INTERNATIONAL MONETARY FUND

IMF Country Report No. 17/240

SINGAPORE

2017 ARTICLE IV CONSULTATION—PRESS RELEASE; STAFF REPORT

July 2017

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 2017 Article IV consultation with Singapore, the following documents have been released and are included in this package:

- A **Press Release**.
- The **Staff Report** prepared by a staff team of the IMF for the Executive Board's consideration on a lapse of time basis, following discussions that ended on May 9, 2017, 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 26, 2017.
- An **Informational Annex** prepared by the IMF staff.

The documents listed below have been or will be separately released.

Selected Issues

The IMF's transparency policy allows for the deletion of market-sensitive information and premature disclosure of the authorities' policy intentions in published staff reports and other documents.

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INTERNATIONAL MONETARY FUND

COMMUNICATIONS DEPARTMENT

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FOR IMMEDIATE RELEASE
July 28, 2017

International Monetary Fund
700 19th Street, NW
Washington, D. C. 20431 USA

IMF Executive Board Concludes 2017 Article IV Consultation with Singapore

On July 13, 2017, the Executive Board of the International Monetary Fund (IMF) concluded the 2017 Article IV consultation[1] with Singapore, and considered and endorsed the staff appraisal without a meeting on a lapse-of-time basis.[2]

Singapore's economic growth momentum has improved since late 2016, supported by a recovery in global electronics trade. Real GDP grew by 2.7 percent in the first quarter of 2017 (year-on-year). However, the recovery has not yet been broad based and private domestic demand, particularly private investment, remains subdued. Labor market conditions have softened with two consecutive years of weak net employment generation, although wages have increased and income inequality, as measured by the Gini coefficient, has declined. Following higher energy and utility prices, consumer price inflation turned positive after nearly two years of negative readings. The current account surplus, as a percent of GDP, has remained elevated.

Faced with structural shifts abroad and at home, including a rapid population aging, Singapore is pursuing an ambitious technology-driven, innovation-based growth model for the future. A high-level Committee on the Future Economy has recommended transforming Singapore into "pioneers of the next generation" through increased global integration, digitalization, and further enhancement in enterprise capabilities and worker skills. However, considerable uncertainties remain. Against this backdrop, Singapore's growth is projected in a 2½–3 percent range over the medium term, with the growth rates rising as improvements in productivity take hold. In the near term, real GDP will grow by about 2¼ percent in 2017 and 2½ percent in 2018. Private domestic demand will provide greater support to growth, contributing to a rise in inflation to 1–1½ percent average rate by 2018. Risks to the near-term growth outlook stem mainly from external sources.

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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] The Executive Board takes decisions under its lapse-of-time procedure when the Board agrees that a proposal can be considered without convening formal discussions.

Executive Board Assessment

In concluding the 2017 Article IV consultation with Singapore, Executive Directors endorsed staff's appraisal, as follows:

Singapore has embraced a new growth model for a world of rapidly advancing digital technologies and automation. The strategy is to turn Singapore into a labor-lean economy with less reliance on foreign workers and growth based on innovation, digitalization, and continuous investment in skills. Economic and social policies to make growth more inclusive and tackle population aging have advanced appreciably in recent years and are still evolving, complementing the economic transformation drive. Singapore's track record of longer-term orientation in policy making, strong implementation capacity and proactive embrace of technical change accompanied by policies to mitigate the disruptive potential of automation on employment provide a measure of assurance about the outcome of its structural transformation.

Singapore's transition to a new growth model has had to cope with structural and cyclical headwinds. Lower potential growth is related to aging, tightening of foreign worker inflows and slow productivity growth. And while a cyclical upswing has lifted growth recently, it remains concentrated in the export-oriented sectors. The labor market has softened despite rising real wages in 2016, with redundancies rising and manufacturing shedding labor. The contraction of employment was reflected in the hiring of foreign nondomestic workers and unemployment has risen only modestly. After nearly two years of subzero readings, inflation has turned positive.

Growth and inflation are expected to firm gradually. The improved global outlook along with rising public spending are projected to spill over to private domestic demand. As the authorities' restructuring plans take hold, medium-term growth is expected to be in the 2½–3 percent range. This should push inflation gradually toward the authorities' medium-term objective.

Risks to the growth outlook are broadly balanced. Notwithstanding the recent trade recovery, economic and geopolitical risks have risen and could affect Singapore's highly open economy. The main external risks stem from the adverse impact of more inward-looking policies in the US and a slowdown in major emerging economies. On the other hand, spillovers from higher-than-expected growth in the US could lift near-term growth. Tightening in global financial conditions, including more rapid-than-expected normalization of US monetary policy and significant further strengthening of the US dollar, could adversely affect segments of the household and corporate sectors with elevated debt service burdens. On the domestic front, uncertainty surrounding the structural transformation could hold back investment, productivity, and undermine improvements in income inequality.

Singapore's external sector is assessed to be substantially stronger than warranted by medium-term fundamentals and desired policies. The current account surplus, which rose in 2016 and is projected to rise further in 2017, should moderate over the medium term as rising public expenditure on infrastructure, healthcare and other aging-related items and firming private capital formation lift investment. Private sector saving, on the other hand, may be propped up by interactions between Singapore's population aging and rising longevity.

Supportive macroeconomic policies are welcome. Fiscal policy has become more expansionary in recent years. Higher outlays on healthcare and other aging-related spending, on transportation infrastructure, innovation, and targeted transfers to promote inclusion, worker retooling and lifelong learning are appropriate given the ongoing structural shifts in the economy. This has also helped in lowering income inequality. Regarding monetary policy, staff concurs that no NEER adjustment is needed in the near term and welcomes the MAS' provision of forward guidance in recent monetary policy statements. Normal shocks can be accommodated by exchange rate movements within the NEER band. Fiscal policy should be the first line of defense in case downside risks materialize, including inflation undershooting the medium-term objective because of weak domestic demand or lower oil prices.

Singapore could employ some of its ample fiscal space to further boost demand and enhance its social insurance arrangements. Additional near term fiscal stimulus—bringing forward infrastructure investment and expanding existing budget transfers to targeted groups—would boost domestic demand, help close the output gap and address the large external surplus. There is also scope to strengthen Singapore's permanent social insurance arrangements, including by introducing time-bound unemployment insurance. This is needed to help address uncertainty created by the ongoing transformation to a labor-lean, innovation-based economy in which product life cycles and job tenures are shorter and labor churn more intense. Also, while recognizing the authorities' efforts to make the fiscal system more progressive, staff sees merit in a broader debate on whether future increases in government spending should be financed by raising taxes or by bringing on budget a larger share of the government's permanent investment income. Consideration could also be given to gear the fiscal rule to the business cycle rather than the term of government.

The authorities' financial sector and macro prudential policies have ensured financial stability. While elevated household and corporate sector leverage warrant continued monitoring, banking sector health remains sound, backed by high capital, liquidity, and profitability ratios and still-low non-performing loans (NPLs). Macroprudential policies, including fiscal-based measures, have helped in cooling off the property market and limiting households' overall indebtedness. Staff welcomes the March 2017 relaxation of seller's stamp duties. Further cautious relaxation of cyclical measures could be considered, including the elimination of the discriminatory nature of the ABSD, as systemic risks stemming from the housing sector continue to dissipate. However, structural measures, such as the TDSR, should be maintained as part of the broader macroprudential policy framework. Staff also welcomes the authorities' leadership on global financial sector regulation, fintech and cybersecurity.

Singapore is aspiring to transition to a new digital economy while preparing for population aging. The strategies for economic transformation are backed by top-tier human and physical capital and by policies to foster inclusion, promote lifelong learning, and skill and family adaptation, which should all help to mitigate disruptions related to technological change and aging. However, challenges remain in improving productivity and boosting innovation. In particular, skill enhancement programs should be frequently reviewed to ensure that they deliver outcomes suitable for the future economy. Greater risk taking and the pursuit of entrepreneurship by the younger generation may also require a cultural shift and persistent and comprehensive nurturing, including through the education system. Further, policies should encourage new firms and general-purpose growth strategies rather than industry specific plans.

Singapore can play an active role in the diffusion of innovation in ASEAN. Singapore-based entrepreneurs can play a lead role in successfully scaling innovation in the region and helping mitigate the considerable disruption to ASEAN jobs expected from the transition to the new digital economy. As ASEAN chair in 2018, Singapore could spearhead new avenues to encourage people-to-people connectivity in the region, if need be even on a bilateral basis with other willing ASEAN countries.

Singapore: Selected Economic and Financial Indicators, 2013–18

Nominal GDP (2016): US$297 billion

Main exports (percent of total domestic exports): Electronic products (21%); chemical products (20%)

GDP per capita (2016): US$52,961

Population (June 2016): 5.61 million

Unemployment rate (2016): 2.1 percent

					Projections	
	2013	2014	2015	2016	2017	2018
Growth (percentage change)						
Real GDP	5.0	3.6	1.9	2.0	2.3	2.5
Total domestic demand	4.9	-0.3	2.1	-0.1	1.6	3.3
Consumption	5.0	1.9	5.3	1.8	2.2	3.4
Private consumption	3.3	2.4	4.6	0.6	1.4	3.5
Gross capital formation	4.6	-3.6	-3.0	-3.3	0.4	3.1
Saving and investment (percent of GDP)						
Gross national saving	47.4	48.4	44.9	44.4	44.3	44.2
Gross domestic investment	30.5	28.6	26.8	25.3	24.5	24.5
Inflation and unemployment (period average, percent)						
CPI inflation	2.4	1.0	-0.5	-0.5	0.9	1.3
Core CPI inflation	1.7	1.9	0.5	0.9	1.6	1.7
Unemployment rate	1.9	2.0	1.9	2.1	2.1	2.1
Central government budget (percent of GDP) 1/						
Revenue	21.7	21.5	21.9	22.0	21.2	21.0
Expenditure	14.7	15.6	18.2	19.8	19.9	20.0
Overall balance	7.1	5.9	3.7	2.2	1.2	1.1
Primary balance 2/	0.0	-0.6	-2.4	-2.2	-3.1	-3.1
Money and credit (end of period, percentage change)						
Broad money (M2)	7.9	7.6	4.0	8.4	7.0	...
Credit to private sector	15.5	7.0	2.5	5.5	5.7	...
Three-month S$ SIBOR rate (percent)	0.4	0.5	1.2	1.0	...	...
Balance of payments (US$ billions)						
Current account balance	51.2	60.8	53.8	56.5	59.8	61.3
In percent of GDP	16.9	19.7	18.1	19.0	19.8	19.7
Goods balance	75.0	81.7	82.8	82.8	89.6	93.6
Exports, f.o.b.	447.7	442.7	379.5	361.6	404.0	425.7
Imports, f.o.b.	-372.7	-361.0	-296.7	-278.8	-314.5	-332.1
Financial account balance	33.9	52.5	51.5	59.3	50.5	50.6
Overall balance	18.2	6.8	1.1	-1.8	9.3	10.7
Gross official reserves (US$ billions)	273.1	256.9	247.7	246.6	255.9	266.5
In months of imports 3/	6.3	6.8	6.8	6.2	6.2	6.1
Singapore dollar/U.S. dollar exchange rate (period average)	1.25	1.27	1.37	1.38	...	...
Nominal effective exchange rate (percentage change) 4/	2.6	0.9	-0.3	0.9	...	...
Real effective exchange rate (percentage change) 4/	2.7	-0.3	-2.0	-1.0	...	...

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

1/ On a calendar year basis.

2/ Overall balance excluding investment income, capital revenue, and interest payments.

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

4/ Increase is an appreciation.

INTERNATIONAL MONETARY FUND

SINGAPORE

STAFF REPORT FOR THE 2017 ARTICLE IV CONSULTATION

June 26, 2017

KEY ISSUES

Outlook and risks. A cyclical upswing in growth is under way driven by goods trade. But improved momentum has yet to extend beyond the export-oriented sectors, and structural headwinds to growth from aging, tighter foreign worker policies, and slow productivity growth remain. Inflation has turned positive after two years of subzero readings and the financial cycle is firming. Singapore's external position continues to be substantially stronger than warranted by medium-term fundamentals and desired policies. Risks to the outlook are broadly balanced. Being highly open to trade and financial flows, Singapore stands to benefit from improving global sentiment. But more inward-looking policies in major economies and slowdowns in emerging economies would have an adverse impact. Domestic risks mainly relate to elevated household and corporate sector leverage, and the disruptive potential of economic restructuring through new technologies and automation for employment and inequality.

Macroeconomic and financial policies. Policies have remained accommodative amid subdued domestic demand, a softening labor market, slack in the economy, and an uncertain external environment. The current accommodative monetary policy stance and the March 2017 relaxation of some fiscal-based property market measures are appropriate. Successive budgets have maintained a positive fiscal impulse by raising expenditure to address population aging and infrastructure needs, and to follow through on the government's commitment to equality of opportunity regarding the labor market, education and training, as well as healthcare and other social services. This has helped lower income inequality. Consideration should be given to provide additional fiscal stimulus and upgrade social insurance and safety nets, including time-bound unemployment insurance. This would also help narrow the substantial current account imbalance. In case of negative risks materializing, fiscal policy should be the first line of defense given the large buffers. Monetary policy could play a supporting role. The banking sector is resilient with adequate buffers, but continued vigilance is warranted. The continuous upgrading of the regulatory framework should help improve resilience.

Economic restructuring. Amid significant structural shifts at home and abroad, Singapore is undertaking economic restructuring by embracing the adoption of new digital technologies and automation while deepening global and regional integration; and strengthening enterprise and worker capabilities and boosting efforts to enhance inclusion to mitigate the disruptive effects of automation and new technologies.

Approved By
Odd Per Brekk (APD) and Vitaliy Kramarenko (SPR)

This report was prepared by a staff team led by Alex Mourmouras and Gerard Almekinders. Discussions were held in Singapore during April 27–May 9, 2017. The mission comprised Alex Mourmouras (Head), Gerard Almekinders, David Grigorian, Souvik Gupta, Umang Rawat (all APD), Geoffrey Heenan (Resident Representative), and Mahvash Qureshi (RES). Juda Agung and Chengyi Ong (both OED) participated in the policy discussions. Simon Paroutzoglou and Justin Flinner (both APD), and Adeline Yeo (Singapore office) assisted in the research and preparation of this report. Presentation of historical data and staff's macroeconomic projections are based on information available as of June 20, 2017.

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APPENDICES

Abbreviations and Acronyms

AML/CFT	Anti-money laundering/countering the financing of terrorism
ASEAN	Association of Southeast Asian Nations
BBC	Band-basket crawl
CA	Current account
CFE	Committee on the Future Economy
EBA	External Balance Assessment
Fintech	Financial technology
FY	Fiscal year
FSAP	Financial Stability Assessment Program
GDP	Gross domestic product
GFC	Global financial crisis
GPT	General purpose technology
ILO	International Labor Office
MAS	Monetary Authority of Singapore
MaP	Macroprudential policy
NEER	Nominal effective exchange rate
NPL	Nonperforming loan
NSFR	Net stable funding ratio
O&G	Oil and gas
OECD	Organization for Economic Co-operation and Development
R&D	Research and development
REER	Real effective exchange rate
SSD	Seller's stamp duty
TDSR	Total debt service ratio
TFP	Total factor productivity
US	United States, the
y/y	Year-on-year

BACKGROUND

1. **Building on its strong economic fundamentals and long-term policy orientation, Singapore is embracing innovation and preparing for a transformation.** Singapore's economy has grown rapidly during the last half century, reflecting a remarkable degree of economic openness, prudent and far-sighted economic policies and strong institutions, which have resulted in a top-tier business climate, first class infrastructure and a diversified economy. Economic growth has, however, decelerated in recent years reflecting population aging, tighter foreign worker policies, a slowdown in global trade, and subdued domestic demand. In response to slower growth and accelerating advances in new technologies and automation, Singapore is aiming to harness these advantages and become a global innovation hub (Box 1). The strategy is to embrace automation and the other technologies of the new digital machine age, deepen trade and integration, and enhance enterprise and worker capabilities, while building a more inclusive society with equality of opportunity and lifelong learning. The spread of the digital economy, relying on data analytics, artificial intelligence, robotics and automation, is expected to diffuse throughout the economy as a new general-purpose technology (GPT), supporting annual economic growth of 2–3 percent. However, challenges from the disruptive potential of the new technologies remain for many sectors, including mobility, finance, retail, and manufacturing.

