2.3	3.0	2.7	2.1	1.8	1.8
Central government finances (percent of GDP) 3/								
Revenue	18.8	17.9	17.7	17.6	17.4	17.4	17.5	18.0
Expenditure	14.0	13.8	14.0	21.7	18.2	16.4	14.9	15.1
Net lending/borrowing	4.8	4.1	3.7	-4.1	-0.8	0.9	2.6	2.9
Net lending/borrowing, excluding nonproduced assets	1.7	1.1	1.4	-5.8	-2.8	-1.2	0.2	0.4
Primary balance 4/	-1.5	-2.0	-1.9	-9.5	-6.3	-4.5	-3.2	-3.2
Public Debt to GDP	105.9	107.5	124.7	146.6	136.6	167.8	168.1	168.4
Money and credit (end of period, percent change) 5/								
Broad money (M2)	4.2	5.1	4.4	10.7	9.7	7.8	5.3	…
Credit to private sector	3.3	4.8	3.0	1.4	6.8	0.5	1.0	…
Three-month S$ SIBOR rate (percent)	1.5	1.9	1.8	0.4	0.4	4.3	…	…
Balance of payments (US$ billions)								
Current account balance	62.3	59.2	60.9	57.3	76.4	90.2	84.2	80.7
(In percent of GDP)	18.1	15.7	16.2	16.5	18.0	19.3	16.6	15.2
Goods balance	100.9	104.4	97.8	106.4	125.7	136.5	112.1	114.9
Exports, f.o.b.	417.1	460.9	441.9	419.9	514.5	579.6	606.9	649.1
Imports, f.o.b.	-316.2	-356.4	-344.1	-313.5	-388.8	-443.0	-494.8	-534.3
Financial account balance 6/	33.0	46.4	71.9	-17.5	8.5	202.6	28.3	27.4
Overall balance 6/	27.4	12.5	-8.4	74.9	66.2	-114.2	55.9	53.3
Gross official reserves (US$ billions)	279.9	287.7	279.5	362.3	417.9	289.5	344.2	394.0
(In months of imports) 7/	6.0	6.3	6.4	6.9	7.1	4.5	5.0	5.4
Singapore dollar/U.S. dollar exchange rate (period average)	1.38	1.35	1.36	1.38	1.34	1.38	…	…
Nominal effective exchange rate (percentage change) 8/	-1.0	0.5	1.4	-2.5	0.4	6.4	…	…
Real effective exchange rate (percentage change) 8/	-9.4	-5.8	4.5	-25.1	2.3	14.4	…	…
Memorandum items:								
Nominal GDP (in billions of Singapore Dollars)	474.0	508.3	514.1	480.7	569.4	643.5	677.7	716.1
Growth (%)	7.6	7.2	1.1	-6.5	18.4	13.0	5.3	5.7

Sources: Data provided by the Singapore authorities; and IMF staff estimates and projections.

Note: Data and forecasts as of May 24, 2022.

1/ Approximation based on available data.

2/ IMF staff estimates, showing projections from 2021. MAS core inflation excludes the costs of accommodation and private transport.

3/ IMF staff estimates on a calendar year basis following GFSM 2014.

4/ Net lending/borrowing excluding net investment return contribution (NIRC).

5/ Data reporting by financial institutions changed since July 2021 after two major changes in MAS' banking sector regulatory framework took effect, creating a break in the broad money and credit to private sector series.

6/ Following the BPM6 sign convention, a positive entry implies net outflows.

/ In months of following year's imports of goods and services.

8/ Increase is an appreciation.

INTERNATIONAL MONETARY FUND

SINGAPORE

STAFF REPORT FOR THE 2023 ARTICLE IV CONSULTATION

June 29, 2023

KEY ISSUES

Context. Singapore's post pandemic recovery is nearly complete; underpinned by its strong economic fundamentals and the authorities' decisive policies. While overall output surpassed pre-COVID levels in 2021, the growth momentum has slowed and activities in consumer-facing (except retail) and construction sectors remain below pre-pandemic levels. Inflation remains elevated but has started moderating. Risks to the outlook are tilted to the downside, arising mainly from an abrupt global slowdown or a recession in Singapore's largest trading partners, tighter global financial conditions, and a deepening of geoeconomic fragmentation.

Economic Policy Recommendations. Near-term policies should focus on addressing elevated price pressures, while supporting the most vulnerable, containing risks to financial stability, and nurturing growth. Specifically:

- The tighter fiscal stance in 2023, combined with targeted and temporary assistance to vulnerable entities, will appropriately help moderate inflationary pressures.
- Monetary policy is appropriately tight; and should maintain its tightening bias and continue to focus on reining in inflation, while facilitating a soft landing. Further timely and data-dependent tightening may be needed if persistent inflation risks damaging the basis for sustained growth.
- The tight macroprudential stance should be maintained, and further tightened as needed, which combined with the authorities' plans to ramp up housing supply, would help ensure a soft landing in residential real estate prices and prevent further rise of systemic financial risks.
- The financial sector remains sound. The authorities should continue to monitor highly leveraged corporates, particularly SMEs, and households, as well as liquidity positions in non-bank financial institutions (NBFIs) and banks.
- Should downside risks materialize, Singapore can continue to deploy its ample fiscal buffers to cushion the economic impact, with targeted fiscal support continuing to be the first line of defense. In a downside scenario where high inflation is combined with severe strains in financial markets, the pace of tightening would need to be adjusted to avoid a broadening of financial stability concerns. In the face of systemic

- liquidity stress, swift, targeted, and temporary liquidity provision by the Monetary Authority of Singapore (MAS) aimed at smoothing volatility would help avoid market dysfunctions without hindering the necessary monetary policy tightening against inflationary pressures.
- Long-term policy challenges include accelerating transition towards a smarter, greener, more inclusive, and more resilient economy. Active labor market policies could facilitate resource reallocation and adaptation to the post-COVID world and redistribution of supply chains.

Approved By
Sanjaya Panth (APD) and Anna Ilyina (SPR)

Discussions were held in Singapore during May 8–17, 2023. The mission met with Deputy Prime Minister and Minister for Finance Lawrence Wong, Senior Minister Tharman Shanmugaratnam, Permanent Secretary (Finance) Tan Ching Yee, Monetary Authority of Singapore (MAS) Managing Director Ravi Menon, senior staff from the Ministry of Finance, MAS, various line ministries, and public sector entities, as well as representatives from the private sector. The mission comprised Lamin Leigh (Head), Kodjovi Mawulikplimi Eklou, Ghada Fayad, Shujaat Ali Khan, Tidiane Kinda, Margaux MacDonald (All APD) and Natalia Novikova (Resident Representative in Singapore). Rosemary Lim (Executive Director) and Justin Lee (Advisor, OED) joined meetings with the public sector. Ganchimeg Ganpurev and Justin Flinner (both APD) assisted in the preparation of this report. Data used in this report for staff analyses are as of June 9, 2023, unless otherwise noted.

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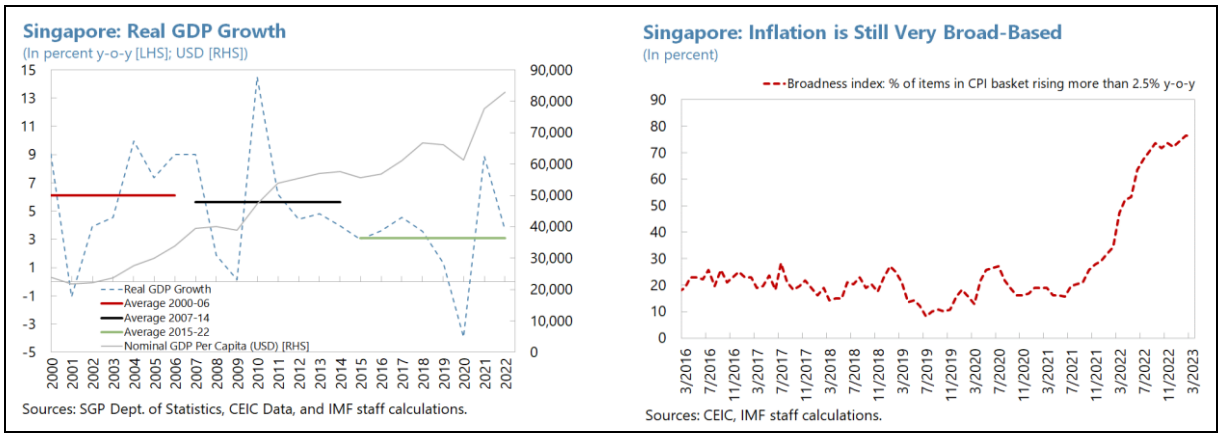
CONTEXT: A STRONG POST-PANDEMIC RECOVERY AMID ELEVATED PRICE PRESSURES

1. Singapore's post-pandemic recovery is nearly complete. Strong economic fundamentals and the authorities' decisive policy responses, including an unprecedented policy stimulus, supported a rapid recovery from the COVID-19 shock. Overall output has exceeded the pre-pandemic level since 2021. Most sectors have rebounded from the pandemic shock, although high frequency data suggests that a significant weakening of growth is in the offing, reflecting external headwinds. Inequality as measured by the Gini index has continued to decline and is below pre-pandemic levels, suggesting an inclusive recovery.

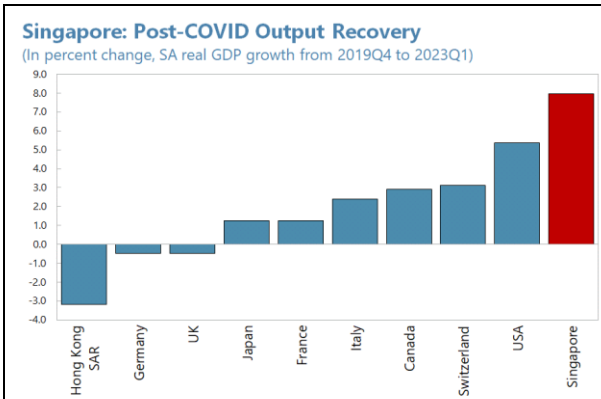
2. The swift economic rebound has been accompanied by a sharp increase in nominal wages and prices. Labor shortages across sectors, particularly in services, and the tapering of wage subsidies under the jobs support scheme have driven wages up. While price pressures have been broad based since 2022Q3 and affect most parts of the consumption basket, they have stopped accelerating as growth is moderating. Nevertheless, given risks of inflation persisting at the currently high level, addressing elevated price pressures, while containing risks to financial stability, and avoiding a severe economic downturn is at the core of near-term policy priorities. Longer-term policy priorities are to address challenges from climate change, inequality and technological shifts.

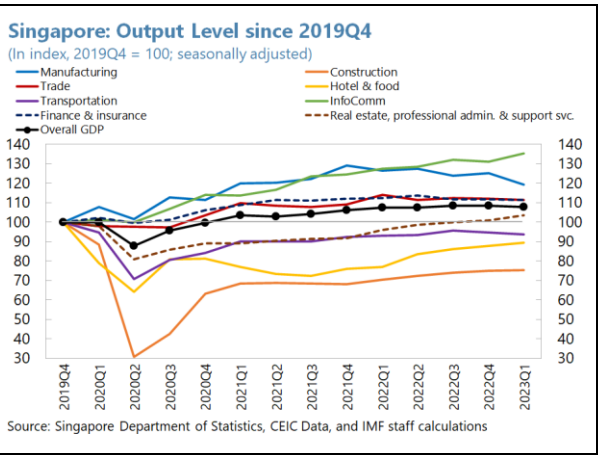


RECENT DEVELOPMENTS: A STRONG RECOVERY DAMPENED BY EXTERNAL HEADWINDS

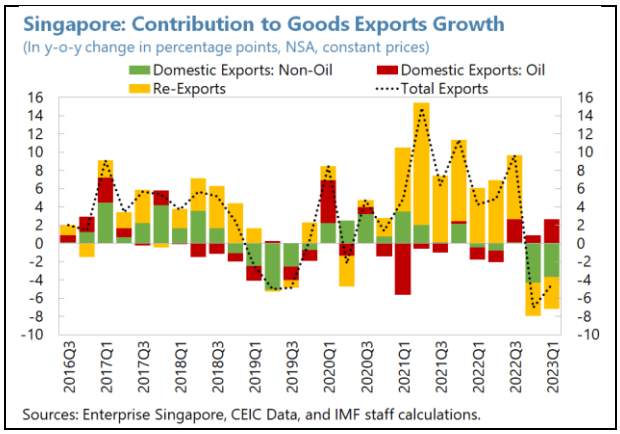
3. The post-pandemic recovery has been impressive but remains uneven and is showing visible signs of significant moderation in early 2023. Following a sharp rebound of 8.9 percent in 2021, real GDP growth moderated to 3.6 percent in 2022, and weakened further to 0.4 percent (year on year) in 2023Q1, reflecting weaker global demand (Figure 1 and Table 1). Despite the solid post-pandemic recovery, consumer-facing services and construction, the hardest hit sectors during the pandemic, remained below pre-pandemic levels as of 2023Q1. Private sector credit growth,

which supported the strong rebound, has moderated since the last quarter of 2022, in line with the slowing growth momentum.





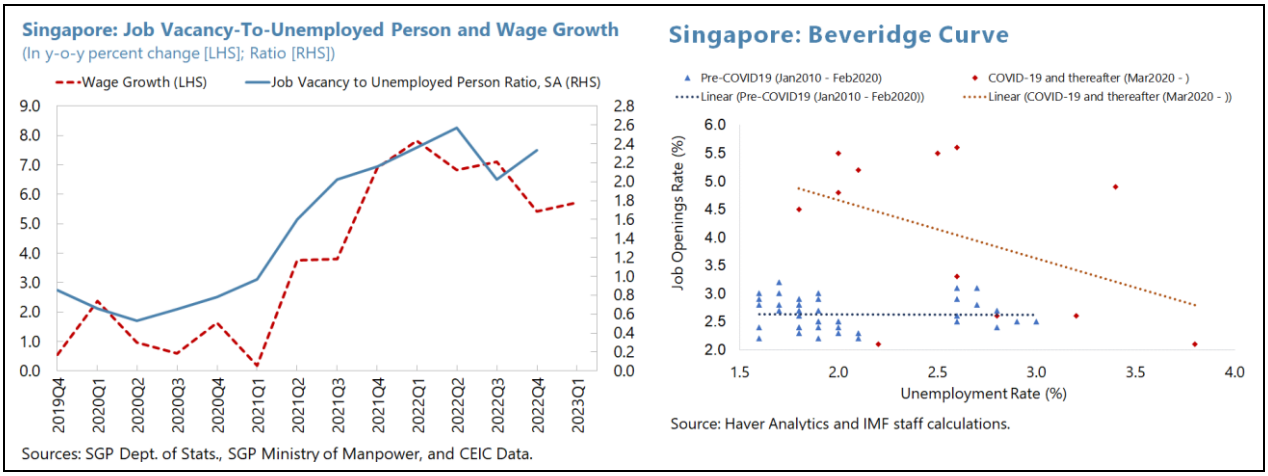
4. External headwinds have started to weigh on exports since 2022Q4. Goods exports growth eased in 2022 (2.8 percent year-on-year in real term) following a strong rebound in 2021 (Figure 2 and Table 2). This performance reflects a sharp decline in 2022Q4, driven by re-exports and non-oil domestic exports, mainly of electronics and integrated circuits in line with the moderating global demand for semiconductors, which persisted into 2023Q1. Service trade continued to recover albeit moderately, driven by higher export and import of transport and travel services in the aftermath of the pandemic.



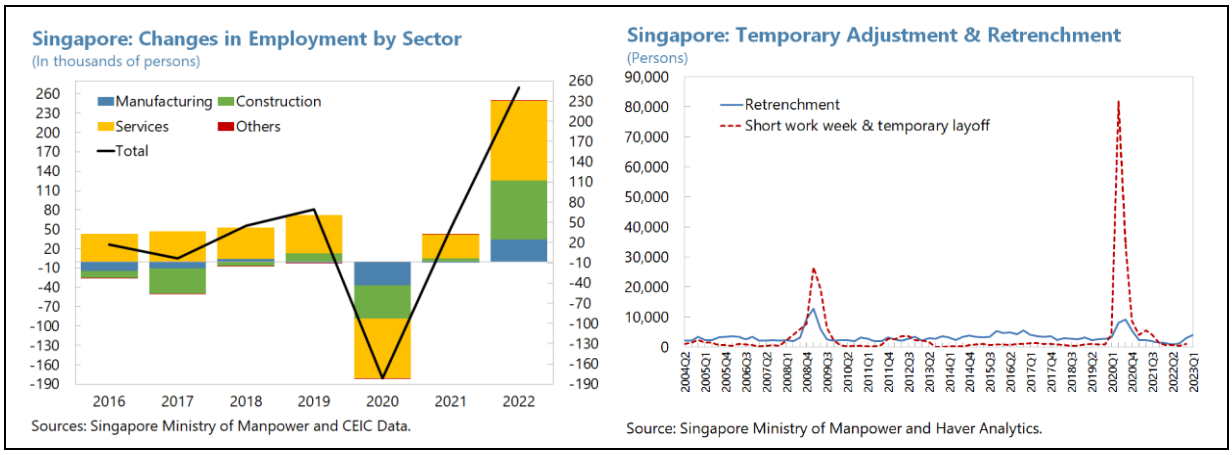
5. Meanwhile, the labor market has been tight across sectors, though bottlenecks have started easing as foreign workers return (Figure 3). Unemployment rate has steadily declined from its peak of 3.5 percent in October 2020 to 1.8 percent in 2023Q1, below the pre-pandemic level. Job vacancies to unemployment ratio, which is a widely accepted measure of tightness of labor markets, showed a slight deceleration as foreign workers started returning, alleviating labor shortages.[1] The Beveridge Curve remains shifted outwards relative to its historical range, indicative of weaker matching between firms and workers as the economy adjusts to post-COVID structural changes.[2] Total employment (including migrant domestic workers) continued to expand for the sixth

[1] Recent analysis in the MAS Macroeconomic Review Volume XXII Issue 1, Apr 2023 shows that a decline of the foreign workforce below trend contributes to increase overall job vacancy rate. The recovery in the foreign workforce has therefore contributed to a fall in excess vacancies over 2021-2022.

[2] MAS' Macroeconomic Review Volume XXII Issue 1, Apr 2023 suggests an important role for persistent matching frictions in the labor market, potentially due to a shortage of technology skills in the short term and a recent shift in the composition of the foreign workforce leading to skill shortages in sectors such as health and social services.



consecutive quarter, increasing by 40,100 in 2023Q1, while the number of retrenchments rose across sectors albeit remaining below levels seen during the pandemic. Labor market measures, including wage subsidies, training, and job placement initiatives, supported improvements in the overall labor market. Employment expansion has been broad-based in 2022, with the largest gains in services and construction sectors.[3] The foreign workforce accounted for most of the employment growth owing to employers backfilling positions as border restrictions were lifted in April 2022. As overall labor market tightness eased, wage growth slowed to 5.7 percent in 2023Q1, down from 7.1 percent in 2022Q3.

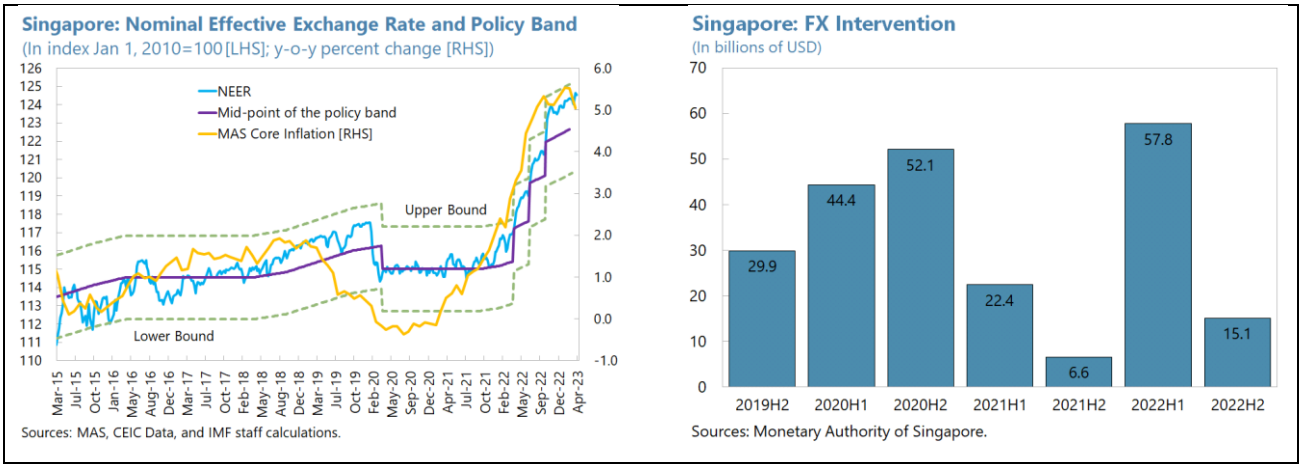


6. Inflation remains elevated but has started moderating. Both MAS core and headline average inflation increased rapidly in 2022, with the latter peaking at 7.3 percent in 2022Q3 before moderating to 5.7 percent in April 2023. MAS core inflation fell to 5 percent in March 2023, from 5.5 percent in January, with its rate reflecting the GST hike the passthrough from accumulated

[3] Total employment excluding migrant domestic workers reached a net record increase of 227,800 in 2022 (2021: 41,400).

business costs and high food prices (Figure 4).[4] Inflation expectations based on consensus forecasts remain well-anchored.

7. The Monetary Authority of Singapore (MAS) kept the monetary policy setting unchanged in April 2023 after five consecutive tightening steps under its unique framework. MAS operates a basket, band, and crawl (BBC) exchange rate-based monetary policy framework in which the S$NEER is managed against an undisclosed basket of currencies.[5] MAS started the tightening cycle pre-emptively in October 2021, and has since then tightened four additional times, including two out-of-cycle. The last three moves involved re-centering the mid-point of the S$NEER policy band upward to prevailing levels of the S$NEER at the time. In its latest April decision to pause the monetary policy tightening cycle, MAS noted increasingly negative imported inflation and projected below-trend growth this year; and indicated that with intensifying risks to global growth, the domestic economic slowdown could be deeper than anticipated. Net FX purchases moderated to US$15.1 billion in 2022H2 from US$57.8 billion in 2022H1. Total FX reserves declined to S$388 billion in 2022, down from S$563 billion in 2021. They have since increased to S$416.3 billion as of April 2023 and stood at 64.7 percent of GDP.[6]



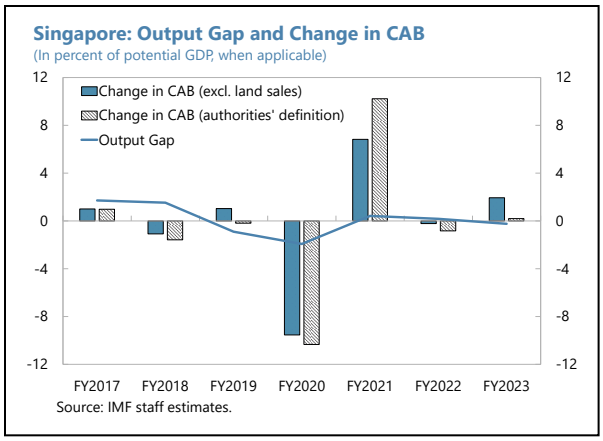
8. The tighter fiscal stance in the FY2023 budget combined with targeted support to the most vulnerable will appropriately help moderate price pressures. Compared to a revised deficit of 1.2 percent of GDP in FY2022, the FY2023 budget implies a surplus of 0.7 percent of GDP, mostly driven by the winding down of remaining pandemic-related support measures such as the Jobs

[4] MAS core inflation rose to 5.5 percent y-o-y in January–February 2023 from 5.1 percent in Q4 2022, reflecting in part the increase in the GST rate from January and in tobacco duties from February.

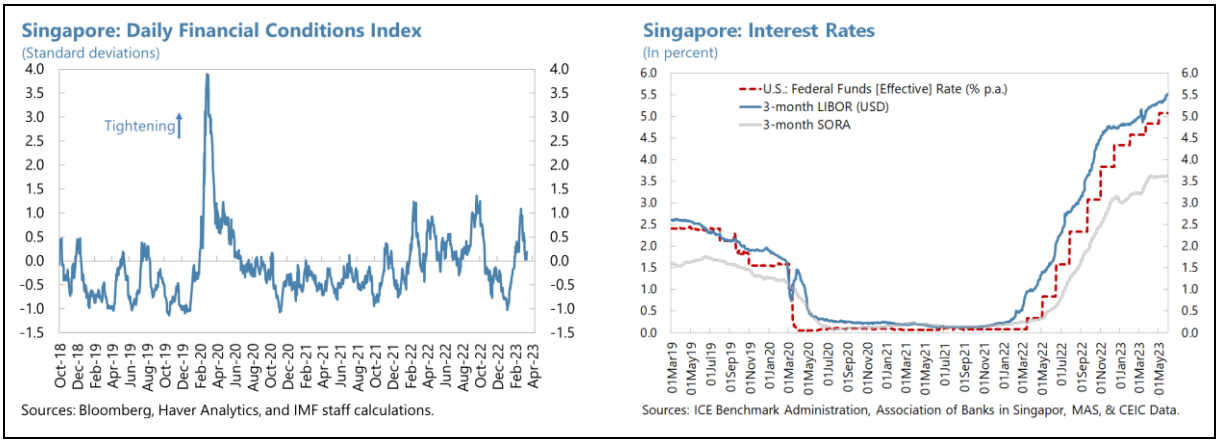
[5] MAS does not have an explicit inflation target but sees a core inflation rate of just under 2 percent as consistent with overall price stability. For more details on the framework, see Appendix VI of CR No. 22/233.

[6] The decline in Singapore's official foreign reserves (OFR) is due to MAS' transfers of OFR in excess of its needs to the Government for longer-term investment under the nation's sovereign wealth fund (Reserves Management Government Securities – RMGS). As of end-2022, MAS' outstanding holdings of RMGS was S$237.6 billion (36.9 percent of GDP).

Growth Incentive Scheme and a modest increase in wealth taxes.[7,8] This tighter fiscal stance is combined with several targeted measures to mitigate the short-term impact of high inflation and the GST rate increase, particularly for low-income households. Some of the key measures include raising the Assurance Package (AP) by S$3 billion (0.4 percent of GDP) to S$9.6 billion and providing additional support to lower-to-middle-income Singaporeans under the enhanced permanent GST Voucher (GSTV) scheme, supported by a top-up to the GST Voucher Fund of S$2.4 billion (0.3 percent of GDP). The planned fiscal consolidation is aligned with the continued tight monetary policy stance by the MAS, and the budget statement reiterated the primacy placed by the government on restoring price stability.



9. Financial conditions tightened in early 2023, driven by global factors. SGD interest rates have been increasing in tandem with the rise in USD and other interest rates globally for most of 2022. The 3-month Compounded Singapore Overnight Rate Average (SORA) declined towards the end of the year to below 3 percent before increasing again and reaching 3.6 percent in May 2023 (Figure 5).



[7] The cyclically adjusted fiscal balance excluding land sales also shows an improvement from -1.2 percent of GDP in FY2022 to 0.7 percent of GDP in FY2023, implying a negative fiscal impulse of 1.9 percent of GDP. At face value, the authorities' measure of the fiscal balance may appear to suggest a lesser degree of tightening in FY 2023 compared to staff's estimated fiscal impulse. The difference between staff's and the authorities' estimate of the fiscal balance in FY2023 reflects the treatment of top-ups to and spending from various endowment and trust funds for long-term expenditures. While the authorities record top-ups to these funds (2.4 percent of GDP in 2023) as expenditures, staff only record the actual spending from these funds (0.9 percent of GDP in 2023) as expenditure.

[8] The government plans to increase property taxes for high-value residential and non-residential properties, raise taxes on luxury vehicles from 220 percent to 320 percent, and increasing excise duty on tobacco products by 15 percent, amongst other measures. These measures are expected to yield about 0.1 percent of GDP in additional revenue.

10. Singapore's banking system remains sound, supported by strong buffers, and systemic risks are contained. For Singapore's largest domestic banks, total common equity Tier 1 (CET1) capital ratio stood at 14.8 percent on average in 2023Q1, substantially above the regulatory minimum. Their net interest margins (NIMs) appear to have peaked in 2023Q1 amid record profitability. Asset quality continued to hold up, with non-performing loan (NPL) ratios declining or stable, at low levels. Banks have sufficient liquidity to intermediate loans with their SGD and foreign currency non-bank loan-to-deposit ratios (LTD) steadily declining and well below 100 percent (Figure 6 and Table 7). They also have healthy buffers over the regulatory minimum liquidity coverage ratio (LCR) requirements, as reflected in the all-currency and in the Singapore dollars LCRs.[9] Banks' funding structure remains dominated by deposits, which continued to grow including due to the influx of wealth management flows. However, funding costs have been rising with large domestic banks reporting a significant decrease in the share of current and savings deposits to total deposits in 2022 as customers shifted to higher-yielding fixed deposits given rising rates.

11. Singapore's banking system has been resilient to the banking turmoil in the U.S. and Europe. Top three Singapore banks reported that they had no direct exposure to the US regional banks, which failed in March 2023. Their bond holdings represent less than 20 percent of their total assets. Direct exposures to Credit Suisse were insignificant. D-SIBs' funding sources and assets are well diversified, while the share of assets held to maturity in banks' securities portfolios is small, and the indirect impact via higher cost of AT1 capital would be limited given the small share of such funding in total bank capital. Credit Suisse's operations in Singapore, including via its branch focusing on private banking and investment banking, continue.

12. Singapore's non-bank financial sector continues to perform well. The asset management industry continues to expand at double-digits with total assets under management (AUM) of about $4 trillion in 2021. The industry's linkages to the domestic economy are however limited given its strong focus on

Text Table 1. Singapore: Financial System Structure in Singapore, 2021

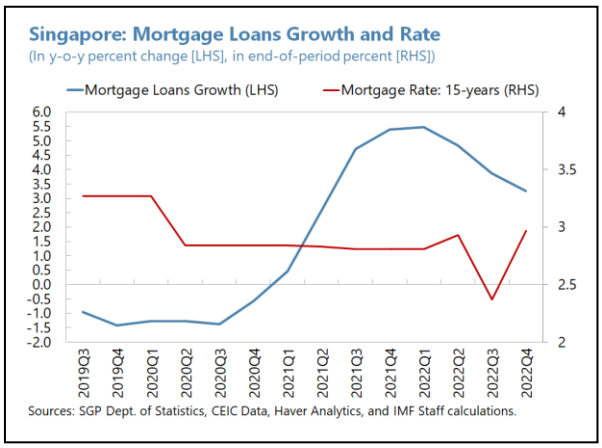
	Assets in percent of GDP
Banks	597.8
Central Bank	108.7
NBFIs	340.1
Insurance corporations	73.3
Other Financial Intermediaries 1/	168.0
Pension funds	98.7
Total	1046.6

Sources: FSB and IMF staff calculations.
1/ Other financial intermediaries (OFIs) are a subset of the NBFI sector, including money market funds (MMFs), hedge funds (HFs), other investment funds (OIFs), captive financial institutions and money lenders, central counterparties (CCPs), broker-dealers (BDs), finance companies (FinCos), trust companies (TCs), and structured finance vehicles (SFVs).

[9] There is no minimum requirement for foreign currency liquidity and banks do not disclose USD liquidity coverage ratios.

cross-border activities.[10] Fund managers have been able to access liquidity in stress episodes and meet all significant redemptions requests in an orderly manner. The insurance industry in Singapore is well-capitalized with the average CAR for the direct life and general insurers well above regulatory requirements. While higher interest rates are generally favorable to life insurers, the investment environment has been challenging amid depressed equity markets and volatility of credit spreads. For general insurers, rising interest rates can be disadvantageous as they result in lower bond valuations while liabilities remain largely unchanged, given the short-term and lower interest rate sensitivity of their insurance products. MAS stress-testing assessed the resilience of significant insurers under adverse scenarios featuring stresses to equity prices, interest rates and credit spreads. Insurers met the regulatory capital requirements after undertaking management actions such as reducing future bonus allocation for the policyholders of participating businesses and adjusting investment portfolio asset allocations.

13. Corporate performance remains fragmented with debt risks elevated, especially in SMEs. The corporate sector's debt-to-GDP fell from 156 percent in Q2 2021 to about 130 percent in 2022Q4, as corporates used their cash buffers to pay down debt. Corporate earnings, profitability and debt servicing capacity have been improving, but more slowly for the hotels & restaurants and construction sectors. These sectors are however expected to make a faster recovery with further increases in visitor arrivals and a strong pipeline of projects. Overall asset quality remains healthy, but the transport & storage and construction sectors have continued to register relatively high (though decreasing) NPL ratios of 7.4 and 6.5 percent, respectively as of 2022Q4. MAS' probability of default indicator edged up in recent months but remained relatively low and around its long-term averages in 2022.[11] The share of vulnerable SMEs in accommodation and retail sectors remains high and warrants close monitoring.[12]



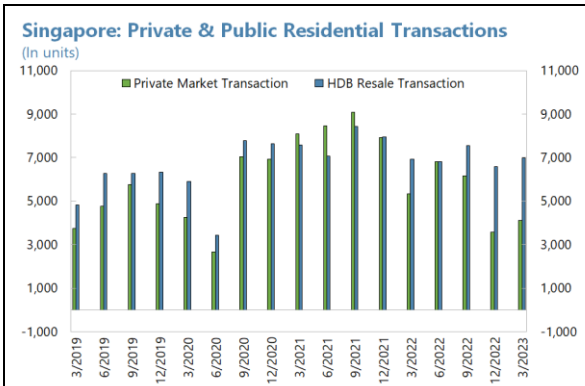
14. Driven by strong demand, private residential property price growth accelerated in 2023Q1, following some signs of moderation during 2022. The strong market performance reflected firm resident wage

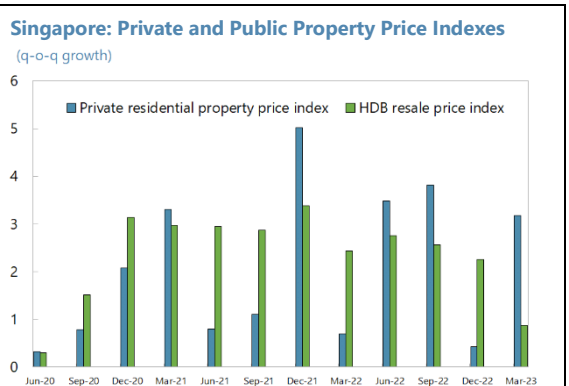
[10] According to MAS' Asset Management Survey, about 78 percent of AUM was sourced from outside Singapore, and 90 percent invested abroad in 2021, out of which 45 percent of AUM was invested in Asia Pacific with 17 percent of investments going to Southeast Asia.

[11] MAS adopted the probability of default indicator last year as a more market-relevant and timely metric to enhance corporate surveillance. For more details, see "Special Feature 3: Enhancing Corporate Surveillance with Probability of Default Model" in MAS' 2021 FSR.

[12] Based on MAS Financial Stability Review 2022, a firm is assessed to be vulnerable if the three ratios—debt servicing ability (profit before tax over liabilities), cash cover (cash to current liabilities) and cash buffer (cash relative to ongoing operational costs)—are below MAS internal thresholds.

growth and tight supply conditions.[13] Private and public resale transaction volumes and price growth had fallen from post-pandemic peaks following the cooling measures of December 2021 and September 2022 (text table 2). Private property price growth however regained momentum in 2023Q1, driven by strong demand prompting the authorities to announce further tightening measures in April 2023, through an increase in the Additional Buyer's Stamp Duty (ABSD) rates for local and foreign investors, with a sharper increase to moderate foreign investment demand. They also previously announced a significant ramp-up of the supply of public housing and of private housing under the Build-to-Order (BTO) scheme and the Government Land Sales (GLS) Program, respectively. This is expected to alleviate supply constraints following years of disruptions due to the pandemic.[14,15] These measures complement existing macroprudential ratios that have been tightened across the years including LTV and TDSR caps (text table 2). Going forward, the significant increase in completions coupled with the weaker economic outlook along with the additional tightening package are expected to moderate price growth, thus keeping the currently elevated systemic risks in the private property market contained. Following a sharp decline in prices in 2020, commercial real estate continued to recover, with prime office rents rising to pre-pandemic levels at end-2022.[16]





[13] In the first three quarters of 2022, transaction activity was driven by resident demand, with Singapore citizens and permanent residents accounting for about 96 percent of all transactions.

[14] With almost 40,000 public and private residential property completions in 2023, and near 100,000 units expected to be completed from 2023 to 2025, there will be significant housing supply coming onstream over the next few years.

[15] Please see appendix VII of CR 18/245 and CR 19/244 for evidence on the effectiveness of ABSD rate hikes.

[16] Building and construction sector-related loans constituted 16 percent of total commercial banks non-bank loans at end 2022. Commercial banks' asset quality by sector shows less than 1 percent NPLs for real property and development of land, and declining, yet still elevated, NPLs for the construction sector (6.5 percent at Dec-2022, down from 7.3 at end-2021).

Text Table 2. Singapore: Property-Related Measures

Additional Buyer's Stamp Duty (ABSD) rates (percent)		Jul2018-Dec2021	Dec2021-Aug 2022	Sept 2022-Apr26-2023	Apr27-present
Singapore Citizens	First residential property	0	0	0	0
	Second residential property	12	17	17	20
	Third and subsequent residential property	15	25	25	30
Permanent Residents	First residential property	5	5	5	5
	Second residential property	15	25	25	30
	Third and subsequent residential property	15	30	30	35
Foreigners	Any residential property	20	30	30	60
Entities	Any residential property	25	35	35	65
Seller's Stamp Duty (SSD) rates (percent)					
	Sold within the first year of purchase	12	12	12	12
	Sold within the second year of purchase	8	8	8	8
	Sold within the third year of purchase	4	4	4	4
	Sold after the third year of purchase	0	0	0	0
LTV limit for Housing Development Board (HDB) housing loans 1/		90	85	80	80
LTV limit for housing loans granted by financial institutions 2/					
	With no outstanding housing loans	75	75	75	75
	With one outstanding housing loan	45	45	45	45
	With two or more outstanding housing loans	35	35	35	35
	For non-individuals	15	15	15	15
Total Debt Servicing Ratio Threshold		60	55	55	55
Medium-term interest rate floor used by private FIs to Compute TDSR and MSR					
	Residential property purchase loans		3.5	4	4
	Non-residential property purchase loans		4.5	5	5
Introduction of interest-rate floor to compute eligible HDB loan amount 3/				Time of activation	
Imposition of Wait-Out Period for Private Residential Property Owners and Ex-owners to buy HDB Resale Flats 4/				Time of activation	

Sources: MAS

1/ 2/ The maximum loan tenure allowed is 35 years for all housing loans granted for private property, and 30 years for public housing. Loans exceeding a tenure of 30 years for private property, and 25 years for public housing, will face tighter LTV limits. For these loans, the LTV limit is (i) 15-25 percent for a borrower with one or more outstanding residential property loans and (ii) 55 percent for a borrower with no outstanding residential property loan.

3/ HDB will use the higher of the interest rate floor (currently at 3.0% per annum) and the prevailing HDB housing loan interest rate to compute the housing loan amount that a flat buyer may be eligible for.

4/ Owners and ex-owners of private residential properties locally or overseas were previously allowed to buy an HDB resale flat on the open market but were required to dispose of their properties within six months of the resale flat purchase. They are now required to wait out a period of 15 months after the disposal of their properties before they are eligible to buy a resale flat without a CPF housing grant.

15. Singapore's external position is preliminarily assessed to be substantially stronger than warranted by fundamentals and desired policies in 2022. The current account (CA) surplus rose to 19.3 percent of GDP in 2022 (18 percent in 2021), led by a strong goods and services balance. Adjusting for both cyclical and country-specific temporary factors, IMF staff assesses the CA gap at 3.3 to 6.9 percent of GDP (Appendix I). The main drivers of Singapore's external position have been its financial center status and household saving related to rapid aging. Over the medium term, higher public investment in climate resilient infrastructures, aging-related outlays, and the push towards digitalization are expected to help reduce the overall external imbalance. Consistent with the estimated CA imbalance, the 2022 real effective exchange rate is assessed to be undervalued by 6.6 to 13.8 percent, having appreciated by 6 percent year-on-year.