2. **Consistency of macroeconomic policies with Fund advice.** Macroeconomic policies in 2016 and the first half of 2017 were broadly in line with Fund advice. Following three rounds of easing, the Monetary Authority of Singapore (MAS) has maintained an accommodative monetary policy stance since April 2016 amid subdued domestic demand and low core inflation. In line with staff advice, the MAS has also started to provide forward guidance. In recent years, fiscal policy has become more accommodative through higher allocations for healthcare and other aging-related spending, transportation infrastructure, innovation, and targeted transfers to promote inclusion, workers' skills acquisition and lifelong learning. Further progress has been made in implementing the 2013 FSAP recommendations. Consistent with staff advice, in March 2017, the authorities relaxed some of the fiscal-based property market measures.

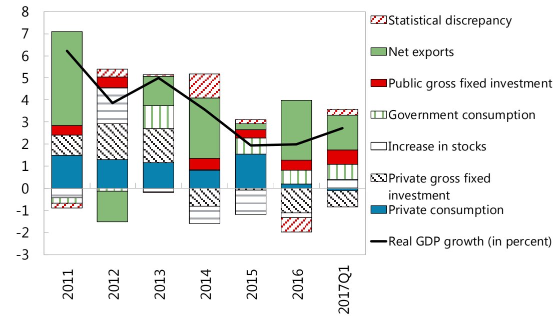
RECENT DEVELOPMENTS, OUTLOOK, AND RISKS

Singapore's growth has slowed in recent years, reflecting the post-Global Financial Crisis (GFC) trade and global growth slowdown and lower oil prices, as well as domestic factors related to population aging, tighter foreign worker policies, and an ongoing ambitious policy-induced structural transformation of the economy. Against this backdrop, and notwithstanding the authorities' policy initiatives, employment opportunities and business profits have been less robust than in previous years, contributing to subdued private domestic demand, notably private investment. Medium-term growth prospects will crucially depend on the authorities' success in addressing these challenges.

3. The economy expanded by 2 percent in 2016, broadly unchanged from 2015.

- Activity was supported by net exports and public sector demand. A turnaround in public consumption and in inventory accumulation late in the year also helped growth momentum, although for the full year inventories dragged growth down. The late-2016 pickup in exports was sustained in the first quarter of 2017 on the improved outlook for global sales of semiconductors. Business loans have firmed up as trade growth recovered.

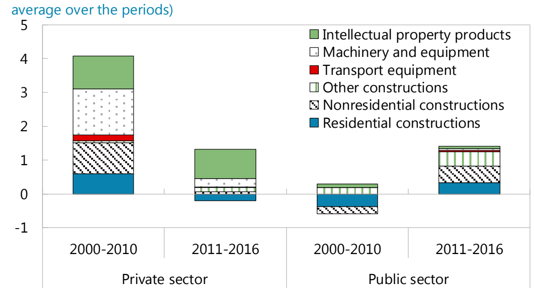
Singapore: Contributions to Growth by Expenditure
(In percentage points)



Sources: CEIC Data Co. Ltd.; and IMF staff calculations.

- On the other hand, private domestic demand weakened in 2016. Private investment declined for the third consecutive year as the economy continued to adjust to lower private construction and the impact of low oil prices on the marine and offshore engineering cluster. Private consumption was up only slightly. While consumer loans to residents have also firmed up, labor redundancies and unemployment have risen. Technical factors (the high 2015 base related to Singapore's 50th anniversary celebrations) were also at play.

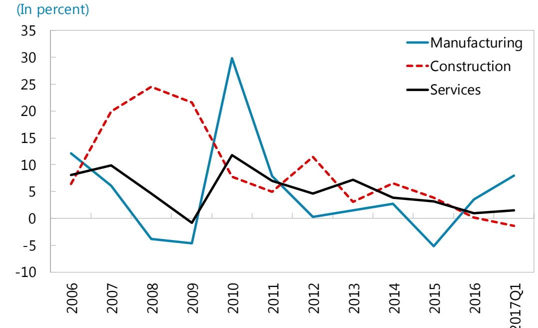
Singapore: Gross Fixed Capital Formation (GFCF) by Sector and Type
(Contributions to total GFCF growth in percentage points; at 2010 prices; simple average over the periods)



Sources: Haver Analytics; and IMF staff calculations.

- On the supply side, the manufacturing sector expanded after declining in 2015, but growth in both services and construction continued to trend down, reflecting the economy's structural transformation and the tapering of housing supply.

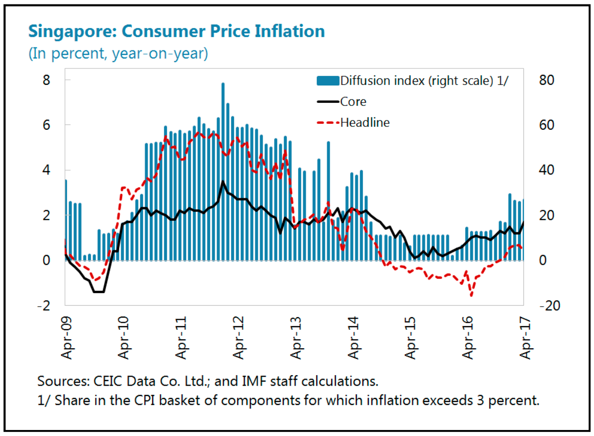
Singapore: Real GDP Growth by Industry
(In percent)



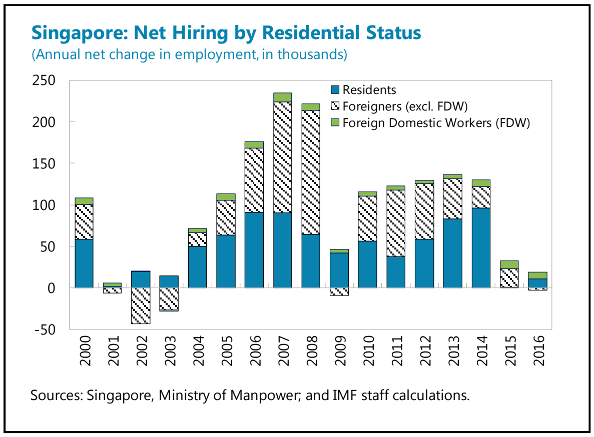
Sources: Haver Analytics; and IMF staff calculations.

- The contribution to growth from finance and insurance (5½ percent of total employment and about 13 percent of real GDP) was small in 2016—the lowest since the GFC and much lower than the average contribution (1 percentage point) over the past decade.

4. **Headline consumer price inflation turned positive in late 2016, after being below zero for nearly two years.** The pickup in inflation, to 0.4 percent (y/y) in April 2017, mainly reflects higher global oil prices. Widespread demand pull pressures are not evident. The MAS core inflation, which excludes the costs of accommodation and private road transport, has trended up since late 2015 on higher food, education, healthcare, and housing utility prices. It reached 1.7 percent (y/y) in April 2017.

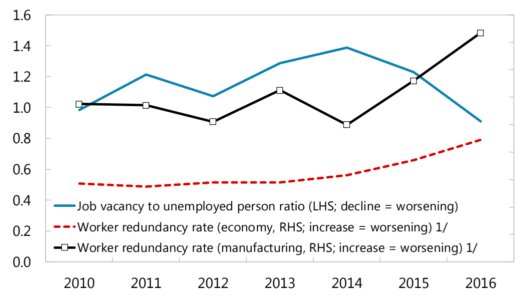


5. **Employment grew at the slowest pace since 2003.** The transition to a labor-lean economy through tighter foreign worker policies amid population aging and cyclical weakness contributed to two consecutive years of slow employment growth. As of 2017:Q1, the manufacturing sector had shed workers for ten consecutive quarters and the construction sector recorded net job losses in the last three quarters. However, in the presence of tighter foreign worker policies, weak employment growth has raised the overall unemployment rate only modestly. Employment of low-skilled resident workers (cleaners, laborers, and related workers) expanded and real income from work rose. Income inequality among resident households, as measured by the Gini coefficient, has continued on a declining trend since 2012, but remains elevated relative to other advanced economies (see the Selected Issues Papers).



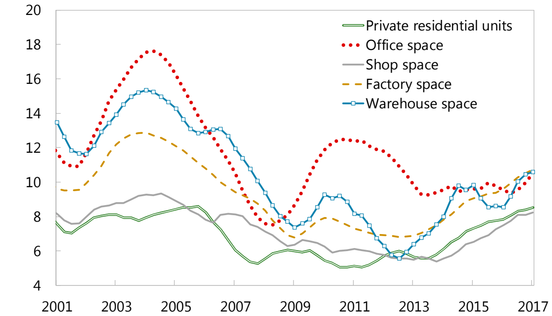
6. **Some slack remains in the economy.** The labor market has softened and vacancy rates in the private property market remain near multi-year highs. In the absence of official data on capacity utilization rates, staff estimates suggest that the utilization of capital remains below its long-term average. While some of the slack could be structural, and predominantly in the domestically-oriented sectors, cyclically the economy appears to be below its potential, with an estimated output gap of nearly ¾ percent of GDP in 2016.

Singapore: Selected Indicators of Labor Market Condition



Source: Singapore, Ministry of Manpower.
1/ Number of workers made redundant per thousand workers.

Singapore: Vacancy Rates By Property Type
(In percent of available stock; 4-quarter moving average)

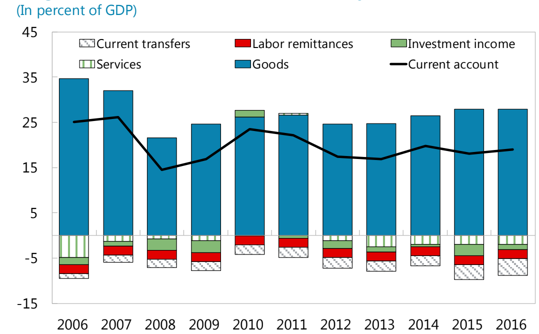


Sources: CEIC Data Co. Ltd.; and IMF staff calculations.

7. Singapore's 2016 external position is assessed to be substantially stronger than warranted by medium-term fundamentals and desirable policies:

- The real effective exchange rate (REER) of the Singapore dollar has depreciated by 3 percent over the past two years and the current account (CA) surplus rose to 19 percent of GDP in 2016, up by about 1 percentage point of GDP from a year earlier, driven by a higher primary income balance. This followed the narrowing of the CA surplus by 4½ percentage points of GDP between 2005–07 and 2014, alongside steady appreciation of the REER.

Singapore: Current Account Balance by Components
(In percent of GDP)

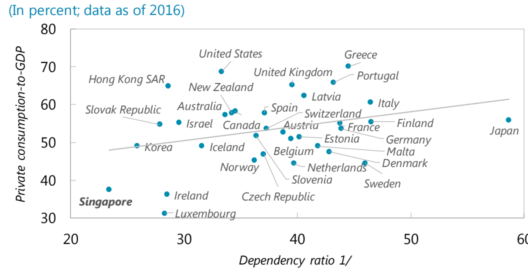


Sources: CEIC Data Co. Ltd.; and IMF staff calculations.

- Guided by the IMF's External Balance Assessment (EBA) framework and based on regression analysis, staff assesses that the 2016 cyclically-adjusted CA balance is substantially stronger, by 2½–8½ percent of GDP, than consistent with fundamentals and desirable policies, and the real exchange rate is undervalued by 5–17 percent, both similar to last year's assessments (Appendix I).

- Singapore's private consumption-to-GDP ratio is among the lowest in advanced economies. Structural factors that may boost the saving rate include Singapore's status as a financial center, still high income inequality, and the mandatory, defined-contribution pension system (whose assets were about 70 percent of GDP in 2015). Moreover, while targeted programs to provide support to specific groups are being expanded, broad social insurance arrangements, such as unemployment

Advanced Economies: Private Consumption and Demographics
(In percent; data as of 2016)

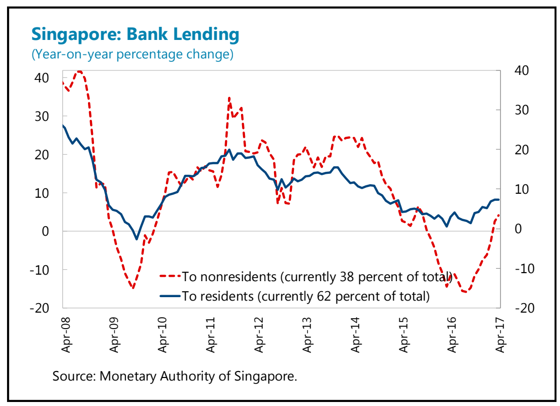


Sources: United Nations; and IMF, *World Economic Outlook* database.
1/ Defined as the ratio of population aged 65 years and above to population aged between 30 and 64 years.

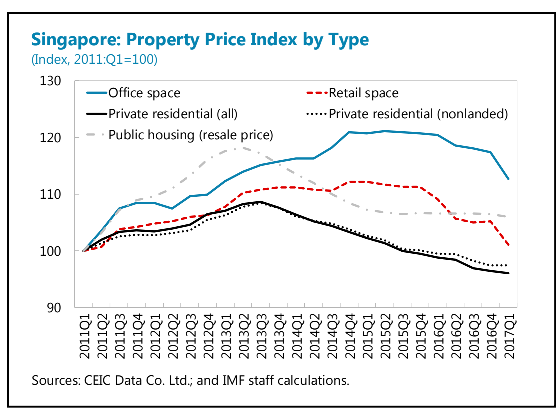
insurance, are not available. This provides strong incentives for precautionary saving in an economy undergoing qualitative structural transformation at a time of slow growth. Based on time series and panel data analysis, staff analysis finds that demographics and per capita income are the most important drivers of private savings in Singapore. Private savings may have also been partially offsetting changes in public savings since the 2000s (see the Selected Issues Paper). Appendix II highlights the implications of aging for external imbalances.

- Singapore's position as a financial center warrants high reserve buffers. Official reserves are 83 percent of GDP, equivalent to 26 percent of short-term external debt (by original maturity), reflecting the large short-term external liabilities of its large international banking system. Reserves appear adequate and there is no clear case for further accumulation. The movement in asset and liability flows in Singapore's financial account results in stable net financial flows and adds to resilience (see the Selected Issues Paper). Singapore also has other official liquid external assets and a net international investment position that stood at 214 percent of GDP in 2016, up by 26 percentage points of GDP from 2015. Potential vulnerabilities posed by cross-border deposit taking by foreign bank branches are mitigated by banks' large short-term external assets and the authorities' close monitoring of banks' liquidity risk profiles.

8. The financial cycle is firming after a prolonged moderation. Banking sector credit to residents and nonresidents has firmed since mid-2016. The recovery of trade, which has been accompanied by a pickup in business loans, is spilling over to increased demand for consumer loans. Deleveraging with respect to nonresidents, particularly in emerging Asia, has also reversed. The bank credit-to-GDP gap has stabilized, but below its 2013 peak, while the real credit and real house price gaps have closed.



- The banking sector remains healthy, backed by high capital, liquidity, provisioning and profitability ratios, and still-low NPLs. However nonperforming loans (NPLs) continued to increase from low levels through 2017:Q1, reaching about 2 percent of gross loans, up from about 1 percent in 2015. This is largely driven by the cash-flow problems in the oil and gas (O&G) service sectors and there are no signs of spillovers to other sectors.



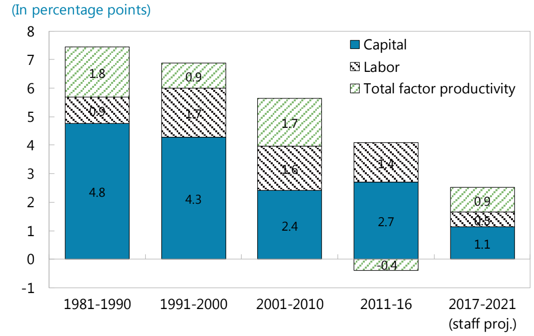
- Household debt and corporate sector debt have both stabilized in relation to GDP. House prices are about 10 percent below the peak reached in mid-2013 when the total debt service ratio (TDSR) framework was introduced to contain households' exposure to the housing market. Prices continue to slide in the private market segment. In early March 2017, in response to a reduction in speculative transactions in recent years, the authorities lowered the seller's stamp duty (SSD) by 4 percentage points and reduced the holding period during which the SSD applies from 4 years to 3 years.

- In the aftermath of the US presidential election, volatility in the bilateral US$ exchange rate rose. However, driven by global currency movements, the initial depreciation has been reversed. Moreover, as of May 2017, the implied volatility of the S$/US$-exchange rate was at a 2½ year low, notwithstanding global policy uncertainties. Following the global rally, stock prices were near a 20-month high in May.

9. Growth is expected to improve in the near term. Real GDP growth is projected to rise modestly to about 2⅓ percent in 2017, with the output gap narrowing. Private domestic demand is not expected to be a drag on growth, unlike in 2016. A smaller decline in private investment reflects a recovery in investment in the manufacturing sector, on the improved global outlook, firming global trade, and higher oil prices. However, the recovery in domestic demand is expected to face headwinds: business surveys continue to point to weaknesses in the near-term outlook for the services and construction sectors. Moreover, private consumption will rise at a moderate pace, given elevated household debt, a subdued labor market outlook, and rising inflation. A pickup in external demand will lift the CA surplus in 2017 by close to 1 percentage point of GDP, but the contribution from net exports to growth will be smaller than last year. Inflation is projected to average close to 1 percent in 2017, as the impact of higher oil prices is partly offset by declining property rents, with core inflation averaging 1½ percent.

10. Over the medium and longer term, staff projects growth of 2½–3 percent. Faced with rapid aging and the emergence of the new digital GPT, the authorities are encouraging automation and the digital economy while maintaining openness and competition and striving to enhance inclusion. Singapore has been pursuing a labor-lean model since 2011 through tighter foreign worker policies amid population aging, resulting in skill and/or labor shortage in some sectors. This, along with the government's concerted efforts to address concerns about income inequality, has raised wages in relation to the cost of capital. As this process continues into the medium term, together with government investment incentives, a higher wage-to-rental ratio should help raise firms' long-run desired capital-labor ratio and hence private investment. As the new GPT diffuses throughout the labor-lean economy, firms are expected to start investing more in labor-saving capital, technology and skills, resulting in higher productivity, wages, and profits. However, there is considerable uncertainty about the new GPT

Singapore: Contributions to Real GDP Growth
(In percentage points)

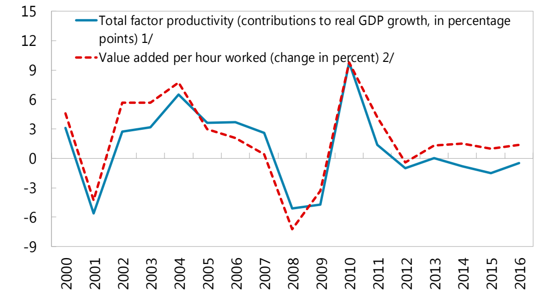


Sources: Singapore, Department of Statistics; and IMF staff calculations.

and the nature of disruption it could cause to employment and inequality.[1] The future economy will rely heavily on information technology and intellectual capital but will otherwise likely rely less on traditional "bricks and mortar" fixed capital. While this is good news in so far as environmental and resource sustainability are concerned, it is unlike past GPTs, which were associated with tangible investment booms.

11. Staff's medium–term baseline assumes that trend total factor productivity (TFP) growth will remain subdued in the next few years and will start improving toward its pre-GFC rate afterward. Nevertheless, average TFP growth will remain below its pre-GFC long-term average (TFP growth and labor productivity both improved slightly in 2016). Core inflation will move closer to the MAS' objective of "close to 2 percent per annum." Singapore's CA surplus is expected to decline: rising public expenditure on aging-related items and on infrastructure and a gradual rise in private capital formation should help strengthen investment. Saving is also expected to decline somewhat on average, relative to the past five years, driven by lower average public saving. However, private saving, as a share of GDP, which is projected to decline by 2022, will remain largely unchanged on average over 2017–22 as compared to that during 2012–16, owing to structural factors stemming from the interactions between Singapore's population aging and rising longevity, consistent with the EBA framework (Appendix II).

Singapore: Productivity
(At constant 2010 prices)



Sources: CEIC Data Co. Ltd.; and IMF staff estimates.
1/ 2016 is staff estimate.
2/ From 2010, reports value added per actual hours worked

12. Risks to the growth outlook arise mainly from external sources and are broadly balanced. Singapore is highly open to trade and financial flows. As a result, external risks dominate the near-term outlook (see Risk Assessment Matrix, Appendix III). The main external risks stem from the adverse impact of more inward-looking policies in major economies. Slowdowns in key emerging economies could also adversely impact Singapore, particularly given the importance of trade and financial links with China and potential regional spillovers. On the other hand, spillovers from higher-than-expected growth in the US, could lift near-term growth. Tightening in global financial conditions, including more rapid-than-expected normalization of US monetary policy and significant further strengthening of the US dollar, could adversely affect private domestic demand and growth prospects as well as disrupt the ongoing orderly adjustment in the balance sheets of the household and corporate sectors. Domestic risks are mainly related to uncertainty about the nature and pace of the digital transformation and potential disruptions, impacting labor markets and employment, private investment, productivity, competitiveness, profitability, and gains made in improving income inequality. A successful

[1] A 2015 study found that a third of the jobs held by Singaporeans are at risk of automation within 5 to 20 years. See "Automation and the Future of Work, Chapter 2 in *Foresight*, Singapore's Centre for Strategic Futures (p. 22).

transition might have positive spillovers to other countries. Lower energy prices pose the risk of inflation undershooting the MAS' medium-term objective. Slower-than-anticipated convergence of inflation to target or a weaker rebound in investment could also affect near term economic prospects.

Authorities' views

13. The authorities noted that growth momentum had improved since late 2016 but that sectoral performance was uneven. The export-oriented sectors are supported by a cyclical pickup in demand and by an ongoing evolution toward fabless manufacturing firms which are benefitting from the increased semiconductor intensity in electronics products. But backward linkages to the domestic economy have weakened somewhat. Also, domestically-oriented sectors are contending with corrections in the real estate sector, the shift of retail trade to e-commerce and lower consumer spending on discretionary items.

14. While the authorities agreed that growth is expected to improve in 2017, they did not concur with staff's quantitative assessment of the output gap and saw the economy at close to its potential in 2017, benefitting from the lagged impact of past policy actions. The authorities acknowledged that there may be some capacity underutilization in selected pockets of the economy; but they assessed that this should not be generalized to the macroeconomic setting. Energy-related items and, to a lesser extent, administrative price increases will be the main drivers of the pickup in inflation in 2017. However, the combined effects of labor market softness, subdued domestic demand and gradual pass-through from higher global food prices will keep MAS core inflation close to but below 2 percent.

15. The authorities felt that there are both upside and downside risks to the near-term growth outlook, although domestic supply-side constraints would put an upper bound on growth. Policy uncertainty in other advanced economies, particularly in the US, could have adverse implications for growth even if existing global trade arrangements remain largely intact. The authorities were also looking at cybersecurity threats to global financial stability and low-probability, high-impact risks like a sharp slowdown in China and geopolitical risks in the Korean peninsula. Domestic risks mainly relate to the economy's response to the ongoing structural transformation.

16. The authorities did not agree with the external sector assessment. They reiterated that Singapore's large CA surplus reflects country-specific factors: global financial center status, trading and production hub with high corporate saving and investment abroad, and a city-state geography. Policies are appropriately calibrated to balance near-term needs and long-term considerations arising from structural shifts in the economy, including population aging. Moreover, adjustments to monetary policy through the exchange rate are aimed at achieving internal balance. Over the medium term, higher public spending and population aging should bring the CA down.

POLICY DISCUSSIONS

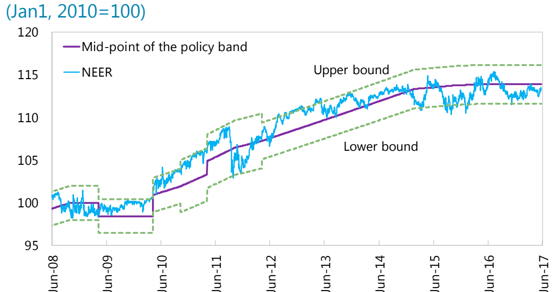
Macroeconomic policies have been supportive in an environment of modest growth. Expansionary budgets in 2016 and 2017 have been accompanied by accommodative monetary policies. However, domestic demand has remained subdued and additional fiscal support would be useful to close the output gap and narrow the current account gap, including by addressing uncertainty created by labor market churn related to the transformation process and the new digital economy in which job tenures may be shorter and job turnover more frequent. Financial sector and macroprudential policies have ensured financial stability, but elevated household and corporate sector leverage warrant continued monitoring. Meanwhile concerted efforts are under way to accelerate the pace of structural reforms, with a focus on supporting medium-term growth through targeted interventions to raise productivity and business innovation, and pursue more inclusive policies.

A. Monetary Policy

17. The basket, band, crawl (BBC) exchange rate-based monetary policy framework, in place for more than 35 years, continues to serve Singapore well. The MAS manages the nominal effective exchange rate (NEER) against a basket of currencies to achieve a medium-term price stability objective and adjusts its parameters relatively infrequently. Three rounds of easing, in January and October 2015, and in April 2016, lowered the trend rate of NEER appreciation to zero. The last move was motivated by the weak domestic growth outlook and the MAS' expectation of medium-term core inflation undershooting the 2 percent target.

18. Under the baseline, no adjustment to monetary policy is needed in the near term and the MAS' provision of forward guidance in recent monetary policy statements is welcome. Core inflation has been edging up, in part on recovering energy prices, reaching 1.7 percent in April 2017. Amid subdued domestic demand, market participants expect core inflation to average 1.7 percent in 2018. Prices will be lifted somewhat by administrative increases in water tariffs and diesel pricing that will be effected to reflect resource costs and enhance environmental sustainability, respectively, although they are also reducing consumers' real incomes and purchasing power. Staff welcomes the MAS' forward guidance in the October 2016 and April 2017 monetary policy statements, which deemed the current monetary policy stance appropriate "for an extended period" to ensure medium-term price stability under the baseline.

Singapore: Nominal Effective Exchange Rate and Policy Band 1/
(Jan1, 2010=100)



Source: IMF, *Information Notice System*; and IMF staff estimates.
1/ Mid-point, lower and upper bounds of the policy band are staff estimates.

19. In case of negative risks materializing, including inflation undershooting the medium-term objective, fiscal policy should be the first line of defense given the available

space, with monetary policy playing a supporting role. Normal shocks can be accommodated by exchange rate movements within the NEER band. Monetary easing via further lowering the NEER slope could be counterproductive in response to continued weakness in domestic demand and undershooting of inflation. In the context of Singapore's monetary framework, where an expected depreciation would lead to higher domestic interest rates through uncovered interest parity, monetary easing could have negative effects on the interest rate sensitive sectors (e.g., housing loans typically have adjustable rates) and raise the already large CA surplus. A recentering of the NEER band would be warranted in the event of large external shocks, along the lines of the discussions in the 2015 and 2016 Article IV staff reports. Also, to the extent that further Federal Reserve rate hikes occur gradually in response to firming demand in the US, which tends to spill over to Singapore, they may not necessarily require an immediate monetary policy response by the MAS (see the Selected Issues paper).

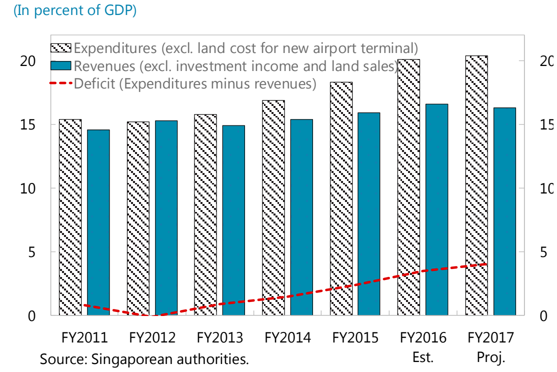
Authorities' views

20. The authorities concurred with staff's assessment of monetary policy. They were comfortable with their macroeconomic policy settings and thought that the economy was in a good position to benefit from the "green shoots" visible in the world economy. The current monetary policy stance should be viewed as a continuation of the April 2016 decision as concerns remained about weakness in domestic demand and inflation staying below 2 percent in the near term. Forward guidance would evolve with the economy's response to existing policy support and shocks.

B. Fiscal Policy

21. Fiscal policy has appropriately become more accommodative in recent years. Government has increased outlays on healthcare and other aging-related spending, on transportation infrastructure, innovation, and on targeted transfers to promote inclusion, worker retooling and lifelong learning. Among other things, healthcare spending has more than doubled over the past five years, to almost 2½ percent of GDP in FY2016/17. This has been made possible by running smaller surpluses and by bringing on budget a larger part of the investment income earned on Singapore's large fiscal reserves.

Singapore: Key Fiscal Indicators
(In percent of GDP)



Source: Singaporean authorities.

22. Singapore has substantial fiscal space and additional targeted fiscal stimulus would help raise domestic demand and close the output gap. In staff's baseline, the output gap narrows in 2017 and closes by 2020. This is predicated on a pickup in private consumption and private investment which may be slow to take hold. Taking into account the continuing pass-through of the stimulus from past fiscal policy, an additional annual impulse of ⅓ percentage point of GDP relative to the baseline in 2017–18 could support domestic demand and close the output gap earlier by 2018 (baseline: –0.3 percent output gap in 2018), with core inflation close to 2 percent rate (baseline: 1¾ percent in 2018). Under the fiscal rule, which requires a balanced budget over the term of each government except in catastrophic events (see 2016 Article IV staff report for more details), there is room in the near term to expand and bring forward spending. Consideration could be given to introducing time-bound unemployment insurance, in line with other advanced economies, to protect workers affected by the transition to the future economy; increasing income transfers and tax credits to needy families; and bringing forward infrastructure spending, as is done in the 2017/18 budget.