16. Economic policies have been broadly consistent with past Fund advice. Policy normalization across all levers have proceeded, while facilitating a broadening of the recovery. Monetary policy has been decisively tightened to address inflationary pressures. The level of government expenditure has continued to grow, reflecting aging-related spending, and the financing of climate resilient infrastructure, innovation, and targeted transfers to support skills upgrading and reduce inequality.

17. The authorities have made significant progress in implementing the 2019 FSSA recommendations (Appendix V). Progress has been notable in strengthening cyber resilience, payment system oversight, and US dollar liquidity among D-SIBs (see paragraph 35). Work is ongoing on continued development of guidelines and playbooks for the new resolution tools, and on bank outsourcing guidelines.

OUTLOOK AND RISKS: SUBPAR GROWTH WITH INFLATION INERTIA

18. Growth is projected to moderate in 2023. Staff projects real GDP to grow by 1.0 percent in 2023, from 3.6 in 2022, reflecting weakening external demand as major trading partners experience a slowdown, as well as a tapering off of domestic demand recovery post reopening. Major trade-oriented sectors, including semiconductors, are expected to slow, driven by a fall in the global demand for semiconductors. Growth will be driven by domestic demand as consumer-facing services sectors continue their post-pandemic recovery. Growth is projected to converge to 2.5 percent over the medium term.

19. Inflation is expected to subside from current levels but remain elevated in the near term. Headline inflation is projected to slightly moderate to 5.5 percent in 2023, reflecting some inflation persistence, the one-off effect of the GST rate hike, continued relatively tight labor market, and policies to raise wages of lower wage workers. Staff expects inflation to moderate further to 3.5 percent in 2024, with MAS core inflation reaching to 3.9 percent in 2023 and 2.8 in 2024, before stabilizing towards 2 percent over the medium term.

20. The external surplus is projected to moderate as domestic demand strengthens and external headwinds materialize. The CA surplus is projected to decline to about 16.5 percent of GDP in 2023 as imports outpace the continued increase in exports due to stronger domestic demand and a weak global demand for semiconductors. Over the medium term, the CA surplus is expected to decrease gradually as consumption and capital-related imports recover, notwithstanding a gradual pick up in foreign tourism flows post-pandemic.

21. Risks to the outlook are titled to the downside and mostly external (Appendix II).

- **External risks**. An abrupt global slowdown or a recession, including in China, Singapore's largest trade partner, is a key risk. A severe tightening of financial conditions could increase funding costs and expose balance sheet vulnerabilities of highly leveraged corporates, especially SMEs, households, and financial institutions. A premature pivot to loosen the monetary policy stance could de-anchor inflation expectations and trigger a wage-price spiral considering tight labor markets. As a small open economy and a trading hub, Singapore could be impacted by deepening geoeconomic fragmentation (GEF), particularly through trade-related channels. Being a highly-rated global financial center has the potential to help mitigate some effects that deepening GEF risks could have on FDI inflows, possibly reflecting strong regulatory and institutional quality, although there could be some degree of vulnerability regarding short-term

capital flows in Singapore(see Appendix VI).[17] However, supply chains disruptions could adversely impact Singapore's electronic sector, which is highly integrated into GVCs and accounts for a quarter of the country's non-oil domestic exports and a fifth of total manufacturing employment. Increased geopolitical tensions could also reduce global knowledge-sharing, migration flows, and the provision of important global public goods, with further potential negative repercussions for Singapore. An intensification of regional conflicts around the world could lead to further supply disruptions and higher energy prices.

- **Domestic risks**. The banking sector's exposure to the real estate market remains a source of risk. Consistent with cross-country evidence, while goods price inflation is expected to moderate further, the continued stickiness in service price inflation, could pose risk for some inertia in core inflation. Climate change poses a threat to longer-term growth prospects.

Authorities' Views

22. The authorities expect growth to be below trend in 2023 with a balance of risks tilted to the downside. Real GDP growth is projected between 0.5 to 2.5 percent this year, driven by a weak performance of export-oriented sectors amid weak external demand and the unfavorable global electronic cycle. Risks are tilted to the downside and are mainly external. Inflation is expected to continue to moderate in the second half of 2023 as commodity prices ease further and past monetary policy tightening is fully transmitted to the economy. The labor market is expected to remain tight in domestic-oriented sectors with the continued recovery in tourism demand but ease in the external-facing sectors.

23. Singapore will remain agile to navigate GEF risks which loom large in the medium-long term. Singapore remains an attractive destination for foreign investment including in semi-conductor sector as well as other advanced manufacturing activities, and the authorities' successful management of the COVID pandemic has entrenched investors' confidence. Further, they view the fact that Asia hosts electronic supply chains as well as the expertise, and more specifically, Singapore's knowledge-based economy with high-skilled human capital as important long-term supports. While it is challenging to identify any material impact of GEF in the short-term, with some instances of benefit from trade diversion in the region, the authorities noted that policy will need to be nimble to adjust to the uncertainty induced by GEF while keeping a good relationship with all partners. They are also of the view that while the Fund's macro-based models on GEF is useful to think about the potential transmission mechanisms, the large impact on Singapore under staff's trade fragmentation scenario was driven by extreme assumptions and that more granular/firm-level data may offer richer insights into GEF impact. They also noted that the application of industrial policies by some AEs seem to go in the opposite direction in creating a level playing field, and that Singapore would need to remain agile to preserve its competitiveness.

[17] Chapter 4 of IMF World Economic Outlook, April 2023, shows that strong regulatory quality tends to mitigate vulnerability to FDI relocation.

24. The authorities expressed their continued concern about the EBA and called for a more nuanced messaging in the staff report. They stressed that EBA evaluation of the real exchange rate may risk some misinterpretation if it is conflated with current exchange rate policy settings, and in that regard emphasized the idiosyncratic nature of Singapore's economy and the need to clarify that the implied undervaluation is relative to the medium-term. The authorities noted staff's assessment that the policy gap remained close to zero in 2022. In their view, Singapore's CA balance reflects its role as a regional financial hub, and its saving-investment gap is largely driven by the household and government sectors. High household saving reflects the high share of prime working age population actively saving for retirement as well as social norms such as strong bequest motives. Government saving decreased during the pandemic and continues to reflect prudent and efficient management of fiscal policy. The authorities view that government assets abroad are necessary given expected sizeable and growing expenditure pressures over the medium term, associated with aging, infrastructure investment, climate change, and the likely increase in the frequency of large shocks.

POLICIES TO MANAGE PRICE PRESSURES AND NURTURE GROWTH

A. Near-Term Policy Mix: A Tightening Stance Across All Policy Levers

25. Near-term policies should focus on managing price pressures while nurturing the slowing growth momentum.

- Under the baseline, fiscal policy which pivoted from pandemic-related support, should continue to tighten, while providing targeted and temporary support to vulnerable households, including in response to the increased cost of living. The tight monetary policy stance remains appropriate to address risks of inflation inertia. Monetary policy should maintain its tightening bias, and may need to tighten further, given persistently elevated core inflation, and tight labor markets, amid a build-up of demand side pressures. Macroprudential policies should be tightened when needed to prevent the rise of systemic financial risks.

- Should downside risks materialize, Singapore has fiscal space to deploy further policy support. Fiscal policy, which can best target affected sectors and households and implemented swiftly in Singapore, should continue to play the role of first line of defense. In a downside scenario where, high inflation is combined with severe strains in financial markets, the pace of tightening would need to be adjusted to avoid broadening of financial stability concerns. In the face of systemic liquidity stress, swift, targeted, and temporary liquidity provision by MAS aimed at smoothing volatility would help avoid market dysfunctions, without hindering the necessary monetary policy tightening against inflationary pressures, which should continue to focus on restoring price stability. A downside stagflation scenario would call for fiscal loosening and further tightening of monetary policy.

B. Fiscal Policy: A Gradual Tightening to Help Reduce Price Pressures with Temporary and Targeted Support to the Vulnerable While Preserving Market Signals

26. Going forward, fiscal policy should continue to help moderate inflationary pressures without suppressing market price signals, while supporting the most vulnerable. Considering the still elevated price pressures, further tightening of the fiscal stance should accommodate continued targeted and temporary support for vulnerable individuals impacted by rising cost of living and the slowing economy. Fiscal policy should continue to refrain from price-distorting measures such as energy subsidies—preserving market price signals is a long-standing cardinal principle in Singapore—and instead strengthen social safety nets. Firms facing elevated energy prices should be allowed to adjust their energy demand; however, the government should support measures to improve energy efficiency and transition to cleaner energy.

27. Singapore has fiscal space to deploy additional support if large shocks were to materialize (Box 1). The authorities should have contingency plans ready to deploy additional resources towards targeted economic support, with the size and composition of the contingency plans based on the nature and magnitude of the shock (Box 1). Temporary and targeted support will help shield low-income and vulnerable households from significant income erosion. More permanent enhancements of social protection schemes will also help strengthen automatic stabilizers and better prepare the economy for shocks with a large structural component. Support to firms in the face of systemic financial stress should be swift, targeted and differentiated and linked to the nature of the firm problem, with clear eligibility criteria to minimize potential moral hazard. The measures should be targeted to specific sectors and governance principles that are supported by strong insolvency and bankruptcy procedures should be applied. As the financial situation stabilizes, firms could be required to repay the recapitalization funds.

28. The FY2023 budget prepares Singapore to boost productivity and enhance workers' and firms' resilience against shocks. Among other measures, the FY2023 budget includes a top up to the National Productivity Fund of S$4 billion (0.6 percent of GDP) and an expansion of its scope to include investment promotion, in addition to its existing scope of anchoring quality investments and supporting companies to upskill workers. In addition, the government has introduced new active labor market policies to reduce skills mismatch, strengthen the training and placement ecosystem, and improve inclusiveness (see paragraph 51). Such measures could help dampen the potential negative impacts of geoeconomic fragmentation on global supply chains.

29. Public spending to address medium- and long-term challenges will help reduce Singapore's large external surplus. Singapore is well-positioned to absorb fiscal pressure stemming from spending needed to address its medium and long-term challenges (IMF Country Report No. 22/233). Such challenges include: (1) an increase in spending needs due to the rapidly aging population, in particular on healthcare; (2) the need to raise productivity and help ease transition costs for firms and workers as Singapore embraces technological change and structural transformation; (3) risks from climate change given Singapore's vulnerability to rising sea levels; (4)

the risk of future tail shocks such as the pandemic and the associated asymmetric, large economic impact; and (5) lumpiness in the spending needed to rejuvenate public housing and infrastructure (such as rail lines and water, drainage, and sewage systems). Higher public spending, in particular investment, will lower net public saving and reduce CA surpluses. An expansion of social services in areas such as healthcare and unemployment support would reduce incentives for private savings and support stronger consumption.

Box 1. Singapore: Judicious Use of Fiscal Buffers Under Downside Risks

Risks from a global slowdown: External risks are tilted to the downside, with implication for Singapore's growth, inflation, and financial stability. Key conjunctural risks facing Singapore are:

(i) An abrupt global slowdown, including in China, which would hurt Singapore's external demand and affect business confidence.
(ii) A severe tightening of financial conditions could increase funding costs and expose vulnerabilities in highly leveraged corporates, households, and financial institutions. This could be exacerbated by a potential propagation of increased fragilities in the global banking system to Singapore's financial system.
(iii) Intensification of regional conflicts, which disrupt supply chains, increase food and energy prices, and leads to a slowdown in key exports markets, reducing Singapore's external demand.

Prudent fiscal spending: Singapore's past (fiscal) reserves are sizeable and represent an important risk mitigating factor should severe downside risks materialize. A prudent fiscal response to the realization of these risks would complement other policy tools (for example, monetary policy) to achieve macroeconomic stability without distorting market or price signals.

- *Supporting households*: To protect vulnerable households from significant income erosion, either due to a growth slowdown or high inflation, temporary and targeted support should be provided. If a shock has a large structural or persistent component, automatic stabilizers should be strengthened by making permanent enhancements to social protection schemes while maintaining incentive compatibility and reducing moral hazard.
- *Supporting firms*: In response to price shocks, firms should be allowed to adjust their energy demand. Subsidies should be avoided in line with Singapore's tradition, as subsidies would suppress the right price signals and may lead to costly adjustments if price pressures are persistent. If there is a risk of large-scale bankruptcies due to high prices, vulnerable sectors should be provided with support that is targeted, temporary, and linked with energy efficiency and transition incentives. In response to risks causing systemic financial stress, targeted liquidity support should be provided to viable firms and the government should adhere to strong insolvency and bankruptcy procedures to minimize moral hazard.

Singapore's fiscal policy response during the pandemic: In response to the COVID-19 pandemic, the Singaporean authorities deployed fiscal policy prudently to support households and businesses. Households, particularly those who are vulnerable, were provided cash transfers based on their income. In addition, a broad-based approach was taken to upskill workers to facilitate demand-led reallocation. Businesses that were not viable under the pandemic were provided support in the form of bridging loans to address short-term liquidity pressures. The government had a tiered approach to level of intervention (Wu, 2021)[1]. For example, aviation, tourism, and hospitality industries suffered the most due to the pandemic, and, therefore, were provided the most support. Businesses were provided with not just wage support, but also support to enhance and catalyze their digitalization efforts to better prepare them for the post-pandemic economy.

[1] Wu, Alfred M., 2021. Fiscal Responses to COVID-19 in Singapore & Hong Kong. *ETHOS*.

Authorities' Views

30. The authorities highlighted that fiscal policy would not interfere with monetary policy's objective of price stability, while continuing to provide support to vulnerable households. Keeping in line with Singapore's longstanding tradition of fiscal prudence, the fiscal stance has been tightened, particularly following the large spendings during the pandemic. The authorities will continue to deploy prudent and non-distortionary fiscal measures, as needed. The enhanced permanent GSTV scheme and Assurance Package have been effective at cushioning the impact of the rise in GST, especially for low-income households, who have also benefited from additional targeted support in the FY2023 Budget to meet the high cost of living.

31. Should downside risks to growth materialize, the authorities' first line of defense will be targeted fiscal support tailored to the nature of the shocks. In a cyclical downturn, the authorities are cognizant of the need for a certain degree of churn in the economy; however, the government will ensure that vulnerable households continue to be supported and human capital does not get eroded, by providing job support and training programs. The authorities reiterated the importance of holding sufficient reserves for Singapore's small open economy, with the buffers acting as preemptive insurance against large shocks, while ensuring intergenerational equity that is enshrined in the constitution. Nonetheless, if the shock is large enough, like it was during the COVID-19 pandemic, the government has the option to draw from its past reserves for temporary and extraordinary measures.

C. Monetary and Financial Sector Policies: Restoring Price Stability While Facilitating a Soft Landing and Safeguarding Financial Stability

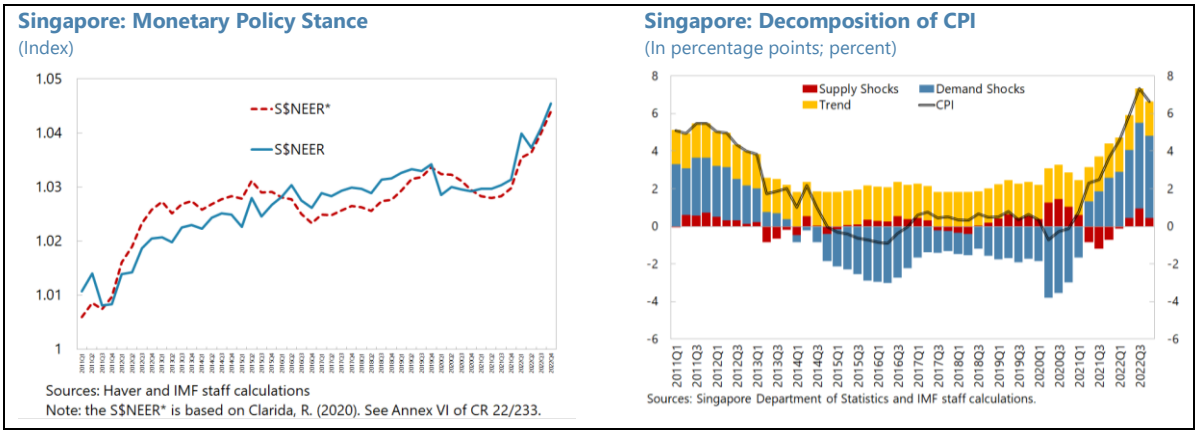
32. The current monetary policy stance is appropriately tight amid weakening inflation momentum and significantly weaker growth. Monetary policy should maintain its tightening bias and continue to focus on reining in inflation while facilitating a soft landing. Over 2022 and through early 2023, the S$NEER, which has appreciated by about 8 percent since the start of the tightening cycle, has hovered slightly above the fundamental value implied by equilibrium interest rates or the corresponding neutral rate, the domestic price level, and the output gap. The fundamental S$NEER has also been on an appreciating trend given the strong post-pandemic recovery and inflationary pressures. Core inflation visibly moderated in March reaching 5 percent, down from 5.5 percent in February, and remained at 5 percent in April.[18,19] While inflation is still elevated, MAS' five successive monetary policy tightening moves appear to have tempered the momentum of price increases with negative imported inflation,[20] and are still working to dampen inflation further given long

[18] Staff's assessment of the monetary stance continues to be guided by Appendix VI of the 2022 Article IV Consultation Staff Report on Singapore's Monetary Policy Normalization.

[19] MAS latest core inflation outlook is within the 3.5– 4.5 percent range for 2023, and its headline inflation outlook stands at 5.5–6.5 percent.

[20] Policy induced S$NEER appreciation works mainly through dampening imported inflation, with about a third of the CPI basket in imported food and energy products.

transmission lags.[21] That being said, relatively tight labor markets amid elevated, yet moderating, demand-side pressures might still pass through to wage cost pressures.[22] Therefore, the tight monetary policy stance may need to remain for longer or be further tightened to help prevent inflationary pressures from becoming entrenched and thus damaging the basis for sustained growth. In that respect, MAS would need to remain data-dependent and act timely. In a downside scenario, where high inflation is combined with severe strains in financial markets, the pace of tightening would need to be appropriately calibrated to avoid broadening of financial stability concerns. Particular attention should be paid to the effect of increasing interest rates on highly leveraged lower-income households with low financial buffers (including those exposed to floating rate mortgages) and highly leveraged smaller corporates in lagging sectors (see paragraph 38).



33. Clear and timely policy communication remains critical in an environment of heightened uncertainty. MAS should continue to clearly state its unwavering commitment to the disinflation process as well as its continued efforts to preserving financial stability, using appropriate instruments for price stability (S$NEER) and for addressing financial vulnerabilities (rigorous supervision, macroprudential measures), consistent with its integrated central bank/financial supervisor approach. As highlighted by recent events, stresses can unfold rapidly, and maintaining confidence in financial stability at such times becomes the overriding objective, one that is also important for price stability. As the lender of last resort, in the face of systemic liquidity stress, swift, targeted, and temporary liquidity provision by MAS aimed at smoothing volatility would help avoid market dysfunctions, without hindering the necessary monetary policy tightening against inflationary pressures.

34. Systemic banks are expected to remain solvent in the face of substantial multiple shocks. MAS 2022 Industry-Wide Stress Test (IWST)'s downside scenario features a global economic downturn as central banks tighten monetary policy sharply in response to heightened inflationary pressures, an escalation of Russia's war in Ukraine, and a sharp slowdown in China caused by a

[21] Based on staff's estimate, an appreciation in the S$NEER leads inflation to fall with a lag of around 15-18 months. This is in line with cross-country studies on the lagged effects of monetary policy action on inflation.

[22] Recent work by the MAS shows a weak pass-through from price pressures to wages (suggesting that corporate margins could be large enough to absorb these price pressures) and short-lived labor market tightness induced wage growth in Singapore.

resurgence in COVID-19 infections and increased stresses in its real estate sector. Such external headwinds would entail a potential recession in Singapore, rise in unemployment, and a sharp rise in interest rates in line with global rates.[23] Domestic systemically important banks (D-SIBs) were expected to remain solvent, with common equity 1 (CET1) capital ratios, though significantly falling mainly due to a decline in asset quality of credit portfolios and to credit impairments, remaining above MAS' minimum regulatory requirements, helped by strong starting capital positions. MAS IWST 2022 also assessed first and second-order contagion impacts arising from interconnections in the domestic interbank market, which again highlighted that banks' adequate capital and liquidity buffers provide the ability to mitigate the propagation of shocks across the interbank network.

35. Potential stresses in core USD funding markets call for continued close monitoring of Singapore banks' USD liquidity profiles, particularly given likely spillovers to the region (Box 2). MAS continues to use the supervisory approach to encourage banks to keep strengthening their USD liquidity profiles, diversifying foreign currency funding sources, conducting regular liquidity stress tests, and having in place adequate liquidity contingency plans.[24] The proportion of more stable USD funding sources for D-SIBs, comprising non-bank deposits and debt issuance, has increased since 2018 and constituted the bulk of their USD funding sources (Appendix V). While the supervisory approach has worked thus far, the option of introducing minimum requirements for foreign currency liquidity coverage ratios should remain open. MAS should also stand ready to provide short-term backstop of dollar liquidity to address idiosyncratic or system-wide liquidity stress in extraordinary situations, taking note of the success of the temporary MAS USD liquidity facility, established at the height of the pandemic on the back of a swap arrangement with the FED, in stabilizing USD funding conditions in Singapore and the region.[25]

[23] Please refer to Box B "Industry-Wide Stress Test of D-SIBs" in MAS FSR 2022.

[24] Following the 2019 FSSA, MAS made bank-specific recommendations and shared industry sound practices. One example was the need to consider time horizon when estimating FX swap capacity, for instance using daily (rather than monthly) swap volumes in assessing swap capacity applied on single day currency shortfalls. When the USD Commercial Paper (CP) market experienced funding tightness in Q2 2020, prudent risk management practices like laddering CP maturities helped banks ensure sufficient liquidity during that period.

[25] Since its inception, the Facility provided a total of US$24.6 billion to a broad mix of banks. This helped to intermediate cross-border USD funding, for use in Singapore and the region, during the pandemic crisis.

Box 2. Singapore: US Dollar Funding

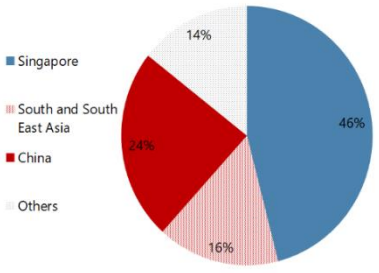
As a global financial center, Singapore intermediates credit from advanced economies to emerging markets in Asia, a large share of which is in US dollars. The share of cross-border lending exposures in local D-SIBs stood at about half of total lending at end 2022, about 74 percent of which is to emerging Asia. 60 percent of total local D-SIBs loans are in foreign currencies, and 40 percent of those are in US dollars.

Bank deposits constitute the main source of funding for Singapore banks, including for USD. For local D-SIBs, about 60 percent of deposits are in foreign currencies, and more than half of those are in US dollars. Foreign currency LTD ratios remain well below 100 percent and have been on a declining trend for the banking system.

Singapore's foreign exchange derivatives market is one of the largest and fastest growing globally. According to the BIS 2022 Triennial Central Bank Survey, it is the third largest after the US and the UK markets, and its trading activity grew by 45 percent since 2019, more than the global average. It consists of foreign exchange (FX) swaps for shorter maturities (typically under 1 year) and, to a lesser extent, cross-currency swaps for longer maturities (1-30 years). The most significant users are asset managers (hedging of investments), bank treasurers (arbitraging funding costs across currencies), and corporate treasurers (cash flow hedging and funding).

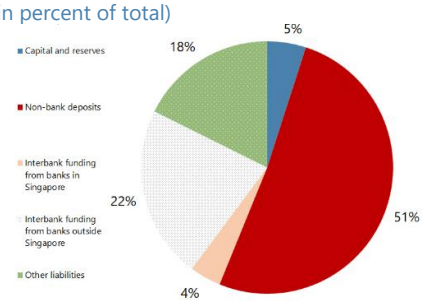
Notwithstanding that Singapore banks have more USD denominated liabilities than assets, potential stresses in core USD funding markets and any subsequent reliance on costly synthetic dollar funding can affect Singapore Banks, and in turn its lending to the region. While Singapore banks do not rely on FX derivative market for their structural funding needs, stressed US dollar funding conditions, such as the March 2020 episode, can affect Singapore banks, and through its impact on cross-border lending, can also affect the region. More specifically, the gap between US dollar assets and liabilities, known as the cross-currency funding gap, is an important driver of the potential need for Singapore banks to resort to synthetic dollar funding, i.e., through FX swaps. The cost of such borrowing has largely been higher in Singapore than direct funding in the U.S. dollar interbank market (negative cross-currency basis) for the period from June 2021 to March 2023. It is also higher for longer maturities and usually widens in stress episodes. Such negative cross-currency basis and widening spreads across maturities have similarly been observed in other advanced and regional economies.

Singapore: Local D-SIBs Loans by Region, Q42022
(in percent of total)



Sources: DBS, OCBC, UOB financial statements and IMF staff calculations.

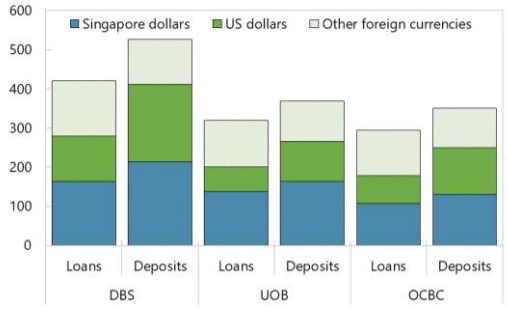
Singapore: Banking System Funding Structure, Q42022
(in percent of total)



Sources: MAS and IMF staff calculations.

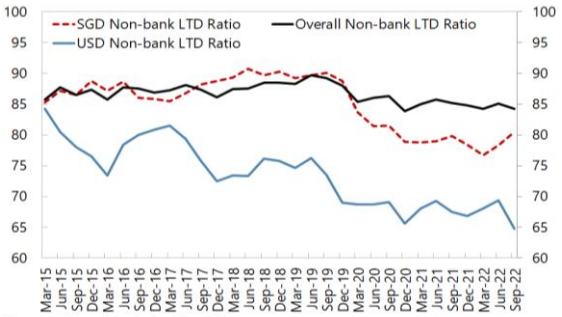
Box 2. Singapore: US Dollar Funding (concluded)

Singapore: Local D-SIBs Deposits and Loans by Currency, Q42022
(in billions of SGP Dollars)



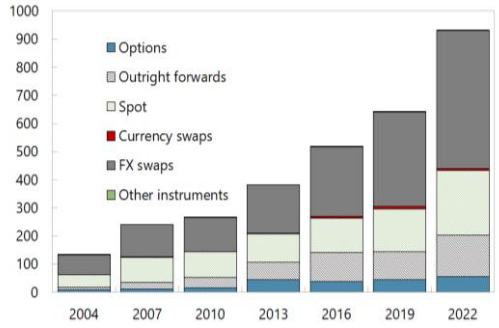
Sources: DBS, OCBC, UOB financial statements and IMF staff calculations.

Singapore: Local Banking Groups' Non-Bank Loan-To-Deposit Ratios
(in percent)



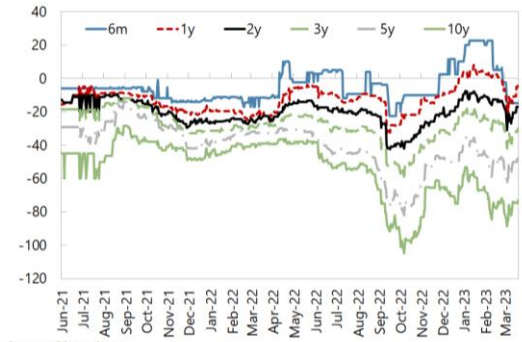
Sources: Monetary Authority of Singapore.

Singapore: Foreign Exchange Market Turnover
(Net gross basis; billions of USD)



Sources: BIS Triennial Central Bank Survey of Foreign Exchange and Over-the-counter Derivatives Markets.

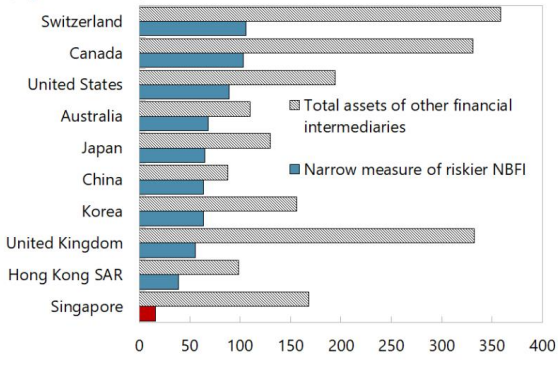
Singapore: SGD-USD Cross Currency Basis by Maturity
(Basis points)



Source: Bloomberg

36. MAS's focus on monitoring liquidity risks is appropriately targeted to NBFIs, including their activities in the derivatives market. While the overall size of the nonbank financial sector is large in Singapore, riskier activities such as collective investment vehicles that may be susceptible to runs and lending/financial intermediation dependent on short-term funding are relatively small compared to peers, amounting to about 16 percent of GDP in 2021.[26] While there is potential for dysfunctions in core international funding markets to result in liquidity strains on NFBIs, which could then spill over to the rest of the financial system and the real economy, this is assessed to be very limited. MAS is appropriately enhancing its monitoring of NBFIs for potential liquidity stresses and mismatches, with a recent focus on developing its toolkit to better monitor systemic risks stemming from over-the counter (OTC) derivatives markets specifically. Many types of NFBIs engage in such trading in Singapore, and

Singapore: Non-Bank Financial Intermediation
(in percent of GDP)



Sources: FSB and IMF staff calculations.

[26] Based on the methodology and classification guidance used in the FSB's annual NBFI monitoring exercise.

foreign banks and dealers play a prominent role in intermediating mainly foreign exchange and interest rate OTC derivatives.

37. MAS' ongoing efforts to enhance its surveillance of NBFIs through closing data gaps and the stress testing of more NBFIs into its industry-wide stress tests as part of its supervisory framework are welcome. NBFIs play a key role in the global financial system and have grown in size and complexity. NBFI stress tends to emerge with elevated leverage, liquidity mismatches, and high levels of interconnectedness.[27] Vulnerabilities in NBFIs are difficult to detect ex-ante as exposures can shift quickly, and stresses emerging there can have widespread implications, for instance through increased risk aversion and lower provision of credit by banks or through effect of large asset sales to meet margin calls. Staff welcome MAS close monitoring of the ongoing global discussions on raising the bar on NBFI surveillance and closing the data gaps.

38. Stress testing exercises should continue to focus on vulnerabilities and risks facing highly leveraged entities. MAS' corporate stress test simulated a more adverse stress scenario consisting of three concurrent shocks of higher interest rates, higher input costs, and weak GDP growth. Results showed that most corporates would still be resilient to such shocks with cash reserves providing additional buffers. Similarly for households, MAS' stress test, which conservatively does not account for households' substantial financial buffers, show that households' debt servicing ratios remain manageable under a scenario of a simultaneous and immediate large increase in interest rates, and a reduction in income. Staff commends MAS' continuously enhanced and more severe stress testing exercises but cautions against vulnerabilities and risks facing highly leveraged entities. With mortgage loans accounting for about 70 percent of household debt, and with about 38 percent of mortgages on adjustable rates, highly leveraged households with low buffers are likely to face increasing stress to their ability to service mortgage debt. Similarly, highly leveraged firms' profitability and debt servicing abilities are particularly vulnerable to rising input costs and growth slowdown.

39. The tight macroprudential stance remains appropriate and should be tightened further should housing price pressures continue. Staff analysis suggests that private residential house prices remain above long-term fundamentals. Further macroprudential tightening would be warranted if price pressures continue to build up. As the Additional Buyer's Stamp Duty (ABSD) is residency-based, it constitutes a capital flow management and macroprudential measure (CFM/MPM), and staff recommend phasing out the residency-based differentiation once systemic risks from the housing market clearly dissipate.[28]

40. There is room to monitor closely and mitigate potential impacts of geoeconomic fragmentation, including financial fragmentation, while also adapting to minimize the negative effects on its economy (Appendix VI). Strengthening and entrenching the role of

[27] See Chapter 2 of IMF GFSR April 2023.

[28] Staff did not find evidence of an inflow surge that could justify the April 2023 tightening of the ABSD rate on foreigners under the Fund's Institutional View on the Liberalization and Management of Capital Flows and therefore advise to unwind the tightening of this CFM/MPM measure.

Singapore's role as an entrepôt hub by leveraging its geographical advantage and efficient trade-logistics ecosystem is an important strategy to mitigate geoeconomic fragmentation (GEF) risks, in particular the increased narrowing and fragmentation of electronics trade corridors. GEF could also potentially raise financial stability risks via an increase in banks' funding costs, including in US dollar, a decline in their profitability and lower credit provision to the private sector. Singapore's well capitalized financial sector is however an important mitigating factor. The potential impact of financial fragmentation on financial stability risks deserves greater attention to better understand the transmission of GEF shocks to the broad financial system and going forward explore the possibility of incorporating GEF risks and scenario analysis into the MAS industry-wide stress tests will help develop mitigation and management tools. Beyond that, Singapore's long-standing reputation of optimal policies, agile policy toolkit and ample buffers, bode well for the country's ability to mitigate and adapt to GEF shocks.

41. The authorities have a robust AML/CFT framework and should continue enhancing its effectiveness to mitigate financial integrity risks. Given Singapore's financial center status involving high levels of cross-border financial flows (including from higher-risk countries), MAS should continue with ongoing refinements to AML/CFT regulations and supervision, including to increase financial institutions' own controls and risk detection capabilities. Work is underway to publish a consolidated assessment of money laundering and terrorist financing (ML/TF) risks at the national level in 2023 and the pilot exercise to integrate cross-border transactional data from selected major banks into their surveillance system is a welcome initiative. The authorities implemented a baseline engagement cycle for some sectors (including banks) and should explore expanding this approach to inform a minimum engagement model that encompasses all sectors. To further strengthen AML/CFT risk-based supervision, there has been an increase in supervisory engagement with higher risk banks and the wealth management sector, the authorities should continue to deepen the analysis of higher-risk countries and associated financial flows. To mitigate financial integrity risks from virtual asset activities, thematic inspections of selected Virtual Asset Service Providers have been carried out. Efforts should continue to ensure that beneficial ownership information is easily available and accessible to prevent the misuse of legal persons and arrangements.

Authorities' Views

42. Monetary policy decisions continue to be carefully calibrated to ensure medium-term price stability. Monetary policy remains focused on the disinflation process amid still elevated inflation rates. Sticky services inflation mainly reflects persistent labor market tightness. Exchange-rate-based monetary policy is subject to particularly long and variable transmission lags, and the S$NEER appreciation in this instance, operates through the aggregate demand, rather than the more direct imported inflation channel. The pause to further shifts in the policy parameters in April reflected a careful consideration of the continuing effects of the past tightening moves as well as the close-to-expectations ongoing disinflation momentum, amid greater uncertainty and downside risks around the growth outlook. MAS noted that monetary policy is likely to remain tight, and that the rate of appreciation of the S$NEER could be adjusted further should inflation surprise on the upside. With regards to trade-offs, pre-emptive macroprudential policy shields against pressures from

increasing global rates; other tools could be used in the face of financial stresses (such as liquidity facilities), and other policy levers could support the real economy in case of a pullback of bank lending (such as quasi-fiscal schemes to support credit through risk sharing).

43. The financial system remains healthy with strong buffers in place. MAS is closely monitoring banking sector resilience to continued stresses, such as the high global interest rate environment and its impact on the international banking sector. Results from incorporating additional stresses to the 2022 IWST scenarios, such as higher funding costs and mark-to-market losses affirm banks' resilience arising from strong starting buffers. On deposit insurance, MAS' view is that it complements a combination of safeguards that underpin a safe and resilient banking system, including sound regulation, rigorous supervision, proactive cross-border cooperation, and effective governance and risk management by banks themselves. MAS continues to engage regularly with banks to strengthen their USD liquidity risk management practices and contingency funding planning. There is also regular monitoring of a broad range of indicators including maturity mismatches, asset-liability gaps, and diversification of funding sources. DSIBs in Singapore have been increasing their proportion of more stable USD funding sources, and MAS remains open to explore further regulatory or supervisory levers if need be. MAS is monitoring the growing NBFI sector in Singapore and is closely following international efforts to strengthen surveillance of NBFIs. In the meantime, MAS continues to monitor the thus far limited banking and insurance exposures to other NBFIs. MAS is also monitoring fund managers' liquidity risk management practices and advocating the use of liquidity management tools and stress testing, based on guidance issued in 2018.[29]

44. The April 2023 property market measures were calibrated to pre-emptively manage investment demand and promote sustainable conditions in the residential property markets. The authorities noted that investment demand by both residents and non-residents increased, driven by the emergence of private residential properties as an investment class. They noted that the share of private housing transaction volumes by non-residents almost doubled to about 7 percent in Q12023, from about 4 percent on average over the last three years; by value of transactions, it more than doubled to 13 percent. Such demand continued to play a major role in driving property prices in Singapore's relatively small market, at a time of acute supply side constraints post-COVID, and are likely to continue to increase without intervention. With the increasing risk of prices diverging from fundamentals, a comprehensive intervention, including coordinated and targeted actions by the MAS and the government to limit demand pressures and significantly increase supply, was necessary. Considering Singapore's overall attractiveness as a global city-state and its safe-haven status, its small size relative to the large pool of global liquidity, amid strong supply constraints, the ABSD, in its differentiated form, remains a critical price-based tool to limit speculative demand and manage systemic risk in the residential real estate market. They do not see any near-term risks on the commercial segment of the property market with office rents remaining stable.

[29] See https://www.mas.gov.sg/regulation/guidelines/guidelines-sfa-04-g08-liquidity-risk-management-practices-for-fund-managers.

D. Fostering a Greener, Smarter, and More Inclusive Economy, with More Agile Post-COVID-19 Labor Market Policies

45. Policies have appropriately shifted to post-pandemic priorities to foster sustained growth. The authorities are implementing their strategy, through the FY2023 budget, to transform Singapore into a greener, smarter, and more inclusive economy.

Climate Policies

46. Singapore is significantly exposed to climate change risks, including financial stability risks from the manifestation of physical and transition risks and their amplification in the financial system. The country is particularly vulnerable to rising sea levels, which requires substantive adaptation investments. Singapore's geography, and natural endowment limit options to address risks from climate change, particularly on mitigation. MAS' 2022 IWST featured a climate scenario analysis for selected key banks and insurers and focused on credit risk for banks and market/insurance risks for insurers. The climate scenarios, which have factored in the near-term impact of the war in Ukraine, outline three possible pathways over the period 2022–2050 (see text table). The No Additional Policies scenario also incorporates an acute physical risk shock of the ASEAN-5 experiencing a severe 1-in-200 years flood event in 2022. Results point to significant economic and financial losses from climate risks. For banks, the probability of default (PD) of their Climate Policy Relevant Sectors were projected to increase across all three scenarios resulting in a rise in cumulative credit costs. For insurers, physical and transition risks were projected to adversely impact both assets and liabilities. Beyond its revealing findings, the importance of this exercise lies in identifying data and methodological gaps that will inform future data collection and model development work for banks and insurers, under continuous engagement with MAS on these efforts. [30]

Text Table 3. Singapore: Key Aspects of MAS IWST 2022 Climate Scenarios

	Orderly Transition	Disorderly Transition	No Additional Policies
Transition Risks	Moderate	Moderate to High	Limited
Nature of Transition	Early and orderly	Delayed and disorderly	Only policies in place by end-2021
Physical Risks	Limited	Limited	High

47. Singapore needs to continue enhancing its policies in line with the country's renewed climate objectives. The government has accelerated its low-carbon transition to net zero emission by 2050, including by providing a strong price signal through a higher carbon tax and supporting households and businesses transition to cleaner energy.[31] Singapore is also making progress on its objective to issue up to S$35 billion in public sector green bonds by 2030 to fund green infrastructure projects. In this regard, the government published the Singapore Green Bond

[30] For more details, please refer to Special Feature 1, Assessing the Impact of Climate Change on Financial Stability, FSR November 2022.

[31] Singapore's carbon tax is projected to gradually increase from its level of S$5 per tonne of emissions to reach S$50–80 per tonne by 2030.

Framework in 2022, which is a governance framework for sovereign green bond issuances under the Significant Infrastructure Government Loan Act (SINGA).[32] Singapore's S$2.4 billion 50-year inaugural sovereign green bond was issued in August 2022. In addition, Singapore is also setting up a Coastal and Flood Protection Fund with an initial funding of S$5 billion to support the construction of coastal and drainage infrastructure.

Digitalization

48. Singapore continues to promote innovation and digitalization across its economy. Various schemes such as Advanced Digital Solutions and Grow Digital aim to accelerate the adoption of cutting-edge digital solutions and support upskilling of the digital workforce. Singapore's RIE2025 Plan[33] ambitions to invest S$25 billion between 2021 and 2025 to promote research, and innovation. Staff analysis shows that advancing innovation and digitalization that notably closes existing gaps within countries can help boost country level aggregate productivity.[34] Moreover, jobs with a high degree of digitalization fared better than others during the pandemic by minimizing productivity losses. MAS continues to make progress to advance digital innovations in the financial sector, including by issuing licenses for digital banks, implementing new initiatives for cross-border payment, and enhancing the use of Fintech in payments and loan generation.

Equity and Labor Market Policies

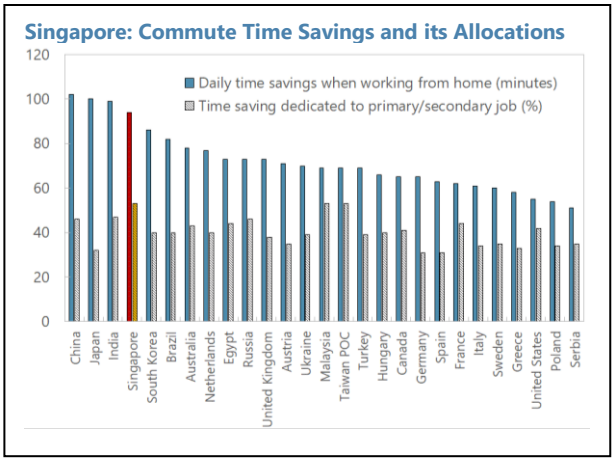
49. In a post-pandemic era, Singapore is appropriately transitioning to a new social compact where more collective action is expected to bend the curve towards a more inclusive economy, while preserving individual responsibility through incentives to keep people in the labor force. Targeted social assistance has mitigated the distributional impact of the pandemic. These efforts to address inequality in an incentive compatible way and ensure that the vulnerable segments of the population are not left behind, are welcome. Going forward, building on policy plans in the FY2023 budget, Singapore is well placed to further consolidate gains made on a discernible trend decline in inequality.

50. The pandemic has transformed labor markets around the world and Singapore will have to adapt to the changing landscape to stay competitive (Appendix VII). While flexible work arrangements were rare prior to the pandemic, they quickly became the norm in 2020. The share of workers working remotely, however, varied significantly by industry and occupational group. In Singapore, following the start of the pandemic in 2020, remote workers accounted for 77 percent of all employees in digitalized sectors such as information and communications and

[32] The SINGA was announced in the 2021 budget to allow the government to issue bonds to finance major long-term infrastructure projects.

[33] Research, Innovation and Enterprise (RIE) plans lay the groundwork for Singapore's science and technology efforts every five years.

[34] See APD Departmental Paper 2023/01.



financial services. In contrast, remote workers were significantly sparser in contact-intensive sectors such as food services, transportation, and health services. The prevalence of job vacancies that offer remote work declined to only about 20 percent in 2022, yet compared to other countries in the region, a greater majority of Singaporean workers would still prefer to work remotely. This may reflect, in part, significantly higher savings in commute times relative to many other countries. Existing gaps between workers' preferences and what employers offer in terms of remote work suggest room to enhance the flexibility of work arrangements, particularly in digitalized sectors. Flexible work arrangements would help Singapore strengthen its ability to attract and retain workers, including older workers and help support old-age income. Such flexibility could be supported, for example, by a more widespread adoption of the voluntary Tripartite Standard on Flexible Work Arrangements or through the Productivity Solutions Grant for companies needing further support in job redesign to make them more attractive to employees.

51. Adapting to the post-COVID world would require pursuing active labor market policies that facilitate resource allocation to the sectors of the future. To intermediate between the labor market, the industry, and training facilities, the government plans to introduce Jobs-Skills Integrators. The authorities will engage with the industry and business to develop an understanding of their skills needs and work with the training providers to develop appropriate training programs, thereby, reducing the skills gap. The Jobs-Skills Integrators will also work with employment facilitation agencies to ensure that the trainings lead to successful employment outcomes. In addition, the government has taken several steps that will reduce income disparity for low-wage workers. The Progressive Wage Credit Scheme (PWCS), introduced in 2022 and enhanced in the FY2023 budget, provides transitional wage support for employers to adjust to the mandatory and voluntary wage increases for qualifying lower-wage workers. The FY2023 budget also provides additional support measures to encourage the employment of senior and disabled individuals. Together, these measures will help ensure that the skills of Singaporean workers are commensurate with the evolving needs of the industry, and also help reduce income inequality, including for older workers.

Authorities' Views

52. The authorities reiterated their commitment to accelerate transformation towards a green, digital and more inclusive economy. They view structural changes such as automation and artificial intelligence as potentially beneficial to alleviate some bottlenecks in the labor market, and training and upskilling as an important adaptation strategy. While the authorities are encouraging of flexibility in working arrangements—in line with post-pandemic shifts in workers' preferences—they noted that the actual degree of flexibility would also depend on the employers' preferences, which

would take into account the nature of work and the impact of remote work on productivity, with the latter remaining an open question that requires more research. The authorities underscored their commitment to the climate agenda and identified climate change as one of the key long-term challenges faced by Singapore, against which they are building resilience through various mitigation and adaptation measures. The new social compact, work on which is still ongoing, aims at ensuring equitable growth through improved social mobility, upskilling of workers, and strengthening support for the vulnerable and seniors.

STAFF APPRAISAL

53. Singapore's post-pandemic recovery is nearly complete, supported by strong economic fundamentals and authorities' decisive policy response. While overall activity surpassed pre-COVID levels since 2021, the recovery remains uneven with hard-hits sectors such as consumer-facing services (except retail) and construction sector still lagging behind. Singapore's 2022 external position is preliminarily assessed to be substantially stronger than warranted by fundamentals and desired policies.

54. Downside risks, mostly external, cloud the near-term outlook. External risks include the possibility of an abrupt global slowdown or recession, including in China, Singapore's largest trade partner. A severe tightening of financial conditions could increase funding costs and expose balance sheet vulnerabilities of highly leveraged corporates, especially SMEs, households, and financial institutions. Deepening geoeconomic fragmentation (GEF) resulting in supply chain disruptions could adversely impact Singapore's growth prospect, particularly through trade-related channels. Should downside risks materialize, Singapore can continue to deploy its fiscal buffers to cushion the economic impact, with targeted fiscal support continuing to be the first line of defense.

55. The calibration of fiscal policy in 2023 is aligned with the need to manage inflationary pressures. The tighter fiscal stance, combined with targeted support to the most vulnerable impacted by rising cost of living and the slowing economy, will appropriately help moderate price pressures from public demand.

56. Singapore is well-positioned to increase spending to address medium- and long-term challenges, which will also help reduce large external surpluses. Higher public investment will lower net public saving while an expansion of social services in areas such as healthcare and unemployment support would reduce incentives for private savings and support stronger consumption.

57. The tight monetary policy stance is appropriate. Monetary policy should maintain its tightening bias and continue to focus on reining in inflation while facilitating a soft landing. Further timely and data-dependent tightening may be needed if persistent inflation risks damaging the basis for sustained growth.

58. The authorities' commitment to safeguarding the stability of the financial sector is also welcome. The financial sector remains sound, with systemic risks contained, and the authorities

should continue to monitor highly leveraged corporates, particularly SMEs, and households, as well as liquidity positions in non-bank financial institutions (NBFIs) and banks. The tight macroprudential stance should generally be maintained, and further tightened as needed, which combined with the authorities' plans to ramp up housing supply, would help ensure a soft landing in residential real estate prices and prevent further rise of systemic financial risks.

59. The authorities' efforts to accelerate transition towards a smarter, greener, more inclusive, and more resilient economy is laudable. As the pandemic subsides, the authorities are appropriately accelerating transformation towards a green, digital, and more inclusive economy as illustrated by steps already taken in the FY2023 budget.

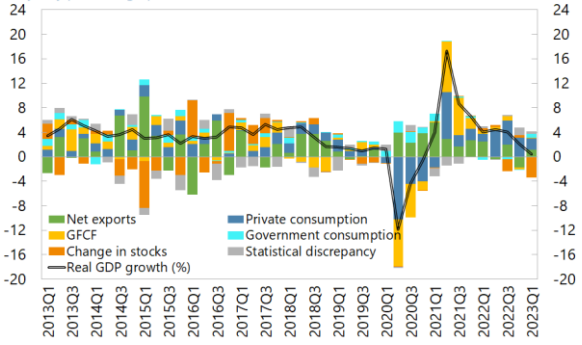
60. It is recommended that the next Article IV consultation with Singapore be held on the standard 12-month cycle.

Figure 1. Singapore: Real Sector Developments

After rebounding by 8.9 percent in 2021, growth moderated to 3.6 in 2022 and is supported by private consumption.

Singapore: Contribution to Real GDP Growth by Expenditure

(In y-o-y percentage points)

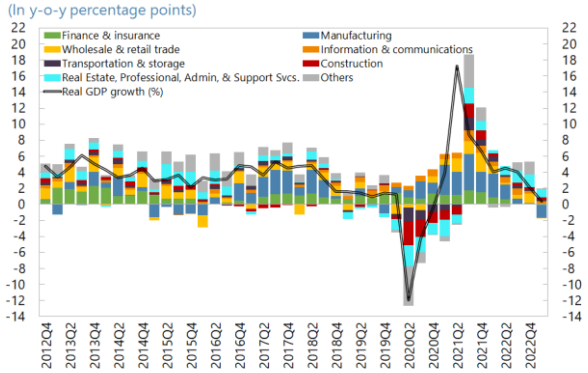


Sources: Singapore Department of Statistics, CEIC Data, and IMF staff calculations.

The recovery has been uneven, led by the manufacturing and tech sectors while consumer-facing services (except the retail sector) and construction remained below pre-pandemic levels.

Singapore: Contribution to Real GDP Growth By Industry

(In y-o-y percentage points)

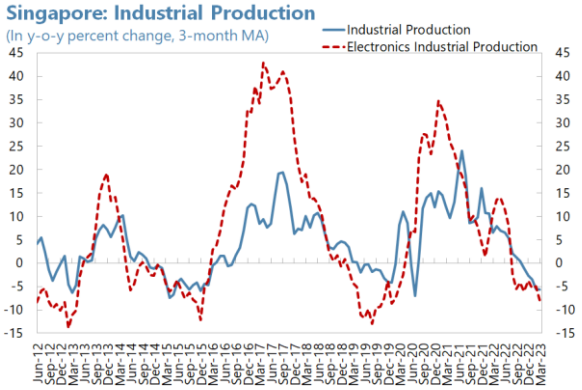


Sources: Singapore Department of Statistics, CEIC Data, and IMF staff calculations.

Growth in the manufacturing sector has weakened amid moderating global electronics cycle.

Singapore: Industrial Production

(In y-o-y percent change, 3-month MA)

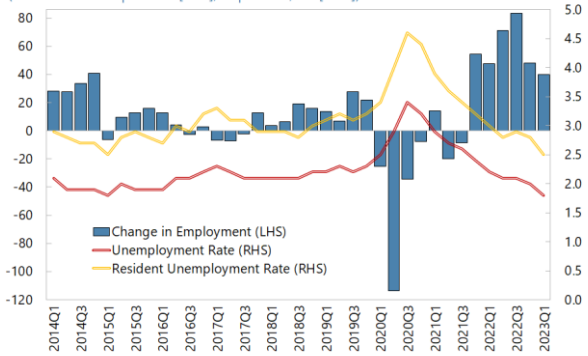


Sources: Singapore Economic Development Board, CEIC Data, and IMF staff

The recovery has led to an improvement in the labor market with unemployment decreasing below the pre-pandemic level.

Singapore: Employment and Unemployment

(In thousands of persons [LHS]; in percent, SA [RHS])

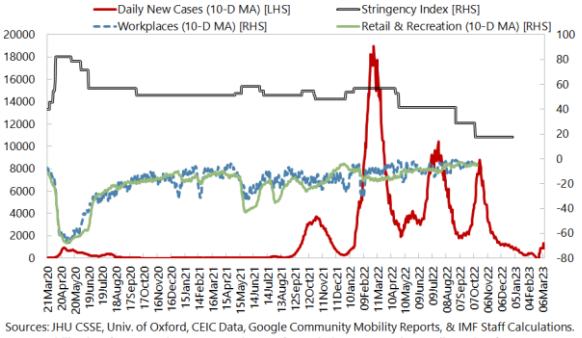


Sources: Singapore Ministry of Manpower and CEIC Data.

Daily new COVID-19 cases have fallen sharply from the Omicron peak since the reopening and mobility remains below pre-pandemic levels...

Singapore: COVID-19, Stringency Index, & Mobility Trends

(Number of cases [LHS]; Index [RHS]; Percent changes [RHS])

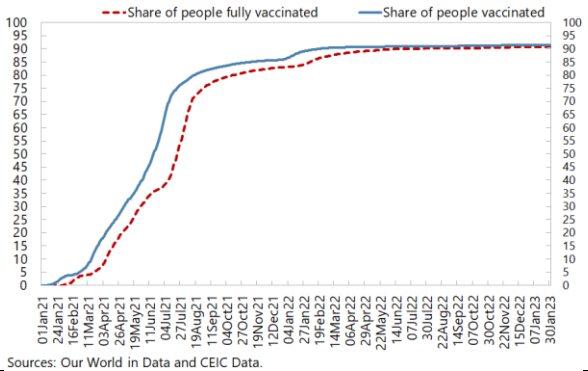


Sources: JHU CSSE, Univ. of Oxford, CEIC Data, Google Community Mobility Reports, & IMF Staff Calculations.
Note: Mobility data from Google represents changes for each day compared to median value, for corresponding day of the week, during the 5-week period Jan 3-Feb 6, 2020.

while the share of fully vaccinated people neared 92 percent.

Singapore: COVID-19 Vaccinations

(In percent share of total population)



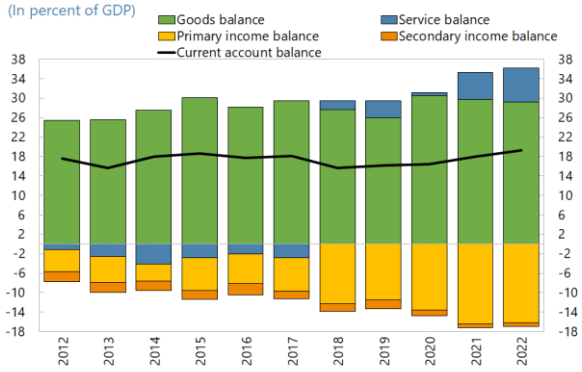
Sources: Our World in Data and CEIC Data.

Figure 2. Singapore: External Sector

The current account (CA) surplus increased to 19.3 percent of GDP in 2022, reflecting larger surpluses in both the goods and services balances.

Singapore: Current Account Balance

(In percent of GDP)

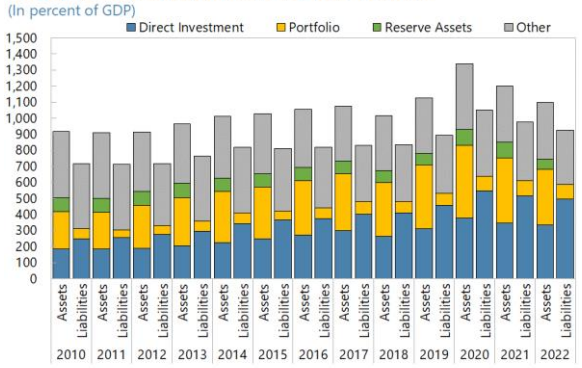


Sources: Singapore Dept. of Statistics, CEIC Data, and IMF staff calculations.

Singapore has a net asset position in portfolio investment and a net liability position in FDI holdings.

Singapore: International Investment Position

(In percent of GDP)

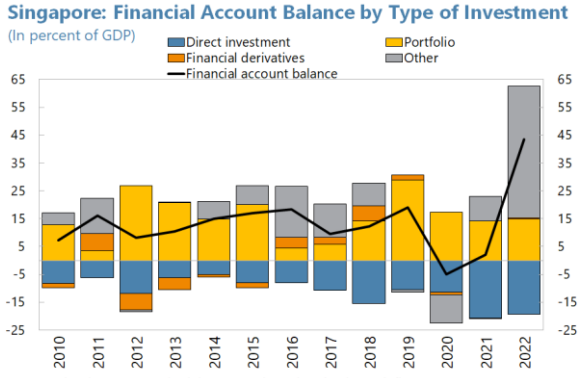


Sources: Singapore Dept. of Statistics, CEIC Data, & IMF staff calculations.

The financial account recorded net capital outflows in 2022, reflecting net outflows of portfolio investment and in "other investment". Net FDI inflows increased in 2022.

Singapore: Financial Account Balance by Type of Investment

(In percent of GDP)

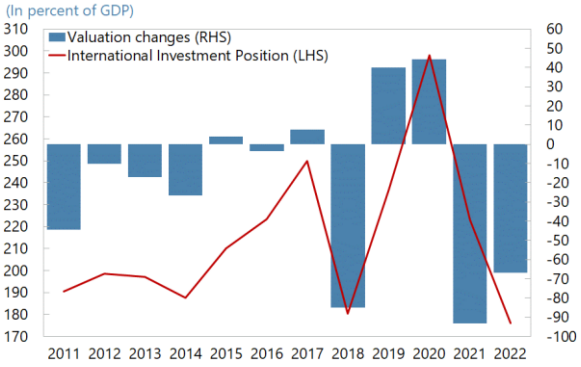


Note: Under the BPM6 methodology negative values imply net inflows.
Sources: Singapore Dept. of Statistics, CEIC Data, & IMF staff calculations.

The net international investment position (NIIP) decreased to 176.1 percent of GDP in 2022 due to valuation effects as the S$NEER appreciated following exchange rate-based monetary policy tightening by the MAS.

Singapore: Intl. Investment Position & Valuation Changes

(In percent of GDP)

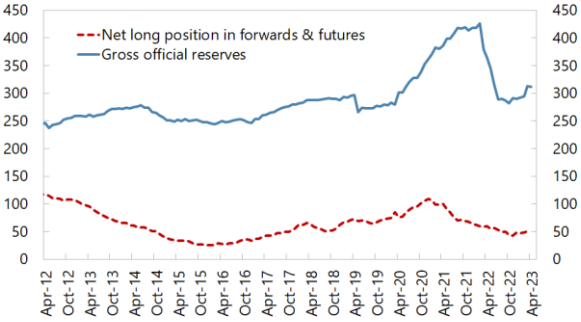


Sources: Singapore Department of Statistics, CEIC Data, and IMF staff calculations.

Gross official reserves decreased in 2022 driven by RMGS related transfers.

Singapore: Central Bank Gross Official Reserves and Net Foreign Currency Position in Forwards & Futures

(In billions of USD)

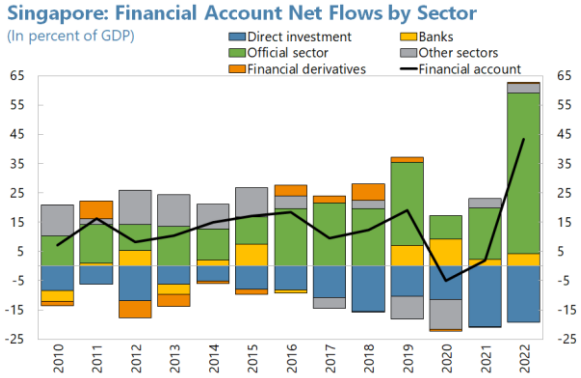


Sources: Monetary Authority of Singapore and CEIC Data.

Official flows account for most of the financial outflows.

Singapore: Financial Account Net Flows by Sector

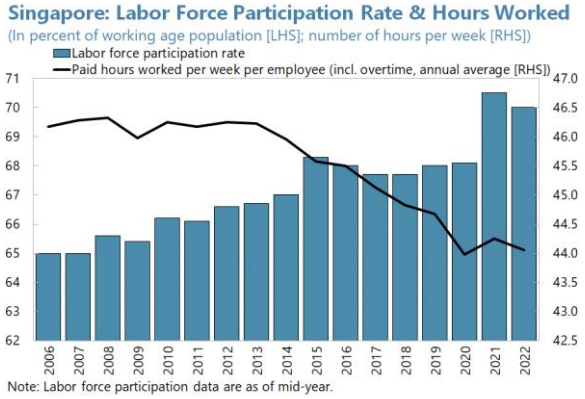
(In percent of GDP)



Note: Under the BPM6 methodology negative values imply net inflows.
Sources: Singapore Dept. of Statistics, CEIC Data, & IMF staff calculations.

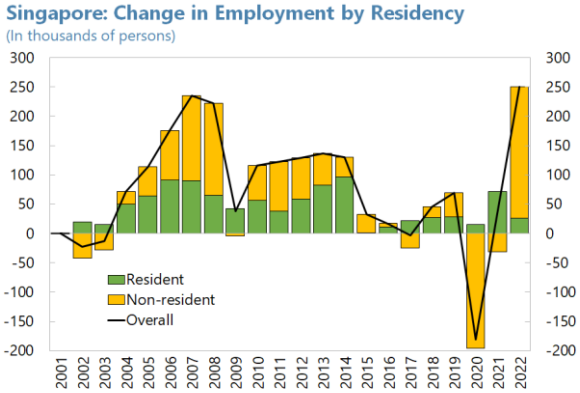
Figure 3. Singapore: Labor Market Developments

Residents' labor force participation remained above the pre-pandemic level.



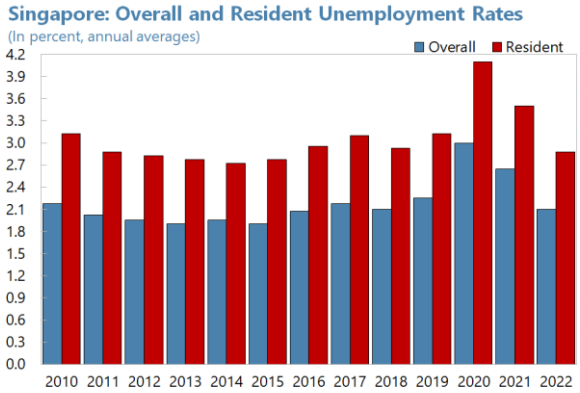
Note: Labor force participation data are as of mid-year.

Total employment recovered in 2022, driven by non-resident employment.



Sources: Singapore Ministry of Manpower and Haver Analytics.

The overall unemployment rate decreased in 2022 and was below the pre-pandemic level.

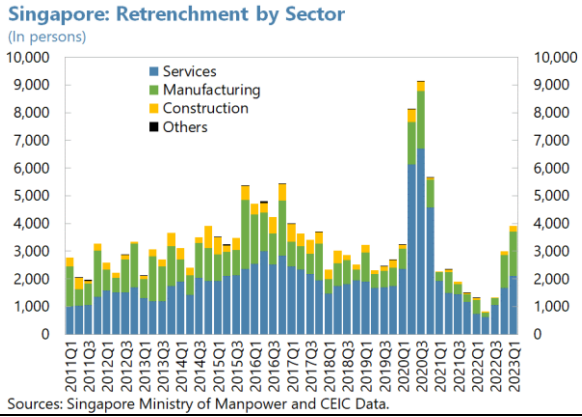


Sources: Singapore Ministry of Manpower and CEIC Data.

Labor market remained tight in 2022, with a significant rise in job vacancies relative to job seekers.

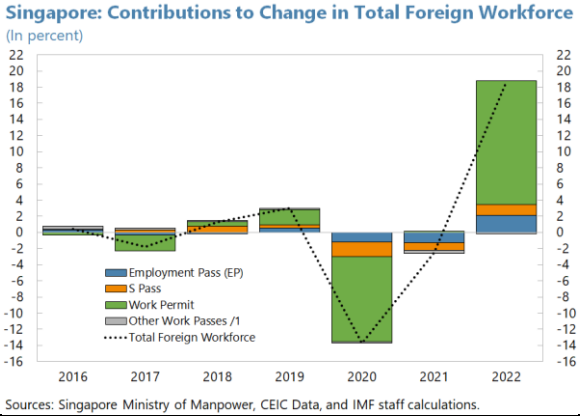
Sources: Singapore Ministry of Manpower and CEIC Data.

After soaring in 2020, the number of retrenched workers declined below the pre-pandemic level in 2022.



Sources: Singapore Ministry of Manpower and CEIC Data.

The expansion in the foreign workforce was largest for semi-skilled work permit holders as borders restrictions were lifted.

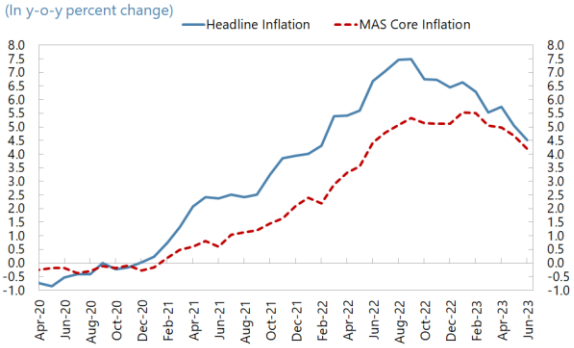


Sources: Singapore Ministry of Manpower, CEIC Data, and IMF staff calculations.

Figure 4. Singapore: Inflation Developments

Both headline and MAS core increased rapidly in 2022…

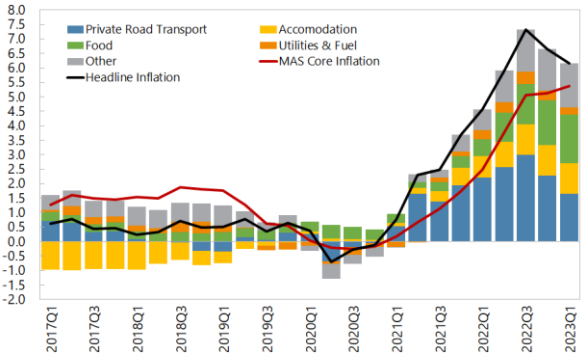
Singapore: Headline and MAS Core Inflation
(In y-o-y percent change)



Note: MAS Core Inflation tracks prices of all components of headline inflation except for accomodation and private transport. Sources: Singapore Dept. of Statistics and CEIC Data.

… driven by higher costs of private transport and food prices respectively.

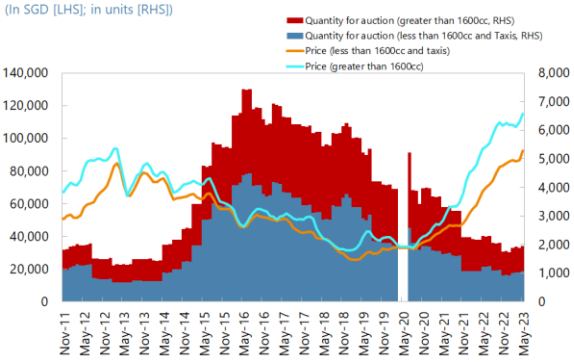
Singapore: MAS Core Inflation & Contributions to Headline Inflation
(In y-o-y change in percentage points, NSA quarterly averages)



Sources: Singapore Department of Statistics, CEIC Data, and IMF staff calculations.

The prices of cars and car ownership certificates continued to increase as bidding resumed following the COVID19-related suspension, supporting the spike in headline inflation…

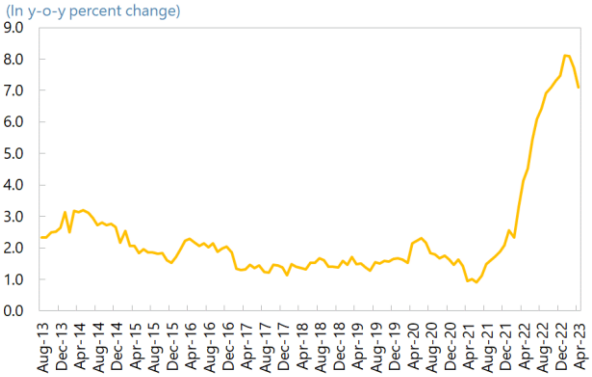
Singapore: Car Certificates of Ownership, Price, & Quantity
(In SGD [LHS]; in units [RHS])



Note: Data not released for Apr-Jun 2020. Sources: CEIC Data and IMF staff calculations.

… and food prices peaked.

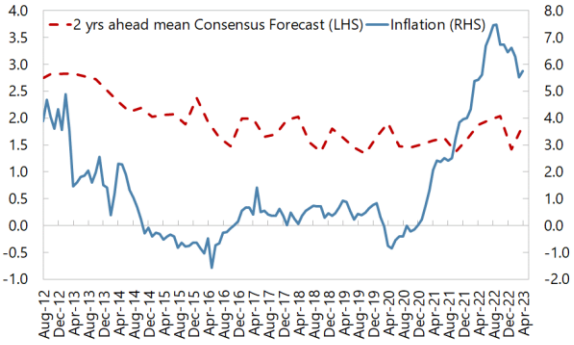
Singapore: Inflation in Food Prices
(In y-o-y percent change)



Sources: Singapore Dept. of Statistics and CEIC Data.

However, inflation expectations remain well-anchored based on 2 years ahead …

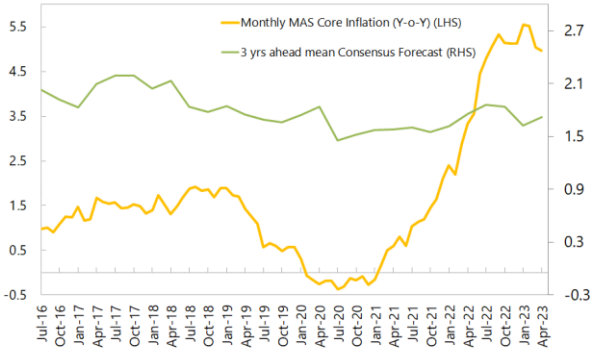
Singapore: Market Pricing of Inflation
(In percent)



Sources: Bloomberg L.P., Singapore Dept. of Statistics, and CEIC Data.

… and 3 years ahead consensus forecast.

Singapore: Inflation Expectations
(In percent)

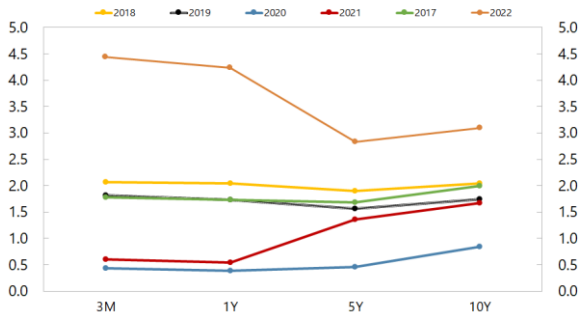


Sources: Monetary Authority of Singapore, Bloomberg LP, Consensus Economics, and CEIC Data.

Figure 5. Singapore: Monetary and Financial Sector Developments

The yield curve has shifted up with rates higher at all maturities compared to a year ago, but it has also inverted

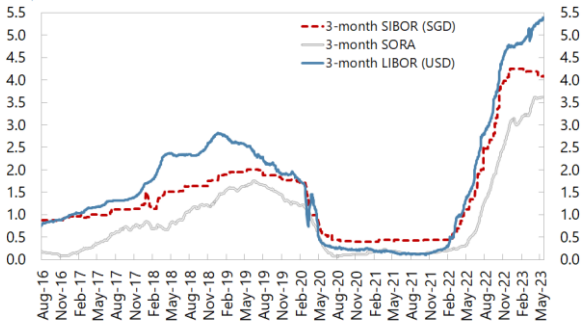
Singapore: Government Bond Yields
(In percent, end-of-period)



Sources: Monetary Authority of Singapore and CEIC Data.

...and interest rates appear to have peaked after being on a steep rise in 2022

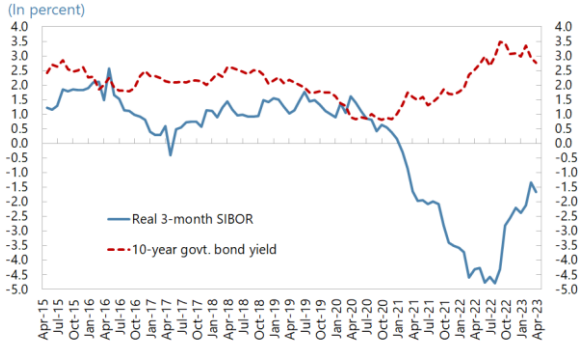
Singapore: Interest Rates
(In percent)



Note: The last observation is May 23, 2023.
Sources: ICE Benchmark Administration, Association of Banks in Singapore, MAS, & CEIC Data.

Government bond yields have tripled from pandemic lows.

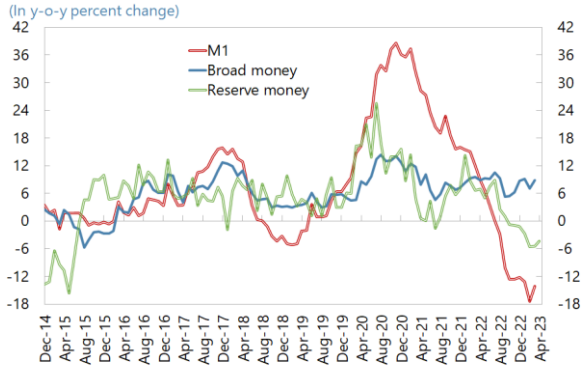
Singapore: Real Interest Rate and Government Bond Yield
(In percent)



Sources: Monetary Authority of Singapore, Association of Banks in Singapore, SGP Dept. of Statistics, CEIC Data, & IMF staff calculations.

Broad money growth has been relatively stable.

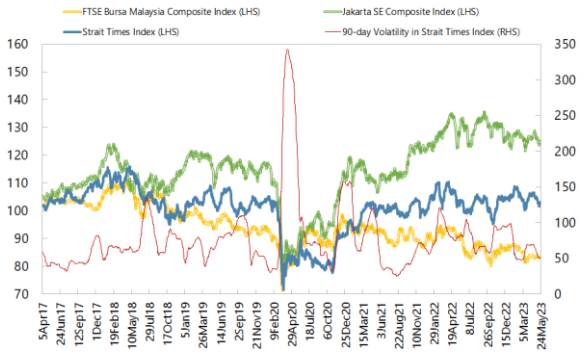
Singapore: Growth in Monetary Aggregates
(In y-o-y percent change)



Sources: Monetary Authority of Singapore and CEIC Data.

The Singapore stock market continues to perform well after recovering to pre-pandemic levels.

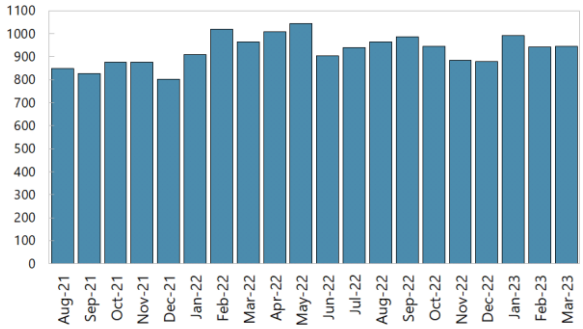
Singapore: Stock Market Indices and Volatility
(In index, Jan. 4, 2016=100 [LHS]; standard deviation [RHS])



Sources: Bursa Malaysia, Indonesia Stock Exchange, Singapore Exchange, and CEIC Data.

Foreign exchange market turnover increased in 2022.

Singapore: Forex Market Daily Average Turnover
(In billions of USD)



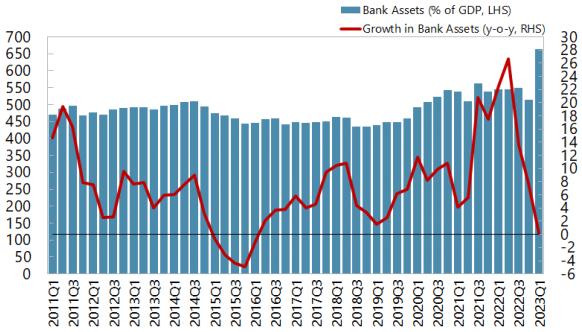
Note: Data prior to July 2021 not included because of a significant structural break.
Sources: Monetary Authority of Singapore and CEIC Data.

Figure 6. Singapore: Banking Sector Developments

Growth in banking assets recently moderated from high levels.

Singapore: Banking Assets

(In percent of 4 quarter rolling GDP [LHS], y-o-y percent change [RHS])

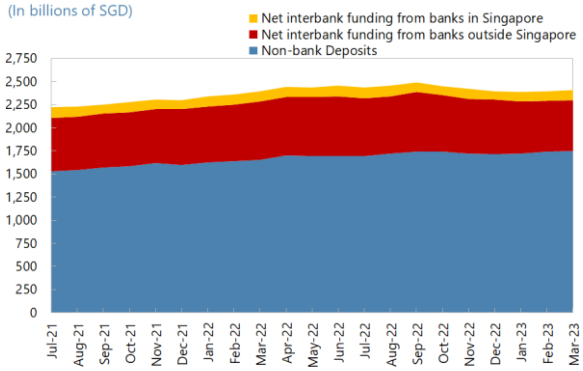


Note: Data has a structural break in July 2021 reflecting removal of DBU-ACU divide & revision of MAS 610/1003. Sources: Monetary Authority of Singapore and CEIC Data.

Non-bank deposits remain the largest funding sources for banks.

Singapore: Funding Structure of the Banking System

(In billions of SGD)

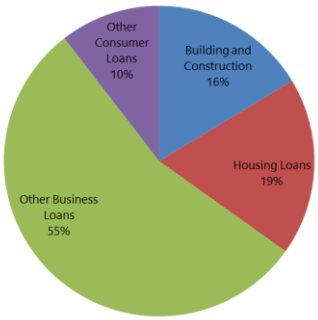


Sources: Monetary Authority of Singapore and CEIC Data.

Property-market related loans continued to account for a large share (34 percent) of total domestic non-bank loans.

Singapore: Commercial Bank Loans & Advances by Purpose, Mar 2023

(In percent of total commercial bank loans & advances)

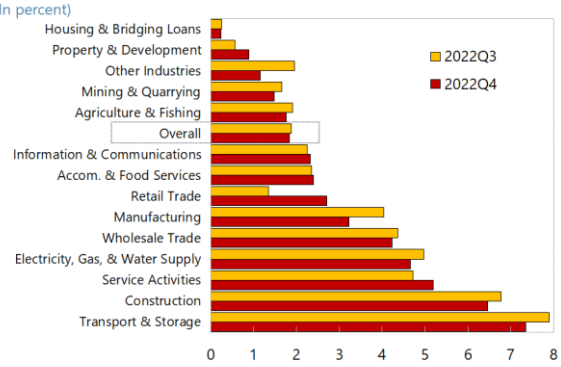


Sources: Monetary Authority of Singapore, CEIC Data, and IMF staff calculations.

Though declining, non-performing loan ratios remained high in transport, storage and constructions sectors.

Singapore: Non-Peforming Loans by Sector

(In percent)

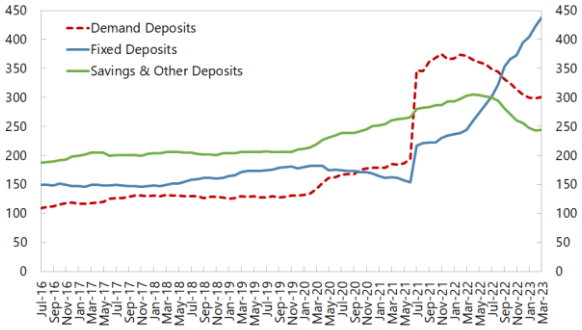


Sources: Monetary Authority of Singapore and CEIC Data.

Deposits continued to grow with a shift from demand and savings to fixed deposits since second half of 2022.

Singapore: Resident Deposits

(In billions of SGD)

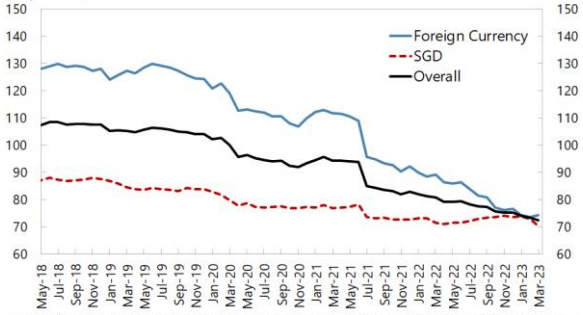


Note: Data has a structural break in July 2021 reflecting removal of DBU-ACU divide & revision of MAS 610/1003. Sources: Monetary Authority of Singapore and CEIC Data.