23. Current policies may not be sufficient to put the CA surplus on a declining path in the next few years. Despite a projected further cyclical uptick in the CA surplus in 2017, it is expected to narrow over the medium term primarily driven by a rise in public spending, including on healthcare and other aging-related outlays, and investment in infrastructure. However, the current weakness of domestic demand suggests that more ambitious steps may be needed to help reduce precautionary private saving, for example through a clear articulation of medium-term fiscal policy plans to strengthen social insurance and safety net arrangements. To the extent that this additional spending is financed by using a larger share of the government's investment income (see paragraph 25), and to the extent that private agents in Singapore don't fully internalize the presence of large sovereign assets, this would likely not be undone by higher private saving.

24. Staff welcomes the increased discussion of government spending priorities and recommends an early debate on the tradeoffs facing Singapore based on more comprehensive medium-term spending plans. The planned additional spending is merited as it supports the government's core objectives of enhancing connectivity and internationalization, productivity, and equality of opportunity:

- Mega infrastructure projects (new terminals for Changi Airport by late 2020s, of which one is expected to be commissioned soon, and a high-speed rail link to Kuala Lumpur) will further enhance regional connectivity and boost regional trade.
- The metro rail network will be doubled by 2030. Over the next 5 years this will cost about ¾ percent of GDP per annum.
- Targeted support (about 0.15 percent of GDP per year over four years) to implement the Committee on the Future Economy (CFE) strategies (Box 1), over and above the support for the Industry Transformation program announced in the 2016 Budget (more than 1 percent of GDP over 5 years), will help accelerate industrial automation, innovation, and internationalization. This includes allocations to the National Research Fund (for innovation) and the National Productivity Fund (for industry transformation).

- Programs to promote inclusion introduced in previous budgets are continuing: higher transfers for lifelong training (*SkillsFuture*) and larger grants to lower-income Singaporeans to promote home ownership.

Regarding the financing of government spending, the Minister of Finance noted in the Budget 2017 Debate Round-Up speech in March that beyond this decade, expenditures would exceed revenues. But unlike in other advanced economies, the public debate on fiscal policy in Singapore is mostly limited to the annual budget. A better-informed debate on medium-term spending plans and their financing would enhance transparency, facilitate planning and prioritization of government expenditures, and support domestic demand by reducing precautionary saving.

25. The progress Singapore has made in building a more inclusive society and the competitiveness of its economy could be both adversely affected if the government levied higher taxes to finance higher spending. As expenditures rise, consideration could be given to using a larger share of the government's investment returns for budget financing. The government has built large fiscal reserves keeping in mind the inherent vulnerabilities of being a small, open economy with few natural resources and no hinterland, as well as the difficulties faced by Singapore in the first years after independence. (Appendix IV) However, it may not be optimal to keep adding to these reserves at the same pace as in recent years, especially as Singapore's fully-funded pension system makes more manageable the fiscal implications of rising income and healthcare needs of the elderly. In addition to bringing on budget more of the government's permanent investment income, consideration could also be given to gearing the fiscal rule to the business cycle rather than the political cycle.

Authorities' views

26. Over the past five years, expansionary fiscal policy has been providing near-term cyclical support as well as contributing to the longer-term restructuring of the economy. Budget 2017 aims to prepare Singapore for the future by managing the ongoing transition, strengthening enterprise capabilities, deepening people's skills, and supporting industry partnerships for shared success. In addition, Budget 2017 aims to preserve the environment for future generations and build a caring and inclusive society.

- *Ensuring fiscal sustainability remains an important principle of fiscal policy*. Fiscal space is expected to narrow rapidly with rising expenditure needs from healthcare and infrastructure and slower revenue growth due to lower economic growth and collections from motor vehicles moderating. This makes it even more important to be careful about introducing major new programs solely for short-term fiscal stimulus. For one, withdrawing them subsequently will be difficult when the need for short-term stimulus abates. The government is also taking measures to emphasize the need to continue to spend judiciously, emphasize value-for-money and drive innovation in public service delivery.
- *The medium-term challenges to Singapore's fiscal policy are actively being communicated*. The authorities are of the view that the current fiscal rule is simple, easy to understand and communicate, and does not unduly constrain the government in responding to large shocks.

Moreover, it is not clear that public announcement of medium-term spending plans or adjustments to the fiscal rule will necessarily lower private precautionary saving. To the extent that Ricardian equivalence holds, higher government spending communicated through a medium-term expenditure framework could prompt higher private savings in anticipation of higher taxes in the future.

- *The authorities favor an upstream and multi-pronged approach to supporting workers*. Unemployment insurance may have negative unintended consequences, such as disincentives to work. The authorities see merit in providing income and training support to help Singaporeans acquire new skills and prepare for new jobs in different careers and sectors even before they become unemployed. And should they become unemployed, there are schemes and active labor market programs available, including (i) retrenchment benefits, which are paid by most establishments; (ii) targeted support to help displaced workers transition to sectors that are still hiring through the Adapt and Grow Program; (iii) wage support through the Career Support Program to encourage employers to hire certain groups of displaced workers; (iv) career centers and a National Jobs Bank to facilitate job matching; and (v) means-tested support such as GST Vouchers, assistance with Medishield Life (healthcare insurance) premiums, and ComCare short- to medium-term financial assistance.
- *Singapore's reserves are a strategic resource, integral to the national interest*. As a strategic resource, they play two important roles. First, as a buffer for Singapore in the event of a crisis. They compensate for Singapore's open economy and small domestic market that has no natural resources to buffer against externally-driven shocks. They also underpin the credibility of the exchange rate-based monetary policy. Second, they provide for a sustainable and stable revenue stream (across short-term business cycles) to supplement the Government's annual budget through the Net Investment Returns Contribution, estimated at about 3½ percent of GDP in the previous fiscal year. Singapore's ability to replenish reserves, should they be run down, is limited, unlike other sovereign wealth funds, where the reserves are accrued from windfall resource gains. It is important for Singapore to continue to spend from reserves in a judicious and sustainable manner.
- *Policies and programs continue to be developed and refined as the authorities strive to ensure a progressive fiscal system.* These efforts underlie the progress that has been made in reducing inequality and tilting opportunities and support in favor of the lower income. For instance, low-wage workers receive Workfare Income Supplement and needy elderly receive Silver Support cash supplements. These are in addition to the high base of broad based subsidies for education, homeownership and healthcare that also extend to the middle-income groups. More recently, further rebates have been provided to cushion the impact from price increases (e.g. for water) on lower-income households. While the Goods and Services Tax (GST) is a flat tax, GST Vouchers for low income groups ensure that the combined impact of GST and GST Vouchers is progressive.

C. Financial Sector Issues

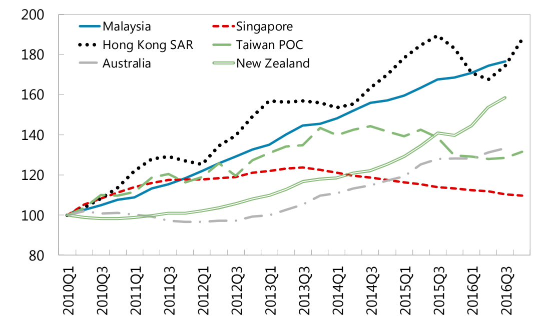
27. The banking sector performed well in 2016 amid a slight worsening of asset quality. Lending to nonbanks has picked up, largely driven by credit to residents, which has stabilized around 195 percent of GDP. Loans to nonresidents, especially to China, also expanded in 2017:Q1. NPLs have increased slightly (having reached 2.1 percent in 2017:Q1), due largely to stresses in the O&G sector. Local banks have responded by increasing provisions (to 240 percent of NPLs in 2016:Q4) and restructuring their impaired exposures. Although overall loss-given-default rates are low, more conservative assessment of collateral valuation in some narrow sectors may be warranted, given the specific nature of collateral involved. Profitability of domestic banks declined slightly in 2016 because of increased provisioning, but it was within a comfortable range and capital adequacy ratios remain well above the regulatory requirements (see the Selected Issues Paper).

28. Liquidity risks are contained thanks to banks' large liquidity buffers. Banks closely monitor global financial markets and interest rate developments. They expect a gradual increase in the U.S. Federal funds rate to expand their net interest margins and thus have an overall positive effect on their profitability. Banks acknowledge that abrupt policy changes as well as large-scale profit repatriation by US corporates could affect US dollar liquidity. But related risks are mitigated by lengthening maturities of liabilities and increased diversification of US dollar funding. The foreign currency loan-to-deposit ratio, at 118 percent in 2017:Q1, remains well below the 2014 peak. The overall funding structure remains healthy, with about 80 percent of liabilities comprising of nonbank deposits. Duration risk is low with significant portions of both assets and liabilities adjusting within 3-6 months.

29. Corporate sector debt has stabilized at about 150 percent of GDP and the sector remains resilient despite declining profitability amid a softening operating environment in key sectors. In the O&G service sectors, some firms could face refinancing risks. The banking system's exposure to the O&G sector is about 10 percent, with a lower level for local banks. However, a large portion of these exposures are to sub-sectors that are more resilient to oil price changes. Banks are monitoring the sector closely, applying forward-looking measures of financial viability and provisioning. The MAS' stress tests of corporate balance sheets suggest that the sector remains largely resilient.

30. The authorities' continued close monitoring of household leverage is welcome. Incremental and targeted macroprudential (MaP), including fiscal-based measures, have facilitated the ongoing smooth adjustment in residential real estate prices (see the Selected Issues Paper). The authorities' policies have been more effective than elsewhere in Asia. Staff's estimates show that the ratios of private house price to both rent and income are close to their respective long-run averages. However, high vacancy rates and declining rents could result in rental income shortfalls relative to mortgage payments, possibly creating problems with loan servicing for investors that are over-leveraged. In this context, and considering the slower pace of foreign worker inflows, uncertain economic outlook and softening labor market, staff welcomes the SSD reduction, which is consistent with earlier IMF staff recommendations to adjust cyclical measures where appropriate. Staff recommends continued close monitoring of real estate market developments to assess the impact of recent policy changes on overall market conditions. Structural measures, particularly the TDSR, should be maintained at their current levels. In line with the Institutional View on the Liberalization and Management of Capital Flows, a further cautious relaxation of cyclical measures, including the elimination of the differences in rates applying to residents and non-residents in the context of the discriminatory additional buyer's stamp duty (ABSD),[2] could be considered as systemic risks stemming from the housing market continue to dissipate.

Selected Asia: House Price Index
(Index, 2010Q1=100)



Sources: Haver Analytics; and IMF staff calculations.

31. Efforts to update the bank resolution regime are welcome. The regulatory proposal strengthening the MAS' bank recovery and resolution framework (consistent with the "Key Attributes of Effective Resolution Regimes for Financial Institutions") has been discussed with the sector and is expected to be taken up by Parliament later this year. Under the MAS' guidance, banks conduct regular crisis preparedness exercises aimed at addressing various financial and operational risks. However, banks' knowledge of the MAS' crisis management toolkit and its application could be improved to make response to a possible crisis seamless. Additional (Basel III-consistent) regulatory improvements include the upcoming implementation of the Net Stable Funding Ratio (NSFR) (as of January 1, 2018) and ongoing phasing in of the countercyclical capital buffer (0.625 percent per year for 2016–2019).

[2] ABSD is a capital flow management/macroprudential measure introduced in 2011. It applied differentiated rates to residents with multiple properties and nonresidents and was designed to limit inflows into the real estate market. The ABSD was implemented in response to a sizeable surge of inflows into the real estate market, which contributed to a significant increase in real estate prices. Its introduction was preceded by a significant tightening of macroprudential measures and the implementation of a non-discriminatory Seller's Stamp Duty targeting resale activities. In 2013 the ABSD's rates were increased for both residents and non-residents and macro-prudential measures were further tightened (see the Selected Issues Paper).

32. Staff also welcomes the authorities' ongoing efforts to strengthen the resilience of the financial sector as well as the MAS' leadership on global financial sector regulation and cybersecurity. Indicators of global and regional financial market risks are currently very low. Nevertheless, political and policy developments could quickly change this benign picture. Singapore's status as an important financial center and host to large G-SIFIs creates potential for spillovers from global or regional financial shocks. External shocks may potentially be transmitted to the region through Singapore's position as a regional financial center. A resilient domestic banking sector and strong regulatory and supervisory frameworks are critical not only for domestic financial stability but also to limit spillovers to the rest of the region.

33. Staff supports the authorities' multi-pronged approach to develop a vibrant financial technology (Fintech) ecosystem. Fintech venture capital activity, while still nascent, is picking up as Singapore positions itself as industry leader (see Box I in the Selected Issues Paper):

- Emphasis is placed on strengthening capabilities in advanced technology areas such as cloud computing, blockchain and cyber security.
- Fintech is an enabler for integration of new and legacy information technology systems through open banking platforms via application of programming interfaces.
- The MAS is actively calibrating the regulatory space including through guidelines for cloud computing, robo advisors as well as providing safe spaces to experiment in the form of regulatory sandboxes.

34. The wealth management sector has grown rapidly in recent years and is providing an increasing share of local banks' net income. At present, controls appear to be in place to contain risks, including consolidated stress testing of financial groups to assess spillover risks. The authorities emphasize the importance of sound practices in private wealth management. The MAS also has an established regulatory regime for fund managers and their representatives. The entry of several digital robo-adviser platforms may provide an additional boost to the sector. As the sector continues to grow, reputational and operational risks are likely to increase, including as a result of potential AML/CFT and interconnectedness concerns, requiring continued vigilance.

35. Continuation of efforts to enhance the AML/CFT framework is encouraged. In its 2016 comprehensive assessment, the Financial Action Task Force assessed that Singapore has a strong AML/CFT framework. However, they also identified shortcomings in Singapore's AML/CFT regime with respect to the implementation of risk-based AML supervision and preventive measures, including by company service providers and lawyers, and entity transparency (including the collection of beneficial ownership information). Staff welcomes the ongoing efforts to address these weaknesses, including on specializing AML/CFT supervision and enforcement at the MAS, amending the Companies Act on beneficial ownership information, and enhancing international cooperation, particularly on tax matters, and encourages effective implementation.

Authorities' views

36. The authorities emphasized that the financial sector remains healthy. The MAS is vigilant to risks to the financial sector and committed to proactive surveillance and further improvements in supervision and the regulatory framework, including regarding AML/CFT. The authorities welcomed staff's support for bolstering the resilience of the financial sector and developing new financial technology.

- *Banks*. The banking sector has strong buffers even under stress scenarios that incorporate a significant deterioration in external and domestic conditions and sector-specific shocks, including in property and oil prices. Bank credit has remained supportive of small- and medium-sized enterprises. While there are some signs of increased credit risks for bank assets, overall asset quality is healthy and provisioning buffers are adequate. The MAS and banks remain vigilant to risks arising from exposure to China, although such exposures for Singaporean banks are mostly to larger, more credit-worthy Chinese borrowers. Local banks have diversified regional risks.
- *Household and corporate leverage*. Both household and corporate balance sheets remain resilient. Macroprudential measures have slowed the growth of household debt and helped build households' financial buffers. Amid a measured decline in prices, new private housing projects attract healthy demand. Mortgage servicing burdens remain manageable for most households thanks to the conservative interest-rate assumptions used under the Total Debt Service Ratio (TDSR) framework. Households are also taking steps to mitigate risks from rising mortgage rates, as seen by the rising share of households taking fixed-rate loans and loans linked to deposit rates which are more stable. In view of rising real estate prices elsewhere in the region and rising real estate transaction volumes at home, the authorities indicated that, at this juncture, further relaxation of cyclical macroprudential measures would likely re-accelerate speculative inflows into Singapore's private real estate market. Similarly, most firms should be able to service their debt, though there are pockets of vulnerabilities. Firms with debt-at-risk account for a relatively small share of total corporate debt after taking into account cash reserves and have typically taken measures to minimize the impact of exchange rate or interest rate risks on their balance sheets. Direct and indirect risks from the O&G sector are manageable, as most of the banks' exposures are to sub-sectors that are relatively resilient to oil price movements.