The banking sector's foreign currency loan-to-deposit ratio continued to decline in 2022.

Singapore: Loan to Deposit Ratio by Currency

(In percent)



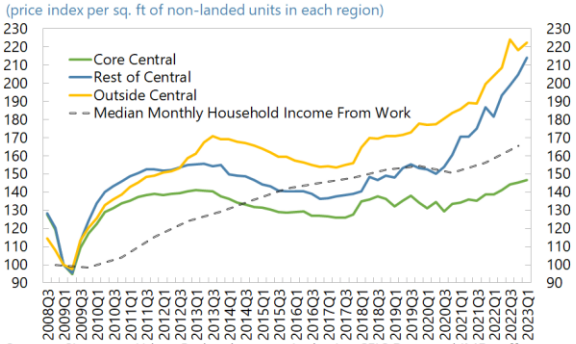
Note: This covers loans extended by the banking sector, excluding interbank lending. Data has a structural break in July 2021 reflecting removal of DBU-ACU divide & revision of MAS 610/1003. Source: Monetary Authority of Singapore.

Figure 7. Singapore: Housing Market Developments

House prices have steadily increased in recent years

Singapore: Median Private Property Price Index [1Q2009=100] & Household Income [4Q2008=100]

(price index per sq. ft of non-landed units in each region)

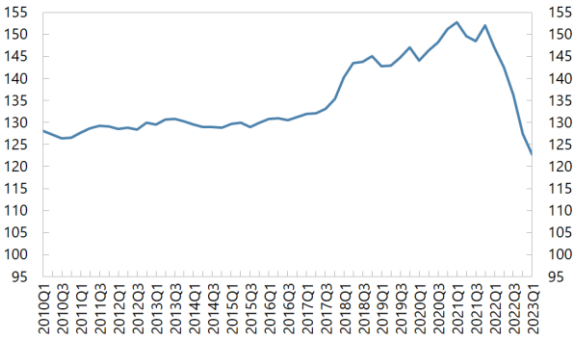


Sources: Singapore Urban Redevelopment Authority, CEIC Data, and IMF staff

The house price-to-rent ratio dropped as rents increased sharply.

Singapore: House Price to Rent Ratio

(In index, 2009Q1=100)

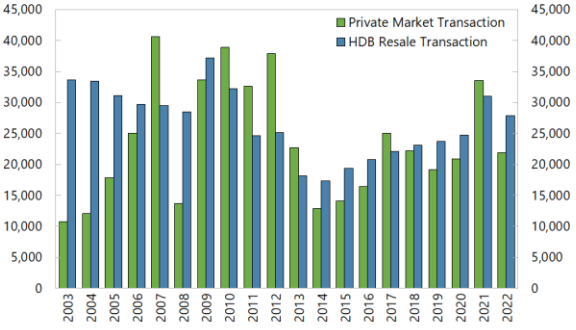


Sources: Singapore Urban Redevelopment Authority, CEIC Data, & IMF staff

Private and public market transactions moderated in 2022 after having been on an increasing trend for past years…

Singapore: Private & Public Residential Transactions

(In units)

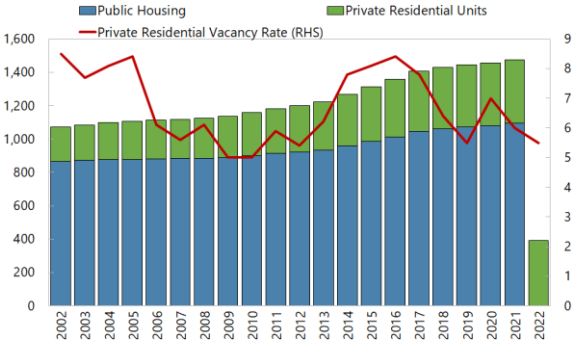


Sources: Singapore Urban Redevelopment Authority, Singapore Housing & Development Board, and CEIC Data.

… and the vacancy ratio in the private market continued to decrease.

Singapore: Housing Stock and Vacancy

(In thousands of units [LHS]; percent of total stock [RHS])

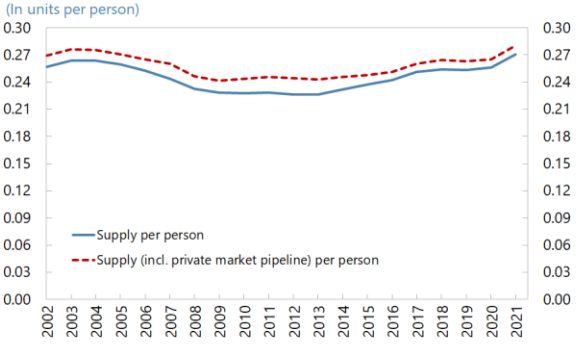


Sources: Singapore Urban Redevelopment Authority, Singapore Dept. of Statistics, & CEIC Data.

Housing supply per capita remains stable…

Singapore: Housing Supply per Person

(In units per person)

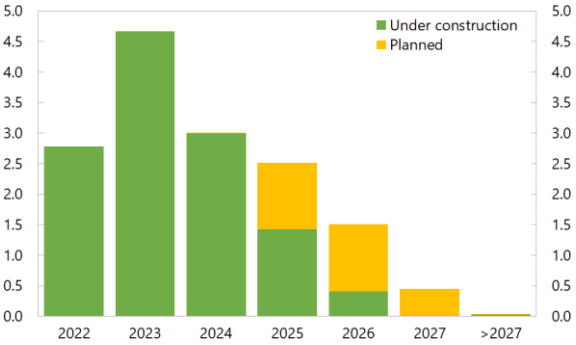


Sources: Singapore Urban Redevelopment Authority, Singapore Dept. of Statistics, CEIC Data, and IMF staff calculations.

…with supply expected to increase in the coming years.

Singapore: Upcoming Private Residential Supply Pipeline, 2022Q4

(In percent of 2019Q4 private residential stock)



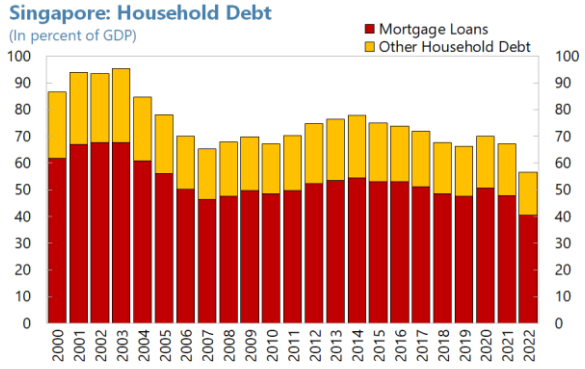
Sources: Singapore Urban Redevelopment Authority, CEIC Data, and IMF staff

Figure 7. Singapore: Housing Market Developments (concluded)

Household debt to GDP declined in 2022 driven by the higher nominal GDP…

Singapore: Household Debt

(In percent of GDP)

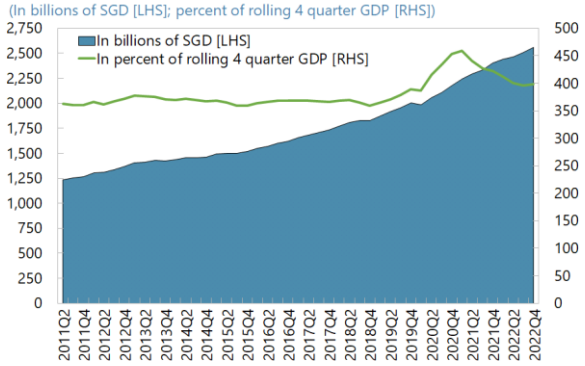


Sources: Singapore Dept. of Statistics, Haver Analytics, and IMF staff calculations.
Note: 2022 Q3 numbers were used for 2022 as placeholder.

Households maintained strong balance sheets with their net wealth standing at around 400 percent of GDP…

Singapore: Household Net Wealth

(In billions of SGD [LHS]; percent of rolling 4 quarter GDP [RHS])

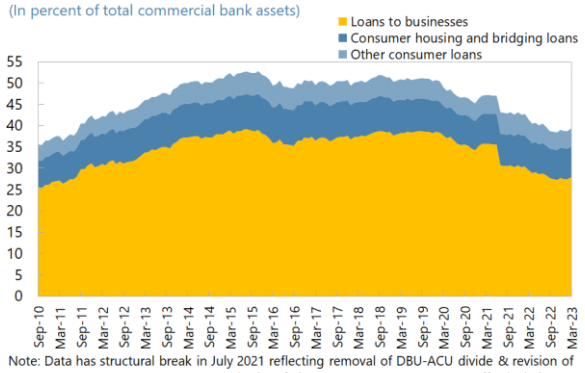


Sources: Singapore Dept. of Statistics, CEIC Data, and IMF staff calculations.

Banks' exposure to private housing loans has slightly declined.

Singapore: Commercial Bank Loans by Type of Borrowers

(In percent of total commercial bank assets)

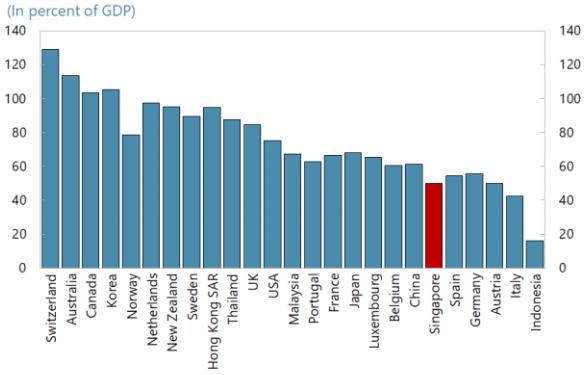


Note: Data has structural break in July 2021 reflecting removal of DBU-ACU divide & revision of MAS 610/1003. Sources: Monetary Authority of Singapore, CEIC Data, & IMF staff calculations.

… and remains lower than peers.

Singapore: Household Debt, 2022Q3

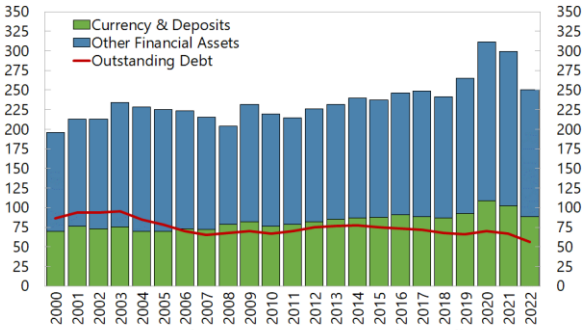
(In percent of GDP)



Sources: Bank for International Settlements.

…and liquid financial assets, though lower, are enough to cover current debt outstanding.

Singapore: Household Financial Wealth & Debt

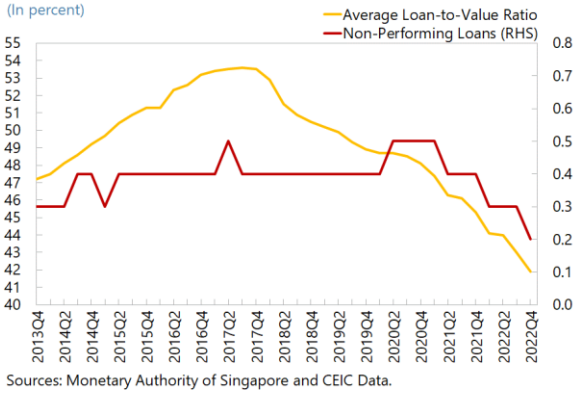


Sources: Singapore Dept. of Statistics, Haver Analytics, and IMF staff calculations.
Note: 2022 Q3 numbers were used for 2022 as placeholder.

The quality of housing loans remains strong, with a declining average loan-to-value ratio, and low and declining non-performing loan ratios.

Singapore: Quality of Housing Loans

(In percent)

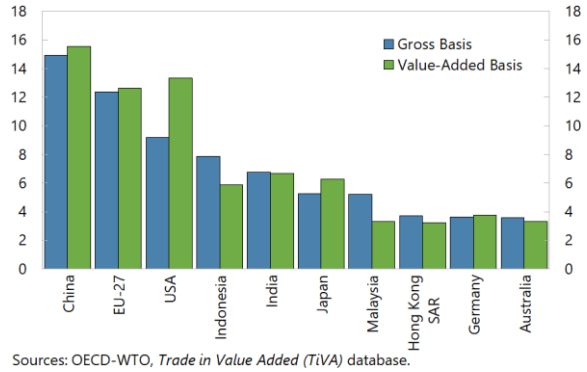


Sources: Monetary Authority of Singapore and CEIC Data.

Figure 8. Singapore: Spillovers

Singapore depends mainly on foreign final demand from China, the EU, and the US, while Malaysia and Indonesia are important partners within the region.

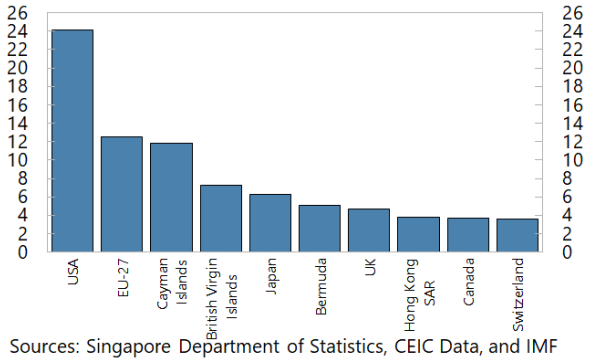
Singapore: Value-Added in Foreign Final Demand versus Gross Exports
(In percent of total, 2018)



Sources: OECD-WTO, *Trade in Value Added (TiVA)* database.

FDI stocks are also dominated by the US and EU and are mainly concentrated in the finance and insurance sector.

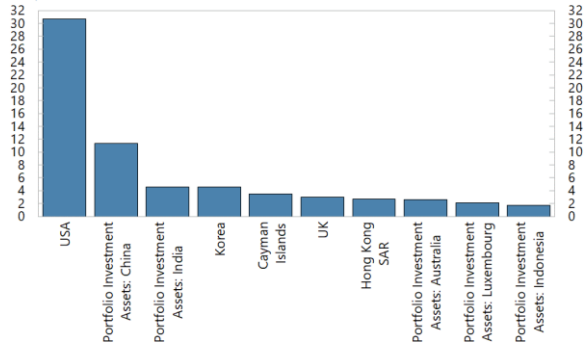
Singapore: FDI by Top Source Economy
(In percent of total stock, end 2021)



Sources: Singapore Department of Statistics, CEIC Data, and IMF

Singapore has large portfolio assets, which would make its external balance sheet vulnerable to shocks in the US and several regional economies such as China and India.

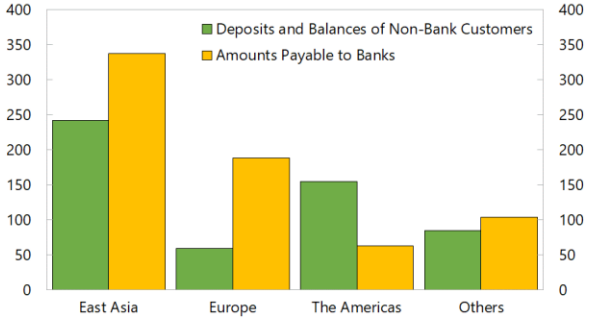
Singapore: Composition of Portfolio Investment Assets
(In percent of total, 2021)



Sources: IMF, *Coordinated Portfolio Investment Survey (CPIS)* and IMF staff calculations.

Major sources of funding for Singapore's financial center include East Asian and European banks.

Singapore: Banking System External Funding Sources by Region, Mar 2023
(In billions of SGD)



Sources: Monetary Authority of Singapore, CEIC Data, and IMF staff calculations.

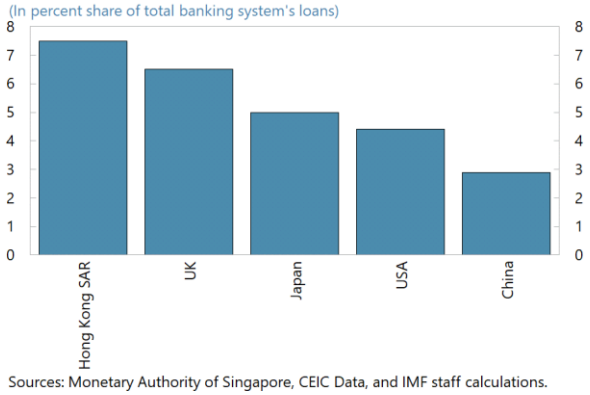
East Asia is a major user of funds and likely to experience outward spillovers from Singapore, in the event of a banking sector stress in Singapore

Singapore: Banking System Use of Funds by Region, Mar 2023
(In billions of SGD)

Sources: Monetary Authority of Singapore and CEIC Data.

Cross-border exposures of domestic banks to Greater China and other Asian economies remain high, exposing Singapore to the risk of regional spillovers.

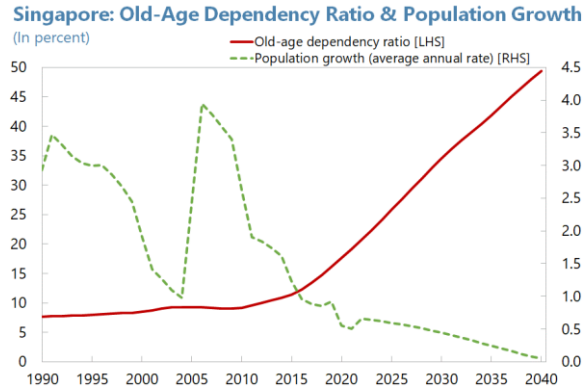
Singapore: Total Loans to Nonresidents by Region, 2022Q3
(In percent share of total banking system's loans)



Sources: Monetary Authority of Singapore, CEIC Data, and IMF staff calculations.

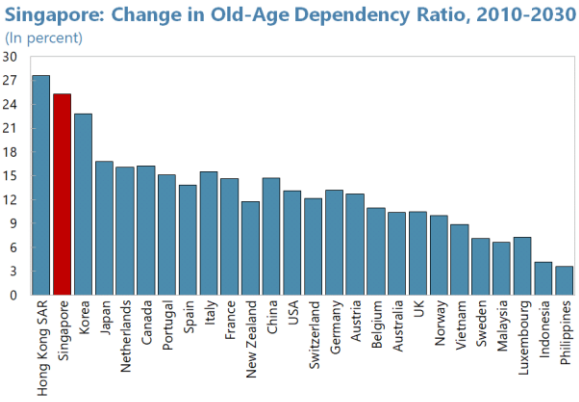
Figure 9. Singapore: Demographic Transition

Old-age dependency is projected to increase significantly in the medium to long term.



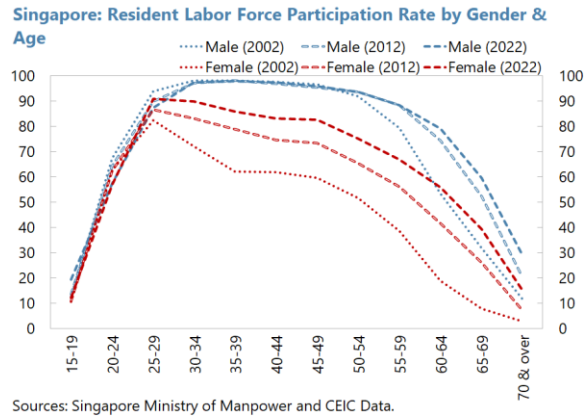
Sources: United Nations Department of Economic and Social Affairs.

Singapore's aging speed is among the highest in the region and advanced economies across the world.



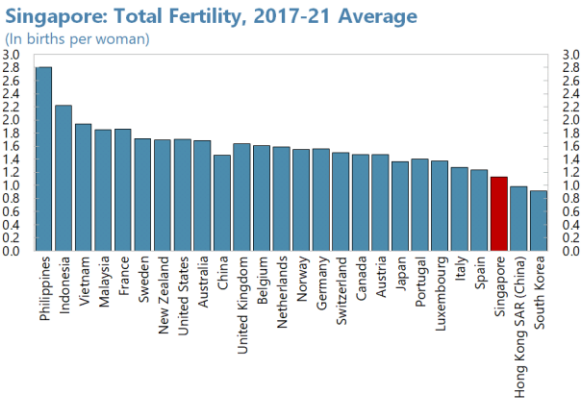
Sources: UNDESA, *World Population Prospects* 2019.

Labor force participation rate has risen in recent years particularly for the elderly and women in prime working age, but there is scope to do more .



Sources: Singapore Ministry of Manpower and CEIC Data.

The average number of children per woman is among the lowest in the world.



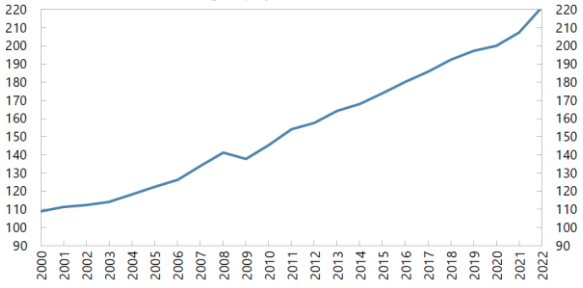
Sources: World Bank, *World Development Indicators,* CEIC Data, and IMF staff calculations.

Figure 10. Singapore: Social and Equality Indicators

Average monthly earnings have risen steadily.

Singapore: Average Monthly Earnings

(In index [1999=100], excluding employers' contributions to CPF)

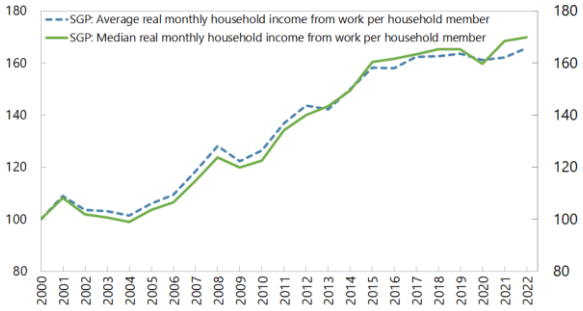


Sources: Singapore Department of Statistics, CEIC Data, and IMF staff calculations. Note: Source data includes all remuneration received before deduction of employee Central Provident Fund (CPF) contributions & personal income tax. It comprises basic wages, overtime pay, commissions, allowances & bonuses but exclude employer CPF contributions. Data cover full-time & part-time employees who have CPF contributions. They exclude identifiable self-employed persons who have made CPF contribution.

Median household income increased in 2022.

Singapore: Mean & Median Real Household Income from Work Per Household Member

(In index, 2000=100)

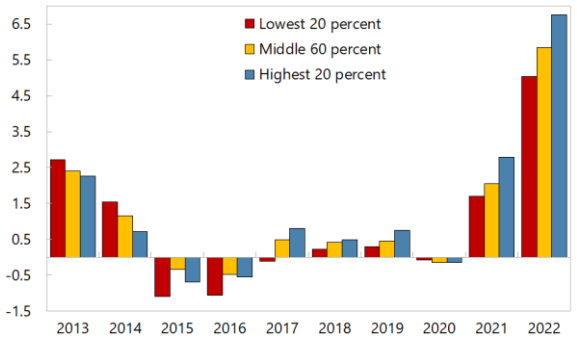


Sources: Singapore, Department of Statistics; CEIC; and IMF staff calculations.
Note: For Singapore, data is on resident households and includes contributions from employers to CPF.

High Inflation affected all income groups in 2022.

Singapore: Inflation by Income Group

(In percent change of yearly period averages)



Sources: Singapore Dept. of Statistics, CEIC Data, and IMF staff calculations.

Median wages for high-skilled workers continued to rise, while median wages for medium-skilled and low-skilled workers have moderated.

Singapore: Weighted Gross Monthly Wages

(In y-o-y percent change, full-time employed residents [excluding employer's CPF contributions])

Sources: Singapore Ministry of Manpower and IMF staff calculations.
Note: High-skilled comprises of managers and administrators; working proprietors; professionals; and technicians. Mid-skilled comprises clerical support workers; sales and service workers; craftsmen; plant and machine operators; and assemblers. Low-skilled comprises cleaners; laborers; and related workers.

While largely stagnant during 2000–11, real incomes of lower income groups have increased at a faster pace in the last decade.

Singapore: Average Monthly Real Household Income by Decile 1/

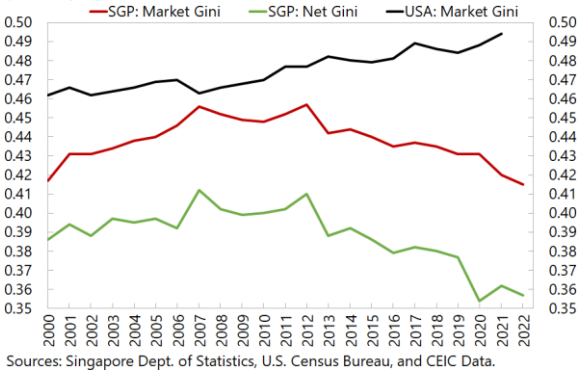
			Cumulative Change (in percent)		
Decile	2000	2022	2000–2022	2000–2011	2011–2022
Total	1,735	3,074	77.2	36.5	29.8
1st-10th	315	461	46.2	3.4	41.4
11th-20th	537	900	67.6	15.4	45.2
21st-30th	720	1,290	79.1	26.8	41.3
31st-40th	911	1,661	82.4	29.0	41.3
41st-50th	1,119	2,061	84.2	30.3	41.3
51st-60th	1,366	2,515	84.1	31.5	40.1
61st-70th	1,669	3,078	84.4	32.9	38.8
71st-80th	2,093	3,856	84.3	34.3	37.2
81st-90th	2,821	5,374	90.5	42.6	33.6
91st-100th	5,801	10,319	77.9	55.0	14.8
Top dec/bottom dec	18.4	22.4			

1/ Income from work per household member in employed households in 2000 prices. Household income from work includes employer CPF contributions. Deflated by CPI for the respective income group (lowest 20 percent, middle 60 percent, top 20 percent).

Inequality has continued on a declining trend reaching pre-pandemic level.

Singapore & USA: Household Gini

(In index [0-1])



Sources: Singapore Dept. of Statistics, U.S. Census Bureau, and CEIC Data.

Table 1. Singapore: Selected Economic and Financial Indicators, 2017–24

Nominal GDP (2022): US$466.7 billion
Population (2022): 5.6 million
GDP per capita (2022): US$82,794
Main goods exports (2022, percent of total non-oil goods exports): machinery & transport equip. (63.1 percent); chemical products (14.4 percent); and misc. manufactured articles (9.8 percent).
Top three destinations for goods exports (2022, percent of gross goods exports): China (12.4 percent); Hong Kong SAR (11.2 percent); and Malaysia (10.0 percent).

							Projection	
	2017	2018	2019	2020	2021	2022	2023	2024
Growth (percentage change)								
Real GDP	4.5	3.6	1.3	-3.9	8.9	3.6	1.0	2.1
Total domestic demand 1/	5.9	1.1	2.0	-9.8	9.5	4.4	2.2	2.7
Final domestic demand 1/	3.9	0.7	2.7	-10.0	9.8	4.8	2.2	2.7
Consumption	3.2	3.9	2.9	-7.5	5.8	6.6	1.7	2.7
Private consumption	3.1	4.1	2.8	-13.1	6.6	9.7	2.1	1.8
Gross capital formation 1/	10.8	-3.6	0.4	-14.0	16.7	0.6	2.9	2.7
Gross fixed investment	5.1	-5.0	2.3	-14.8	18.0	1.6	3.1	2.8
Change in inventories (contribution to GDP growth, percentage points) 1/	1.6	0.3	-0.5	0.0	0.0	-0.2	0.0	0.0
Net exports (contribution to GDP growth, percentage points) 1/	1.1	2.7	0.4	2.5	3.3	0.6	-0.5	0.2
Saving and investment (percent of GDP)								
Gross national saving	45.4	40.5	40.8	39.1	41.1	41.3	39.4	38.1
Gross domestic investment	27.3	24.8	24.6	22.6	23.1	21.9	22.8	22.9
Inflation and unemployment (period average, percent)								
CPI inflation	0.6	0.4	0.6	-0.2	2.3	6.1	5.5	3.5
CPI inflation, excluding food and energy 2/	-0.7	-0.1	0.4	-0.3	2.4	6.1	5.0	3.4
MAS core inflation 2/	1.5	1.7	1.0	-0.2	0.9	4.1	3.9	2.8
Unemployment rate	2.2	2.1	2.3	3.0	2.7	2.1	1.8	1.8
Central government finances (percent of GDP) 3/								
Revenue	18.8	17.9	17.7	17.6	17.4	17.4	17.5	18.0
Expenditure	14.0	13.8	14.0	21.7	18.2	16.4	14.9	15.1
Net lending/borrowing	4.8	4.1	3.7	-4.1	-0.8	0.9	2.6	2.9
Net lending/borrowing, excluding nonproduced assets	1.7	1.1	1.4	-5.8	-2.8	-1.2	0.2	0.4
Primary balance 4/	-1.5	-2.0	-1.9	-9.5	-6.3	-4.5	-3.2	-3.2
Public Debt to GDP	105.9	107.5	124.7	146.6	136.6	167.8	168.1	168.4
Money and credit (end of period, percent change) 5/								
Broad money (M2)	4.2	5.1	4.5	10.7	9.7	7.8	5.3	...
Credit to private sector	3.3	4.8	3.0	1.4	6.8	0.5	1.0	...
Three-month S$ SIBOR rate (percent)	1.5	1.9	1.8	0.4	0.4	4.3	...	...
Balance of payments (US$ billions)								
Current account balance	62.3	59.2	60.9	57.3	76.4	90.2	84.2	80.7
(In percent of GDP)	18.1	15.7	16.2	16.5	18.0	19.3	16.6	15.2
Goods balance	100.9	104.4	97.8	106.4	125.7	136.5	112.1	114.9
Exports, f.o.b.	417.1	460.9	441.9	419.9	514.5	579.6	606.9	649.1
Imports, f.o.b.	-316.2	-356.4	-344.1	-313.5	-388.8	-443.0	-494.8	-534.3
Financial account balance 6/	33.0	46.4	71.9	-17.5	8.5	202.6	28.3	27.4
Overall balance 6/	27.4	12.5	-8.4	74.9	66.2	-114.2	55.9	53.3
Gross official reserves (US$ billions)	279.9	287.7	279.5	362.3	417.9	289.5	344.2	394.0
(In months of imports) 7/	6.0	6.3	6.4	6.9	7.1	4.5	5.0	5.4
Singapore dollar/U.S. dollar exchange rate (period average)	1.38	1.35	1.36	1.38	1.34	1.38	...	...
Nominal effective exchange rate (percentage change) 8/	-1.0	0.5	1.4	-2.5	0.4	6.4	...	...
Real effective exchange rate (percentage change) 8/	-9.4	-5.8	4.5	-25.1	2.3	14.4	...	...
Memorandum items:								
Nominal GDP (in billions of Singapore Dollars)	474.0	508.3	514.1	480.7	569.4	643.5	677.7	716.1
Growth (%)	7.6	7.2	1.1	-6.5	18.4	13.0	5.3	5.7

Sources: Data provided by the Singapore authorities; and IMF staff estimates and projections.
Note: Data and forecasts as of May 24, 2022
1/ Approximation based on available data.
2/ IMF staff estimates, showing projections from 2021. MAS core inflation excludes the costs of accommodation and private transport.
3/ IMF staff estimates on a calendar year basis following GFSM 2014.
4/ Net lending/borrowing excluding net investment return contribution (NIRC).
5/ Data reporting by financial institutions changed since July 2021 after two major changes in MAS' banking sector regulatory framework took effect, creating a break in the broad
6/ Following the BPM6 sign convention, a positive entry implies net outflows.
7/ In months of following year's imports of goods and services.
8/ Increase is an appreciation.

Table 2. Singapore: Balance of Payments, 2017–24 1/

	2017	2018	2019	2020	2021	2022	Projections 2023	2024
	(In billions of U.S. dollars)							
Current account balance	62.3	59.2	60.9	57.3	76.4	90.2	84.2	80.7
Goods balance	100.9	104.4	97.8	106.4	125.7	136.5	112.1	114.9
Exports, f.o.b.	417.1	460.9	441.9	419.9	514.5	579.6	606.9	649.1
Imports, f.o.b.	-316.2	-356.4	-344.1	-313.5	-388.8	-443.0	-494.8	-534.3
Services balance	-9.4	6.8	13.3	2.3	23.7	32.6	32.2	34.4
Exports	171.8	207.5	219.8	214.1	266.5	291.3	311.8	333.5
Imports	-181.2	-200.7	-206.5	-211.8	-242.8	-258.6	-279.5	-299.1
Primary income balance	-23.9	-46.2	-43.1	-47.2	-69.4	-75.1	-55.6	-63.9
Receipts	101.3	108.5	111.6	108.0	146.2	157.0	142.6	126.7
Payments	-125.2	-154.7	-154.6	-155.2	-215.5	-232.2	-198.2	-190.7
Secondary income balance	-5.3	-5.7	-7.1	-4.2	-3.7	-3.8	-4.6	-4.6
Financial account (net)	33.0	46.4	71.9	-17.5	8.5	202.6	28.3	27.4
Direct investment	-36.9	-58.3	-39.2	-40.1	-87.7	-90.1	-97.2	-100.2
Assets	65.2	22.8	66.1	38.4	50.8	50.8	57.4	62.0
Liabilities	102.2	81.2	105.3	78.4	138.5	140.8	154.7	162.2
Portfolio investment	19.9	53.0	108.6	60.5	60.3	69.2	9.6	9.2
Assets	45.6	39.0	114.1	56.6	79.4	90.7	12.6	12.1
Liabilities	25.7	-14.1	5.5	-3.9	19.0	21.5	3.0	2.9
Other investment and financial derivatives	50.0	51.7	2.5	-38.0	35.9	223.5	115.9	118.3
Net errors and omissions	-1.9	-0.3	2.7	0.0	-1.7	-1.8	...	...
Overall balance	27.4	12.5	-8.4	74.9	66.2	-114.2	55.9	53.3
Memorandum items:								
Current account as percent of GDP	18.1	15.7	16.2	16.5	18.0	19.3	16.6	15.2
Goods balance as percent of GDP	29.4	27.7	26.0	30.5	29.7	29.2	22.1	21.7
Re-exports as percent of GDP	53.9	54.0	54.6	58.5	58.9	59.1	...	...
Net international investment position								
In billions of U.S. dollars	858	680	892	1039	945	822.0	...	...
In percent of GDP	250	181	237	298	223	176.0	...	...

Sources: Monetary Authority of Singapore, *Economic Survey of Singapore*; and IMF staff estimates and projections.

1/ Data for the current account balance, the capital and financial account balance, and net errors and omissions are converted to U.S. dollars from the official presentation in Singapore dollars using period-average exchange rates. The official presentation has adopted the sign convention for assets and liabilities in line with BPM6 manual.

Table 3. Singapore: Monetary Survey, 2017–24 1/

	2017	2018	2019	2020	2021	2022	Projections 2023	2024
	(In billions of Singapore dollars, end of period)							
Net foreign assets	534	556	578	724	654	498	572	644
Monetary authorities	372	390	374	472	553	381	455	528
Banks	162	166	204	252	102	117	117	117
Domestic credit	898	950	996	1019	989	1240	1254	1278
Claims on private sector	765	802	826	837	894	899	908	928
Claims on central government	133	148	170	182	95	341	346	351
Other items (net)	-584	-615	-643	-712	-513	-518	-543	-567
M2	848	891	931	1031	1131	1219	1283	1356
M1	315	311	326	437	518	451	475	502
Quasi-money	533	580	605	595	613	768	808	854
	(Annual percentage change)							
Domestic credit	4.0	5.7	4.9	2.3	-2.9	25.3	1.2	1.9
Claims on private sector	3.3	4.8	3.0	1.4	6.8	0.5	1.0	2.1
M2	4.2	5.1	4.5	10.7	9.7	7.8	5.3	5.7
	(Contribution to M2 growth, in percentage points)							
Net foreign assets	3.5	2.6	2.4	15.7	-6.8	-13.9	6.1	5.6
Domestic credit (net)	4.2	6.1	5.1	2.5	-2.9	22.1	1.2	1.9
Claims on private sector	3.0	4.4	2.7	1.2	5.5	0.4	0.8	1.5
Claims on central government (net)	1.2	1.7	2.5	1.3	-8.4	21.7	0.4	0.4
Other items (net)	-3.5	-3.5	-3.2	-7.5	19.3	-0.5	-2.0	-1.9
Memorandum items:								
Total loans to nonbanks (in billions of Singapore dollars)	1,248	1,314	1,370	1,354	1,325	1,290	...	...
To residents 3/	725	763	786	793	816	814	...	...
Total loans to nonbanks (annual percentage change) 2/	8.0	5.3	4.3	-1.2	-2.1	-2.6	...	...
To residents (annual percentage change) 3/	2.9	5.3	3.0	0.8	2.9	-0.3	...	...

Sources: Monetary Authority of Singapore; and IMF staff estimates.

1/ Based on domestic banking units (DBUs) and Asian currency units (ACUs) until June 2021. Data reporting by financial institutions changed since July 2022 after two major changes in MAS' banking sector regulatory framework took effect, creating a break in the broad money and credit to private sector series.

2/ Total loans of DBUs and ACUs to both residents and nonresidents.
3/ For ACUs, data are converted to Singapore dollar using end-of-period exchange rate.

Table 4. Singapore: Indicators of Vulnerability, 2017–2022

	2017	2018	2019	2020	2021	2022
Financial sector indicators						
Broad money (M2, percent change, y/y, end of period)	4.2	5.1	4.5	10.7	9.7	7.8
Private sector credit (percent change, y/y, end of period)	3.3	4.8	3.0	1.4	6.8	0.5
Credit to the property sector (percent change, y/y, end of period) 1/	2.3	5.9	1.0	2.4	2.7	0.0
Share of property sector credit in total nonbank credit (percent, end of period) 1/	49.2	50.6	49.6	51.8	51.6	51.7
Credit rating of local banks (S&P) 2/	AA-	AA-	AA-	AA-	AA-	AA-
Three-month S$ SIBOR (percent, end of period)	1.5	1.9	1.8	0.4	0.4	4.3
NPL ratio (local banks, percent, latest available) 3/	1.6	1.5	1.5	1.6	1.4	1.3
Capital adequacy ratio of local banks (percent, latest available) 4/	17.1	16.8	17.0	17.6	17.0	16.4
Asset market indicators (end of period)						
Stock prices (percent change, y/y)	18.3	-9.9	5.0	-11.8	-8.0	-2.1
P/E ratio	15.5	13.5	14.4	13.3	15.0	20.9
Stock prices of the finance sector (percent change, y/y)	30.0	-8.7	10.2	-9.1	-6.3	-0.2
Real estate prices (percent change, y/y)						
Private residential (4-quarter average)	-1.1	7.8	2.3	1.6	8.0	10.2
Private residential (end of period)	1.1	7.9	2.7	2.2	6.6	7.1
External indicators						
Current account balance (US$ billion)	62.3	59.2	60.9	57.3	76.4	90.2
In percent of GDP	18.1	15.7	16.2	16.5	18.0	19.3
Gross official reserves (US$ billion, end of period)	279.9	287.7	279.5	362.3	417.9	289.5
In months of next year's imports of goods and services	6.0	6.3	6.4	6.9	7.1	4.5
Real effective exchange rate (index, 2010=100, end of period)	107.1	106.3	106.5	103.6	103.3	109.6

Sources: Data provided by the Singapore authorities; and IMF, *Information Notice System.*

1/ For domestic banking units (DBU).
2/ Ratings of the three major local banks.
3/ In percent of global nonbank loans. 2022 data is as of 2022Q3.
4/ 2022 data is as of 2022Q3.

Table 5. Singapore: Medium-Term Scenario, 2017–28

	2017	2018	2019	2020	2021	2022	Projections 2023	2024	2025	2026	2027	2028
Real growth (percent change)												
GDP	4.5	3.6	1.3	-3.9	8.9	3.6	1.0	2.1	2.5	2.5	2.5	2.5
Total domestic demand 1/	5.9	1.1	2.0	-9.8	9.5	4.4	2.2	2.7	3.4	3.4	3.5	3.4
(Contribution to GDP growth, in percent) 1/	4.4	0.8	1.5	-7.2	6.6	3.1	1.5	1.9	2.4	2.4	2.5	2.5
Final domestic demand 1/	3.9	0.7	2.7	-10.0	9.8	4.8	2.2	2.7	3.4	3.4	3.5	3.5
Consumption	3.2	3.9	2.9	-7.5	5.8	6.6	1.7	2.7	2.1	3.7	2.0	2.5
Private	3.1	4.1	2.8	-13.1	6.6	9.7	2.1	1.8	1.6	2.3	1.2	1.9
Public	3.4	3.0	3.2	13.0	3.7	-2.3	0.6	5.8	3.8	7.9	4.1	4.1
Gross capital formation 1/	10.8	-3.6	0.4	-14.0	16.7	0.6	2.9	2.7	5.6	2.9	6.1	5.0
Gross fixed investment	5.1	-5.0	2.3	-14.8	18.0	1.6	3.1	2.8	5.9	3.0	6.4	5.2
Private	6.5	-5.1	2.2	-12.3	17.3	2.3	3.1	1.6	5.4	2.2	6.4	5.5
Public	-0.3	-4.4	2.9	-25.5	21.5	-1.8	4.0	8.3	8.0	6.5	6.4	3.9
Change in inventories 2/	1.6	0.3	-0.5	0.0	0.0	-0.2	0.0	0.0	0.0	0.0	0.0	0.0
Net exports 2/	1.1	2.7	0.4	2.5	3.3	0.6	-0.5	0.2	0.1	0.1	0.0	0.0
Saving and investment (percent of GDP)												
Gross national savings	45.4	40.5	40.8	39.1	41.1	41.3	39.4	38.1	37.9	37.2	36.5	36.6
Government 3/	5.9	5.4	5.2	-2.7	0.2	1.8	3.6	3.9	4.3	4.2	4.1	4.0
Private and other	39.5	35.0	35.6	41.7	40.9	39.5	35.8	34.2	33.6	33.0	32.4	32.5
Gross capital formation	27.3	24.8	24.6	22.6	23.1	21.9	22.8	22.9	23.4	23.3	23.9	24.6
Government 4/	4.7	4.2	4.3	3.5	3.8	3.7	3.7	3.8	4.0	4.1	4.2	4.2
Private and other	22.5	20.5	20.3	19.1	19.3	18.2	19.2	19.1	19.4	19.2	19.7	20.4
Inflation and unemployment (period average, percent)												
CPI inflation	0.6	0.4	0.6	-0.2	2.3	6.1	5.5	3.5	2.5	2.0	2.0	2.0
CPI inflation, excluding food and energy 5/	-0.7	-0.1	0.4	-0.3	2.4	6.1	5.0	3.4	2.5	2.0	2.0	1.8
MAS Core inflation 5/	1.5	1.7	1.0	-0.2	0.9	4.1	3.9	2.8	2.0	2.0	2.0	2.0
Unemployment rate	2.2	2.1	2.3	3.0	2.7	2.1	1.8	1.8	1.8	1.8	1.8	1.7
Central government (percent of GDP) 6/												
Revenue 7/	18.8	17.9	17.7	17.6	17.4	16.4	17.5	18.0	18.6	19.2	19.4	19.5
Expenditure	14.0	13.8	14.0	21.7	18.2	15.7	14.9	15.1	15.5	16.2	16.7	16.8
Net lending/borrowing	4.8	4.1	3.7	-4.1	-0.8	0.6	2.6	2.9	3.2	3.0	2.8	2.7
Net lending/borrowing, excluding nonproduced asset	1.7	1.1	1.4	-5.8	-2.8	-1.2	0.2	0.4	0.7	0.5	0.3	0.2
Primary balance 8/	-1.5	-2.0	-1.9	-9.5	-6.3	-4.6	-3.2	-3.2	-3.4	-4.1	-4.4	-4.6
Merchandise trade (percent change)												
Export volume	5.8	4.2	-3.0	3.1	9.3	2.8	3.6	4.9	4.3	3.3	3.2	2.0
Import volume	5.9	5.2	-1.2	-1.6	9.5	7.4	12.1	6.6	5.1	4.0	4.5	2.7
Terms of trade	-2.8	-1.6	-0.4	0.0	-0.3	1.3	1.4	0.7	0.5	0.4	0.4	0.4
Balance of payments (percent of GDP)												
Current account balance	18.1	15.7	16.2	16.5	18.0	19.3	16.6	15.2	14.6	14.0	12.5	11.9
Balance on goods and services	26.7	29.5	29.5	31.2	35.3	36.2	28.4	28.2	28.3	28.2	26.9	25.9
Balance on primary and secondary income	-8.5	-13.8	-13.3	-14.8	-17.2	-16.9	-11.9	-13.0	-13.7	-14.2	-14.4	-14.0
Gross official reserves (US$ billions)	280	288	279	362	418	289	344	394	446	467	521	575
In months of imports 9/	6.0	6.3	6.4	6.9	7.1	4.5	5.0	5.4	5.8	6.1	6.1	6.1

Sources: Data provided by the Singapore authorities; and IMF staff estimates and projections.

1/ Approximation based on available data.
2/ Contribution to GDP growth.
3/ Based on fiscal accounts data.
4/ Based on national accounts data.
5/ IMF staff estimates, showing projections from 2023. MAS core inflation excludes the costs of accommodation and private road transport.
6/ IMF staff estimates on a calendar year basis following GFSM 2014.
7/ Does not include announced increase in goods and services tax from 7 to 9 percent sometime in 2021-2025.
8/ Net lending/borrowing excluding nonproduced assets minus net investment return contribution (NIRC).
9/ In months of next year's imports of goods and services.

Table 6. Singapore: Summary of Government Operations and Stock Positions, FY2017–FY2023 1/

	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
						11/ Proj.	
I. Statement of government operations							
			(In billions of Singapore dollars)				
Revenue	90.5	90.2	91.3	85.6	102.9	111.9	120.2
Taxes	66.4	66.2	67.6	61.4	74.8	82.0	88.3
Other revenue	24.2	23.9	23.7	24.2	28.1	29.9	31.9
Of which: Net investment returns contribution (NIRC)	14.7	16.4	17.0	18.2	20.4	21.6	23.5
Expense	61.4	63.3	64.7	111.5	90.5	96.8	92.6
Compensation of employees	8.9	9.2	8.9	8.8	9.8	10.5	11.2
Use of goods and services	18.9	19.6	20.3	24.9	25.3	26.0	26.8
Expense not elsewhere classified 2/	33.6	34.5	35.5	77.8	55.4	60.3	54.5
Grants, subventions & capital injections to organizations	12.6	13.0	13.4	17.5	21.0	25.2	22.5
Transfers 2/	21.0	21.4	22.0	60.3	34.3	35.1	32.1
Gross operating balance	29.2	26.8	26.6	-25.8	12.3	15.1	27.6
Net acquisition of nonfinancial assets, excluding nonproduced	19.7	22.4	18.6	14.7	18.0	23.0	23.1
Of which: Development expenditure	18.0	20.3	16.7	13.4	16.3	20.6	20.5
Net lending/borrowing, excluding nonproduced assets 3/	**9.5**	**4.4**	**8.1**	**-40.5**	**-5.7**	**-7.9**	**4.5**
Net acquisition of nonproduced assets (land)	-15.7	-14.5	-11.3	-7.4	-12.6	-13.3	-17.2
Net lending/borrowing	25.2	18.9	19.3	-33.1	6.9	5.4	21.7
			(In percent of GDP)				
Revenue	18.9	17.6	17.8	17.5	17.4	17.4	17.5
Taxes	13.8	12.9	13.2	12.6	12.6	12.7	12.8
Other revenue	5.0	4.7	4.6	5.0	4.7	4.6	4.6
Of which: NIRC	3.1	3.2	3.3	3.7	3.4	3.4	3.4
Expense 2/	12.8	12.3	12.6	22.8	15.3	15.0	13.5
Gross operating balance	6.1	5.2	5.2	-5.3	2.1	2.3	4.0
Net acquisition of nonfinancial assets, excluding nonproduced	4.1	4.4	3.6	3.0	3.0	3.6	3.4
Of which: Development expenditure	3.7	3.9	3.2	2.7	2.7	3.2	3.0
Net lending/borrowing, excluding nonproduced assets 3/	**2.0**	**0.9**	**1.6**	**-8.3**	**-1.0**	**-1.2**	**0.7**
Net acquisition of nonproduced assets (land)	-3.3	-2.8	-2.2	-1.5	-2.1	-2.1	-2.5
Net lending/borrowing	5.2	3.7	3.8	-6.8	1.2	0.8	3.2
Memorandum items:							
Cyclically-adjusted overall balance (percent of potential GDP) 4/	1.7	0.6	1.7	-7.9	-1.0	-1.2	0.7
Primary balance 5/	-1.1	-2.3	-1.8	-12.0	-4.4	-4.6	-2.8
Structural primary balance (percent of potential GDP) 6/	-2.3	-2.8	-1.9	-11.9	-4.8	-4.8	-2.8
Expenditures on social development 7/	7.6	7.0	7.1	9.1	8.2	7.6	8.1
Spending from Endowment and Trust Funds	0.8	0.8	0.9	1.0	0.9	1.2	0.9
Authorities' budgetary accounts 8/							
Operating revenue (1)	15.8	14.4	14.4	13.8	13.9	14.0	14.1
Total expenditure (2)	15.3	15.2	14.7	17.7	16.0	16.6	15.2
Primary fiscal balance (3)=(1)-(2)	0.5	-0.8	-0.2	-3.9	-2.1	-2.6	-1.1
Special transfers (excl. transfers to endowment funds) (4)	0.4	0.3	0.3	6.9	1.2	0.5	0.4
Basic balance (5)=(3)-(4)	0.0	-1.1	-0.5	-10.7	-3.2	-3.0	-1.5
Transfers to Endowment and Trust Funds (6)	0.8	1.4	2.6	3.5	0.0	1.0	2.4
NIRC (7)	3.1	3.2	3.3	3.7	3.4	3.4	3.4
Overall balance (8)=(5)-(6)+(7)	2.2	0.6	0.1	-10.5	0.2	-0.7	-0.5
II. Stock positions							
			(In billions of Singapore dollars, unless otherwise indicated)				
Gross financial assets 9/	1,088	1,174	1,349	1,401	1,572	1,695	1,810
Gross debt 10/	517	562	656	729	874	1,081	...
Gross debt (in percent of GDP) 10/	108	109	128	149	148	168	...
Government deposits at the Monetary Authority of Singapore	65	41	44	70	54	...	...
Memorandum item:							
Nominal GDP (fiscal year)	480	514	514	489	592	645	687

Sources: Data provided by the Ministry of Finance; and IMF staff estimates and projections.

1/ The financial year begins on 1 April of the current year and ends on 31 March of the following year. Table presentation is based on GFSM 2014.
2/ Includes spending from government endowment and trust funds.
3/ This fiscal aggregate is used in policy discussions with the authorities. Proceeds from land sales do not affect the fiscal stance to the extent that the private sector is receiving an equivalent asset in return. They also do not affect total net worth for the government or for the private sector.
4/ Cyclically adjusted net lending/borrowing excluding nonproduced assets.
5/ Net lending/borrowing excluding nonproduced assets minus net investment return contribution (NIRC).
6/ Cyclically adjusted net lending/borrowing excluding nonproduced assets minus NIRC and Monetary Authority of Singapore (MAS) contributions.
7/ Includes development and operating expenditure on education, health, national development, sustainability and the environment, culture, community and youth, social and family development, communications and information, and manpower (financial security). Does not include social spending from government endowment and trust
8/ The authorities' budgetary accounts are based on Singapore's Constitutional rules governing the protection of Past Reserves. It includes the net investment returns contribution, which reflects the amount of investment returns that is taken into the Budget. It excludes receipts such as proceeds from land sales and the remaining part of investment income that accrues to past reserves and cannot be used to fund government expenditures without the approval of the President. While such receipts are not reflected in the overall balance, the information is presented annually to Parliament and included in Budget documents. Starting in FY2021, the authorities started to report an overall fiscal position which accounts for the capitalization and depreciation of nationally significant infrastructure. The overall fiscal position amounted to a deficit of S$2.04 billion in FY2022 and is expected at S$0.36 billion in the FY2023 budget.
9/ Gross asset stock figures are as at the end of March for each year as reported in the "Statement of Assets and Liabilities" in the budget document.
10/ Debt is issued to deepen the domestic debt market, to meet the investment needs of the Central Provident Fund, and to provide individuals a long-term
11/ The IMF staff projection for GDP is used to calculate the authorities' budgetary accounts in percent of GDP.

Table 7. Singapore: Financial Soundness Indicators, 2018–22Q3 1/

	2018	2019	2020	2021	2022 Q3
	(End of period; in percent)				
Capital adequacy ratio					
Regulatory capital to risk-weighted assets	16.8	17.0	17.6	17.0	16.4
Regulatory tier I capital to risk-weighted assets	14.9	15.3	15.5	15.1	14.4
Shareholders' equity to assets	9.2	9.3	9.1	9.1	8.1
Asset quality					
Non-Bank NPLs to nonbank loans	1.5	1.5	1.6	1.4	1.3
Total Provisions to total unsecured NPAs	185.8	198.7	247.4	223.1	225.8
Specific provisions to total unsecured NPAs	88.0	91.9	91.1	85.7	84.7
Loan concentrations (in percent of total loans) 2/					
Interbank loans	13.0	12.5	11.8	10.2	9.6
Nonbank loans	87.0	87.5	88.2	89.8	90.4
Profitability					
Return on assets	0.9	1.1	0.8	0.9	1.2
After tax return on equity	10.2	11.2	8.0	9.1	14.2
Net interest margin	1.8	1.8	1.5	1.5	2.0
Non-interest income to total income	30.1	35.7	36.6	35.9	32.4
Liquidity					
Overall non-bank loans to deposits ratio (LTD)	88.5	88.0	83.9	84.8	84.3
Domestic currency non-bank LTD	90.3	88.8	78.9	78.5	80.5
USD non-bank LTD	75.8	69.0	65.6	66.9	64.7

Source: Monetary Authority of Singapore.

1/ The data relates to local banking groups' global operations.
2/ 2022 data as of Q2.

Table 8. Singapore: International Investment Position, 2016–22

	2016	2017	2018	2019	2020	2021	2022
	(In billions of U.S. Dollars) 1/						
External assets	3,213	3,808	3,783	4,297	4,861	5,052	5,254
Direct investment	832	1,058	981	1,191	1,379	1,463	1,595
Portfolio investment	1,029	1,265	1,246	1,506	1,642	1,703	1,671
Equity securities	520	657	633	796	891	991	965
Debt securities	509	609	614	710	751	712	706
Other investment and financial derivatives	1,106	1,206	1,269	1,321	1,478	1,469	1,699
Reserve assets	246	280	287	279	362	417	289
External liabilities	2,500	2,950	3,103	3,405	3,822	4,107	4,431
Direct investment	1,145	1,423	1,522	1,737	1,986	2,170	2,368
Portfolio investment	204	279	268	296	329	405	448
Equity securities	156	213	197	210	236	279	283
Debt securities	48	66	72	85	93	126	165
Other investment and financial derivatives	1,151	1,248	1,313	1,372	1,508	1,532	1,615
Net international investment position	713	858	680	892	1,039	945	822
	(In percent of GDP) 1/						
External assets	1007	1109	1004	1140	1395	1192	1125
Direct investment	261	308	260	316	396	345	342
Portfolio investment	323	369	331	400	471	402	358
Equity securities	163	191	168	211	256	234	207
Debt securities	160	177	163	189	216	168	151
Other investment and financial derivatives	347	351	337	351	424	347	364
Reserve assets	77	82	76	74	104	98	62
External liabilities	784	859	823	903	1097	969	949
Direct investment	359	415	404	461	570	512	507
Portfolio investment	64	81	71	78	94	96	96
Equity securities	49	62	52	56	68	66	61
Debt securities	15	19	19	23	27	30	35
Other investment and financial derivatives	361	364	348	364	433	362	346
Net international investment position	224	250	181	237	298	223	176

Sources: Singapore, Department of Statistics; and IMF staff calculations.
1/ IMF staff estimates using official data published in national currency.

Appendix I. External Sector Assessment[1]

Overall Assessment: *The external position in 2022 was substantially stronger than the level implied by medium-term fundamentals and desirable policies.* The assessment is subject to a wide range of uncertainty, reflecting Singapore's very open economy and status as a global trading and financial center. Over the medium-term, the CA surplus is projected to narrow gradually alongside an increase in household consumption as the share of prime working age population actively saving for retirement declines, the recovery of capital-related imports and higher public spending.

Potential Policy Responses: The planned execution of major green infrastructure projects should help reduce external imbalances in the near term. Over the medium term, Singapore's economy will be undergoing structural transformation in light of a rapidly aging population and a transition to a green and digital economy. Higher public investment to address these issues, including spending on health care, green and other physical infrastructures, and human capital, would help reduce external imbalances over the medium term by lowering net public saving.

Foreign Asset and Liability Position and Trajectory	Background. The NIIP stood at 176.1 percent of GDP in 2022, down from 223 percent of GDP in 2021 and below the average level of 237.1 percent of GDP in 2017-2021. Gross assets and liabilities are high, reflecting Singapore's status as a financial center. About half of foreign liabilities are in FDI, and about a fifth are in the form of currency and deposits. The current account (CA) surplus has been a main driver of the NIIP since the global financial crisis, but valuation effects were material in some years, driven mainly by the appreciation in S$NEER as the MAS tightened its exchange rate-based monetary policy. CA and growth projections imply that the NIIP will rise over the medium term. The large positive NIIP in part reflects the accumulation of assets for old-age consumption, which is expected to be gradually unwound over the long term. Assessment. Large gross non-FDI liabilities (442 percent of GDP in 2022)—predominantly cross-border deposit taking by foreign bank branches—present some risks, but these are mitigated by large gross asset positions, banks' large short-term external assets, and the authorities' close monitoring of banks' liquidity risk profiles. Singapore has large official reserves and other official liquid assets.				
2022 (% GDP)	NIIP: 176.1	Gross Assets: 1125.5	Res. Assets: 62	Gross Liab.: 949.4	Debt Liab.: 332.2

Current Account	Background. The CA surplus was 19.3 percent of GDP in 2022, up from 18 percent in 2021. This mainly reflects larger surplus in the services balances, in particular transport services, owing to significant hikes in freight rates arising from COVID-19 led disruptions in supply chains. The CA balance is higher than the average of 17.3 percent since 2017 and slightly lower than the post-global-financial-crisis peak of 22.9 percent in 2010. Singapore's large CA balance reflects a strong goods balance and a small surplus in the services balance that is partly offset by a deficit in the income account balance.[1] Structural factors and policies that boost savings, such as Singapore's status as a financial center, consecutive fiscal surpluses in most years, and the rapid pace of aging—combined with a mandatory defined-contribution pension program (whose assets were about 84.7 percent of GDP in 2022)—are the main drivers of Singapore's strong external position. The CA surplus is projected to narrow over the medium term on the back of increased infrastructure and social spending. In 2022, public saving increased as the fiscal deficit narrowed further, while private saving decreased slightly. Assessment. Guided by the EBA framework, staff assesses the 2022 CA gap to be in the range of 3.3-6.9 percent of GDP, with a midpoint of 5.1 percent.[2] The identified policy gaps remained close to zero in 2022 reflecting a more contractionary fiscal policy adopted in 2022 in Singapore compared to the rest of the world and low but efficient public health care expenditure.						
2022 (% GDP)	CA: 19.3	Cycl. Adj. CA: 21.8	EBA Norm:	EBA Gap:	COVID-19 Adj.: -3.1	Other Adj.:	Staff Gap: 5.1

[1] Singapore has a negative income balance despite its large positive NIIP position, reflecting lower rates of return on its foreign assets relative to returns on its foreign liabilities, possibly due to the fact that the composition of Singapore's assets is tilted toward safer assets with lower returns.

[2] Nonstandard factors make a quantitative assessment of Singapore's external position difficult and subject to significant uncertainty. Singapore is not included in the EBA sample because it is an outlier along several dimensions. One possibility, though with drawbacks, is to use EBA estimated coefficients and apply them to Singapore. Following that approach, the CA norm is estimated to be about 15.6 percent of GDP in 2022 (including the multilateral consistency adjustor). However, using this approach overstates the CA gap. In order to account for Singapore specificities, several adjustments are needed. First, a downward adjustment of 1.1 percentage points is made to EBA's implied contribution of public health expenditures to the norm to account for the fact that Singapore's health expenditure is appropriate given its high efficiency, even though its desirable, as well as current, public health expenditure is significantly lower than in other EBA countries. Second, the EBA model does not include the impact of the COVID-19 shock on the CA thus a total of -3.1 percent of GDP adjustment is applied to account for this transitory impact including i) travel adjustor of -0.8percent of GDP and ii) transport adjustor of -2.3 percent of GDP. Third, a downward adjustment of 3.8 percentage points to the norm is made to better account for the effect of NFA composition and component-specific return differentials on the CA. Fourth, notwithstanding possible partial double-counting with the NFA components adjustor, a downward adjustment of -2.9 percentage point of GDP is applied to the underlying CA to account for measurement biases due to inflation and portfolio equity retained earnings (-5.8 and +2.9 percent of GDP respectively). Adjusting for these factors, the staff-estimated CA gap is about 5.1 percent of GDP, to which the fiscal gap contributes about 0.3 percent of GDP, credit gap about -0.6 percent of GDP, public health spending about -0.1 percent of GDP, and reserves about 0.0 percent of GDP.

[1] This assessment is preliminary, and a final external sector assessment (ESA) would be included in the July 2023 ESR.

Real Exchange Rate	Background. The REER appreciated by 6 percent in 2022 reflecting the appreciation of the NEER by 4.3 percent. This followed a depreciation of the REER by 3 percent and a depreciation of the NEER by 1.8 percent, both cumulative, between 2019 and 2021. As of April 2023, the REER had appreciated by 6.1 percent relative to 2022 average. Assessment. Consistent with the staff CA gap, staff assesses the REER to be undervalued in the range of 6.6 to 13.8 percent, with a midpoint of 10.2 percent in 2022 (applying an estimated elasticity of 0.5).[3]
Capital and Financial Accounts: Flows and Policy Measures	Background. Singapore has an open capital account. As a trade and financial center in Asia, changes in market sentiment can affect Singapore significantly. Increased risk aversion in the region, for instance, may lead to inflows to Singapore given its status as a regional safe haven, whereas global stress may lead to outflows. The financial account balance reflects in part reinvestment abroad of income from official foreign assets, as well as sizable net inward FDI and smaller but more volatile net bank-related flows. In 2022, the capital and financial account featured large outflows of 43.4 percent of GDP from 2 percent in 2021 (outflows ranged from 2 to 19.1 percent in 2017–21). Assessment. The financial account is likely to remain in deficit as long as the trade surplus remains large.
FX Intervention and Reserves Level	Background. With the NEER as the intermediate monetary policy target, intervention is undertaken to achieve inflation and output objectives. As a financial center, prudential motives call for a larger NIIP buffer. Official reserves held by the MAS reached US$289.5 billion (62 percent of GDP) in 2022.[4] Aggregate data on foreign exchange intervention operations has been published since Apr 2020. Assessment. In addition to FX reserves held by the Monetary Authority of Singapore (MAS), Singapore also has access to other official foreign assets managed by Temasek and GIC.[5] The current level of official external assets appears adequate, even after considering prudential motives, and there is no clear case for further accumulation for precautionary purposes.

[3] We apply the maximum range of +/-1.8 percent in the EBA sample for the CA gap reflecting the uncertainty around Singapore's assessment.

[4] Since March 2022, MAS has been transferring official foreign reserves that are not needed for the conduct of monetary policy and financial stability to the government, for long-term investment (Reserves Management Government Securities – RMGS). RMGS related transfers amounted USD 177.3 billion (about 38 percent of GDP) in end-2022.

[5] The reserves-to-GDP ratio is also larger than in most other financial centers, but this may reflect in part that most other financial centers are in reserve-currency countries or currency unions. External assets managed by the government's investment corporation and wealth fund (GIC and Temasek) amount to at least 100 percent of GDP.

Appendix II. Risk Assessment Matrix[1]

Risks	Likelihood	Impact of Risk	Policy Response
External conjunctural risks			
Intensification of regional conflict(s). Escalation of Russia's war in Ukraine or other regional conflicts and resulting economic sanctions disrupt trade (e.g., energy, food, tourism, and/or critical supply chain components), remittances, refugee flows, FDI and financial flows, and payment systems.	**High**	**Medium:** Supply chains would be disrupted, and risk of domestic food insecurity could be elevated due to supply disruptions. A slowdown in key export markets would impact Singapore's external demand.	Extend some of the support measures already in place: (i) fiscal support to affected workers and businesses in affected sectors and (ii) if necessary, provide liquidity support to financial markets; use prudential regulatory actions to address asset quality deterioration and encourage debt resolution.
Abrupt global slowdown or recession, including in: **China.** Greater-than-expected economic disruptions from COVID resurgence, rising geopolitical tensions, and/or a sharper-than-expected slowdown in the property sector disrupt economic activity. **U.S.** Amid tight labor markets, supply disruptions and/or commodity price shocks, inflation remains elevated, prompting the Fed to keep rates higher for longer and resulting in dollar strengthening, a more abrupt financial and housing market correction, and "hard landing".	**Medium**	**Medium:** A slowdown in China, which is Singapore's largest trading partner, would hurt growth in Singapore through lower exports and damage business confidence. **Medium:** Amid a slowdown and tightening global financial conditions, fragilities in the banking system of the US may propagate to Singapore through financial interlinkages, causing systemic financial stress.	Provide support to affected workers and businesses. Keep financial conditions accommodative and support lending. Provide targeted support to viable firms and institutions, while ensuring that governance principles, supported by strong insolvency and bankruptcy procedures, are applied to limit moral hazard.
Commodity price volatility. A succession of supply disruptions (e.g., due to conflicts and export restrictions) and demand fluctuations (e.g., reflecting China reopening) causes recurrent commodity price volatility, external and fiscal pressures, and social and economic instability.	**Medium**	**Medium:** As a larger importer of commodities, this would damage confidence, slow down the recovery, and increase inflationary pressures.	Provide targeted support to vulnerable groups to ensure inclusive recovery.
Monetary policy miscalibration. Amid high economic uncertainty and volatility, major central banks slow monetary policy tightening or pivot to loosen monetary policy stance prematurely, de-anchoring inflation expectations and triggering a wage-price spiral in tight labor markets.	**Medium**	**Medium:** The ensuing tightening of global financial conditions and rise in risk premia would exacerbate financial vulnerabilities.	Monetary policy should remain data dependent and focused on preserving price stability considering upside risks to inflation. Provide targeted support to vulnerable groups.

[1] The Risk Assessment Matrix (RAM) shows events that could materially alter the baseline path (the scenario most likely to materialize in the view of IMF staff). The relative likelihood is the staff's subjective assessment of the risks surrounding the baseline ("low" is meant to indicate a probability below 10 percent, "medium" a probability between 10 and 30 percent, and "high" a probability between 30 and 50 percent).

External structural risks			
Deepening geo-economic fragmentation. Broader and deeper conflict(s) and weakened international cooperation lead to a more rapid reconfiguration of trade and FDI, supply disruptions, technological and payments systems fragmentation, rising input costs, financial instability, a fracturing of international monetary and financial systems, and lower potential growth.	**High**	**High:** Being a trade and financial hub, geo-economic fragmentation makes Singapore particularly vulnerable. Reshoring and less trade would reduce potential growth.	Diversify trade markets. Continue to implement structural reforms to transform Singapore into a knowledge-based innovation-driven economy. Should domestic demand weaken substantially, use temporary and targeted fiscal stimulus.
Cyberthreats. Cyberattacks on critical domestic and/or international physical or digital infrastructure (including digital currency and crypto ecosystems) trigger financial and economic instability.	**Medium**	**Low:** Cyberattacks on critical infrastructure and institutions, for example financial institutions and government entities, could lead to concerns about protection of critical data and may result in loss of confidence in Singapore.	Continue to assess the adequacy of IT risk management practices and prepare a contingency plan. Coordinate with global financial regulators. Should disruptions take place, provide temporary and targeted emergency liquidity support and/or fiscal support to ensure a functional banking system.
Extreme climate events. Extreme climate events cause more severe than expected damage to infrastructure (especially in smaller vulnerable economies) and loss of human lives and livelihoods, amplifying supply chain disruptions and inflationary pressures, causing water and food shortages, and reducing growth.	**Medium**	**Medium:** Climate issues could disrupt economic activity. Slower growth coupled with higher inflationary pressures would adversely impact investment and private consumption. Singapore's high-tech exports are a mitigant that lowers the likelihood of impact from trade disruptions.	Implement climate change mitigation strategies. Enhance preparedness, collect data and collaboration among agencies engaged in mitigating climate change. Provide targeted fiscal support to vulnerable groups to help individuals and businesses.
Domestic risks			
Disorderly correction in property prices. A deterioration of market sentiment amidst tight monetary policy and a high share of mortgage loans in household debt leads to a sharp drop in property prices.	**Low**	**Medium:** Decline in collateral values and wealth effects could trigger a fall in economic activity and bank lending with adverse feedback effects on household indebtedness and property prices.	Adjust macro-prudential policies while safeguarding financial stability. Use targeted assistance measures to households whose debt servicing capacity is adversely affected.

Appendix III. Staff Policy Advice from the 2021 and 2022 Article IV Consultations

Staff Advice	Policy Actions
Fiscal Policy	
Fiscal policy should gradually normalize while providing targeted and temporary support to vulnerable households and firms, including in response to rising fuel and food prices. (2022)	Following a rapid recovery from the COVID-19 shock, with overall output exceeding the pre-pandemic level since 2021, the FY22 and FY23 budgets have tightened the fiscal policy stance while providing targeted support to the most vulnerable, including to mitigate the short-term impact of high inflation.
Should downside risks materialize, Singapore can deploy its ample fiscal buffers to cushion the economic impact, with targeted fiscal support continuing to be the first line of defense. (2022/21)	The authorities' response to the COVID crisis showcased their commitment to draw on the country's sizeable reserves to fund large and unprecedented fiscal stimuli to cushion the impact of the pandemic.
A quantification of spending needs to address medium- and long-term challenges—including from aging, climate change, and technological development—would help in assessing the need to use the existing fiscal space and to raise additional revenue. (2021)	The authorities have started to quantify spending needs to address medium- and long-term challenges starting with health-related spending.
Monetary, Exchange Rate, and Financial Policies	
The tighter monetary policy stance is appropriate to help contain inflationary pressures. Further tightening of monetary policy will be warranted if higher inflation turns out to be more persistent than currently envisaged. (2022)	MAS started the tightening cycle pre-emptively in October 2021, and has since then tightened four additional times, including two out-of-cycle, to address higher than expected inflation.
The tight macroprudential stance should be maintained, and further tightened when needed to contain systemic financial risks. (2022)	The macroprudential stance remained appropriately tight in 2022. The tight stance partly contributed to a reduction in the valuation gap of private residential house prices in the second half of 2022.
The financial sector remains healthy, but the authorities should continue to be vigilant as a premature withdrawal of financial support schemes could increase corporate stress, particularly for SMEs. (2022/21)	COVID-19 support measures for corporates and SMEs have ended. MAS's newly introduced probability of corporate default indicator remained relatively low and stable around its long-term averages in 2022.
As the ABSD is residency-based, it constitutes a capital flow management and macroprudential measure (CFM/MPM). Staff recommend therefore phasing out the residency-based differentiation once systemic risks from the housing market dissipate. (2022/21)	The ABSD continues to retain its residency-based distinction.

Structural Policies	
Adapting to the post-COVID world would require continued reskilling to match the demand for new skills and reforms to facilitate resource reallocation to the sectors of the future. (2022/21)	The FY2022 budget enhanced various schemes such as Advanced Digital Solutions and Grow Digital to accelerate the adoption of cutting-edge digital solutions and support upskilling of the digital workforce. To reduce skills mismatch, the government plans to introduce Job-Skills Integrators, who will engage with businesses, workers, and training programs.
Singapore needs to enhance climate policies to meet its renewed climate mitigation objectives. (2022/21)	The government has accelerated its low-carbon transition to net zero emission by 2050 by announcing a gradual carbon tax increase from S$5 per ton of emissions to S$50-S$80 per ton by 2030. Singapore is also making progress on climate adaptions through the issuance of green bonds to fund green infrastructure projects.

Appendix IV. Sovereign Risk and Debt Sustainability Analysis [1]

Figure 1. Singapore: Risk of Sovereign Stress

Horizon	Mechanical signal	Final assessment	Comments
Overall	…	Low	The overall risk of sovereign stress is low, reflecting low levels of vulnerability in the medium-, and long-term horizons.
Near term 1/			
Medium term	Low	Low	Medium-term risks are assessed as low, against a mechanical low signal as well, on the basis of authorities' strong compliance with their balanced budget rule, which has led to sustained fiscal surpluses and the buildup of large net assets. Moreover, all debt is held domestically and issued in local currency, which is another risk mitigating factor.
Fanchart	Low	…	
GFN	Moderate	…	
Stress test	...	…	
Long term	…	Low	Long-term risks are low. While Singapore has one of the fastest aging populations in the world, which implies a steadily growing investment needs by the CPF as employment growth slows in line with population aging, several mitigating factors such as large net assets, strict adherence to the fiscal rule and the implementation of various tax reforms limit the long-term risks.
Sustainability assessment 2/	Not required for surveillance countries	Not required for surveillance countries	
Debt stabilization in the baseline			No

DSA Summary Assessment

Commentary: Singapore's public debt is sustainable and large public financial assets are important risk mitigating factors. The impact of the fiscal support in response to the COVID-19 pandemic and the associated widening of the fiscal deficit was partly mitigated by a drawdown of public reserves. While public debt rose during the pandemic, the strong post-pandemic rebound, combined with a tightening of fiscal policy and large net assets imply that the risk of sovereign stress is low. Singapore is a low scrutiny country in the debt sustainability analyis framework for market access countries.

Source: Fund staff.

Note: The risk of sovereign stress is a broader concept than debt sustainability. Unsustainable debt can only be resolved through exceptional measures (such as debt restructuring). In contrast, a sovereign can face stress without its debt necessarily being unsustainable, and there can be various measures—that do not involve a debt restructuring—to remedy such a situation, such as fiscal adjustment and new financing.

1/ The near-term assessment is not applicable in cases where there is a disbursing IMF arrangement. In surveillance-only cases or in cases with precautionary IMF arrangements, the near-term assessment is performed but not published.

2/ A debt sustainability assessment is optional for surveillance-only cases and mandatory in cases where there is a Fund arrangement. The mechanical signal of the debt sustainability assessment is deleted before publication. In surveillance-only cases or cases with IMF arrangements with normal access, the qualifier indicating probability of sustainable debt ("with high probability" or "but not with high probability") is deleted before publication.

[1] While Singapore's debt-to-GDP is high (about 168 percent of GDP at end-FY2022), its large public financial assets result in a positive net asset position for Singapore. Moreover, the public debt is primarily issued for non-spending purposes (for example, development of Singapore's debt market, meeting investment needs of the CPF, and facilitating transfer of excess official foreign reserves from MAS to the government using Reserves Management Government Securities (RMGS)). As of end-FY2022, only 1.1 percent of public debt comprised debt issued for spendings purposes under SINGA. The large increase in public debt in 2022 was primarily driven by the issuance of RMGS amounting to S$237.6 billion (about 80 percent of the increase in public debt in 2022).

Figure 2. Singapore: Debt Coverage and Disclosures

						Comments
1. Debt coverage in the DSA: 1/	CG	GG	NFPS	CPS	Other	
1a. If central government, are non-central government entities insignificant?					No	
2. Subsectors included in the chosen coverage in (1) above:						

		Subsectors captured in the baseline	Inclusion	
CPS / NFPS / GG: expected / CG	1	Budgetary central government	Yes	
	2	Extra budgetary funds (EBFs)	No	Not applicable
	3	Social security funds (SSFs)	Yes	
	4	State governments	No	
	5	Local governments	No	
	6	Public nonfinancial corporations	No	
	7	Central bank	No	
	8	Other public financial corporations	No	

3. Instrument coverage:	Currency & deposits	Loans	Debt securities	Oth acct. payable 2/	IPSGSs 3/

4. Accounting principles:	Basis of recording		Valuation of debt stock		
	Non-cash basis 4/	Cash basis	Nominal value 5/	Face value 6/	Market value 7/

5. Debt consolidation across sectors:	Consolidated	Non-consolidated

Color code: chosen coverage | Missing from recommended coverage | Not applicable

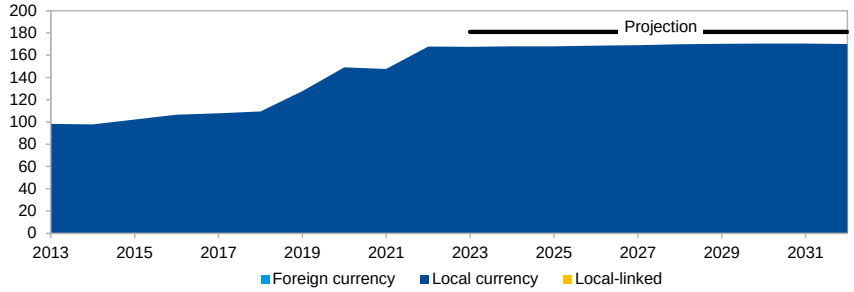
Reporting on Intra-Government Debt Holdings

		Issuer \ Holder	Budget. central govt	Extra-budget. funds	Social security funds	State govt.	Local govt.	Nonfin. pub. corp.	Central bank	Oth. pub. fin corp	Total
CPS / NFPS / GG: expected / CG	1	Budget. central govt									0
	2	Extra-budget. funds									0
	3	Social security funds									0
	4	State govt.									0
	5	Local govt.									0
	6	Nonfin pub. corp.									0
	7	Central bank									0
	8	Oth. pub. fin. corp									0
		Total	0	0	0	0	0	0	0	0	0

1/ CG=Central government; GG=General government; NFPS=Nonfinancial public sector; PS=Public sector.
2/ Stock of arrears could be used as a proxy in the absence of accrual data on other accounts payable.
3/ Insurance, Pension, and Standardized Guarantee Schemes, typically including government employee pension liabilities.
4/ Includes accrual recording, commitment basis, due for payment, etc.
5/ Nominal value at any moment in time is the amount the debtor owes to the creditor. It reflects the value of the instrument at creation and subsequent economic flows (such as transactions, exchange rate, and other valuation changes other than market price changes, and other volume changes).
6/ The face value of a debt instrument is the undiscounted amount of principal to be paid at (or before) maturity.
7/ Market value of debt instruments is the value as if they were acquired in market transactions on the balance sheet reporting date (reference date). Only traded debt securities have observed market values.

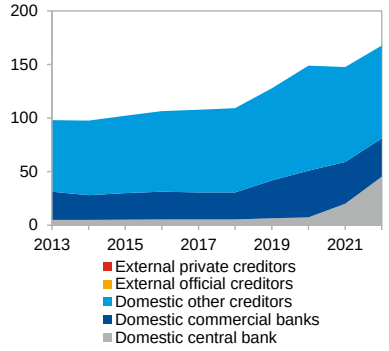
Commentary: Consistent with the data on government debt reported by the authorities, the fiscal assumptions in this DSA are based on the central government debt.

Figure 3. Singapore: Public Debt Structure Indicators



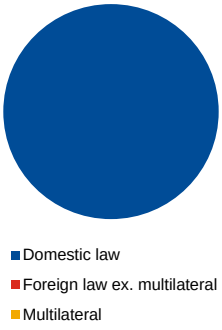
Note: The perimeter shown is central government.

Public Debt by Holder (percent of GDP)



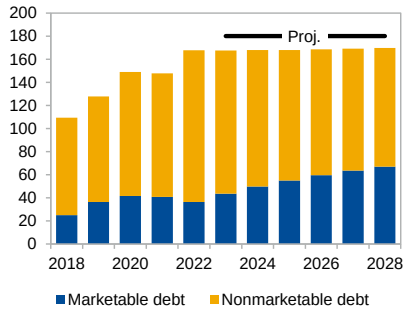
Note: The perimeter shown is central government.