D. Structural Policies

37. In response to long-term demographic shifts at home and accelerating advances in the new digital economy, Singapore is aiming to reposition itself to become a global innovation hub. The CFE report and associated Budget 2017 measures represent an acceleration of efforts to promote innovation and the adoption of new technologies, including in fintech and other areas (Box 1 and the Selected Issues Paper).

- Singapore is aging at a rapid speed, much faster than other advanced economies. The declining share of the working-age population along with the current policy on foreign workers is likely to be a headwind for growth, particularly as certain sectors face difficulties in labor substitution. Staff estimates that during 2020–50, aging could reduce average annual growth, by almost 0.2 percent under current migration trends and by 1 percent with no immigration.

- Further, aging has implications for productivity growth. For a sample of Asian and European countries, staff's empirical analysis concludes that an increase in the share of older workers is associated with reduced labor productivity growth, primarily through weaker TFP growth (see Chapter 3 of the IMF's May 2017 *Regional Economic Outlook* for Asia and the Pacific). For Singapore, the aging-related decline in productivity could further lower average annual growth by 0.1 percent between 2020 and 2050.

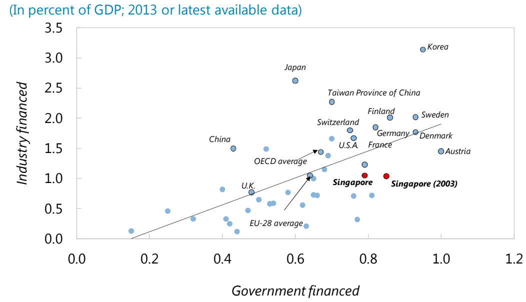
- Aging-related expenditures are also expected to increase over the medium term. Since Singapore has a fully-funded pension system, the increase in pension-related expenditures is likely to be more modest than in other countries. However, as the share of the elderly rises, age-related healthcare spending will rise. By some estimates, public healthcare spending could increase to around 3½ percent of GDP per annum in 2030.

- In response to these challenges, the CFE has recommended widespread adoption of new digital innovations, aiming to transform the city state for the new digital age while adhering to free trade, regional integration, and a more expanded role for government in building a more inclusive society, one of equality of opportunity and lifelong learning.

38. Staff welcomes the authorities' concerted efforts to support innovation. Singapore is increasingly being recognized as a global hub for research and development (R&D) collaboration. Yet in a cross-country comparison, the industry-financed R&D-to-GDP ratio in Singapore is relatively low for similar levels of R&D financing-to-GDP ratio in the public sector, while Singapore's high level of innovation inputs generate innovation output inefficiently. Initiatives to encourage investments in skills, building on the successful *SkillsFuture* program, are an international good practice. As discussed in the Selected Issues Paper, further securing Singapore's role as an innovation hub will require promoting a culture of risk taking, and expanding competition and market size through internationalization. Policy interventions should aim at encouraging private-sector funded R&D, commercialization, and scaling up, including through active understanding of diverse regional and global markets. The seven mutually-reinforcing strategies identified in the CFE report and policy initiatives announced in recent budgets are consistent with this. In addition, the MAS recently announced its support for the CFE recommendations and is expected to take specific measures to strengthen the nexus between

R&D Expenditure: OECD Countries and Selected Other Countries

(In percent of GDP; 2013 or latest available data)



Sources: OECD.Stat; and IMF staff calculations.

the financial and real sectors, by facilitating enterprise funding and venture capital. The educational system can help further encourage young talent to take risks and pursue their entrepreneurial spirits, while recent regional expansion of Singaporean startups could become inspirational to aspirant young entrepreneurs. Policies should support new and young firms, and manage cyclical stabilization of aggregate demand while maintaining cost effectiveness of private risk taking toward innovation, adoption, and adaptation of new technologies. As ASEAN chair in 2018, Singapore could spearhead new avenues to encourage people-to-people connectivity in the region. This would complement the recent initiatives to expose talented Singaporeans to collaborate with innovation centers in advanced economies. Singapore should also remain open to the region's talented, risk-taking entrepreneurs. These efforts may be more beneficial than targeted incentive schemes, which are challenging to communicate, undermining their uptake and effectiveness.

39. Staff welcomes Singapore's consistent implementation of a holistic approach to inclusion, which emphasizes equality of opportunity and helps to reduce labor market frictions by providing incentives for lifelong learning and skill adaptation (See the Selected Issues Paper)**.** Singapore's economy is going through profound structural change as less productive sectors are consolidating while new sectors conducive to the growth of the future economy are emerging. The rapid technical change underlying this transformation could potentially raise unemployment and inequality. *Industry Transformation Maps* are being drawn up to align and coordinate efforts around live plans to transform economic sectors. In this context, staff welcomes the government's proactive approach to providing opportunities for life-long learning and acquisition of new skills for new-economy jobs through programs such as *SkillsFuture*, and *Adapt and Grow*. However, policies and communications should encourage a shift away from industry-specific measures and rely more on general-purpose growth strategy.

40. Careful calibration and frequent review of training programs would ensure that they provide the intended sharp incentives for investments in skills useful to the future economy; circumscribe the scope of training-for-consumption; and consider the variation of individual incentives to acquire human capital over the life cycle. *SkillsFuture* is an important plank of the Budget. It is to cost over S$1 billion per year between 2015 and 2020, with a *SkillsFuture* basic credit of S$500 per person plus various top ups. But while individuals' incentives to invest in new skills should be stronger for younger cohorts—investments in skills that are pure capital goods (i.e., zero consumption value) can have their costs (including individual time and effort) amortized over longer horizons—*SkillsFuture* utilization rates are lower among those aged 40 years and below. The cohort of recent graduates requires training in new economy skills (e.g., data analytics, data science) as the rapid wave of digitization took them by surprise (business degrees used to be the popular option). The low program pickup rate among these cohorts could reflect the limited number of course offerings affordable without recourse to *SkillsFuture* top-ups, underscoring the need for program calibration and review.

41. Singapore can play an active role in diffusing innovation in ASEAN. Singapore-based entrepreneurs can play a lead role in successfully scaling innovation in the region and helping mitigate the considerable disruption to ASEAN jobs expected from the transition to the new digital economy. ILO (2016) uses the Frey-Osborne (2013) methodology to estimate that 56 percent of employment in five ASEAN countries (Cambodia, Indonesia, Philippines, Thailand and Vietnam) is at high risk of displacement because of automation during the next two decades.[3] The ILO also concludes that women are more likely than men to be employed in at risk occupations (wholesale and retail trade, construction and manufacturing). Singapore-based entrepreneurs need to be thoroughly and systematically exposed to diverse business climates of all ASEAN countries. As ASEAN chair in 2018, Singapore could spearhead new avenues to encourage people-to-people connectivity in the region, if need be even on a bilateral basis with other willing ASEAN countries.

Authorities' views

42. **Amid significant structural shifts globally, driven mainly by rapid technological changes, and population aging at home, policies are facilitating a structural transformation for Singapore to stay ahead of the curve**. The CFE recommendations guiding Singapore's economic strategies into the next decade envision a continued role for deepening global connections through trade and finance, and investment in people and ideas through building deep skills, strengthening enterprise and digital capabilities, and collaborations. However, challenges remain and the authorities are cognizant of the risks. Thus, policies have focused on targeted measures for workers in transition and enterprises, and efforts are being made to make regulations forward looking.

STAFF APPRAISAL

43. **Singapore has embraced a new growth model for a world of rapidly advancing digital technologies and automation.** The strategy is to turn Singapore into a labor-lean economy with less reliance on foreign workers and growth based on innovation, digitalization, and continuous investment in skills. Economic and social policies to make growth more inclusive and tackle population aging have advanced appreciably in recent years and are still evolving, complementing the economic transformation drive. Singapore's track record of longer-term orientation in policy making, strong implementation capacity and proactive embrace of technical change accompanied by policies to mitigate the disruptive potential of automation on employment provide a measure of assurance about the outcome of its structural transformation.

44. **Singapore's transition to a new growth model has had to cope with structural and cyclical headwinds.** Lower potential growth is related to aging, tightening of foreign worker inflows, and slow productivity growth. And while a cyclical upswing has lifted growth recently, it remains concentrated in the export-oriented sectors. The labor market has softened despite

[3] Chang, Jae-Hee; P. Huynh, 2016, "ASEAN in Transformation: The Future of Jobs at Risk of Automation", International Labour Office, Bureau for Employers' Activities working paper no. 9, ILO Regional Office for Asia and the Pacific, Geneva.; Frey, C. and M. Osborne, 2013, "The Future of Employment: How Susceptible are Jobs to Computerisation?", University of Oxford.

rising real wages in 2016, with redundancies rising and manufacturing shedding labor. The contraction of employment was reflected in the hiring of foreign nondomestic workers and unemployment has risen only modestly. After nearly two years of subzero readings, inflation has turned positive.

45. Growth and inflation are expected to firm gradually. The improved global outlook along with rising public spending are projected to spill over to private domestic demand. As the authorities' restructuring plans take hold, medium-term growth is expected to be in the 2½–3 percent range. This should push inflation gradually toward the authorities' medium-term objective.

46. Risks to the growth outlook are broadly balanced. Notwithstanding the recent trade recovery, economic and geopolitical risks have risen and could affect Singapore's highly open economy. The main external risks stem from the adverse impact of more inward-looking policies in the US and a slowdown in major emerging economies. On the other hand, spillovers from higher-than-expected growth in the US could lift near-term growth. Tightening in global financial conditions, including more rapid-than-expected normalization of US monetary policy and significant further strengthening of the US dollar, could adversely affect segments of the household and corporate sectors with elevated debt service burdens. On the domestic front, uncertainty surrounding the structural transformation could hold back investment, productivity, and undermine improvements in income inequality.

47. Singapore's external sector is assessed to be substantially stronger than warranted by medium-term fundamentals and desired policies. The current account surplus, which rose in 2016 and is projected to rise further in 2017, should moderate over the medium term as rising public expenditure on infrastructure, healthcare and other aging-related items and firming private capital formation lift investment. Private sector saving, on the other hand, may be propped up by interactions between Singapore's population aging and rising longevity.

48. Supportive macroeconomic policies are welcome. Fiscal policy has become more expansionary in recent years. Higher outlays on healthcare and other aging-related spending, on transportation infrastructure, innovation, and targeted transfers to promote inclusion, worker retooling and lifelong learning are appropriate given the ongoing structural shifts in the economy. This has also helped in lowering income inequality. Regarding monetary policy, staff concurs that no NEER adjustment is needed in the near term and welcomes the MAS' provision of forward guidance in recent monetary policy statements. Normal shocks can be accommodated by exchange rate movements within the NEER band. Fiscal policy should be the first line of defense in case downside risks materialize, including inflation undershooting the medium-term objective because of weak domestic demand or lower oil prices.

49. Singapore could employ some of its ample fiscal space to further boost demand and enhance its social insurance arrangements. Additional near term fiscal stimulus—bringing forward infrastructure investment and expanding existing budget transfers to targeted groups—would boost domestic demand, help close the output gap and address the large external surplus.

There is also scope to strengthen Singapore's permanent social insurance arrangements, including by introducing time-bound unemployment insurance. This is needed to help address uncertainty created by the ongoing transformation to a labor-lean, innovation-based economy in which product life cycles and job tenures are shorter and labor churn more intense. Also, while recognizing the authorities' efforts to make the fiscal system more progressive, staff sees merit in a broader debate on whether future increases in government spending should be financed by raising taxes or by bringing on budget a larger share of the government's permanent investment income. Consideration could also be given to gear the fiscal rule to the business cycle rather than the term of government.

50. The authorities' financial sector and macro prudential policies have ensured financial stability. While elevated household and corporate sector leverage warrant continued monitoring, banking sector health remains sound, backed by high capital, liquidity, and profitability ratios and still-low non-performing loans (NPLs). Macroprudential policies, including fiscal-based measures, have helped in cooling off the property market and limiting households' overall indebtedness. Staff welcomes the March 2017 relaxation of seller's stamp duties. Further cautious relaxation of cyclical measures could be considered, including the elimination of the discriminatory nature of the ABSD, as systemic risks stemming from the housing sector continue to dissipate. However, structural measures, such as the TDSR, should be maintained as part of the broader macroprudential policy framework. Staff also welcomes the authorities' leadership on global financial sector regulation, fintech and cybersecurity.

51. Singapore is aspiring to transition to a new digital economy while preparing for population aging. The strategies for economic transformation are backed by top-tier human and physical capital and by policies to foster inclusion, promote lifelong learning, and skill and family adaptation, which should all help to mitigate disruptions related to technological change and aging. However, challenges remain in improving productivity and boosting innovation. In particular, skill enhancement programs should be frequently reviewed to ensure that they deliver outcomes suitable for the future economy. Greater risk taking and the pursuit of entrepreneurship by the younger generation may also require a cultural shift and persistent and comprehensive nurturing, including through the education system. Further, policies should encourage new firms and general-purpose growth strategies rather than industry specific plans.

52. Singapore can play an active role in the diffusion of innovation in ASEAN. Singapore-based entrepreneurs can play a lead role in successfully scaling innovation in the region and helping mitigate the considerable disruption to ASEAN jobs expected from the transition to the new digital economy. As ASEAN chair in 2018, Singapore could spearhead new avenues to encourage people-to-people connectivity in the region, if need be even on a bilateral basis with other willing ASEAN countries.

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

Box 1. Singapore: The Committee on The Future Economy

In February 2017, the 30-member Committee on the Future Economy (CFE) completed its review of Singapore's economic strategies and made recommendations to address the new challenges the country faces. The Committee, co-chaired by the Minister of Finance and the Minister of Trade and Industry, had held its first meeting in January 2016. At the time, Prime Minister Lee Hsien Loong noted that "with an aging population and uncertain global conditions, growth will be harder to come by. Yet [the Singapore] economy must grow to create opportunities for Singaporeans and to improve our lives". The CFE report was issued against the backdrop of accelerating digital innovation and a backlash against immigration and free trade in advanced countries.

The CFE recognized the challenges posed by the rapid change in technology, which is affecting global value chains and production patterns, and by increased political uncertainty and reservations about globalization. In response, the CFE identified seven mutually-reinforcing strategies to maximize the chances of Singapore's success:

- Deepen and diversify international connections, and continuing to support free and open markets.
- Build on the *SkillsFuture* continuous-learning program to support the acquisition and utilization of deep skills.
- Strengthen enterprise capabilities to innovate and scale up, including by enhancing the startup ecosystem.
- Build strong digital capabilities and adopt digital technologies across the economy.
- Invest in Singapore's physical and social infrastructure.
- Develop and implement *Industry Transformation Maps* (ITMs)
- Partner each other to enable growth and innovation.

The ITMs were already announced in the 2016/17 budget and more than 1 percent of GDP was set aside for the Industry Transformation program over 5 years. Accordingly, for 23 sectors, covering about 80 percent of the economy, key stakeholders (trade associations and chambers, unions, and the government) will be brought together to align efforts around common 'live' plans to transform each sector. Some of the ITMs have already been launched and the remaining ones will be launched in 2017/18.