Public Debt by Governing Law, 2022 (percent)



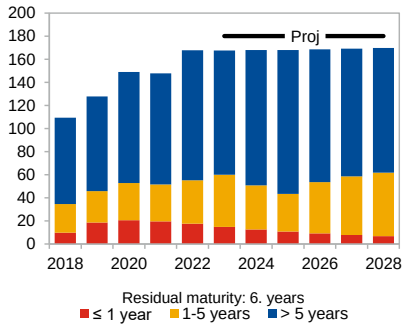
Note: The perimeter shown is central government.

Debt by Instruments (percent of GDP)



Note: The perimeter shown is central government.

Public Debt by Maturity (percent of GDP)



Note: The perimeter shown is central government.

Commentary: Following a sharp increase during the pandemic, debt-to-GDP ratio rose to 168 percent of GDP at end-FY2022. Debt level is projected to stabilize around 170 percent of GDP in the medium-run. Singapore does not have any external public debt and the issuance of government debt securities is largely unrelated to the Government's fiscal needs. The Singapore Government issues domestic, local currency debt securities to mainly deepen the domestic debt market, to meet the investment needs of the Central Provident Fund (CPF), to provide individual investors with a long-term saving option that offers safe returns, and to facilitate the transfer of official foreign reserves not needed by MAS to the government using Reserves Management Government Securities (RMGS). The large increase in public debt in FY2022 was primarily driven by the issuance of RMGS amounting to S$162.7 billion (about 80 percent of the increase in public debt in FY2022).

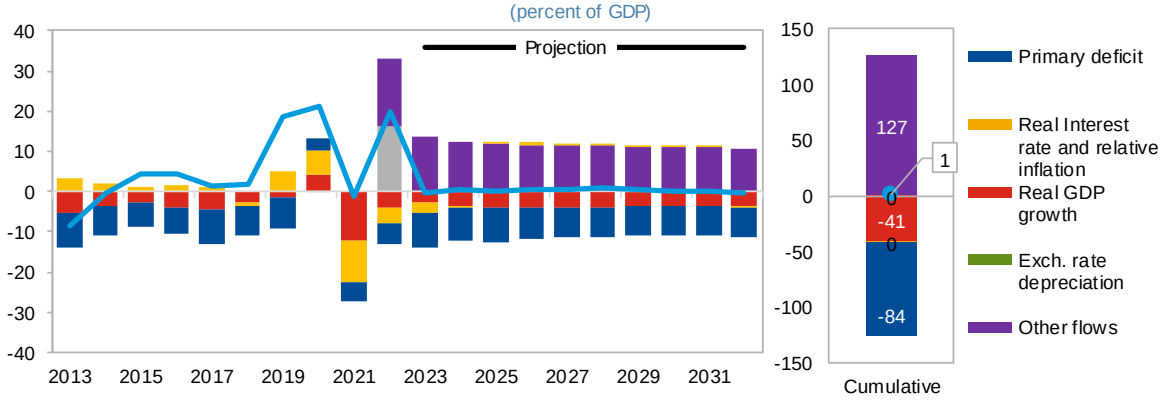
Figure 4. Singapore: Baseline Scenario

(Percent of GDP, unless indicated otherwise)

	Actual	Medium-term projection						Extended projection			
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Public debt	167.8	167.5	167.9	167.9	168.5	169.1	169.8	170.2	170.4	170.5	170.0
Change in public debt	20.1	-0.2	0.3	0.0	0.6	0.6	0.8	0.4	0.2	0.1	-0.5
Contribution of identified flows	3.9	-0.2	0.3	0.0	0.6	0.6	0.8	0.4	0.2	0.1	-0.5
Primary deficit	-5.2	-8.8	-8.2	-8.3	-7.5	-7.4	-7.3	-7.3	-7.4	-7.4	-7.4
Noninterest revenues	17.4	17.5	18.2	18.8	19.3	19.5	19.5	19.6	19.6	19.7	19.7
Noninterest expenditures	12.1	8.7	10.0	10.5	11.8	12.1	12.2	12.3	12.2	12.3	12.3
Automatic debt dynamics	-7.7	-5.3	-3.9	-3.6	-3.2	-3.5	-3.5	-3.4	-3.6	-3.7	-3.8
Real interest rate and relative inflation	-3.7	-2.8	-0.4	0.6	0.9	0.7	0.5	0.3	0.1	0.0	-0.1
Real interest rate	-3.7	-2.8	-0.4	0.6	0.9	0.7	0.5	0.3	0.1	0.0	-0.1
Relative inflation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Real growth rate	-3.9	-2.5	-3.5	-4.1	-4.1	-4.2	-4.0	-3.7	-3.7	-3.7	-3.7
Real exchange rate	0.0	…	…	…	…	…	…	…	…	…	…
Other identified flows	16.8	13.8	12.4	11.8	11.3	11.4	11.5	11.1	11.1	11.2	10.7
Contingent liabilities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other transactions	16.8	13.8	12.4	11.8	11.3	11.4	11.5	11.1	11.1	11.2	10.7
Contribution of residual	16.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross financing needs	16.8	12.7	10.5	11.4	13.1	14.3	15.8	17.4	19.3	21.3	21.1
of which: debt service	22.1	21.4	18.7	19.7	20.6	21.7	23.0	24.7	26.6	28.7	28.6
Local currency	22.1	21.4	18.7	19.7	20.6	21.7	23.0	24.7	26.6	28.7	28.6
Foreign currency	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Memo:											
Real GDP growth (percent)	2.7	1.5	2.1	2.5	2.5	2.5	2.4	2.2	2.2	2.2	2.2
Inflation (GDP deflator; percent)	6.0	5.0	3.2	2.4	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Nominal GDP growth (percent)	8.9	6.6	5.4	5.0	4.5	4.6	4.4	4.2	4.2	4.2	4.2
Effective interest rate (percent)	3.2	3.2	3.0	2.7	2.6	2.4	2.3	2.2	2.1	2.0	1.9

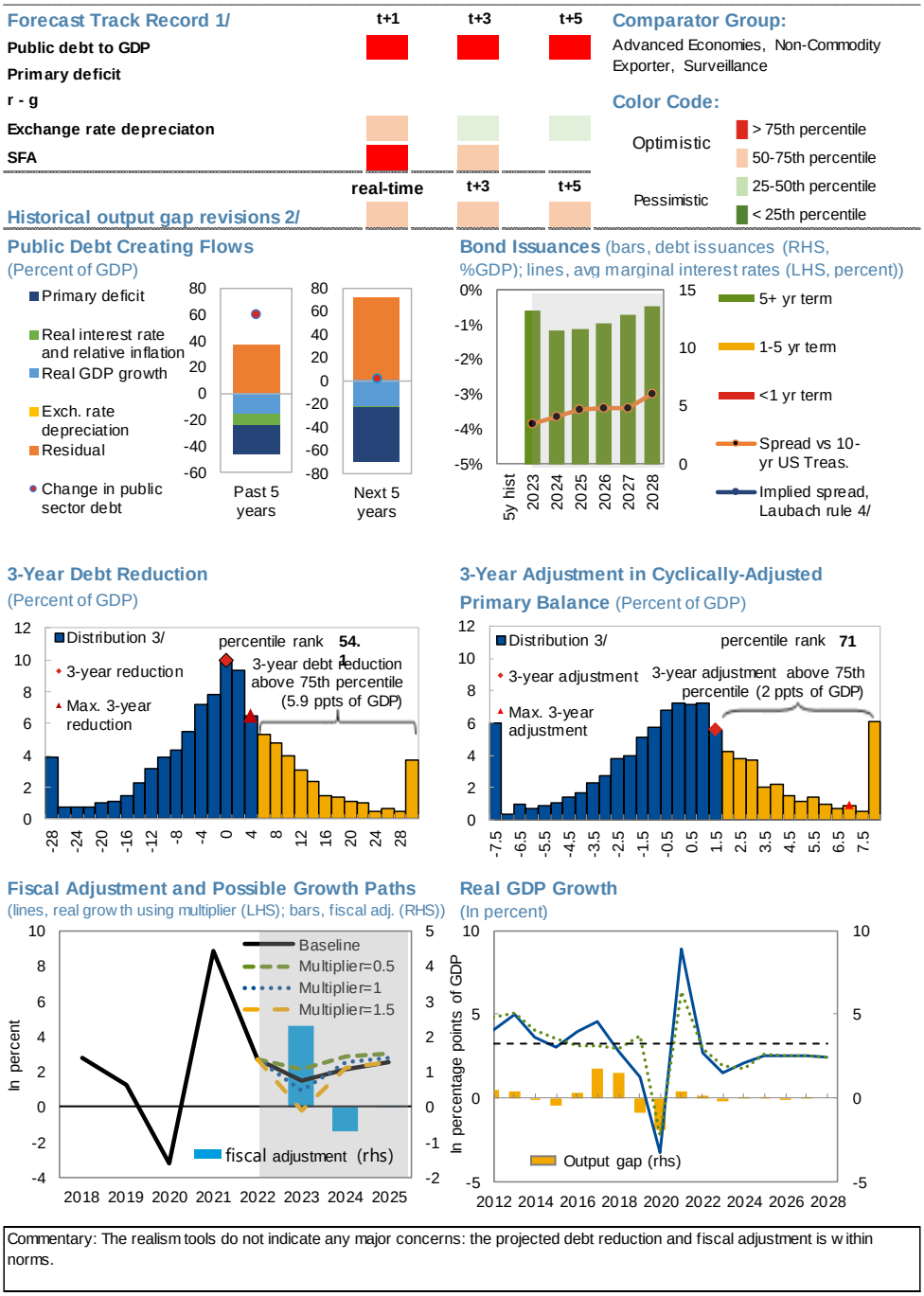
Contribution to Change in Public Debt

(percent of GDP)



Staff commentary: Public debt is projected to stabilize in the near-term, moderated by positive growth and a tight fiscal stance. In the medium-run, debt is expected to rise modestly due to a rise in investment needs by the CPF (reflected in the projected GFN) as employment growth slows in line with population aging.

Figure 5. Singapore: Realism of Baseline Assumptions



Commentary: The realism tools do not indicate any major concerns: the projected debt reduction and fiscal adjustment is within norms.

Source : IMF Staff.

1/ Projections made in the October and April WEO vintage.

2/ Calculated as the percentile rank of the country's output gap revisions (defined as the difference between real time/period ahead estimates and final estimates in the latest October WEO) in the total distribution of revisions across the data sample.

3/ Data cover annual obervations from 1990 to 2019 for MAC advanced and emerging economies. Percent of sample on vertical axis.

4/ The Laubach (2009) rule is a linear rule assuming bond spreads increase by about 4 bps in response to a 1 ppt increase in the projected debt-to-GDP ratio.

Figure 6. Singapore: Medium-Term Risk Analysis

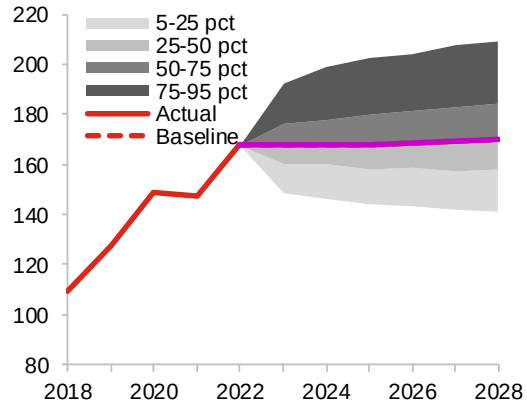
Debt Fanchart and GFN Financeability Indexes

(percent of GDP unless otherw ise indicated)

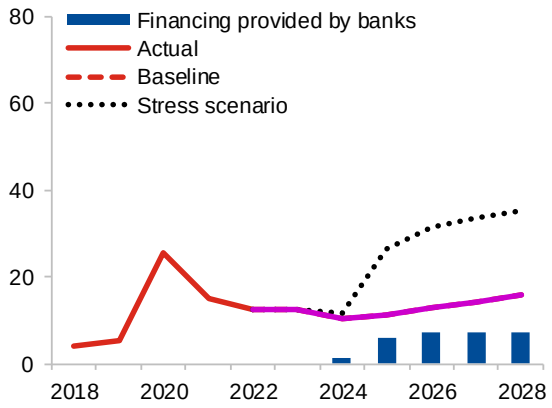
Module	Indicator	Value	Risk index	Risk signal	Adv. Econ., Non-Com. Exp, Program 0 25 50 75 100
Debt fanchart module	Fanchart w idth	68.0	1.0	…	
	Probability of debt not stabilizing (pct)	0.4	0.0	…	
	Terminal debt level x institutions index	-0.6	0.0	…	
	Debt fanchart index	**…**	**1.0**	**Low**	
GFN finance-ability module	Average GFN in baseline	13.0	4.4	…	
	Bank claims on government (pct bank assets)	10.6	3.4	…	
	Chg. in claims on govt. in stress (pct bank assets)	1.2	0.4	…	
	GFN financeability index	**…**	**8.3**	**Moderate**	

Legend: Interquartile range Singapore

Final Fanchart (pct of GDP)



Gross Financing Needs (pct of GDP)

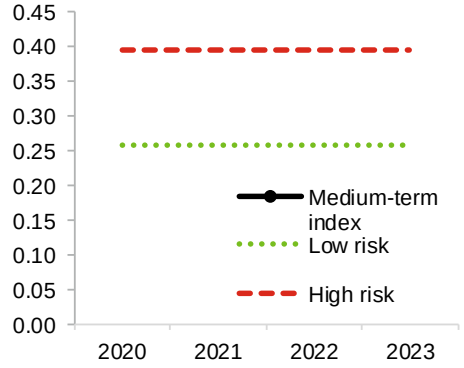


Triggered stress tests (stress tests not activated in gray)

Banking crisis Commodity prices Exchange rate Contingent liab. Natural disaster

Medium-Term Index

(index number)



Medium-Term Risk Analysis

	Low risk threshold	High risk threhsol d	Weight in MTI	Normalized level
Debt fanchart index	1.1	2.1	0.5	0.2
GFN finaceability index	7.6	17.9	0.5	0.2
Medium-term index (MTI)	0.3	0.4	…	0.2, Low

Prob. of missed crisis, 2023-2028 (if stress not predicted): 9.1 pct.

Prob. of false alarm, 2023-2028 (if stress predicted): 58.0 pct.

Commentary: The tw o medium-term tools, the Debt Fanchart Module and the GFN Financeability Module, suggest moderate levels of risk. The normalized medium-term index suggests low level of risk.

Appendix V. Status of Main Recommendations of the 2019 FSSA

No.	Recommendations of 2019 FSSA	Time*	Authorities' Status Update (as of May 2023)
1.	The MAS should strengthen U.S. dollar liquidity among D-SIBs.	**MT**	**Ongoing.** MAS has continued to engage banks to strengthen their foreign currency liquidity management. Following a review in 2019/20, MAS made bank-specific recommendations and shared industry sound practices. One example was the need to consider time horizon when estimating FX swap capacity, for instance using daily (rather than monthly) swap volumes in assessing swap capacity applied on single day currency shortfalls. Between Dec 2018 to Mar 2023, the proportion of more stable USD funding sources, comprising non-bank deposits and debt issuance, has increased since 2018 and constituted the bulk of their USD funding sources. MAS will continue to monitor the banks' USD funding profile through regular engagements and various USD liquidity indicators. D-SIBs consider issues such as central bank interest rate normalization, inflation, geopolitical situation when assessing their funding positions, all of which are actively discussed at banks' internal management forums such as ALCO. The impact of the recent banking turmoil on banks' USD funding access has been limited to a very slight increase in funding premium in the initial days following SVB's collapse. Banks did not face funding tightness otherwise. The DSIBs have contingency funding plans in place to mitigate stresses in the USD funding market with mitigating actions such as repo or sale of US Treasuries and FX swap from SGD to USD. MAS is currently conducting a review of DSIBs' liquidity stress test practices, to assess the banks' assessment of various liquidity stresses to their funding profile.
2.	Establish a core staff within the MAS Resolution Unit (RSU) dedicated to resolution work and over time, transfer resolution planning to the RSU.	**I**	**Not implemented**. After careful consideration, the authorities will not implement this recommendation. RSU comprises staff from the policy, legal and supervisory departments who have operational responsibilities within their department as well as RSU. Further, within the RSU, there are two staff (one each from the policy and supervisory departments) whose main responsibility is resolution work This structure allows MAS to leverage on the deep expertise and institutional knowledge of staff across departments when undertaking resolution work. MAS continues to keep the RSU adequately staffed and trained.
3.	Expand the scope of bail-in to include senior unsecured debt securities.	**MT**	**Not implemented.** After careful consideration, the authorities will not implement this recommendation. As conveyed by the authorities in the discussions with the FSAP assessors, the regime needs to be seen in the context of existing high regulatory standards as the first line of defense, such as Singapore's capital requirements that are two percentage points higher than the Basel capital standards, as well as close and intensive supervisory

No.	Recommendations of 2019 FSSA	Time*	Authorities' Status Update (as of May 2023)
			oversight. In designing the scope of the bail-in regime, the authorities had carefully balanced the trade-off between having broader bail-in scope which would increase the loss-absorbing capacity of a bank, versus the higher impact of possible contagion to the financial system and balance sheet of households. Given that the bail-in tool is relatively untested, MAS' preference is to have a narrower scope (i.e., confined to subordinated unsecured debt securities and equities).
4.	Continue to develop guidelines and playbooks for the new resolution tools. Staff should be trained, and processes tested.	I	**Ongoing.** To enhance operational readiness, MAS: • Conducted an ***internal crisis simulation*** exercise in May 2019, where the failure of a D-SIB was simulated. The objective of the exercise was to test procedural familiarity and role clarity within MAS. In April 2022, MAS participated in the Executives' Meeting of East Asia-Pacific Central Banks (EMEAP) Study Group on Resolution (SGR) Table-top exercise. MAS also participated in the FSI-Asia Pacific Crisis Simulation Exercise that involved authorities from six jurisdictions in July 2022. • Updated the "***Handbook on Management of Distressed Banks***" ("Handbook") in 2020 to clarify regulatory requirements in liquidity stress scenarios. We are currently reviewing the operational procedures for the Intervention Team's (I-Team) functional area plans, which will be included in the Handbook. • Conducted training (July and August 2021, and January 2022) to familiarize Intervention Team members on their roles and responsibilities during a crisis. This covered the areas of accounting, liquidity, payments and operations. • Organized ***two runs of training*** (October 2019 and February 2020) conducted by an external consultant for staff, which covered the areas of choice of resolution strategy, strategy execution and resolvability assessment. MAS will continue to update guidelines and playbooks for resolution tools developed and reflect the latest policy developments. The "Handbook" and "Guidance on Resolution Tools"[1] will be further updated once progress has been made in the following areas: • Valuation – Study issues around the use of independent valuers to perform valuation in resolution. MAS is currently looking into establishing a panel of independent valuers that can be readily tapped upon to perform valuation during a resolution.

[1] The Handbook provides a reference guide to MAS supervisors in dealing with a distressed bank (which includes a bank that is showing signs of distress and not just one whose viability is threatened). The approach to dealing with a distressed bank is underpinned by MAS' Crisis Management Framework for Banking, which defines four stages (green, yellow, orange or red) corresponding to the financial condition of a bank. The Handbook sets out the possible corrective actions that supervisors could take and guidance on for example, the type of information to gather from the distressed bank, the required monitoring and surveillance of the bank etc. As the distressed bank becomes non-viable, there is a need to consider taking resolution actions to resolve the non-viable bank. Supervisors and the RSU can then refer to the Guidance on Resolution Tools, which sets out the considerations and operational steps for the use of the different resolution tools, actions, and powers available to MAS.

No.	Recommendations of 2019 FSSA	Time*	Authorities' Status Update (as of May 2023)
			• Resolution Fund Trustee and Bank Holding Company – Consider the possible set up of a bank holding company to hold the distressed bank's assets, as well as a trustee to administer the resolution fund in the event of a resolution. MAS is preparing preliminary proposals and consulting the relevant stakeholders. • Bail-in execution – Continue to develop exchange mechanics based on FSB's practices paper on bail-in execution which was recently finalized in December 2021.
5.	The MAS should formalize and clarify that it may require pre-notification of material outsourcing arrangements where the MAS is not satisfied that a bank has managed its outsourcing risk adequately.	**MT**	**Ongoing.** MAS plans to issue the revised Outsourcing Guidelines in the first half of 2023 which will formalize and clarify the expectation that MAS may require pre-notification of material outsourcing arrangements where MAS is not satisfied that a bank has managed its outsourcing risk adequately.
6.	Devote more resources to the oversight and supervision of the payments systems.	**NT**	**Completed.** From 2019, MAS allocated an additional 40 percent of dedicated resources to the oversight and supervision of payment systems. In addition, the Payments and Infrastructure Division has expanded to become the Payments Department in 2020, in charge of supervising both payment services and payment systems.
7.	Enhance the cyber resiliency of the central bank and MEPS+ by: (i) clarifying the role of Chief Cyber Security Officer; and (ii) continuing to strengthen its cybersecurity resiliency.	**I**	(i) **Completed.** The role of the Chief Cyber Security Officer (CCSO) has been clarified. With the clarification, the CCSO will now assume the role of an independent second line of defense to challenge MAS Information Technology Department / Data & Technology Architecture Department on matters relating to MAS' technology risk and cyber resilience. A new CCSO office that is independent from the FI technology risk supervisory divisions has been set up to assist the CCSO to perform the independent assurance role. (ii) **Completed.** MAS has completed various cybersecurity initiatives such as Netflow, Database Activity Monitoring and User Behavioral Analytics to enhance the protection of MAS' critical systems. In addition, MAS has embarked on a cybersecurity transformation roadmap to strengthen our cybersecurity resiliency on an ongoing basis. This would include implementing new measures (e.g., Data Loss Prevention) and enhancing existing security tools.

No.	Recommendations of 2019 FSSA	Time*	Authorities' Status Update (as of May 2023)
8.	Develop a cyber network map that takes into account both financial linkages and Information and Communications Technology connections and use it for cyber risk surveillance.	**MT**	**Completed.** MAS has mapped a snapshot of the cyber interconnections of financial institutions (FIs) in Singapore, taking into account the financial importance and linkages between each entity. The cyber map integrates the following information: • Cyber interconnections of key financial institutions spanning banks, insurers, payment service providers, capital market services licensees and financial market infrastructure providers, including connections to other key financial institutions and to third-party service providers; and • Each entity's relative financial importance, through a financial measure of the potential financial impact to the banking system if an entity fails due to a cyber incident, which is used to prioritize between nodes. The resulting map of cyber and financial linkages is used to: 1. Identify key nodes based on the network map to inform and prioritize cyber risk surveillance efforts; 2. Engage FIs on outsourcing, third-party and supply chain risk management practices for key service providers identified through the cyber map; and 3. Reach out to fellow regulators on means to engage key service providers that are common to many FIs globally. For example, MAS has been engaging FSB to address concentration risks posed by major cloud service providers such as Amazon, Google and Microsoft by proposing the setting up of a Cloud Oversight Forum formed by global financial regulators.

* "I-Immediate" is within one year; "NT-near-term" is 1–3 years; "MT-medium-term" is 3–5 years.
Source: Fund staff and the authorities' self-assessment.

Appendix VI. Geoeconomic Fragmentation and Implications for Singapore[1]

Geopolitical tensions have raised the prospect that strategic competition and national security concerns may trump the shared economic benefits of global trade, with a rising number of trade restrictions imposed by countries, notably in high-tech sectors. Policy-driven reversal of global economic integration, a multi-dimensional process referred to as geoeconomic fragmentation (GEF) could have potential implications for Singapore, a highly open economy and both a trade and financial hub. The economic consequences of GEF can be transmitted through several distinct but interconnected channels, including changing patterns of trade, labor, capital, technology, and the provision of global public goods. This appendix explores the potential implications of economic fragmentation for Singapore with a specific focus on trade and financial channels. The preliminary findings suggest that while GEF could have significant implications for Singapore as a trading and financial hub, its global financial center status, and more broadly, strong institutions, agile policy toolkit and buffers are important mitigating factors.

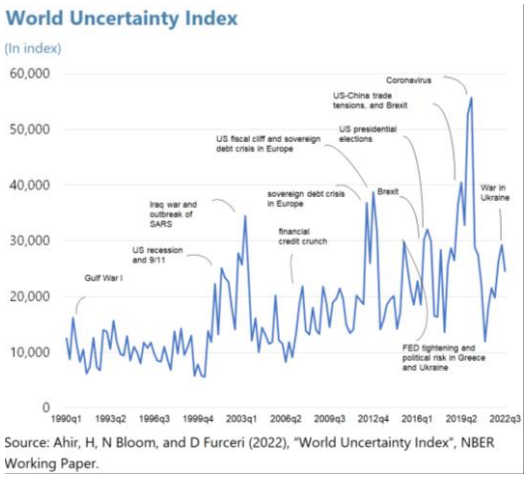
A. Background: Signs of Geoeconomic Fragmentation and Potential Channels

1. The COVID-19 pandemic, the war in Ukraine and rising geopolitical tensions between the United States and China have intensified concerns about geoeconomic fragmentation. Geoeconomic fragmentation (GEF) is defined as policy-driven or policy-induced reversal of global economic integration. Trade uncertainty reached an historical peak amid US-China trade tensions in 2018. Subsequently, at the height of the pandemic, many countries-imposed export restrictions on medical goods and food, with exports bans accounting for about 90 percent of trade restrictions, causing a peak in global uncertainty (IMF, 2023a). At the same time, while the number of international military conflicts around the world has been rising steadily since the global financial crisis, the war in Ukraine has triggered a geopolitical rift, leading to a spike in global uncertainty. Both the war and related sanctions imposed by western countries on Russia and Belarus led to major dislocations in energy and agricultural commodity markets, as many countries also imposed export bans on agricultural goods and fertilizers. Supply chains and financing networks which worked relatively well under benign global conditions turned out to be less resilient in times of COVID-19 and increased geopolitical tensions. Rising geopolitical tensions have therefore led to more protectionism and increasing use of cross-border restrictions on the national security grounds while companies are responding to elevated uncertainty by a reconfiguration of their supply chains.

[1] Prepared by Kodjovi Eklou and Ganchimeg Ganpurev. This appendix leverages partly the recent work done by APD's Regional Studies Division (RSD) on geoeconomic fragmentation in the October 2022 Asia and Pacific Regional Economic Outlook, IMF Staff Discussion Note (IMF, 2023a), Chapter 3 of April 2023 GFSR (IMF, 2023b) and, World Economic Outlook, April 2023, chapter 4 (IMF, 2023c).

Figure 1. Singapore: Early Signs of Geo-Economic Fragmentation

Global uncertainty has risen…



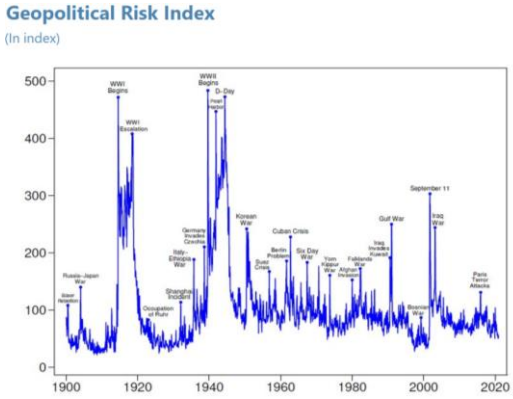
Source: Ahir, H, N Bloom, and D Furceri (2022), "World Uncertainty Index", NBER Working Paper.

…including trade uncertainty specifically amid US-China trade tension.

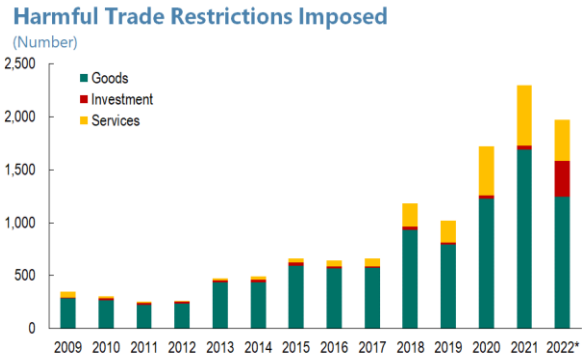
Source: Ahir, H, N Bloom, and D Furceri (2022), "World Uncertainty Index", NBER Working Paper.

Geopolitical risks have increased around the world reflecting rising geopolitical tensions…

…which have led to more cross-border restrictions on trade …



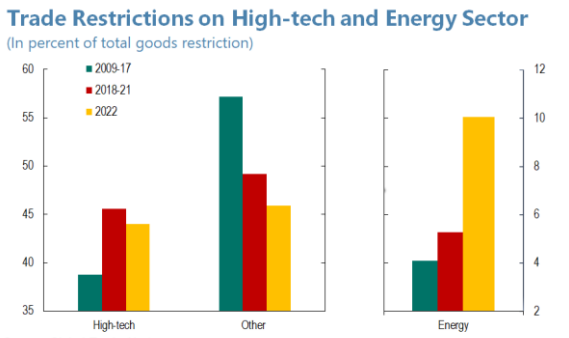
Source: Caldara, D., and Iacoviello, M. (2022). Measuring geopolitical risk. *American Economic Review*, 112(4), 1194-1225.



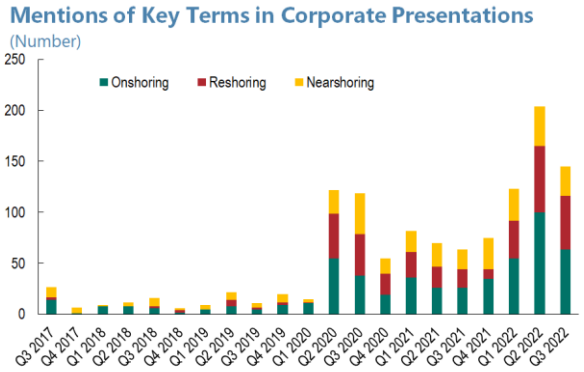
Source: Global Trade Alert.
Note: Data for all years adjusted for reporting lag as of the last day of the year. * For 2022, data as of July 29 are scaled up based on number of measures reported by the same day in 2021 relative to total measures reported for 2021.

… in particular on strategic sectors such as energy and high-tech sectors on national security ground…

… and firms are increasingly looking to reconfigure their supply chains.



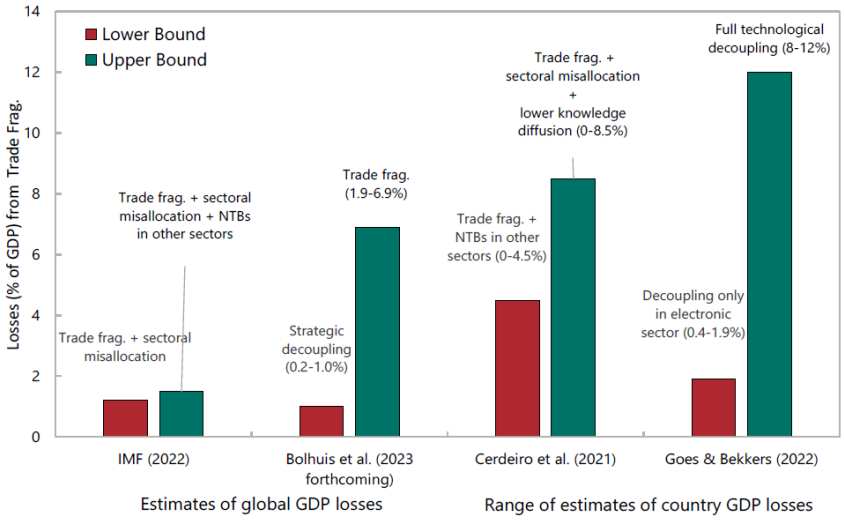
Source: Global Trade Alert.
Note: Sectors identified from CPC Version 2.1 UN (2015). "High tech" includes all sectors classified as high technology or medium-high technology in Organisation for Economic Co-operation and Development (2011). Energy includes coal, petroleum, and natural gas, among others.



Source: Bloomberg. Document Search & Analytics.
Note: Number of times specific terms are mentioned in transcripts from corporate presentations.

2. GEF can have economic consequences through changing patterns of trade, labor, capital, technology, and the provision of global public goods. The benefits of trade integration have been widely documented in the theoretical and empirical literature, and include higher productivity, higher quality output and higher wages, resulting from specialization, economies of scale, increased investment, and knowledge spillovers.[2] Increased fragmentation would therefore imply significant economist cost.[3] Relatedly, technological fragmentation and reduced technological diffusion, for instance through trade barriers on high-tech inputs and services could be a bottleneck for productivity spillovers and income convergence across countries. Other channels include i) restriction on cross-border labor flows, in particular skilled migration to rapidly ageing countries, hindering innovation and worsening demographic trends[4], ii) financial fragmentation, which could induce misallocation of capital and increase the vulnerability of economies to adverse shocks by limiting potential for diversification of cross-border exposure and thus exacerbate macro-financial volatility (see IMF, 2023b). Finally, GEF could also hamper global effort toward the provision of public goods such as mitigating climate change and preventing global pandemics. Recent studies[5] estimate large economic costs of GEF up to 12 percent loss in GDP, from global trade fragmentation (see Figure 2).

Figure 2. Singapore: Long-Term Output Losses from Global Trade Fragmentation



Source: IMF (2023) "Geoeconomic Fragmentation and the Future of Multilateralism." *IMF Staff Discussion Notes.*

[2] See for example, Krugman (1979), Grossman and Helpman (1991), Melitz (2003), Verhoogen (2008) and Bustos (2011).

[3] Evidence from the 2018-2019 US-China trade disputes, shows that US export growth was reduced, and employment declined (see Handley et al, 2020 and, Flaaen and Pierce, 2019).

[4] See for instance Thangavelu (2017) who showed that skilled foreign workers play an important role in Singapore's domestic economic growth by driving innovation.

[5] See IMF (2022), Bolhuis et al, (2023), Cerdeiro et al, (2021) and Goes and Bekker (2022).

B. Potential Implications for Singapore

Singapore: Trade and Financial Linkages

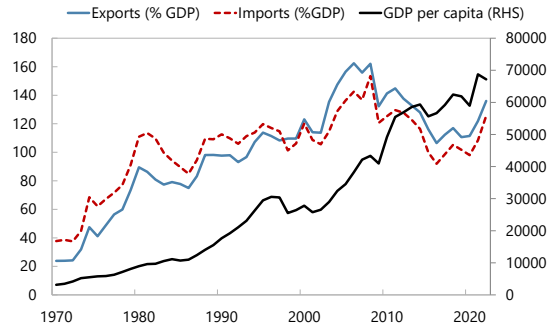
3. Singapore is a trade hub, with a high integration into global value chains, especially in high-tech sectors. Singapore is a highly open economy with total trade three times larger than the world average and four times the average in Asia. Singapore has strong trade ties to China, the US and Europe. For instance, in 2021, 17.1 percent of Singapore exports went to China, 9.9 percent to the USA, and 17.1 percent to Europe. Similarly, 13.8 percent of imports came from China, 10.2 percent from the USA, and 15.7 percent from Europe (Source: MASUN Comtrade and IMF WEO). While Singapore has only a small amount of direct trade with Russia, its volume of trade with both China and the USA is large compared to the rest of ASEAN and Asia more broadly (Figure 3, Panel 2). In 2018, more than 50 percent of foreign value added in gross exports came from high-tech products including computers, electronic and electronic equipment. Furthermore, almost 75 percent of foreign value added in computer, electronic and electric equipment originated from China, Japan and USA in 2018, with China alone representing a fifth. Overall, Singapore's trade ties, as well as high dependence on foreign value added could entail negative repercussions from geoeconomic fragmentation, in particular, when considering high-tech sectors that have been subject to more cross-border restrictions (see Figure 1).

4. Singapore is a financial center and the composition of its foreign asset and liabilities shows a relatively diversified profile (Figure 4). Foreign assets and liabilities of Singapore are broadly diversified although the US and Europe stand out. Further analysis using the Herfindahl-Hirschman index of total cross-border asset and liability of Singapore shows a consistent picture. More specifically, the index for total gross financial assets held by other countries in Singapore has trended downward since 2007, suggesting that since 2000, Singapore became more and more competitive as investment destination. In other words, flows from the rest of the world to Singapore have been increasingly diversified. Regarding Singapore's assets held in the rest of the world, although the index shows low concentration, over time, it has been broadly stable after a marked decline in 2001. The relatively diversified profile of Singapore's financial flows could be a mitigating factor in a context of financial fragmentation.

Figure 3: Singapore: Trade Linkage and Trade Integration

Singapore is highly open and has benefited from trade with income per capita rising with trade integration…

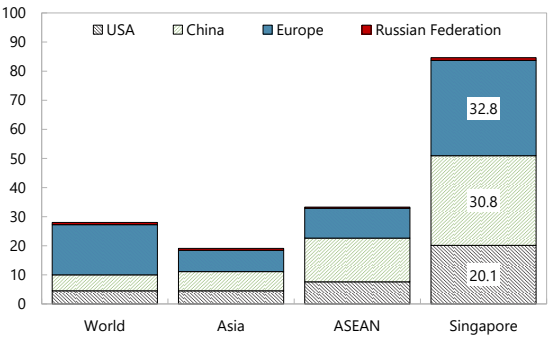
Singapore: Trade Shares and GDP Growth
(Percent; constant 2015 US$ (RHS))



Sources: CEIC, IMF staff calculations.

… with a strong trade tie with Europe, China, and USA.

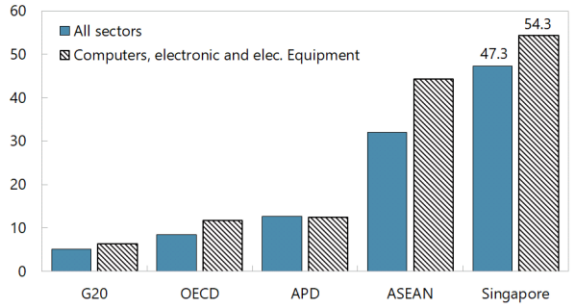
Singapore: Total Volumes of Trade
(in percent of GDP, 2021)



Sources: UN Comtrade, IMF WEO, and IMF staff calculations.

Singapore incorporates significant proportion of foreign value added into its exports, particularly in high-tech sector.

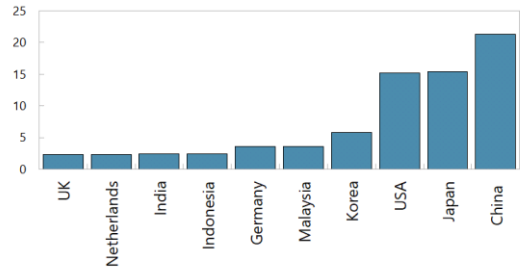
Singapore: Interdependent High-Tech
(share of foreign value added in gross exports, 2018, in percent)



Sources: OECD TiVA and IMF staff calculations.
Note: Asia contains data for economies that were available from source. These include AUS, JPN, KOR, NZL, BRN, KHM, CHN, IND, IDN, HKG, LAO, MYS, MMR, PHL, SGP, TWN, THA, and VNM.

High-Tech sector incorporates foreign value added mainly from China, Japan, and USA.

Singapore: Share of Foreign Value Added in High-Tech By Country of Origin, 2018
(Percent)



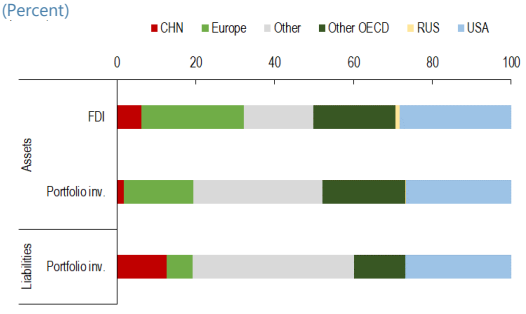
Note: High-Tech is defined as Computer, electronic and electrical Equipment sector.

Sources: OECD TiVA and IMF staff calculations.

Figure 4. Singapore: Financial Linkages

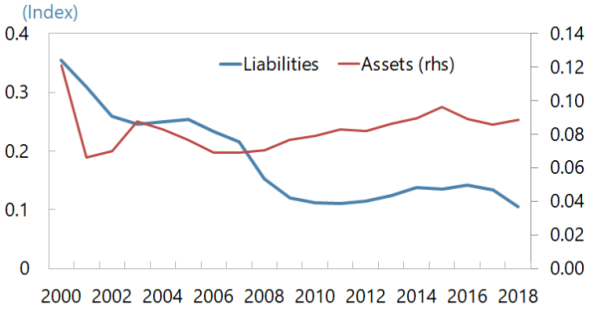
Singapore: Composition of Foreign Assets and Liabilities - 2020

(Percent)



Source: BIS, Coordinated Direct Investment Survey, Coordinated Portfolio Investment Survey and IMF staff calculations.

Singapore: Herfindahl Index of Financial Flows
(Index)



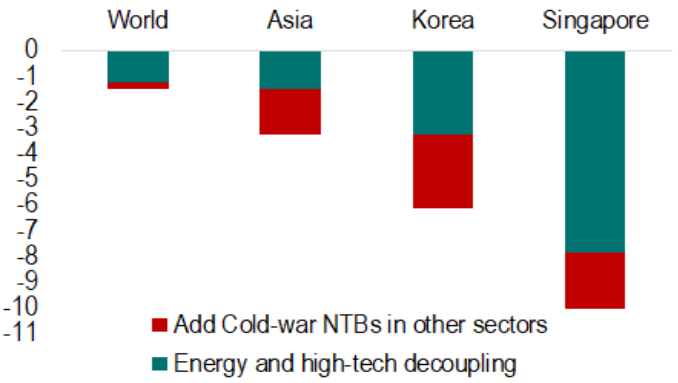
Sources: FinFlow Database and IMF Staff calculations.

Singapore: Quantifying Potential Impact of Geoeconomic Fragmentation[6]

5. Recent work (IMF, 2022) estimates potentially large impact of trade fragmentation for Singapore (Figure 5). IMF (2022) considers a purely hypothetical global economy divided along the lines implied by the votes cast on the March 2, 2022, United Nations General Assembly motion to condemn Russia's invasion of Ukraine. The green bars show the GDP losses resulting from a scenario where global trade in energy and high-tech goods divides between those countries that (A) voted for the March 2, 2022, UN General Assembly motion to condemn Russia's invasion of Ukraine, and (B) those countries that voted against the motion or abstained.[7] Singapore faces costs of approximately 8 percent of GDP in this scenario. Finally, the red bars show the result from an even more severe fragmentation scenario, in which trade barriers are extended to all sectors. Specifically, non-tariff barriers in other sectors (non-high-tech, non-energy) are increased between blocs until they reach a level equivalent to the maximum restrictiveness that prevailed at the height of the Cold War. In this scenario, Singapore could face a cost of approximately 10 percent of GDP.[8] The largest loss stems from restricting high-tech trade, with very low elasticity of substitution of such exports. Further, high-tech exports represented 55 percent of Singapore's manufactured exports in 2020 (Source: World Bank) and also rely heavily on foreign value added (Figure 3).[9]

Figure 5. Singapore: Long-Term GDP Losses in Fragmentation Scenarios

(In percent)



Source: IMF (2022), based on the model by Caliendo and others (2023). The scenario consists in trade fragmentation between the group that voted positive in the UN resolution and the group that voted negative or abstained. NTB = nontariff barrier.

6. Next, we explore the potential implication for financial fragmentation. We define financial fragmentation as a weakening of financial relationships between specific groups of

[6] We also present in Annex 2 evidence of the response of US multinationals to geopolitical tensions between the US and their countries of operation.

[7] The decoupling is modeled as effective barriers to trade following Cerdeiro et al. (2021). Estimates are obtained from a sectoral, computable, general equilibrium model with firm heterogeneity and input-output links (see more details in the technical annex). The model captures long-term productivity losses as there is no more trade between economies, with gains from specialization and scale being undone while some firms are forced to exit (Caliendo et al., 2017, 2023).

[8] A recent simulation by the MAS of the impact of greater insourcing among US and China, as a driver of fragmentation in the electronics trade, a much more milder scenario than the trade fragmentation scenario here, suggests very marginal impact on output for Singapore (about 0.1 percentage point decline in overall gross output for every 1 percent decrease in US and China's import intensity).

[9] Figure 5 shows a large impact on Korea (up to 6 percent) also driven by restriction on high-tech trade. The impact is however lower compared to Singapore given the smaller share of high-tech exports in Korea (36 percent in 2020).

countries, and a deepening of financial ties within them, based on geopolitical considerations. We follow a similar approach to the chapter 3 of April 2023 GFSR to estimate potential consequences of geopolitical shocks to cross-border capital flows but now we account explicitly for a potential role for global financial centers. We use data on a sample of 69 countries comprising 34 advanced economies (AEs) including Singapore and 35 emerging and developing economies (EMDEs)[10]. The analysis covers the period 2000-2018 and we estimate the following equation:

$$\Delta FDI\_Inflow_{ct} = \alpha_1 \Delta FPP_{ct} + \beta_1 \Delta FPP_{ct} \times FC_C + \delta X_{ct} + \mu_c + \tau_t + trend_c + \varepsilon_{ct} \quad (1)$$

Where, ΔFDI_Inflow_{ct}, is the change in FDI inflows as share of GDP[11] of country *c* in year *t*, ΔFPP_{ct} , our measure of geopolitical distance, is the change in the weighted bilateral foreign policy proximity between country *c* and other countries, with weight defined as the lagged cross-border liability exposure of country *c* to other countries, normalized by its total cross-border liabilities.[12] μ_c, τ_t, $trend_c$ are country, time fixed effect and country-specific trend respectively. X_{ct} is a set of country level macroeconomic controls including real GDP growth, current account to GDP, the logarithm of real GDP per capita, capital account openness index, and institutional quality (measured as the average of ICR indexes).[13] We test whether $\alpha_1 < 0$, that is, if geopolitical tensions disrupt FDI inflows.

7. We examine the implication for financial centers. We introduce a country level indicator FC_C, capturing whether the average rating of a given country is above the sample median based on the financial center index.[14] The impact of financial fragmentation on capital inflow is plausibly complex in the context of international financial centers. First, international financial centers are known for three competitive advantages including i) a base for regional or global business, ii) deep capital market and competitive banking services and, iii) a center for wealth created elsewhere in the world to be managed and invested.[15] This specific feature of international financial centers could be a mitigating factor in the face of geopolitical fragmentation, especially for highly rated financial

[10] The sample include 54 countries with at least a financial center of which 31 are AEs and 23 are EMDEs.

[11] FDI have been shown to have positive spillovers in terms of productivity and enhanced export sophistication (Javorcik, 2014, Javorcik et al., 2017, Bajgar and Javorcik, 2020). See also IMF (2023c) showing that there are signs of FDI reallocation across countries and that geopolitical alignment affects FDI inflows.

[12] We use data from JRC-ECFIN database (Nardo et al, 2017) to build this weight and we take data on UN votes from Voeten et al (2009) and Bailey et al (2017). The estimate from Bailey et al (2017) has many advantages including valid for intertemporal comparison by separating agenda changes from changes in preferences and identify meaningful shifts in foreign policy orientations. We use the absolute distance between two countries as a measure of foreign proximity.

[13] See for instance Ghosh et al (2014). Real GDP per capita, real GDP growth and current account as share of GDP are taken from the World Development Indicators. Capital account openness index is taken from Chinn and Ito (2008), and institutional quality is the average of International Country Risk Guide (ICRG) indicators.

[14] Source: The Z/Yen Group: Global Financial Centres Index. The rating of financial centers started in 2007, so we take the average rating of every country over the period 2007-2018. This index is widely used in the literature on financial centers (see for instance Moosa et al, 2016 and Ioannou et al., 2021). Countries that are not financial centers are assumed to have zero rating. For countries with more than one financial center, we take the maximum rating.

[15] See for instance the Economist. See also Moosa et al (2016) who find that global competitiveness is a key feature of global financial center status. They are also known for a competitive environment for financial intermediation (Kawai, 2009).

centers such as Singapore.[16] However, given the high reliance on financial activities, depending on the geographic or regional location of these centers, they may be particularly vulnerable to financial fragmentation. For instance, a weakening of financial relationship between some countries could have negative spillovers on regional financial centers. To shed light on this ambiguous relationship, we empirically test whether $\beta_1 < 0$ (or $\beta_1 > 0$) , that is whether the impact of geopolitical tensions is amplified (or mitigated) in economies with highly rated financial centers.

8. We find that geopolitical tensions reduce FDI inflows for the average country, but this impact is mitigated for highly rated global financial centers. The results show across specifications that countries with highly rated financial centers face less disruption to their net FDI inflow following geopolitical tensions. These results suggest that being a highly ranked global financial center has the potential to be a mitigating factor, akin to a safe haven status during periods of volatile capital flows. Singapore's competitiveness as an investment destination could potentially therefore limit vulnerabilities to financial fragmentation. This result is also consistent with a diversified profile of financial flows in Singapore. These results for highly ranked global financial centers appear intuitive given that for instance, the 2023 Global Financial Centres Index Report shows a very strong positive correlation with good institution quality as captured by corruption perception or regulatory quality. This is consistent with IMF (2023c) showing that maintaining high quality institutions and regulatory environment is associated with lower aggregate vulnerability to relocation of FDI. We find very similar results focusing only on the subsample of countries with global financial centers.

Table 1. Singapore: Geopolitical Tension and FDI Inflows

	(1)	(2)	(3)	(4)	(5)
Geopolitical Distance	-4.914*	-4.673*	-5.812**	-5.815**	-7.101**
	(2.597)	(2.577)	(2.752)	(2.783)	(3.561)
Geopolitical Distance x Highly rated Financial Center	7.436**	7.516**	7.264**	7.474**	8.339**
	(3.221)	(3.204)	(3.430)	(3.484)	(4.141)
Country Fixed Effects	No	Yes	Yes	Yes	Yes
Year Fixed Effects	No	No	Yes	Yes	Yes
Country-specific trend	No	No	No	Yes	Yes
Full controls	No	No	No	No	Yes
Observations	958	958	958	958	882

Note: Dependent variable is the change in net FDI inflow as share of GDP.
Robust standard errors in parentheses. * p < 0.10, ** p < 0.05, *** p < 0.01.

9. Next, we explore the potential implication for portfolio investment flows as an additional robustness check.[17] Given the nature of portfolio flows, we employ quarterly bilateral

[16] For instance, Singapore occupied the third position in the latest (2022) ranking of global financial centers behind New York and London (See the GFCI32 rank by the Z/Yen group).

[17] Given the work of the April 2023 WEO analytical chapter on the strength of institutional quality influencing FDI relation, we also tested if the effect of top rated global financial centers potentially mitigating the GEF risks may just be picking up institutional quality (IQ) effect and our findings are inconclusive as this was not statistically significant While the data series on IQ is highly correlated with top rated financial center (FC) data series, adding IQ does not materially change the effect of FC on potentially mitigating GEF risks.

data. We estimate the following gravity equation in a local projection framework (Jordá, 2005), robust to misspecification:

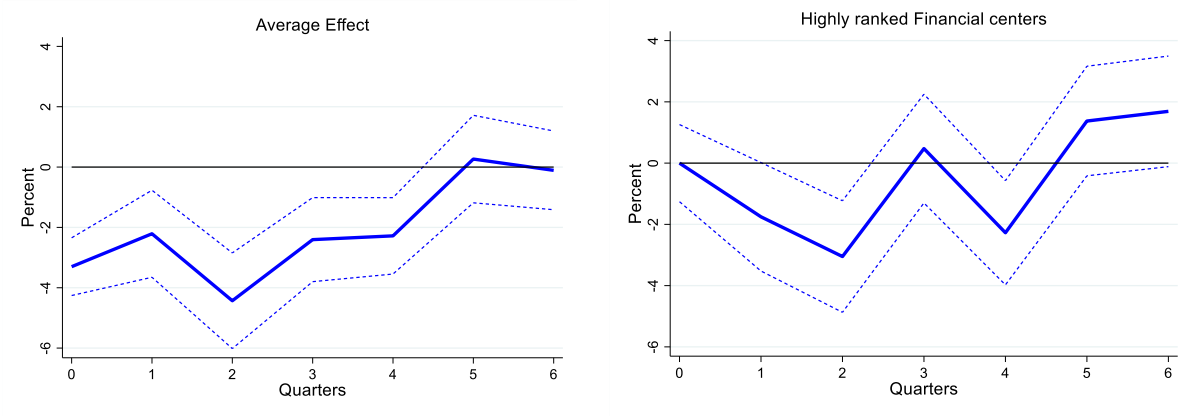
$$Y_{c,c',t+h} - Y_{c,\ c't-1} = \alpha^h \Delta FPP_{cc't} + \beta^h \Delta FPP_{cc't} \times FC_{C'} \quad + \mu_{cc'} + \vartheta_{ct} + \vartheta_{c't} \ + \xi_{c,c',t+h} \quad (2)$$

Where $Y_{c,c't}$ is the outcome variable (the logarithm of portfolio flow), from country *c* to country *c'* at time *t*. $\Delta FPP_{cc't}$, our measure of geopolitical distance, is the change bilateral foreign policy proximity between country *c* and c'. $\mu_{cc'}$ are country-pairs fixed effect, capturing any time invariant bilateral characteristics usually captured through gravity controls such as distance or a common language. ϑ_{ct} , $\vartheta_{c't}$ are respectively source country-time and recipient country-time fixed effects to account for relevant time-varying characteristics.[18] Finally, *h*=0, 1, ...,6 is the horizon of the cumulative response of the dependent variable and ξ_{ct+h} is the error term. Similar to FDI, we test whether $\alpha^h < 0$, that is, if portfolio investments from country *c* to country *c'* slow down following a geopolitical tension shock between the two countries. We also investigate whether being a destination country with a highly ranked financial center mitigates ($\beta^h < 0$) or amplifies ($\beta^h > 0$) the response of a given source country to increased geopolitical distance. We compute the impact of a one standard deviation in the geopolitical distance (σ) on capital inflows for economies with highly ranked financial centers as $\left(\alpha^h + \beta^h\right) * \sigma$.

10. We find that while geopolitical tensions reduce portfolio flows to the average country in the sample, this impact is milder and delayed for economies with highly rated financial centers. Figure 6 shows that for the average destination country in the sample, portfolio flows are reduced immediately (the same quarter) following a bilateral geopolitical shock, by about 3.5 percent. Further, although portfolio flows recover, the negative impact persists until the fourth quarter. However, the impact on highly ranked financial centers is muted in the very short-term but becomes slightly negative two quarters later and portfolio flows recover more strongly compared to the average country in the sample. These new findings signify some non-linearities, namely that in the event of severe GEF risks, bilateral portfolio flows may be affected even in top rated global financial centers such as Singapore, suggesting the need for Singapore to raise the bar on rebuilding financial and capital buffers to mitigate GEF risks, which when combined with its long-standing agility and astuteness will serve Singapore well when dealing with geoeconomic fragmentation risks.

[18] Our approach is similar to IMF (2023c).

Figure 6. Singapore: Geopolitical Distance and Bilateral Portfolio Flows – Cumulative Impulse Response



Note: 90 percent confidence interval in dashed lines. Clustered standard errors at the country-pair levels are used. The Impulse responses show the cumulative response of bilateral portfolio flows to a one standard deviation in geopolitical distance.

C. Conclusion

11. Geoeconomic fragmentation could have significant implications for Singapore, a trade and financial hub.

- *The trade channel could represent a significant risk for Singapore.* Geopolitical tensions involving a decoupling of global trade in energy and high-tech goods is found to have very severe output cost for Singapore given the large share of high-tech sectors.
- *Singapore's status as a global financial center has the potential to mitigate the effects of GEF on FDI inflows.* We find that while geopolitical tensions have negative impact on FDI inflows on average, this impact could be mitigated in highly rated financial centers such as Singapore.
- *Overall, given the sizeable impact through the trade channel, GEF would have negative implications for Singapore, in particular in terms of output loss.*

12. There is room for policy to mitigate potential impacts of geoeconomic fragmentation, while also adapting to minimize the negative effects on its economy.

- Regarding trade, diversification of export markets as well as input sources, by maintaining constructive relationships with all sides of potential geoeconomic fragmentation and enhancing regional integration for instance among ASEAN countries, are all prime candidates to mitigate the potential negative impacts of trade fragmentation (see Baek et al, forthcoming). The authorities view strengthening and entrenching the role of Singapore's role as an entrepôt hub by leveraging its geographical advantage and efficient trade-logistics ecosystem as an important

strategy to mitigate geoeconomic fragmentation risks, in particular the increased narrowing and fragmentation of electronics trade corridors.[19]

- While we found that Singapore's vulnerability to disruptions in FDI inflows due to financial fragmentation is likely to be limited given its status of global financial center, there are other dimensions to consider including the fact that GEF could introduce frictions and market segmentation in financial flows that could be detrimental to the activity of global financial centers in the long-run.

- Financial fragmentation could affect financial stability through its impact on international payment systems and asset prices. Geopolitical tensions could also raise financial stability risks via an increase in banks' funding costs, including in US dollar (see Box 2), a decline in their profitability and lower credit provision to the private sector. Singapore's well capitalized financial sector is however an important mitigating factor. The potential impact of financial fragmentation on financial stability risks deserves more attention to better understand the transmission of geopolitical shocks to the broad financial system. Further investigation will help develop mitigation and management tools, including stress testing and scenario analysis.

- Overall, while the quantitative macro-based models show significant GEF risks, Singapore's long-standing reputation of optimal policies, agile policy toolkit and ample buffers, and the skillful deployment of which were evident during both the pandemic and previous global stress episodes, bode well for the country's ability to mitigate and adapt to GEF shocks. Similarly, and more broadly, producing more complex products – as well as maintaining high-quality institutions and regulations – is associated with lower vulnerability to reshoring of FDI (IMF, 2023c).

[19] See MAS Macroeconomic Review Volume XXII Issue 1, Apr 2023.

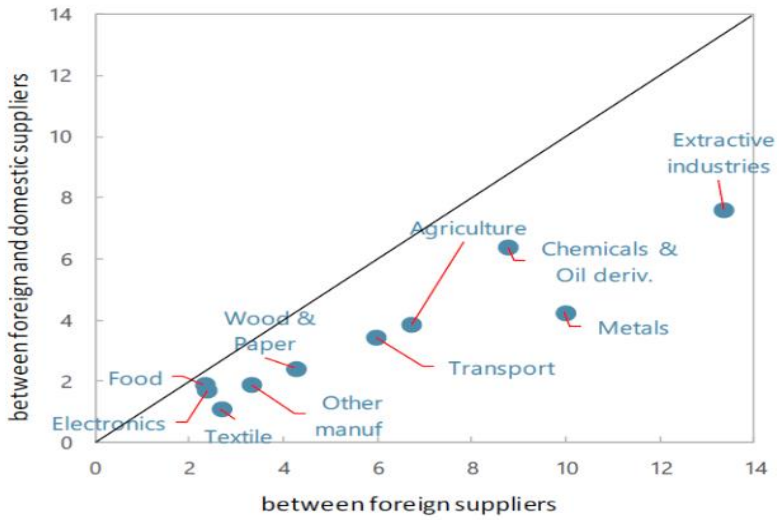
Annex I. Technical Annex—Key Features of the Multi-Sector Computable General Equilibrium (CGE) Trade Model

This Annex presents a summary of key features in the CGE model used to simulate the potential output cost of GEF discussed in section B (based on Caliendo et al., 2017; 2023; Cerdeiro et al., 2021 and Caceres et al, 2019) as well as the input-output data used to generate the quantitative assessment.

1. The CGE model (Caliendo et al., 2017; 2023) captures two key features of the international production of goods and trade including i) monopolistic competition with the free entry of heterogeneous firms and ii) input–output linkages within and between economies. These imply that in the policy simulations under the GEF scenario, firms may enter or exit export markets in response to implied tariff changes. Likewise, following Caliendo and Parro (2015), as the model aims to assess the potential impacts of changes in trade barriers in a world with long and complex global supply chains, it captures trade in intermediate inputs.

2. The calibration of the model is based on a combination of i) the Eora database which represents a balanced global multi region input output (MRIO) table linking 26 sectors across 190 countries, latest table (2015) with ii) the 2015 applied tariff data from UNCTAD's Trade Analysis Information System accessed through the World Integrated Trade Solution (WITS). Combining these two datasets yields an input-output database with 17 sectors, which are then aggregated into ten sectors across 165 countries (see Figure 1 below). Figure 1 shows that electronics sector has both very low elasticity of substitution between foreign and domestic suppliers as well as between foreign suppliers. This implies that trade restriction affecting this sector would have significant costs for a country such as Singapore, where it represents a significant portion of exports. This feature is present in many recent trade models (see for instance Ossa, 2015 who shows that the gains from trade crucially depend on sectoral trade elasticities).

Figure 1. Singapore: Estimated Sectoral Elasticities of Substitution



Source: Caceres et al, 2019

Table 1. Singapore: Technological Intensity and Elasticities Across Sectors

Sector #	Simplified Sector Name	Elasticities 1/	Tech-Intensity 2/
1	Agriculture, Hunting, Forestry, and Fishing	9.1	N.A.
2	Extractivee Industries	19.0	N.A.
3	Food, Beverages, and Tobacco	2.5	Low
4	Textiles,Textile Products, Leather, and Footwear	3.0	Low
5	Wood, Paper, Printing, and Publishing	5.4	Low
6	Petroleum, Chemical, Non-Metallic Mineral Products	12.1	Medium-Low[3/]
7	Metal Products	13.9	Medium-Low
8	Electrical Equipment and Machinery	2.6	Medium-High[4/]
9	Transport Equipment	8.0	Medium-High
10	Other Manufacturing; Recycling	4.0	Low

Sources: Caceres and others (2019), OECD (2011), and authors' calculations.
1/ See Table 2 in Caceres and others (2019), column "Preferred".
2/ From OECD (2011).
3/ This sector aggregates three ISIC revision 3.1 manufacturing sub-sectors listed as Medium-Low (Divisions 23, 25-26) and one listed as Medium-High (Division 24).
4/ This sector aggregates one ISIC revision 3.1 manufacturing sub-sectors listed as Medium-High (Division 29) and another listed as High (Divisions 30-33).

Annex II. How Do US Multinationals Respond to Geopolitical Tensions

1. We explore the response of US multinational companies (MNCs) to geopolitical tensions between their countries of operation and the US.[1] MNCs could have firsthand experience of the implications of GEF given the nature of their operations. As such, empirically testing how geopolitical tensions between the US and a given country affects the activities of US MNCs could provide useful insights. We use data on the activities of majority-owned foreign affiliates of U.S multinational enterprises, covering 62 countries including Singapore over the period 2009-2019 from the U.S Bureau of Economic Analysis. We estimate the following equation:

$$\Delta LogY_{ct} = \theta_1 \Delta \log (GPD_{US})_{ct} + \ +\delta X_{ct} + \mu_c + \tau_t + trend_c + \varepsilon_{ct} \quad (2)$$

Where, $\Delta LogY_{ct}$, is the change in logarithm of a decision variable of US MNC affiliates (such as Investment, employment, the number of affiliates and R&D Expenditure) operating in country *c* in year *t*, $\Delta \log (GPD_{US})_{ct}$, our measure of geopolitical distance with the US is the change in the logarithm of bilateral foreign policy proximity between country *c* and the US.[2] μ_c, τ_t, $trend_c$ are country, time, fixed effects and country-specific trends respectively. X_{ct} is a set of country level macroeconomic controls including real GDP growth, current account to GDP, the logarithm of real GDP per capita, and institutional quality (measured as the average of ICR indexes).[3] We test whether $\theta_1 < 0$, that is, if geopolitical tensions between a given country and the US, lead to a reduction in investment, employment, the number of affiliates and R&D expenditures of US multinationals.

2. We find that US multinational tend to reduce their presence as measured by the number of their affiliates in a given country following geopolitical tensions with the US. Table 2 shows a negative and statistically significant effect of geopolitical distance with the US on the number of large affiliates of US multinationals. We do not find any statistically significant effect for other adjustment or decision variables considered (investment, number of employees and R&D expenditure).[4] Our finding suggests that in the short-run, US multinationals could reduce their presence in countries where there are ongoing geopolitical tensions with the US.

[1] The US is also the largest source of FDI to Singapore.

[2] We define Investment ratio as the ratio of capital expenditures over total asset following an approach similar to Husted et al (2020). Employment is measured by the number of employees while, the number of affiliates refers to the number of affiliates with assets, sales or net income greater than USD 25 million.

[3] See for instance Ghosh et al (2014). Real GDP per capita, real GDP growth and current account as share of GDP, are taken from the World Development Indicators. Capital account openness index is taken from Chinn and Ito (2008), and institutional quality is the average of International Country Risk Guide (ICRG) indicators.

[4] This could also reflect relatively small sample covering only a decade.

Table 1. Singapore: Activity of US Multinationals Following Geopolitical Shocks

	(1) Investment	(2) Number of Employees	(3) Number of Affiliates	(4) R&D Expenditure
Geopolitical Distance with the US	0.077	-0.016	-1.934*	9.988
	(0.112)	(1.435)	(1.104)	(6.256)
Country Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Country-specific trend	Yes	Yes	Yes	Yes
Full controls	Yes	Yes	Yes	Yes
Observations	496	552	556	466

Note: The dependent variables are the change in logarithm of (1) the Investment ratio, (2) the Number of employees, (3) the Number of Affiliates and (4) R&D expenditures.
Robust standard errors in parentheses. * p < 0.10, ** p < 0.05, *** p < 0.01.

References

Ahir, H., Bloom, N., and Furceri, D., 2022. The World Uncertainty Index. NBER Working Paper 29763, National Bureau of Economic Research, Cambridge, MA

Baek, N., Chahande, K., Eklou, K., M., Kinda, T., Nahata, V., Rawat, U., and, Stepanyan, A., (forthcoming) "ASEAN-5: Further Harnessing the Benefits of Regional Integration amid Fragmentation Risks".

Bailey, M. A., Strezhnev, A., and Voeten, E. (2017). Estimating dynamic state preferences from United Nations voting data. *Journal of Conflict Resolution*, *61*(2), 430-456.

Bajgar, M., Javorcik, B., 2020. Climbing the Rungs of the Quality Ladder: FDI and Domestic Exporters in Romania. The Economic Journal 130, 937–955. https://doi.org/10.1093/ej/ueaa003

Bolhuis, Marijn A., Jiaqian Chen, and Benjamin Kett. (2023). "Fragmentation in Global Trade: Accounting for Commodities." IMF Working Paper, International Monetary Fund, Washington, DC.

Bustos, P., 2011. Trade Liberalization, Exports, and Technology Upgrading: Evidence on the Impact of MERCOSUR on Argentinian Firms. The American Economic Review 101, 304–340. https://doi.org/10.1257/aer.101.1.304

Caceres, C., Cerdeiro, D. A., and Mano, R. (2019). *Trade wars and trade deals: Estimated effects using a multi-sector model*. International Monetary Fund.

Caliendo, L., and Parro, F. (2015). Estimates of the Trade and Welfare Effects of NAFTA. *The Review of Economic Studies*, *82*(1), 1-44.

Caliendo, L., Feenstra, R. C., Romalis, J., and Taylor, A. M. (2017). Tariff Reductions, Entry, and Welfare: Theory and Evidence for the Last Two Decades. CEPR Discussion Paper DP10962.

Caliendo, L., Feenstra, R. C., Romalis, J., and Taylor, A. M. (2023). Tariff Reductions, Heterogeneous Firms, and Welfare: Theory and Evidence for 1990–2010. IMF Economic Review, 1-35.

Cerdeiro, D., Eugster, J., Mano, R., Muir, D., Peiris, S., 2021. Sizing Up the Effects of Technological Decoupling. IMF Working Papers 2021, 1. https://doi.org/10.5089/9781513572673.001

Chinn, M. D., and Ito, H. (2008). A new measure of financial openness. *Journal of Comparative Policy Analysis*, *10*(3), 309-322.

Flaaen, A., and Pierce, J. (2019). "Disentangling the Effects of the 2018-2019 Tariffs on a Globally Connected U.S. Manufacturing Sector." Finance and Economics Discussion Series Np. 86, Federal Reserve Board, Washington, DC.

Góes, C., and Bekkers, E. (2022). The impact of geopolitical conflicts on trade, growth, and innovation. *WTO Staff Working Paper ERSD-2022-09. World Trade Organization, Geneva.*

Ghosh, A. R., Qureshi, M. S., Kim, J. I., and Zalduendo, J. (2014). Surges. *Journal of International Economics*, *92*(2), 266-285.

Grossman, G., and Helpman, E., 1991. Innovation and Growth in the Global Economy. Cambridge, Massachusetts: MIT Press.

Handley, K., Kamal, F., and Monarch, R. (2020). *Rising import tariffs, falling export growth: when modern supply chains meet old-style protectionism* (No. w26611). National Bureau of Economic Research.

Husted, L., Rogers, J., and Sun, B. (2020). Monetary policy uncertainty. *Journal of Monetary Economics*, 115, 20-36.

Ioannou, S., Wójcik, D., and Pažitka, V. (2021). Financial centre bias in sub-sovereign credit ratings. *Journal of International Financial Markets, Institutions and Money*, *70*, 101261.

International Monetary Fund, 2022. Regional economic outlook, Asia and Pacific: Sailing into headwinds. International Monetary Fund, Washington, DC.

International Monetary Fund. (2023a). "Geoeconomic Fragmentation and the Future of Multilateralism." IMF Staff Discussion Notes 2023-001.

International Monetary Fund, (2023b). Geopolitics and Financial Fragmentation: Implications for Macro-Financial Stability. Global Financial Stability Report, April 2023, Chapter 3. International Monetary Fund, Washington, DC.

International Monetary Fund, (2023c). Geoeconomic Fragmentation and Foreign Direct Investment. World Economic Outlook, April 2023, Chapter 4. International Monetary Fund, Washington, DC.

Javorcik, B.S., 2004. Does Foreign Direct Investment Increase the Productivity of Domestic Firms? In Search of Spillovers Through Backward Linkages. American Economic Review 94, 605–627. https://doi.org/10.1257/0002828041464605

Javorcik, B.S., Turco, A.L., Maggioni, D., 2017. New and Improved: Does FDI Boost Production Complexity in Host Countries? The Economic Journal 0. https://doi.org/10.1111/ecoj.12530

Kawai, M. , 2009. 'Can Tokyo Become a Global Finance Center?', in S. Young, D. Choi, J. Seade and S. Shirai (eds.), Competition Among Financial Centres in Asia Pacific: Prospects, Risks and Policy Challenges (Seoul: Institute of Southeast Asian Studies), 179–92.

Krugman, P., 1979. A Model of Innovation, Technology Transfer, and the World Distribution of Income. Journal of Political Economy 87 (2): 253–66.

Melitz, M., 2003. The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity. Econometrica 71, 1695–1725.

Moosa, I., Li, L., and Jiang, R. (2016). Determinants of the status of an international financial centre. *The World Economy*, *39*(12), 2074-2096.

Nardo, M., Ndacyayisenga, N., Pagano, A., and Zeugner, S. (2017). Finflows: database for bilateral financial investment stocks and flows. *European Commission JRC Technical Reports*, *451*.

Ossa, R. (2015). Why trade matters after all. *Journal of International Economics*, *97*(2), 266-277.

Thangavelu, S. M. (2017). Labour market integration with the world: case of Singapore. *Journal of Economic Integration*, 723-758.

Verhoogen, E., 2008. Trade, Quality Upgrading, and Wage Inequality in the Mexican Manufacturing Sector. Quarterly Journal of Economic 123, 489–530. https://doi.org/10.1162/qjec.2008.123.2.489

Voeten, Erik; Strezhnev, Anton; Bailey, Michael, 2009, "United Nations General Assembly Voting Data", https://doi.org/10.7910/DVN/LEJUQZ, Harvard Dataverse, V29.

Appendix VII. Impact Of The Pandemic And Work From Home Trends On Singapore's Labor[1]

Following the pandemic, most Singaporean workers, particularly the younger ones, prefer to have the flexibility to work from home. Flexible work arrangements are most easily implemented in high-skill and digitalized sectors. A judicious use of labor policies to encourage greater flexibility in working arrangements and up-skilling of workers will help Singapore retain manpower, including seniors, making the domestic labor market more resilient and easing pressures stemming from an aging population.

A. Post-Pandemic Shifts Towards Greater Work Flexibility

1. The COVID-19 pandemic has transformed labor markets around the world and there is evidence that remote work is becoming entrenched (Figure 1). Surveys of workers across many countries report an average 1.5 days of working from home per week and a desired range of 2-3 days per week (Aksoy, et al., 2022; Criscuolo, Gal, Leidecker, Losma, & Nicoletti, 2021). Relatedly, cross-country studies of job vacancies show that the number of postings that offer one or more days of work from home increased sharply between 2020 and 2022 (Hansen, et al., 2023; Adrjan, et al., 2021). These changing norms and their implications for job vacancies, wages, and labor movements are particularly important in a country like Singapore where it is important to keep older workers engaged in the labor force.

2. After a large uptick during the pandemic, the extent of flexible work arrangements in Singapore have settled above their pre-pandemic level. According to Singapore's Ministry of Manpower (MOM), over 90 percent of establishments offered at least one scheduled flexible work arrangement in 2021, compared to below 50 percent on average over the six years before the pandemic. As mobility normalized post-pandemic, this share of establishments offering flexible arrangements has declined, to 71 percent in 2022, but remains well above pre-pandemic levels. Additionally, 34 percent of employed residents surveyed by the MOM in 2022 said they worked from home at least once per month. This month trend is also visible in the job vacancy statistics, where the proportion of job posting which involved work that could be done remotely fell from 31 percent in 2021 to 21 percent in 2022.

3. The share of workers working remotely, however, varies significantly by industry and occupational group. In digitalized sectors like information and communications and financial services sectors, around 77 percent of employed residents worked remotely during the pandemic in 2020. In contact-intensive sectors this share was significantly lower. For instance, only about 11 percent of employed residents working in the food and beverages services and 28 percent of health and social service workers worked remotely in 2020. Looking at the more recent (albeit less

[1] Prepared by Shujaat Khan and Margaux MacDonald.

representative) survey data, we continue to see a large discrepancy in remote work preferences across industries.

4. After a sharp decline during the pandemic, the foreign workforce has mostly recovered, especially in contact-intensive sectors. During the pandemic, the size of Singapore's foreign workforce declined about 16 percent (or 18 percent excluding migrant domestic workers), partly due to the strict lockdown and COVID-19 containment measures. The foreign workforce in sectors which are typically more reliant on non-residents, more likely to be categorized as low- or semi-skilled, and mostly contact-intensive (construction, marine shipyards, and domestic workers) recovered in 2022 (though insufficient to reduce the very high vacancy rate in these jobs). However, foreign professional, managerial, executive and mid-skilled workers remain workers below the pre-pandemic levels and the corresponding vacancy rates remain high.[2]

5. Older workers, whose employment prospects differ considerably across industries, are also affected by remote work prospects (Figure 2). Singapore has one of the fastest ageing populations in the world. Supported by policies aimed at increasing the retirement age and encouraging employers to hire senior workers[3], the labor force participation rate of old-age workers has been increasing at a much faster pace compared to other age groups. The share of unemployed workers who are 50 years or older declines with both the skill level of an industry or occupation and whether the job can be performed remotely. For instance, in 2021, at least 40 percent of all unemployed workers whose last job was in the construction and transportation sectors were 50 years or older. In contrast, older workers only made up about 20 percent of unemployed whose last job was in the typically less-contact intensive, but higher skill, Information and Communications, Professional Services, and Public Administration and Education sectors.

6. Despite a relatively short post-pandemic period to date, implications of this rise in remote work are starting to come into view. There is some evidence that this is a structural shift in labor markets and is contributing to increasing labor shortages in countries where some workers are no longer willing to accept lower quality working conditions (Causa, Abendschein, Luu, Soldani, & Soriolo, 2022; Pizzinelli & Shibata, 2023). Evidence on productivity gains or losses from working from home is mixed – with employees reporting higher productivity, but employers not necessarily having the same perceptions (Barrero, Bloom, & Davis, 2021).

7. The analysis in this annex examines what factors drive remote work preferences, how it has affected the labor market and what the implications are for productivity and policy. This contributes to the existing literature by focusing on Singapore and comparing trends in remote work to global peers. Together, this provides insights into how policy may need to adjust to accommodate shifts in preferences while supporting full employment. Finally, given that the shift to

[2] The vacancy rate for professional, managers, executives and technician category was 4.5 percent in 2022Q4 versus a pre-pandemic average of 2.7 percent. Employment pass holders are classified as" professional, managerial, executive" and S-pass holders as "skilled". There were 3.3 percent fewer employment pass holders in 2022 versus 2019, and 11 percent fewer S-pass holders (source: MOM).

[3] For example, through the Senior Employment Credit, which was introduced in 2020 to support senior workers' employment and safeguard their employability.

at least partial work from home appears to be permanent, the paper studies the possible implications for productivity in Singapore. The analysis relies primarily on data from the Ministry of Manpower (aggregate employment data and survey data on working from home in 2020) and the Global Survey of Working Arrangements (Aksoy, et al., 2022) (worker preferences for working from home and individual worker characteristics across countries)[4].

B. Drivers of Preferences for Work from Home

8. A majority of Singaporean workers prefer some degree of remote work, and more so than in other countries. The share of workers who prefer to mostly work from home has increased between 2021 and 2022 and according to a recent survey[5], 73 percent of workers indicated a high preference for hybrid work model over the next 12 months. This is substantially higher than the global average of 63 percent. Survey data further shows that in Singapore, both employees and employers have a higher average desire to work from home relative to almost all other countries globally (Aksoy, et al., 2022).

9. Individual characteristics play an important role in determining the desire to work from home. To determine what drives individuals' desire to work from home in Singapore we follow the approach of Aksoy et al. (2022) and estimate the drivers of the value employees place on working from home. This is based on survey data wherein if an individual responds positively (negatively) to a question regarding their desire to work from home 2-3 days per week, they are asked how much of an increase (decrease) in pay they would value as much as the option to work from home 2-3 days per week. Respondents are given eleven choices for a response from "less than 5 percent" to "more than 25 percent" and the equivalent negative values.[6] We regress this willingness to pay for the option to work from home on individual characteristics :

$$Y_{ij} = \alpha_j + \boldsymbol{\beta X_{ij}} + e_{ij} \quad (1)$$

Where $\boldsymbol{X_{ij}}$ is a vector of individual level explanatory variables for individual *I* who works in industry *j*, including whether the individual has tertiary education, a graduate degree, gender, age, commute time, number of days they are currently working from home, and how they assessed their productivity working from home during COVID relative to their expectations. Y_{ij} is the amenity value individual *i* who works in industry *j* places on working from home. We also check the robustness of our results to using instead the number of days that individual would like to work from home as our dependent variable. This will indicate whether there is a difference between individuals desiring to work from home in a general sense, versus whether they would be willing to place a monetary value of working from home.

[4] Other survey data from Statista, YouGov, Milieu Insights and PwC are used to support our main data sources.

[5] PwC's 2022 Global Workforce Hopes and Fears Survey of 52,195 workers across 44 countries and territories www.pwc.com/workforcehopesandfears.

[6] The "Data" section will have a more complete description of the data and questions in the survey. We note that while the author's original dataset is representative, it may not necessarily be representative at each of the country level.

10. Results suggest that younger individuals put a significantly greater value on working from home. Across specifications in columns (1)-(5), we see a statistically significant negative association between age and working from home. Empirically, our estimates suggest that for each ten-year age difference, the average individual values working from home less than an extra 1.2 percent of their salary. This result suggests that recent policies which have focused on incentivizing older workers to remain employed may be beneficial to employers who value in person presence, given older resident's relatively greater willingness to work in person. It is also indicative of the degree of salary boost employers may be required to pay if they want employees to work in person.

11. Self-assessed productivity is another key determinant of the desire for employees to work from home. The results also show that Singaporeans with higher perceived productivity have a significantly greater value of working from home. However, while beneficial to the worker there is evidence from other studies that this boost in productivity is mainly attributable to reduced commute times – that is, work from home is a productivity boost to workers but not necessarily to employers. Indeed, Barrero, Bloom, and Davis (2021) estimate that in the United States re-optimizing working arrangements in the post-pandemic economy could boost productivity by 4.6 percent relative to the pre-pandemic levels. But only 1.0 percent of this improvement is from conventionally measured productivity, the remaining 3.6 percent is from reduced commute times. As a result, employers do not necessarily perceive the same productivity boost as workers when remote work is permitted.