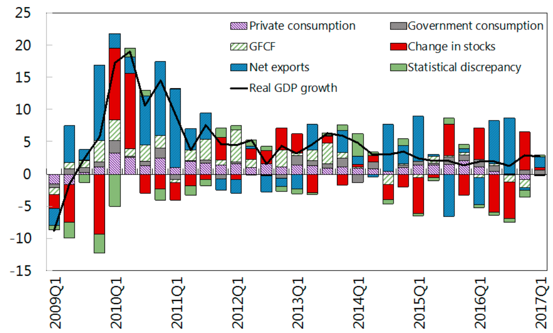
The 2017/18 budget announced that an additional amount of about 0.5 percent of GDP will be put aside over the next four years to implement the CFE strategies. This includes allocations to the National Research Fund, to support innovation efforts, and the National Productivity Fund to support industry transformation. In May 2017, the Future Economy Council, chaired by the Minister of Finance, was tasked with helping to roll out the CFE recommendations.

Figure 1. Singapore: Real Sector Developments

The economy expanded by 2.7 percent (y/y) in the first quarter of 2017, on restocking and net exports.

Contribution to Real GDP Growth by Expenditure

(In percent, year-on-year)

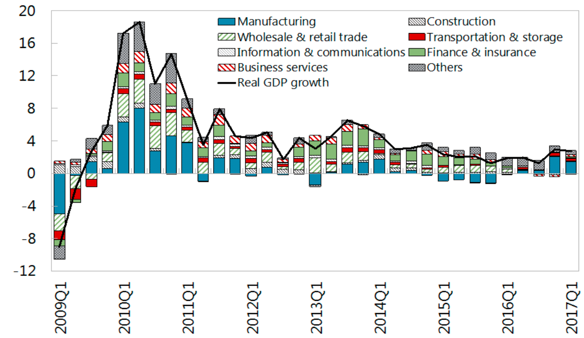


Sources: CEIC Data Company Ltd.; and IMF staff calculations.

The manufacturing sector was a key contributor to growth in recent quarters, following a contraction in 2015.

Contribution to Real GDP Growth by Industry

(In percent, year-on-year)

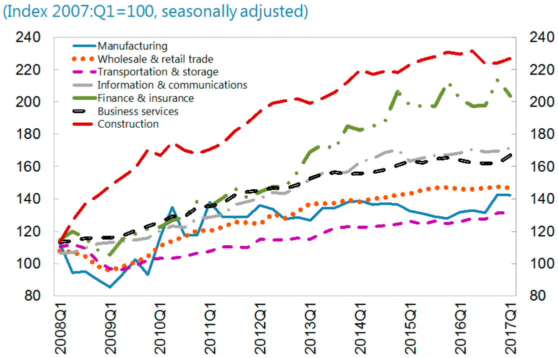


Sources: CEIC Data Company Ltd.; and IMF staff calculations.

Strength in manufacturing and transportation/storage was partly offset by soft construction and business services

Real GDP by Industry

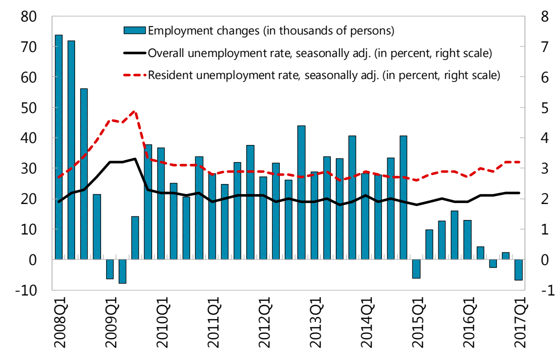
(Index 2007:Q1=100, seasonally adjusted)



Sources: CEIC Data Company Ltd.; and IMF staff calculations.

The unemployment rate hit 7-year highs for residents (3.2 percent) and the total population (2.2 percent).

Employment and Unemployment

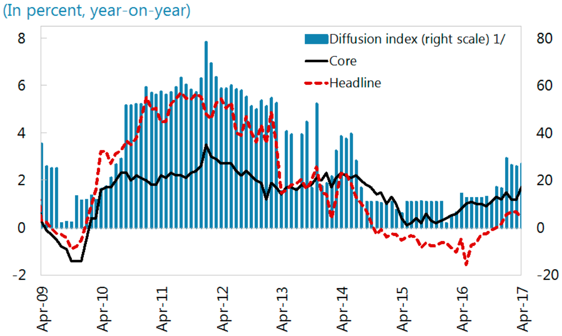


Sources: CEIC Data Co. Ltd.; and IMF staff calculations.

Headline inflation has turned positive on higher energy prices. Core inflation has been edging up since late-2015.

Consumer Price Inflation

(In percent, year-on-year)



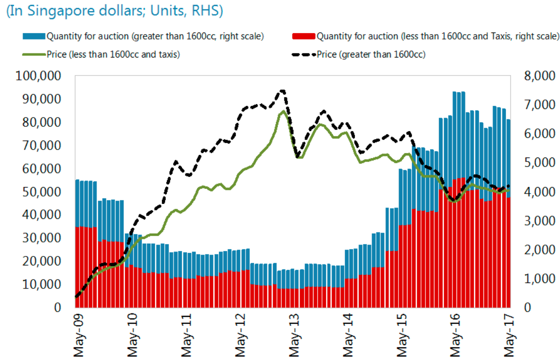
Sources: CEIC Data Co. Ltd.; and IMF staff calculations.

1/ Share in the CPI basket of components for which inflation exceeds 3 percent.

Declining prices of car ownership certificates have contributed to downward pressure on headline inflation.

Car Certificates of Ownership, Price and Quantity

(In Singapore dollars; Units, RHS)

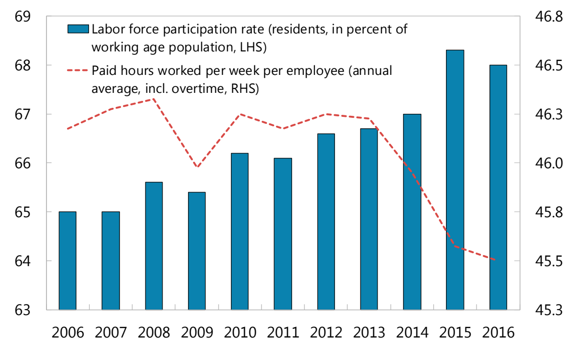


Source: CEIC Data Company Ltd.

Figure 2. Singapore: Labor Market Developments

Residents' labor force participation rate reached an all-time high in 2015 and remained near that rate in 2016, but average paid hours worked moderated since 2013…

Labor Force Participation Rate and Hours Worked

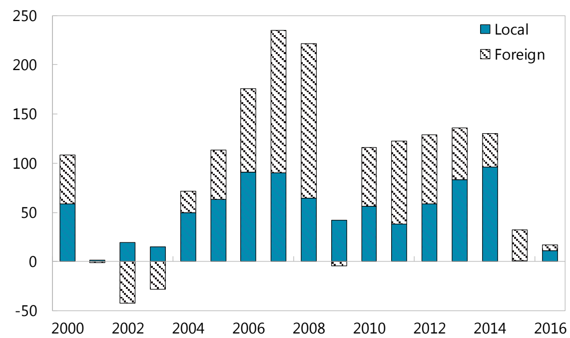


Sources: CEIC Data Co. Ltd.; and IMF staff calculations.

…and net job creation was among the slowest in more than a decade, both for resident and foreign workers. 2017:Q1 saw highest net job losses since the GFC.

Change in Employment by Residency

(In thousands)

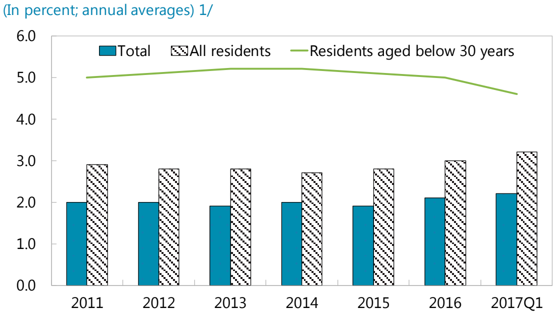


Source: Singapore, Ministry of Manpower.

Against this backdrop, the unemployment rate has edged up…

Unemployment Rate: Total and Residents

(In percent; annual averages) 1/

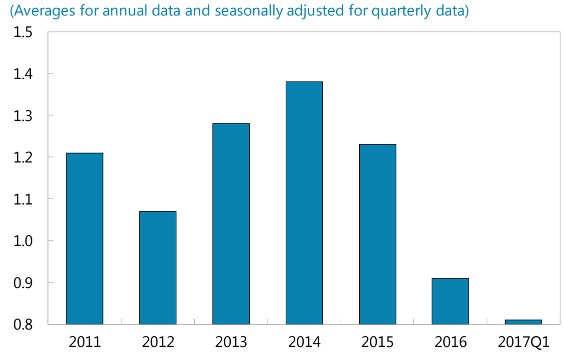


Source: Singapore, Ministry of Manpower.
1/ 2017Q1 data are seasonally adjusted except for unemployment rate for residents aged below 30 years.

…and, for the first time since the GFC, the number of job vacancies has remained below the number of unemployed persons for four consecutive quarters.

Job Vacancy to Unemployed Persons Ratio

(Averages for annual data and seasonally adjusted for quarterly data)

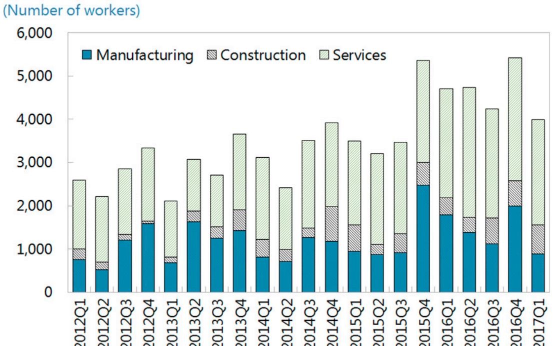


Source: Singapore, Ministry of Manpower.

Similarly, despite some improvement in 2017Q1, worker redundancy (i.e., retrenchment and early release of contract workers) remained above 2012–16 average across sectors.

Labor Redundancy by Sector

(Number of workers)

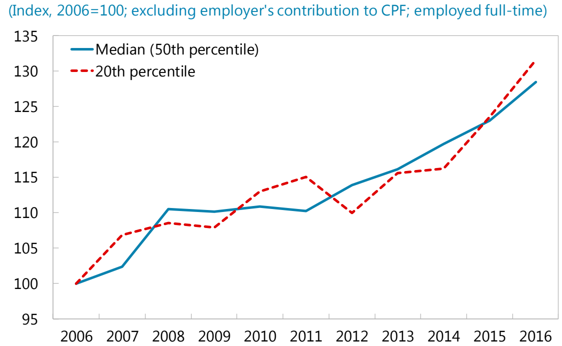


Source: Singapore, Ministry of Manpower.

Meanwhile, real income from work continued to rise, reflecting earlier tightness in the labor market, policy measures, and disinflation in the recent past.

Gross Real Income from Work for Citizens

(Index, 2006=100; excluding employer's contribution to CPF; employed full-time)

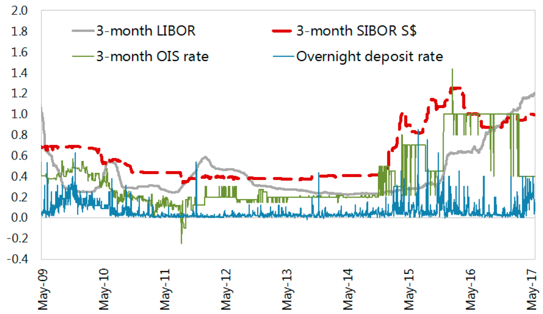


Sources: Singapore, Ministry of Manpower; and IMF staff calculations.

Figure 3. Singapore: Monetary and Financial Sector Developments

Short-term interest rates have retreated to 1 percent, from 1.2 percent in the first quarter of 2016.

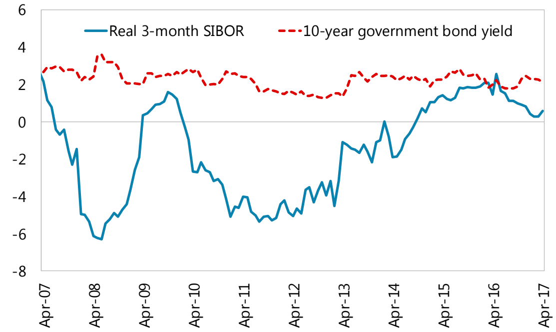
Interest Rates
(In percent)



Source: Bloomberg L.P.

Real short-term rates remain close to a 2-year low.

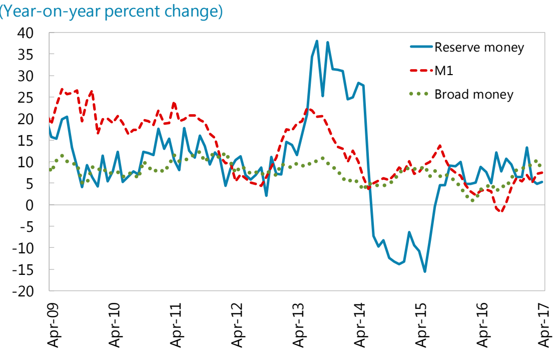
Real Interest Rate and Nominal Government Bond Yield
(In percent)



Sources: Bloomberg LP; and CEIC Data Company Ltd; and IMF staff calculations.

Broad money growth picked up over the course of 2016 on the back of firming credit to the non-banking sector.

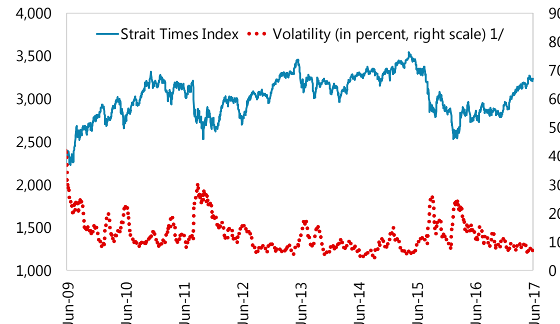
Monetary Aggregates
(Year-on-year percent change)



Sources: CEIC Data Company Ltd; and IMF staff calculations.

Stocks are near a 20-month high with easing volatility.

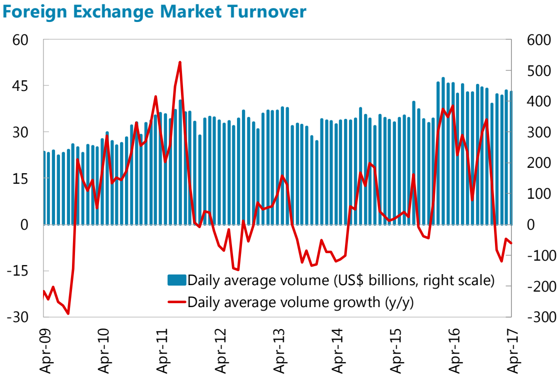
Stock Market Index and Volatility



Source: Bloomberg L.P.
1/ Standard deviation of 1 year moving average of daily equity price change in log levels.

Foreign exchange market turnover rose about 27 percent in 2016 following four years with limited growth.

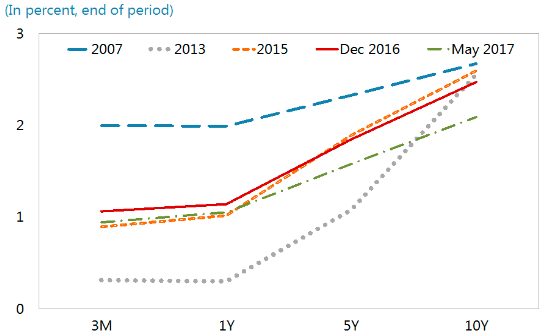
Foreign Exchange Market Turnover



Source: CEIC Data Co. Ltd.

The yield curve has shifted downward compared to a year ago and remains substantially below pre-GFC levels.

Government Bond Yields
(In percent, end of period)

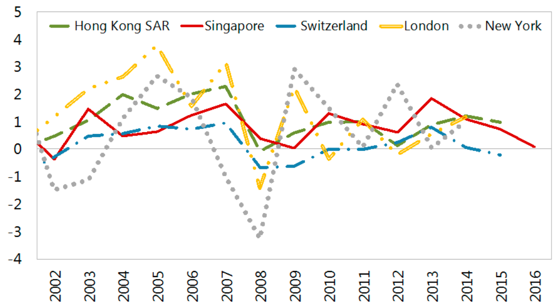


Source: Bloomberg L.P.

Figure 3. Singapore: Monetary and Financial Sector Developments (Concluded)

The financial services sector's contribution to growth eased in 2016. It averaged about 1 percentage point the past decade.

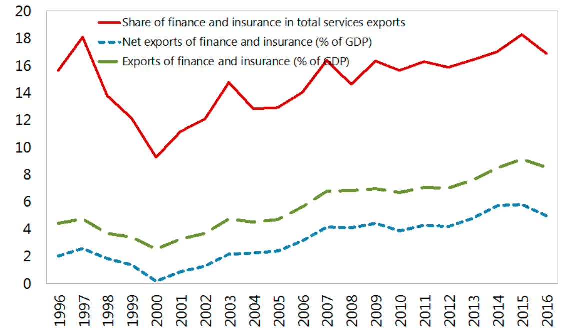
Contribution of Financial Services Sector to Growth 1/
(In percentage points)



Sources: CEIC Data Co., Ltd.; and IMF staff calculations.
1/ Latest available data for London and New York are until 2014.

Financial services exports amounted to about 8½ percent of GDP in 2016.

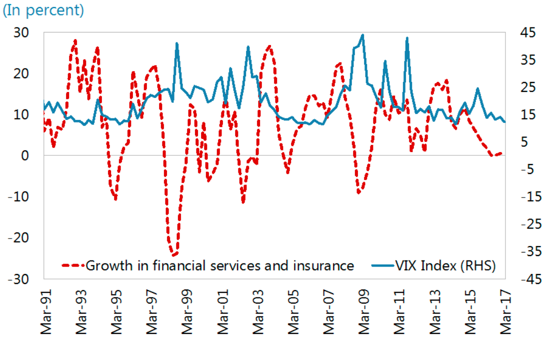
Finance and Insurance Services Exports
(In percent)



Sources: CEIC Data Co., Ltd.; and IMF staff calculations.

Financial services activity in Singapore typically slows down during periods of heightened global risk sentiment.

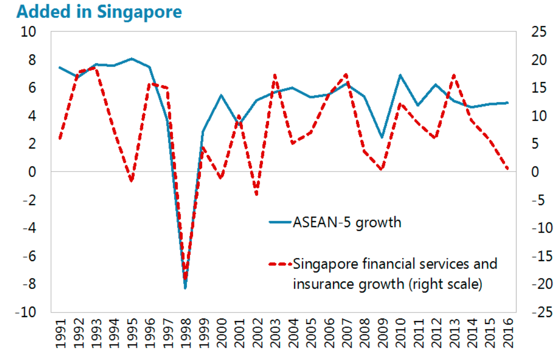
Growth in Financial Services Sector and the VIX Index
(In percent)



Sources: Bloomberg L.P.; CEIC Data Co., Ltd.; and IMF staff calculations.

Financial services activity in Singapore has typically been highly correlated with economic activity in ASEAN-5.

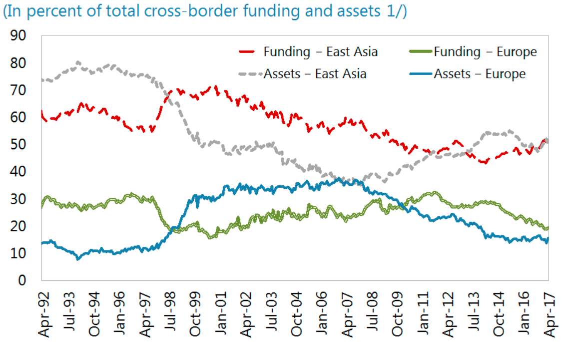
Growth in ASEAN-5 and Financial Services and Insurance Value-Added in Singapore



Sources: CEIC Data Co., Ltd.; and IMF staff calculations.

Cross-border banking activity in Singapore is dominated by transactions with East-Asia and Europe.

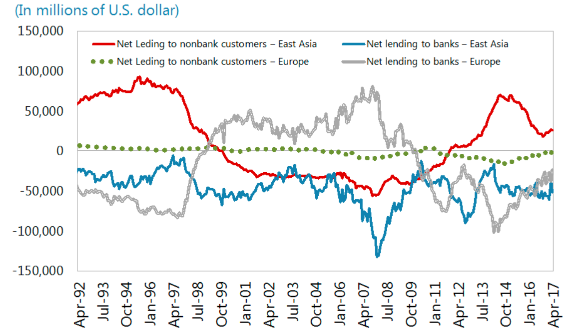
Share of East Asia and Europe in Asian Dollar Market, 1992-2017
(In percent of total cross-border funding and assets 1/)



Sources: Monetary Authority of Singapore.; and IMF staff calculations.
1/ Cross-border funding/assets include nonbank deposits/loans to nonbank clients and amounts due to/from banks.

Net lending to nonbank customers in East Asia and bank funding from Europe increased since the crisis, but have declined recently.

Asian Dollar Market: Composition of Lending/Funding Positions For East Asia and Europe
(In millions of U.S. dollar)

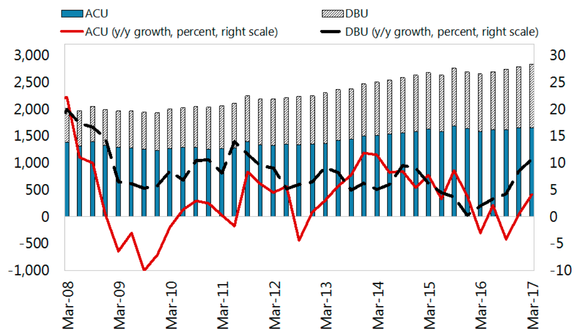


Sources: Monetary Authority of Singapore; and IMF staff calculations.

Figure 4. Singapore: Banking Sector Developments

Growth in loans to nonbanks has firmed both for the ACU and DBU portfolios of banks.

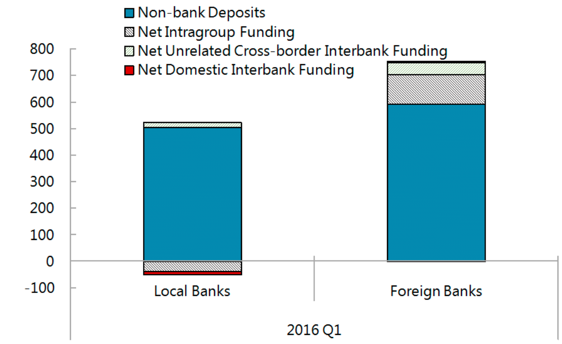
Banking Sector, Combined Assets
(In billions of Singapore dollars)



Source: CEIC Data Company Ltd.; and IMF staff calculations.

Non-bank deposits mostly fund both local and foreign banks. Intragroup funding remains important for foreign banks.

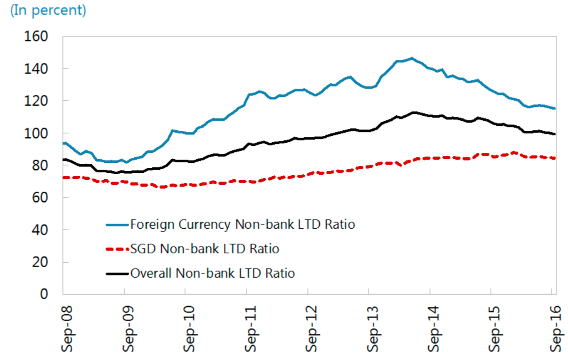
Funding Structure of the Banking System
(In billions of Singapore dollars)



Sources: Singapore authorities

The foreign currency loan-to-deposit ratio has been on a declining trend after peaking in mid-2014.

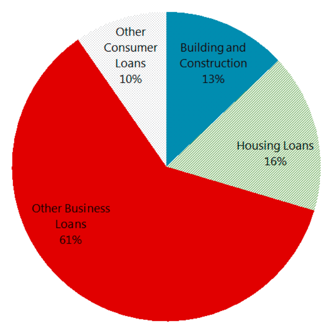
Banking Sector: Loan to Deposit Ratio
(In percent)



Source: 2016 Financial Stability Review, Monetary Authority of Singapore.

Housing loans and loans to the building and construction sectors account for about 30 percent of total non-bank loans.

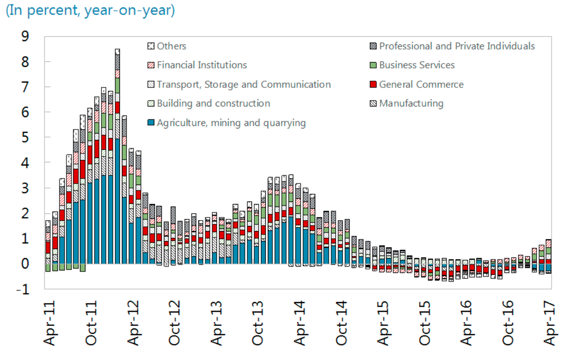
Banking Sector: Nonbank Loans by Sector, April 2017
(In percent of total)



Sources: CEIC Data Co. Ltd.; and IMF staff calculations.

The recovery of domestic non-bank loan growth has not yet extended across all sectors.

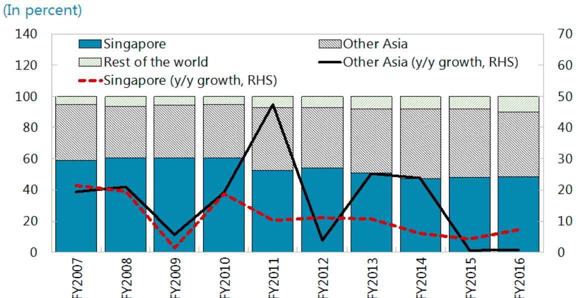
Domestic Bank Loans to Non-Bank Customers by Sector
(In percent, year-on-year)



Sources: CEIC Data Co. Ltd.; and IMF staff calculations.

The big 3 domestic banks now have about 45 percent of their loan portfolio in other Asia (excluding Singapore).

Big 3 Singapore Incorporated Banks: Geographic Distribution of Customer Loans 1/
(In percent)



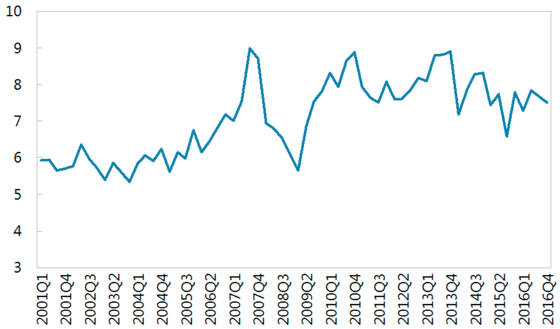
Sources: Banks' financial reports and annual reports; and IMF staff estimates.
1/ Classification varies by bank. OCBC, location of credit risk; DBS, location of borrower incorporation; and UOB, booking location.

Figure 5. Singapore: Housing Market Developments

Singapore's housing market is cooling. The house price-to-income ratio is trending downwards.

Non-landed Private House Price to Income Ratio

(Price per sq. ft./annual household income at the 71st-80th percentile)

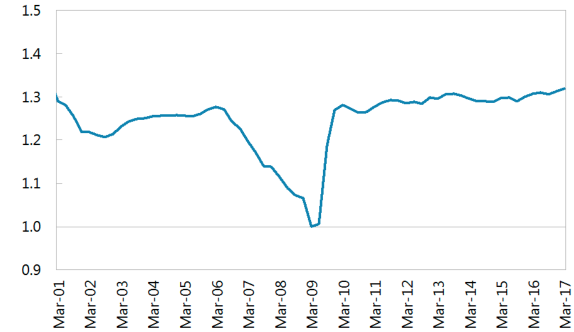


Sources: Singapore, Department of Statistics; CEIC Data Co. Ltd.; and IMF staff calculations.

The house price-to-rent ratio has remained broadly stable in the last few quarters.

House Price to Rent Ratio

(Index; 2009Q1=100)

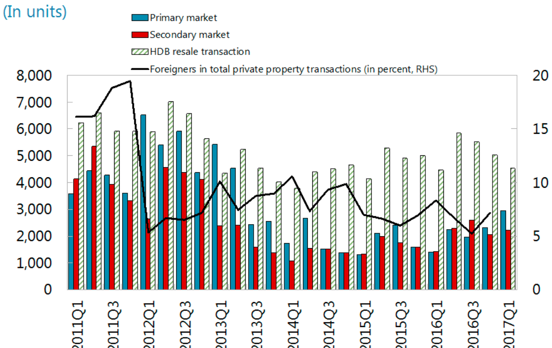


Sources: CEIC Data Co., Ltd.; and IMF staff calculations.

Housing transactions in the public market segments are holding up. The private market has recently seen some increase in transactions.

Private and Public Residential Transaction

(In units)

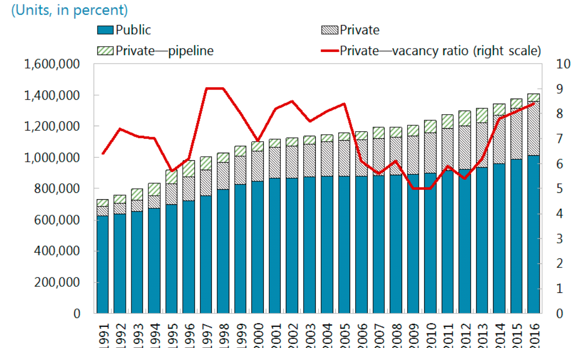


Sources: Singapore, Urban Redevelopment Authority; and IMF staff calculations.

The private vacancy ratio has reverted to the historical average on easing supply constraints.

Housing Stock

(Units, in percent)

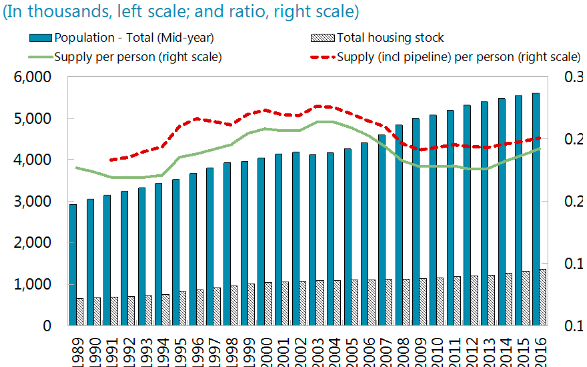


Source: CEIC Data Co. Ltd.; and IMF staff calculations.

Supply bottlenecks owing to rapid population growth with limited new housing supply...