12. Other characteristics are less important in Singapore for monetizing the value of working from home but are nonetheless indicative of a desire to work from home in general. Interestingly, the value placed on working from home in Singapore is not significantly associated with either education or gender—different than the global sample averages where these factors are very important (Aksoy, et al., 2022). However, as column (6) shows, education and gender characteristics are associated with a general desire to work from home. Individuals with tertiary education and a graduate degree are more likely to want to work from home (by about half an extra day), while men are slightly less likely to indicate a desire to work from home than women.[7]

13. In the factors driving work from home preferences, Singaporean workers, in some ways, are more similar to workers in the United States than to those in other Asian countries. A similar analysis on U.S. data (Table 2) shows that while some individual characteristics may matter—female gender is associated with some increase in the value of working from home—as in Singapore, the perception of productivity during the pandemic and age are associated with putting a significant monetary value on working from home and seem to outweigh all other personal

[7] An analysis of non-linearities for the most important explanatory variables (age and work from home productivity) was also conducted, but showed no differential effect of these variables depending on education, gender, commute time, or actual working from home days.

characteristics. In contrast, in other countries in Asia, education and number of actual days working from home, in additional to perceived productivity, are much more important (Table 3*)*.[8]

14. As remote work trends continue to evolve more research should be done to understand what drives employers remote work policies and the macroeconomic impacts. While the above analysis examines what drives workers preferences for remote work, there are few studies of what makes employers willing to adopt remote and flexible work options for their organizations. Yet this perspective is equally critical in setting policies that encourage (or discourage) remote and flexible work. Furthermore, whether individual preferences and the impacts of remote change depending on the business cycle—in particular the state of labor market—has not been examined but is also important for understanding labor markets and setting policy.

C. Policy Implications

15. Policies to bolster the labor supply should be aligned with changing preferences for flexible work arrangements and employer needs. Those sectors with still high vacancy rates will have to be flexible in work from home policies to attract both local and foreign workers. In jobs that require in-person presence, targeting older workers may be more advantageous as they are more willing to work in person than younger workers. This would have the added benefit of possibly reducing unemployment rates among seniors. For jobs that can be feasibly done partially or fully remotely, employers may need to offer this flexibility to attract workers. Partial flexible work arrangements can be both attractive to workers while ensuring the workers still live in Singapore and contribute to the local economy and tax base. Flexible work arrangements are not new in Singapore and pre-pandemic had proven to be effective in attracting and retaining employees while maintaining productivity levels and competitiveness with foreign countries (Ministry of Manpower, (2001).

16. Programs to assist in skilling, re-skilling, and up-skilling local and foreign workers could also be helpful in matching workers with sectors that have high vacancy rates. This would also help ensure workers contribute to the local economy. With regard to local workers, programs that upskill retired workers can be effective at integrating and retaining old-age workers into the labor market.[9] This can help supplement pension incomes for older workers. This will be particularly important as rapid population aging is expected to create substantial spending pressures for the government over the medium term.

17. As the shift to (at least partial) work from home becomes more permanent, especially in digitalized sectors, it will be important to understand the productivity impacts (Figure 3). In Singapore, sectors with a high degree of digitalization (information and communications and financial services) also had the highest share of employed residents working remotely in 2020 (77.6

[8] We would note that the regional regression has a much larger sample size and thus more power in the estimation, which may also explain the stronger degree of statistical significance across several explanatory variables.

[9] For example, training and assistance for the elderly and other groups that is provided through the Infocomm Media Development Authority's SG Digital Office.

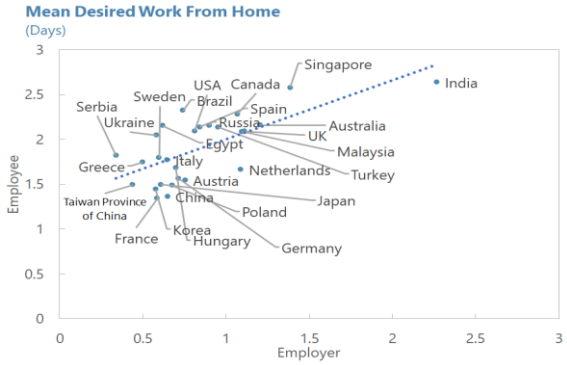
and 76.3 percent, respectively). At the same time, these were also the sectors that did not suffer any major losses in productivity during the pandemic. That said, the pandemic period produced a large-scale natural experiment for working from home, and the circumstances have now changed. Employees and employers now have the flexibility to set full, partial, or limited work from home arrangements. "Hybrid" work, where part of a team (or client, etc.) is in person and part remote may have very different productivity impacts than pure remote work, and there is insufficient data to date to measure the impact. Nonetheless, practices like the Tripartite Standard on Flexible Work Arrangements can help provide a roadmap for employers to follow in providing flexible work arrangements. However, it will be important that productivity impacts of flexible work models and such policies are analyzed as more data becomes available. Both working arrangements and policies should be adjusted as needed to ensure productivity does not decline due to remote work.

18. Pre-pandemic studies suggests that digitalization can help boost productivity, while the pandemic experience showed digitalization is critical for remote work. Evidence has shown that digitalization and innovation, captured through e-commerce, robotization and research and development (R&D), are associated with higher labor productivity growth (Kinda, 2021). This suggests that continued digitalization of these sectors could help boost productivity in the long run while appealing to workers' desires for greater flexibility in working location. Policy will have to plan a role, including through investment in e-commerce and R&D to help shift Singapore towards a more digitalized economy with a higher degree of innovation. Policies like the job-skills integrators announced in the 2023 Budget, the DigitalAccess@Home and Mobile Access for Seniors schemes, and the TechSkills Accelerator for ITE and Polytechnics Alliance can help ensure employee training, especially in the digital context, matching the skills employers need and job vacancies, ultimately improving employment opportunities and worker productivity. Such policies can also help support efficient reallocation of productive capital and labor to the most productive firms while also help boost aggregate productivity (see IMF (2021) for a detailed analysis on reallocation and productivity).

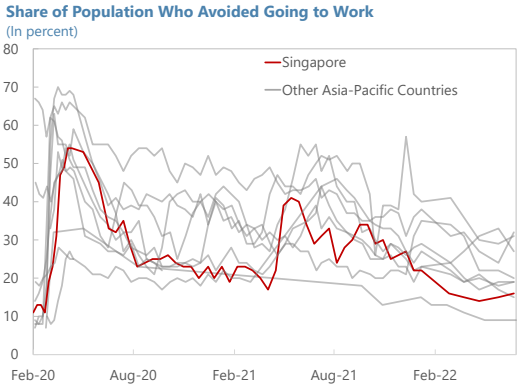
19. As remote work trends evolve in the post pandemic era, further research will need to be undertaken to understand longer term, and broader implications of work from home. Technology is constantly evolving—for instance the recent leaps in artificial intelligence (AI), which can perform aa range of routine tasks—and research will need to continue to examine the impact it has on the labor market, remote work, and productivity. From a government's perspective, further work is also needed to understand the implications of remote work on fiscal revenues and spending—for instance, through reduced commercial property tax revenues, or greater spending on training to match workers to jobs—and on the broader economy.

Figure 1. Singapore: Post-Pandemic Labor Market and Work from Home Trends in Singapore

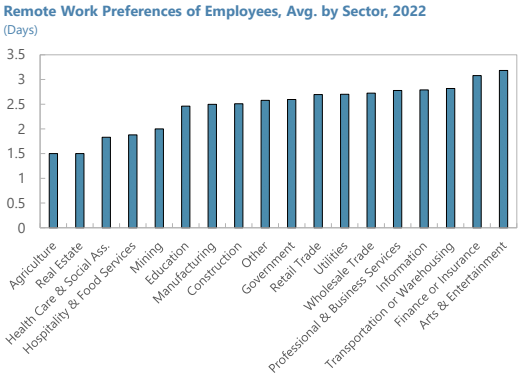
Singaporeans are among the most in favor of remote work globally.



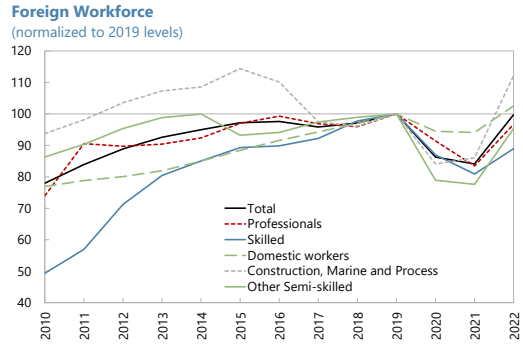
Rate of remote work has stabilized around 20 percent in Singapore.



Remote work preferences differ significantly across industries…

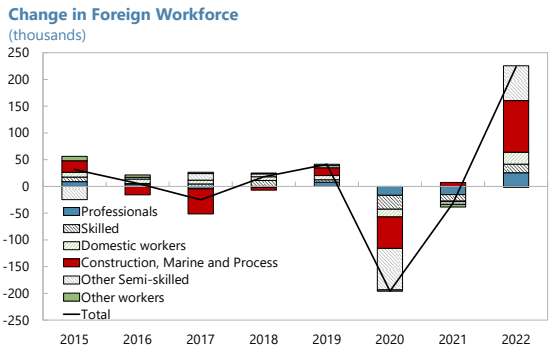


The foreign workforce has not fully recovered.



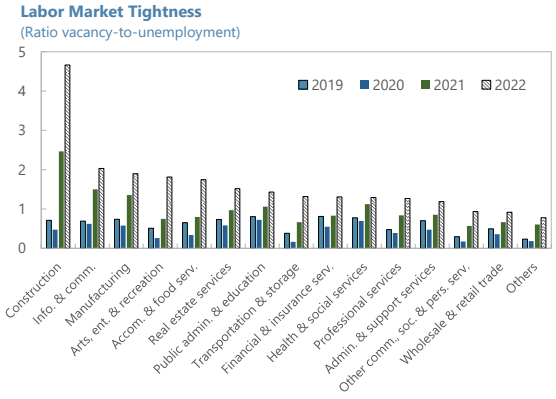
Note: Professionals include Employment Pass holders; Skilled include S Pass holders; and Other Semi-skilled include work permit holders excl. domestic workers and construction, marine and process workers.

Foreign have not returned to jobs which are easiest to do from home.



Note: Professionals include Employment Pass holders; Skilled include S Pass holders; and Other Semi-skilled include work permit holders excl. domestic workers and construction, marine and process workers.

Contact-intensive sectors and those dependent on foreign workers were tightest in 2022.

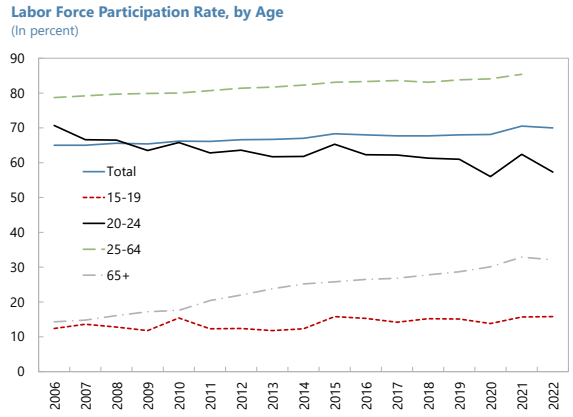


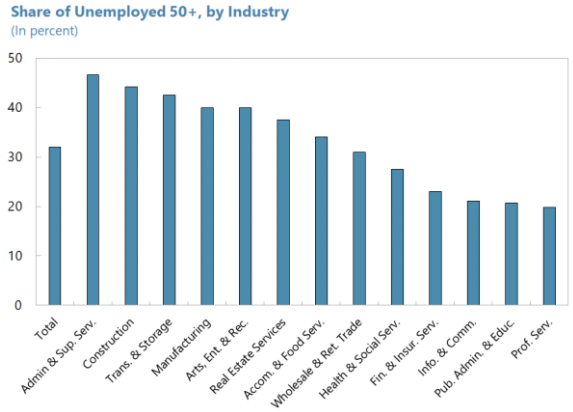
Sources: Aksoy, et al. (2022); YouGov; Ministry of Manpower; and IMF staff estimates.

Figure 2. Singapore: Older Workers in the Labor Force

A growing proportion of old-age Singaporeans are participating in the labor force.

The share of old-age unemployed workers is lower in high-skilled industries.



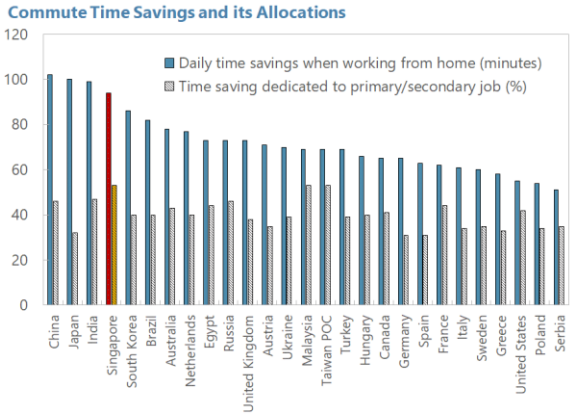


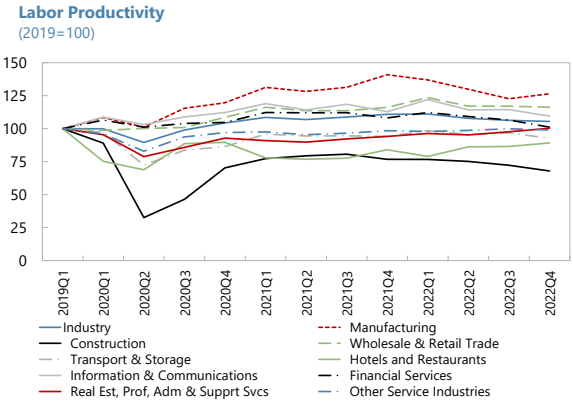
Sources: Ministry of Manpower; and IMF staff estimates.

Figure 3. Singapore: Work from Home and Productivity

Singaporeans save over 90 minutes on their commute when working remotely and allocate most of these time savings to work.

Productivity in digitalized sectors was relatively unscathed during the pandemic; however, recently, these sectors have been witnessing a decline in productivity.





Sources: Aksory, et al. (2022); Ministry of Manpower; and IMF staff estimates.

Table 1. Singapore: Drivers of Amenity Value to Work from Home in Singapore

	(1)	(2)	(3)	(4)	(5)	(6)
	Amenity value of the option to WFH 2-3 days per week					*Desired days WFH per week*
Tertiary Education	-0.873	-0.880	-0.975	-0.870	-0.767	0.400**
	(0.795)	(0.813)	(0.795)	(0.703)	(0.687)	(0.187)
Graduate Degree	1.337	1.350	1.220	0.924	1.056	0.339*
	(0.960)	(0.986)	(0.859)	(0.991)	(0.918)	(0.162)
Male	0.455	0.475	0.472	0.709	0.717	-0.182**
	(0.606)	(0.597)	(0.600)	(0.559)	(0.558)	(0.078)
Age	-1.387***	-1.417***	-1.424***	-1.232***	-1.220***	-0.133***
	(0.274)	(0.273)	(0.276)	(0.277)	(0.270)	(0.041)
Round trip commute time in hours		-0.166	-0.189	-0.516	-0.499	0.036
		(0.356)	(0.367)	(0.372)	(0.370)	(0.051)
Number of days working from home this week			0.112		-0.121	0.257***
			(0.140)		(0.143)	(0.021)
WFH productivity during COVID, relative to expectations				0.213***	0.217***	0.039***
				(0.032)	(0.035)	(0.004)
Observations	800	799	799	799	799	799
R2	0.056	0.057	0.057	0.132	0.133	0.290
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

* p < 0.10, ** p < 0.05, *** p < 0.01. Clustered standard errors in parentheses (on industry). Tertiary education, graduate degree, and male are all dummy variables. Age is a count variable taking on values for the age decades 20-29, 30-39, 40-49, and 50-59. Sample does not include individuals over the age of 59 or younger than 20. Commute time is defined in hours. WFH productivity relative to expectation is measured as percent more (less) productive than expected during COVID and can take on values from -25 to +25 in increments of 5. The dependent variable in columns (1)-(5) is the amount of a pay rise respondent would be willing to forego to be permitted to work from home 2 or 3 days per week. There are six bucketed response options, ranging from "Less than a 5% pay raise" to "More than a 25% pay raise."15 If the response is "Negative –I would view it as a cost or a pay cut," a parallel question is asked that replaces "pay raise" with "pay cut", wiht the same six categories. The dependent variable in column (6) is the number of days employees would like to WFH per week, taking on values from 0 to 5.

Source: IMF staff calculations.

Table 2. Singapore: Drivers of Amenity Value to Work from Home in United States

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Amenity value of the option to WFH 2-3 days per week						*Desired days WFH per week*	
Tertiary Education	0.676	0.402	0.292	0.349	0.296	0.950	-0.134	0.032
	(1.268)	(1.253)	(1.213)	(1.363)	(1.353)	(0.916)	(0.170)	(0.123)
Graduate Degree	1.957	1.795	1.636	1.428*	1.365	1.832	-0.428*	-0.065
	(1.339)	(1.304)	(1.314)	(0.809)	(0.824)	(1.089)	(0.212)	(0.142)
Male	-1.023	-0.976	-0.820	-0.735	-0.669	-1.834**	-0.350*	-0.365**
	(1.169)	(1.164)	(1.164)	(1.091)	(1.098)	(0.663)	(0.166)	(0.145)
Age	-0.131	-0.112	-0.236	0.016	-0.053	-0.964***	-0.046	-0.210***
	(0.450)	(0.481)	(0.470)	(0.412)	(0.417)	(0.235)	(0.071)	(0.047)
Round trip commute time in hours		0.569	0.499	-0.251	-0.248	0.821	0.108*	0.163***
		(0.687)	(0.661)	(0.573)	(0.548)	(0.482)	(0.060)	(0.043)
Number of days working from home this week			0.765**		0.384	0.806***	0.312***	0.392***
			(0.345)		(0.287)	(0.201)	(0.032)	(0.042)
WFH productivity during COVID, relative to expectations				0.318***	0.303***		0.044***	
				(0.064)	(0.061)		(0.007)	
Observations	480	479	479	479	479	1241	479	1241
R2	0.041	0.042	0.061	0.148	0.152	0.060	0.365	0.196
Restricted sample	Yes	Yes	Yes	Yes	Yes	No	Yes	No
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

* p < 0.10, ** p < 0.05, *** p < 0.01. Clustered standard errors in parentheses (on industry). Tertiary education, graduate degree, and male are all dummy variables. Age is a count variable taking on values for the age decades 20-29, 30-39, 40-49, and 50-59. Sample does not include individuals over the age of 59 or younger than 20. Commute time is defined in hours. WFH productivity relative to expectation is measured as percent more (less) productive than expected during COVID and can take on values from -25 to +25 in increments of 5. The dependent variable in columns (1)-(5) is the amount of a pay rise (cut) responded would be willing to forego to be permitted to work from home 2 or 3 days per week. There are six bucketed response options, ranging from "Less than a 5% pay raise" to "More than a 25% pay raise."15 If the response is "Negative –I would view it as a cost or a pay cut," a parallel question is asked that replaces "pay raise" with "pay cut", wiht the same six categories. The dependent variable in column (6) is the number of days employees would like to WFH per week, taking on values from 0 to 5. Sample includes only respondents from wave 2 of the survey in the United States. The sample is severely restricted in columns (1)-(5) and (7) due to limited respondents to the question on WFH productivity. Columns (6) and (8) report results without restricting the sample to those who answered this question.

Source: IMF staff calculations.

Table 3. Singapore: Drivers of Amenity Value to Work from Home in Asia

	(1)	(2)	(3)	(4)	(5)	(6)
	Amenity value of the option to WFH 2-3 days per week					Desired days WFH per week
Tertiary Education	1.861**	1.807**	1.524**	1.481**	1.324**	0.097
	(0.742)	(0.718)	(0.707)	(0.622)	(0.620)	(0.100)
Graduate Degree	3.056***	3.000***	2.589***	2.378***	2.154***	0.164
	(0.748)	(0.725)	(0.703)	(0.662)	(0.641)	(0.116)
Male	-0.339	-0.332	-0.369	-0.160	-0.188	-0.078**
	(0.346)	(0.358)	(0.351)	(0.276)	(0.275)	(0.032)
Age	-0.742***	-0.748***	-0.782***	-0.508**	-0.536***	-0.014
	(0.156)	(0.154)	(0.162)	(0.177)	(0.178)	(0.025)
Round trip commute time in hours		0.253	0.231	0.008	0.004	0.098**
		(0.246)	(0.246)	(0.208)	(0.208)	(0.035)
Number of days working from home this week			0.464***		0.276***	0.244***
			(0.087)		(0.094)	(0.016)
WFH productivity during COVID, relative to expectations				0.238***	0.229***	0.039***
				(0.017)	(0.018)	(0.002)
Observations	3337	3334	3334	3334	3334	3334
R2	0.056	0.056	0.068	0.143	0.147	0.251
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes

* p < 0.10, ** p < 0.05, *** p < 0.01. Clustered standard errors in parentheses (on industry). Tertiary education, graduate degree, and male are all dummy variables. Age is a count variable taking on values for the age decades 20-29, 30-39, 40-49, and 50-59. Sample does not include individuals over the age of 59 or younger than 20. Commute time is defined in hours. WFH productivity relative to expectation is measured as percent more (less) productive than expected during COVID and can take on values from -25 to +25 in increments of 5. The dependent variable in columns (1)-(5) is the amount of a pay rise (cut) responded would be willing to forego to be permitted to work from home 2 or 3 days per week. There are six bucketed response options, ranging from "Less than a 5% pay raise" to "More than a 25% pay raise."15 If the response is "Negative –I would view it as a cost or a pay cut," a parallel question is asked that replaces "pay raise" with "pay cut", wiht the same six categories. The dependent variable in column (6) is the number of days employees would like to WFH per week, taking on values from 0 to 5. Sample includes Singapore, China, Japan, Malaysia, Taiwan Province of China, and South Korea.

Source: IMF staff calculations.

References

Adrjan, P., Ciminelli, G., Judes, A., Koelle, M., Schwellnus, C., & Sinclaire, T. (2021). Will It Stay or Will It Go? Analyzing Developments in Telework. *OCED Productivity Working Papers*.

Aksoy, C., Davis, S., Barrero, J., Dolls, M., Bloom , N., & Zarate, P. (2022). Working from home around the world. *NBER Working Paper No 30446*.

Barrero, J., Bloom, N., & Davis, S. (2021). Why working from home will stick. *NBER Working Paper No 28731*.

Barrero, J., Bloom, N., Davis, S., Meyer, B., & Mihaylov, E. (2022). THE SHIFT TO REMOTE WORK LESSENS WAGE-GROWTH PRESSURES. *NBER Working Paper No 30197*.

Bloom, N., Liang, J., Roberts, J., & Ying, Z. (2015). Does working from home work? Evidence from a Chinese experiment. *The Quarterly Journal of Economics*, 165-218.

Brinatti, A., Cavallo, A., Cravino, J., & Drenik, A. (2021). The international price of remote work. *NBER Working Paper No. 29437*.

Causa, O., Abendschein, M., Luu, N., Soldani, E., & Soriolo, C. (2022). The post-COVID-19 rise in labour shortages. *OECD Economics Department Working Papers No. 1721*.

Criscuolo, C., Gal, P., Leidecker, T., Losma, F., & Nicoletti, G. (2021). The role of telework for productivity during and post-COVID-19: Results from an OECD survey among managers and workers. *OECD Productivity Working PAper 31*.

Gibbs, M., Mengel, F., & Siemroth, C. (2021). Work from Home & Productivity: Evidence from Personnel & Analytics Data on IT Professionals. *Working Paper, Becker Friedman Institute*.

Hansen, S., Lambert, P., Bloom, N., Davis, S., Sadun, R., & Taska, B. (2023). Remote Work across Jobs, Companies, and Countries. *NBER Working Paper 31007*.

IMF. (2021). *Boosting Productivity in the Aftermath of COVID-19*. Washington D.C.: International Monetary Fund.

Kinda, T. (2021). *The Digital Economy: A Potential New Engine for Productivity Growth*. Washington D.C.: International Monetary Fund 2021 Singapore Article IV Report.

Manpower, M. o. (2001). *Flexible Work Arrangements*. Ministry of Manpower and Ministry of Community Development and Sport.

Pizzinelli, C., & Shibata, I. (2023). Has COVID-19 induced labor market mismatch? Evidence from the US and the UK. *Labour Economics, Volume 81*.

Shen, L. (2023). Does working from home work? A natural experiment from lockdowns. *European Economic Review*.

INTERNATIONAL MONETARY FUND

SINGAPORE

STAFF REPORT FOR THE 2023 ARTICLE IV CONSULTATION—INFORMATIONAL ANNEX

June 29, 2023

Prepared By | Asia and Pacific Department

CONTENTS

FUND RELATIONS ____ 2

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FUND RELATIONS

(As of May 31, 2023)

Membership Status: Joined August 3, 1966; Article VIII.

General Resources Account

	SDR Millions	Percent of Quota
Quota	3,891.90	100.00
Fund holdings of currency (exchange rate)	2,749.92	70.66
Reserve tranche position	1,145.84	29.44
Lending to the Fund:		
New Arrangements to Borrow	3.74	

SDR Department

	SDR Millions	Percent of Allocation
Net cumulative allocation	4,474.42	100.00
Holdings	4,722.20	105.54

Outstanding Purchases and Loans: None.

Financial Arrangements: None.

Projected Payments to the Fund: None.

Exchange Arrangement

Singapore's de jure exchange rate arrangement is "other managed." The de facto exchange rate arrangement is classified as "stabilized." The Monetary Authority of Singapore (MAS) monitors the value of the exchange rate against an undisclosed basket of currencies and intervenes in the market to maintain this value within an undisclosed target band. The U.S. dollar is the intervention currency. Singapore has accepted the obligations under Article VIII, Sections 2(a), 3, and 4 and maintains an exchange system free of multiple currency practices and restrictions on the making of payments and transfers for current international transactions, except for restrictions maintained solely for the preservation of national or international security, which have been notified to the Fund in accordance with the procedures set forth in Executive Board decision 144-(52/51). Singapore maintains restrictions on Singapore dollar credit facilities to, and bond and equity issuance by, nonresident financial institutions. Singapore dollar proceeds obtained by nonresident financial entities (such as banks, merchant banks, finance companies, and hedge funds) from loans exceeding S$5 million, or any amount for equity listings or bond issuance to finance activities outside Singapore, must be swapped or converted into foreign currency upon draw down. Financial institutions are prohibited from extending Singapore dollar credit facilities in excess of S$5 million to

nonresident financial entities if there is reason to believe that the Singapore dollar proceeds may be used for Singapore dollar currency speculation.

Article IV Consultation

Singapore is on the 12-month consultation cycle. The 2022 Article IV consultation discussions were held in person during May 09–20, 2022, and the Executive Board concluded the consultation on July 21, 2022 (IMF Country Report No. 22/233).

FSAP Participation

The FSAP Update involved two missions: October 29–November 14, 2018, and February 13–27, 2019. The findings were presented in the Financial System Sustainability Assessment (IMF Country Report No. 13/325).

Technical Assistance: None.

Resident Representative: Ms. Natalia Novikova has been posted in Singapore since October 2020.

STATISTICAL ISSUES

I. Assessment of Data Adequacy for Surveillance	
General: Data provision is broadly adequate for surveillance. While the authorities have continued to expand the range of publicly available data.	
National Accounts: The Singapore Department of Statistics has recently made improvements to its methodology. In May 2019, it benchmarked the GDP reference year from 2010 to 2015, moved estimation from a five-yearly fixed base approach to an annually reweighted chained volume measurement, and updated methods of estimating insurance output and goods sent to/received from abroad for processing, in line with principles of the 2008 System of National Accounts. **Price Statistics**: In 2020 the CPI was updated to the index reference period of 2019, using expenditure weights from the Household Expenditure Survey conducted between October 2017 and September 2018. The updated CPI includes indexes for 95 detailed consumption categories, compared to the 8 detailed categories that were previously available. Export and import price indexes and PPIs for industrial activities are disseminated monthly, while PPIs for services activities are disseminated quarterly.	
Government Finance Statistics: Information on government assets held abroad is neither published nor provided to the Fund. The government publishes annually partial information on the interest and dividends on these assets. Debt service payments on domestic debt made from the extra budgetary Government Securities Fund are published on an annual basis. Data on the financial position of the consolidated public sector are not published.	
Monetary Statistics: The Monetary Authority of Singapore does not report monetary statistics in IMF's standardized report forms, which were introduced in 2004 to collect sectoral balance sheets of the financial corporations broken down by financial instruments, counterparty sector, and currency of denomination of the financial instruments. The Monetary Authority of Singapore reports data on several series and indicators of the Financial Access Survey, including the two indicators (commercial bank branches per 100,000 adults and ATMs per 100,000 adults) adopted by the UN to monitor Target 8.10 of the Sustainable Development Goals.	
Financial Soundness Indicators: Singapore reports 12 core and 7 encouraged Financial Soundness Indicators (FSIs) for Deposit Takers on a quarterly basis as per the Financial Soundness Indicators Compilation Guide. The data as well as the accompanying meta data are available in the IMF's FSI website.	
External Sector Statistics: Balance of Payments and international investment position data are compiled according to the 6th edition of the *Balance of Payments and International Investment Position Manual (BPM6*). Data on Singapore's international investment position is not provided on a disaggregated sectoral basis as suggested by the BPM6. Singapore participates in the IMF's Coordinated Direct Investment Survey reporting data on inward investment. It also participates in the IMF's Coordinated Portfolio Investment Survey reporting the core table (Table 1) only. It also reports the Reserves Data Template to the IMF monthly.	
II. Data Standards and Quality	
A subscriber to the IMF Special Data Dissemination Standard (SDDS) since 2001, Singapore publishes data with the coverage, periodicity, and timeliness prescribed under the SDDS, disseminates advance release calendars, and annually certifies the published metadata. Singapore's latest SDDS Annual Observance Report is available on the Dissemination Standards Bulletin Board.	No data ROSC is available.

Singapore: Table of Common Indicators Required for Surveillance
(As of June 1, 2023)

	Date of Latest Observation	Date Received	Frequency of Data[1]	Frequency of Reporting[1]	Frequency of Publication[1]
Exchange rates	05/24/2023	05/24/2023	D	D	D
International reserve assets and reserve liabilities of the Monetary Authorities[2]	04/2023	05/2023	M	M	M
Reserve/base money	04/2023	05/2023	M	M	M
Broad money	04/2023	05/2023	M	M	M
Central bank balance sheet	03/2023	05/2023	M	M	M
Consolidated balance sheet of the banking system	03/2023	04/2023	M	M	M
Interest rates[3]	05/2023	05/2023	M	M	M
Consumer price index	04/2023	05/2023	M	M	M
Revenue, expenditure, balance and composition of financing[4]—general government[5]	2022	5/2023	A	A	A
Revenue, expenditure, balance and composition of financing[4]– central government	04/2023	05/2023	M	M	M
Stocks of central government and central government-guaranteed debt[6]	2023:Q1	5/2023	Q	Q	Q
External current account balance	2023:Q1	5/2023	Q	Q	Q
Exports and imports of goods and services	2023:Q1	5/2023	Q	Q	Q
GDP/GNP	2023:Q1	5/2023	Q	Q	Q
Gross external debt[7]	2022:Q4	3/2023	Q	Q	Q
Net international investment position	2022:Q4	3/2023	Q	Q	Q

[1] Daily (D); weekly (W); monthly (M); quarterly (Q); annually (A); irregular (I); and not available (NA).
[2] Includes reserve assets pledged or otherwise encumbered as well as net derivative positions.
[3] Both market-based and officially determined, including discount rates, money market rates, rates on treasury bills, notes, and bonds.
[4] Foreign and domestic banks, and domestic nonbank financing.
[5] The general government consists of the central government (budgetary funds, extra budgetary funds, and social security funds) and state and local governments.
[6] Including currency and maturity composition.
[7] Official external debt is zero.

Statement by the Staff Representative on Singapore
August 23, 2023

This staff statement provides updates on developments since the staff report was issued on June 30th. The thrust of the staff appraisal remains valid.

1. **The Singaporean economy continues to show visible signs of moderating growth and risks to the outlook remain tilted to the downside amid external headwinds.** The economy grew by 0.5 percent in 2023Q2 (year-on-year basis), extending the 0.4 percent growth in 2023Q1 and compared to 3.6 percent in 2022. The post-pandemic rebound in tourism, which reached almost 90 percent of its pre-pandemic level in July 2023, would likely continue to support growth in the second half of the year. Staff maintain its annual growth forecast of 1 percent for 2023, reflecting both the weakening global demand, and tapering off of the strong recovery of domestic demand that had followed the reopening of the economy.

2. **On disinflation, broad-based price pressures continue to moderate further amid some easing of overall labor market tightness**. In line with below trend growth and weak aggregate demand, headline inflation moderated further to 4.5 percent in June 2023 from 6.1 percent in Q1, with MAS core inflation also easing to 4.2 percent in June from 5.4 in Q1. The decline in global commodity prices, the easing of supply chain bottlenecks and the cumulative effects of MAS' five successive monetary policy tightening moves, have also contributed to temper imported cost pressures. The labor market remains tight but is easing as continuing inflows of non-resident workers have helped to backfill job vacancies, which have since fallen from their peaks. With moderating goods prices, the durability of the ongoing disinflation process would likely depend on the pace of resolving the remaining labor market imbalances and thus how quickly service price inflation moderates.

3. **Property market prices are also showing discernible signs of cooling following the April 2023 measures.** Private residential property price growth moderated from 11.4 percent in 2023Q1 to 7.5 percent in 2023Q2. The continued tight macroprudential stance, combined with the authorities' plans to ramp up housing supply, would also contribute to further temper the pace of residential real estate price growth, facilitate a soft landing and help contain systemic financial risks.

Statement by Yati Kurniati, Executive Director for Singapore,
and Justin Lee, Advisor to the Executive Director
August 23, 2023

1 INTRODUCTION

1.1 The Singapore authorities would like to thank the Article IV team for a constructive 2023 Consultation. We welcome the team's support of Singapore's policy responses in the challenging macroeconomic environment.

2 RECENT ECONOMIC DEVELOPMENTS AND OUTLOOK

2.1 The Singapore economy has slowed discernibly since the last quarter of 2022. On a q-o-q seasonally adjusted basis, GDP averaged flat growth from Q4 2022 to Q2 2023, weighed down by weakness in the external-oriented sectors. The trade-related sectors were hit by the global manufacturing downturn, while performance of the financial sector was also sluggish. The broader weakening of external demand has dampened Singapore's growth prospects for the rest of the year. In the domestic-oriented sectors, the pace of expansion is also expected to moderate as consumer demand slows amid higher interest rates and some moderation in wage growth.

2.2 Singapore's GDP growth is expected to ease from 3.6% in 2022 to a below- potential pace of 0.5%–1.5% this year. Consequently, the output gap is estimated to turn negative, to around −0.5% of potential GDP, from the positive 0.6% recorded last year. The near-term outlook remains uncertain and downside risks persist, including from a sharper tightening in global financial conditions and deeper slowdown in external demand.

2.3 Inflation has been on a broad moderating path, with MAS Core Inflation falling to 4.2% y-o-y in June from 5.4% in Q1 2023. CPI-All Items inflation has also declined, to 4.5% y- o-y in June from 6.1% in Q1 2023. Amid the steady resolution to global supply chain frictions as well as the decline in global energy and food commodity prices, Singapore's import price inflation has turned negative and should remain so for the rest of the year. Domestic wage growth, which has been elevated above historical norms, is also anticipated to ease over H2 2023 alongside the moderation in labour market tightness. Core inflation is forecast to come in significantly lower by end-2023, to average between 3.5–4.5% for the year as a whole. Meanwhile, CPI-All Items inflation is forecast to come in at 4.5–5.5%.

3 MACROECONOMIC POLICIES

3.1 In April 2023, the Monetary Authority of Singapore (MAS) maintained the prevailing positive rate of appreciation of the Singapore Dollar Nominal Effective Exchange Rate (S$NEER) policy band, with no change to its width and the level at which it was centred. MAS' five preceding monetary policy tightening moves have helped to arrest the momentum of price increases, and the effects will continue to filter through to the economy and facilitate a further dampening of inflation. MAS therefore assessed that the prevailing monetary policy stance, where the slope of the policy band continues to be on an appreciating trend, is sufficiently tight and appropriate for securing medium-term price stability. Nevertheless, MAS is closely monitoring the evolving growth-inflation dynamics for risks on

either side.

3.2 Fiscal policy has sought to carefully balance the risks to inflation and growth. Amid slowing economic growth and still-high inflation, the authorities enhanced support measures to help vulnerable households and firms with cost-of-living and cashflow concerns. There were also structural measures to enhance Singapore's economic competitiveness, strengthen the social compact, and build a resilient nation. Overall, the fiscal stance in FY2023 was less expansionary than in the previous year.

3.3 The macroprudential policy stance was tightened in April 2023 to promote sustainable conditions in the residential property market. Property market measures were calibrated to slow investment demand that again risked escalating unsustainably, amid the near-term (COVID-19 induced) housing supply constraints.

4 FINANCIAL SECTOR POLICIES

4.1 Singapore's domestic financial system remains sound and resilient with strong buffers to cushion adverse shocks. Banks in Singapore are well-capitalised with sound liquidity positions, underpinned by a stable and diversified funding base. Results from recent stress tests show that Singapore banks have adequate buffers to weather further strong interest rate and income shocks.

4.2 MAS' regulatory approach is to foster an innovative and responsible digital asset ecosystem. MAS continues to make progress in advancing digital innovation in the financial sector, including issuing licenses for digital banks, bolstering cross-border payment efficiency, and fostering a conducive environment for Fintech in payments and loan generation. While spillovers of crypto-asset risks to Singapore's mainstream financial system and the economy are limited, MAS closely monitors these risks and has introduced regulation to strengthen consumer protection and enhance the standards of stablecoin- related activities.

5 MEDIUM-TERM ISSUES

5.1 Looking beyond the immediate policy responses, the authorities continue to take steps to ensure that the economy is ready to leverage on new economic opportunities and build a more inclusive and resilient society. The key spending initiatives announced at Budget 2023 underscores this focus.

5.2 Amid increased economic competition, volatility and disruptions, the authorities have redoubled efforts to build capabilities and anchor quality investments, nurture innovation, develop local enterprises, and deepen human capital. The Progressive Wage Credit Scheme, which co-funds wage increases of lower-wage workers, was enhanced in Budget 2023, as part of the broader strategy to uplift lower-wage workers through sustainable wage growth.

5.3 The authorities are also investing significant resources to strengthen Singapore's social compact, by supporting families, tackling inequality and social mobility, and providing better care for a rapidly ageing population. To assist in Singaporeans' marriage and parenthood aspirations, subsidies for housing and child-raising have been progressively enhanced. Besides raising the incomes of lower-wage workers, the authorities have adopted a family-centric approach to social service delivery for lower-income families, and increased

investments in the early childhood sector. The authorities will prioritise preventive care, boost the resources dedicated to supporting seniors' long-term healthcare needs, and enhance the retirement adequacy of various groups, especially platform workers and older workers.

5.4 To accelerate Singapore's low-carbon transition, the authorities will be raising the carbon tax progressively from 2024 to provide a stronger price signal on carbon. Transitional support for enterprises and households to become more energy-efficient will also be provided, such as through the Energy Efficiency Grant (EEG) which co-funds support for businesses to invest in energy-efficient equipment in the Food Services, Food Manufacturing, and Retail industries. On climate adaptation, spending will increase significantly in the medium term, and the authorities will continue to commit more resources as the plans are implemented.

5.5 These measures are regularly reviewed, and many have been enhanced over the years, as part of the authorities' continued commitment to addressing medium-term challenges. Fiscal expenditure associated with structural spending needs has increased steadily over the past years and is projected to rise further. The anticipated increase, which also includes ageing-related expenditure and major infrastructure investments such as on healthcare and coastal protection, is expected to continue to reduce the public sector's contribution to the current account surplus. Concurrently, the ageing demographic outlook will lead to slower trend growth and a gradual reduction in private net savings. A quarter of Singaporeans are expected to be over the age of 65 by 2030.

6 FINAL REMARKS

6.1 The Singapore authorities will remain vigilant over global and domestic developments and assess how they could impinge on both macroeconomic and financial stability. The authorities stand ready to undertake appropriate policy responses where they are needed. The authorities also remain committed to longer-term domestic restructuring, which will enable Singapore to embrace new economic opportunities and promote greater inclusive and sustainable growth.

6.2 Finally, the authorities are pleased to inform the Executive Board that they agree to the publication of the 2023 Singapore Article IV Consultation Report.