Housing Supply and Population

(In thousands, left scale; and ratio, right scale)

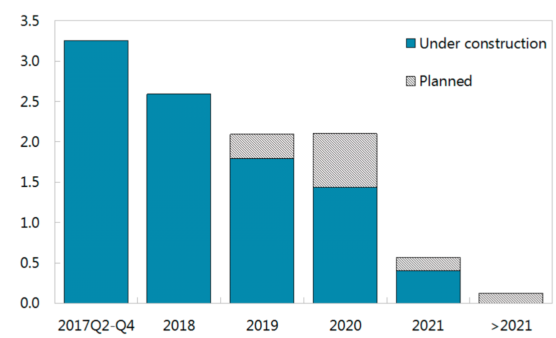


Sources: CEIC Data Co., Ltd.; and IMF staff calculations.

...look set to ease as a pipeline of housing supply is expected to come on the market in the coming years.

Upcoming Private Residential Supply Pipeline, end of 2017:Q1

(In percent of 2016 private housing stock)

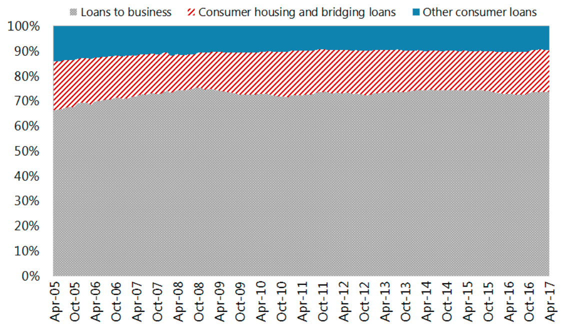


Source: Singapore, Urban Redevelopment Authority (URA).

Figure 5. Singapore: Housing Market Developments (Concluded)

Banks' exposure to private housing loans has remained stable.

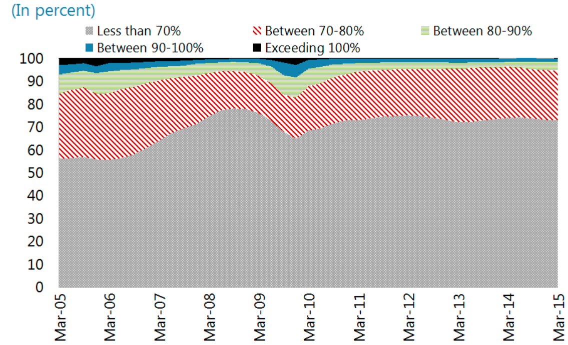
Housing Loans as a Share of Total Loans
(In percent)



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

MaPs helped improve their credit risk profile and limited banks' exposure to overextended households.

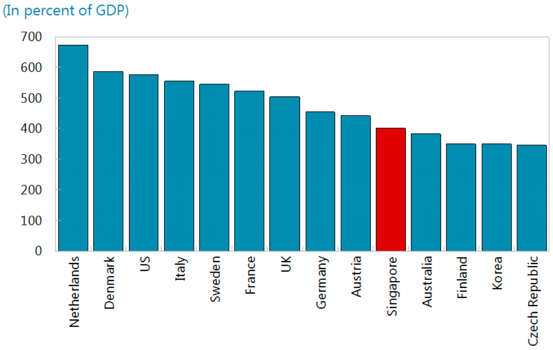
Outstanding Housing Loans by LTV Ratios
(In percent)



Source: Monetary Authority of Singapore.

Households have strong balance sheets in aggregate…

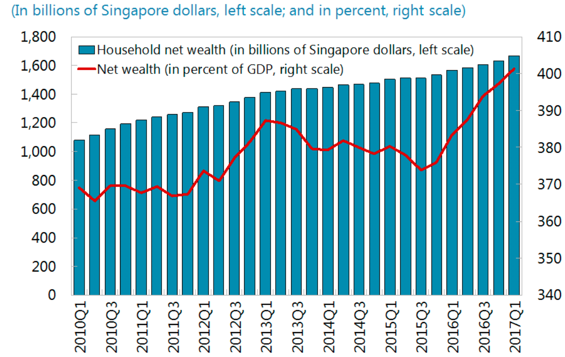
Household Net Wealth
(In percent of GDP)



Sources: OECD, and Singapore authorities.
Note: Latest data for Singapore is 2017Q1. Latest OECD data for rest of countries is 2015Q4.

…as house price appreciation in the recent past pushed up household wealth.

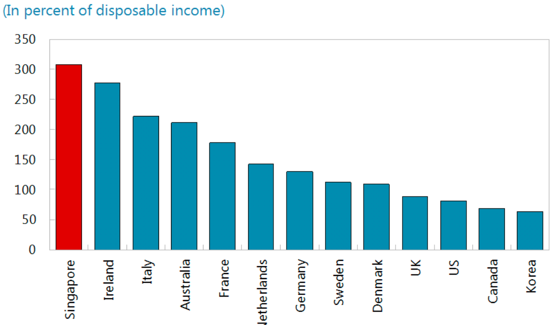
Household Net Wealth
(In billions of Singapore dollars, left scale; and in percent, right scale)



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

However, households are highly indebted.

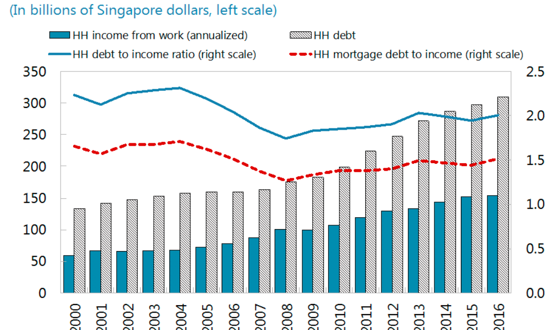
Household Debt
(In percent of disposable income)



Sources: OECD; Singapore Department of Statistics; and IMF staff calculations.
Note: Latest data for Singapore is 2017Q1. Latest OECD data for rest of countries is 2015Q4.

Although indebtedness improved recently.

Household Debt and Income
(In billions of Singapore dollars, left scale)

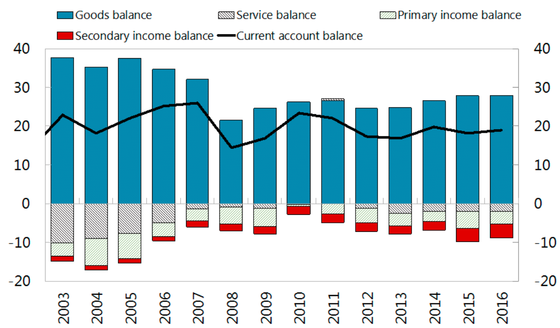


Sources: Singapore Department of Statistics; and IMF staff calculations.

Figure 6. Singapore: External Sector

The current account surplus averaged about 20 percent of GDP the past decade, but has eased since its post-GFC peak.

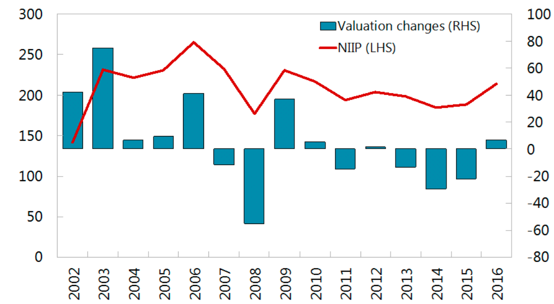
Current Account Balance
(In percent of GDP)



Source: Haver Analytics.

Negative valuation changes have kept Singapore's NIIP position at about 200 percent of GDP over the past years.

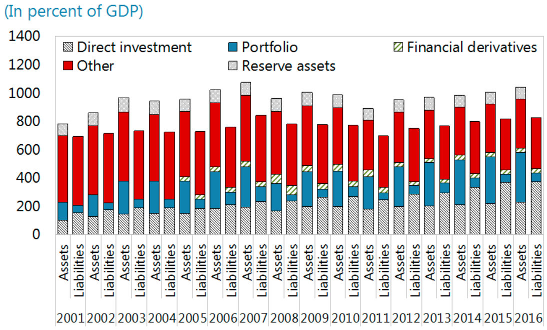
NIIP Position and Valuation Changes
(In percent of GDP)



Sources: Singapore, Department of Statistics; CEIC Data Co. Ltd.; and IMF staff calculations.
Note: Ratio to GDP is based on US dollar values.

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

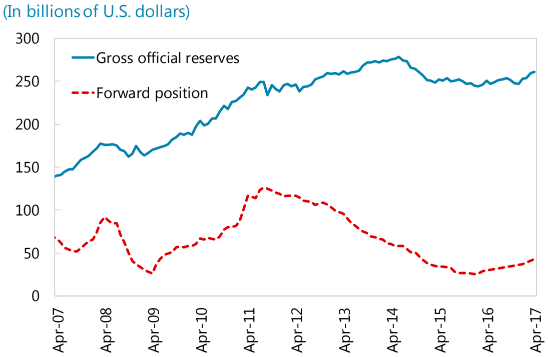
International Investment Position
(In percent of GDP)



Sources: Singapore, Department of Statistics; CEIC Data Co. Ltd.; and IMF staff calculations.
Note: Ratio to GDP is based on US dollar values. Data for 2016 are as of 2016:Q3.

Gross official reserves have been hovering around US$250 billion. The forward position has stabilized.

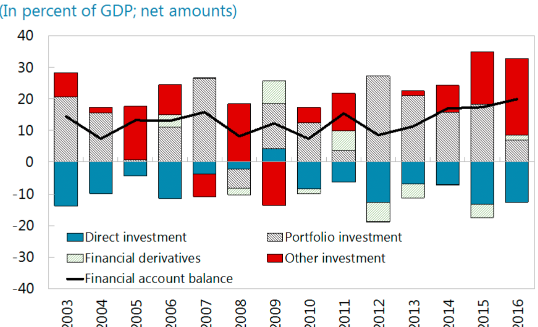
Gross Official Reserves and Forward Position
(In billions of U.S. dollars)



Sources: CEIC Data Co. Ltd; and IMF, *International Financial Statistics* database.

The financial account is characterized by net FDI inflows and net portfolio outflows.

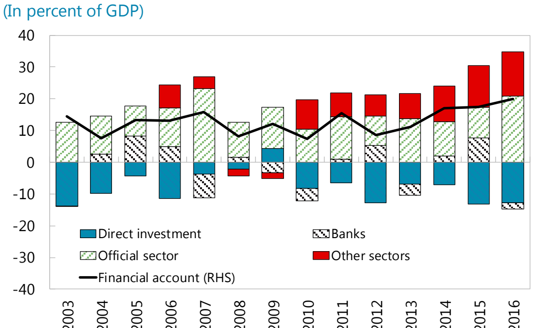
Financial Account Balance by Type of Investment
(In percent of GDP; net amounts)



Sources: CEIC Data Co. Ltd.; and IMF Staff calculations.
Note: Under the BPM6 methodology, a negative entry implies net inflows.

Official and bank outflows accounted for most of outflows in 2016.

Financial Account by Sector, Net
(In percent of GDP)

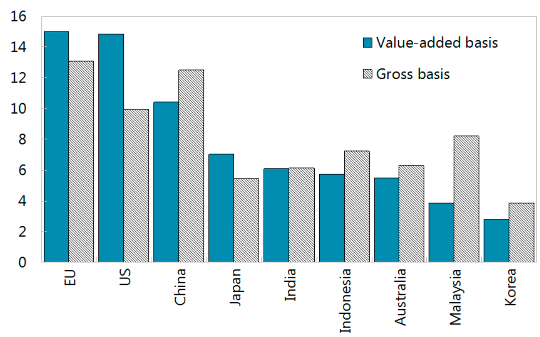


Sources: CEIC Data Co. Ltd.; and IMF staff calculations.
Note: Under the BPM6 methodology, a negative entry implies net inflows.

Figure 7. Singapore: Spillovers

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

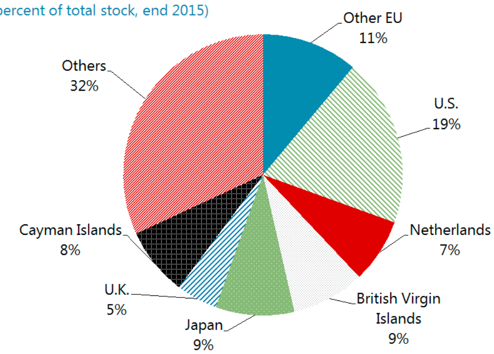
Value Added in Foreign Final Demand versus Gross Exports
(In percent of total, 2011)



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

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

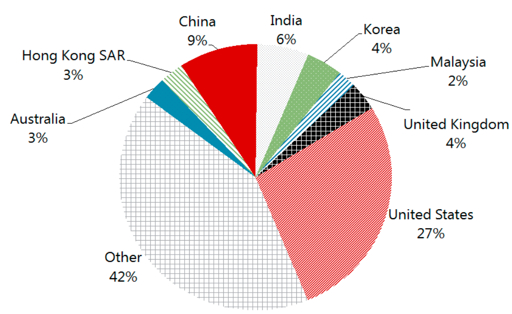
FDI to Singapore by Source Country
(In percent of total stock, end 2015)



Sources: Singapore, Department of Statistics; and IMF staff caclulations.

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.

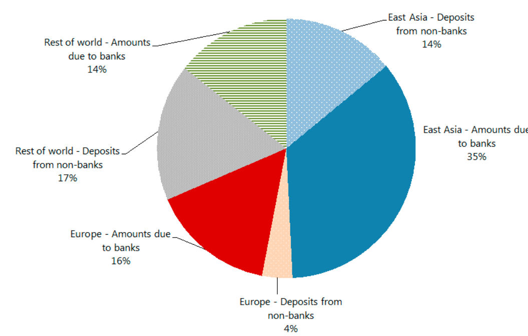
Composition of Singapore's Portfolio Investment Assets
(In percent of total, June 2016)



Source: IMF, *Coordinated Portfolio Investment Survey (CPIS).*

Major sources of funding for Singapore's financial center include East Asian and European banks, followed by deposits from East Asian nonbanks.

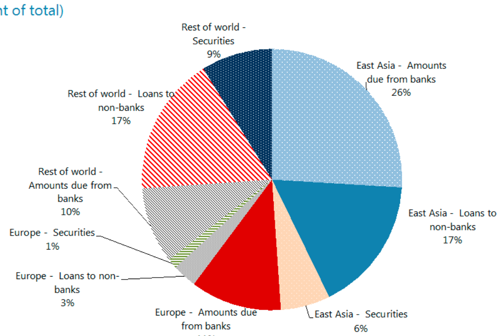
ACU Funding Sources by Region, April 2017
(In percent of total)



Source: Monetary Authority of Singapore, *Monthly Statistical Bulletin.*

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

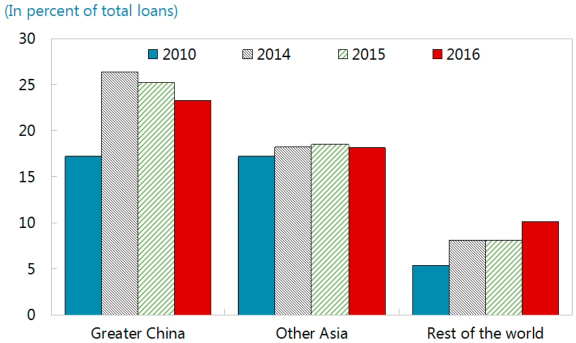
ACU Use of Funds by Region, April 2017
(In perent of total)



Source: Monetary Authority of Singapore, *Monthly Statistical Bulletin.*

Cross-border exposures of domestic banks in Greater China and other Asian economies remain near their post-GFC highs, leading to higher spillovers from the region.

Cross-Border Exposures of Domestic Banks 1/
(In percent of total loans)



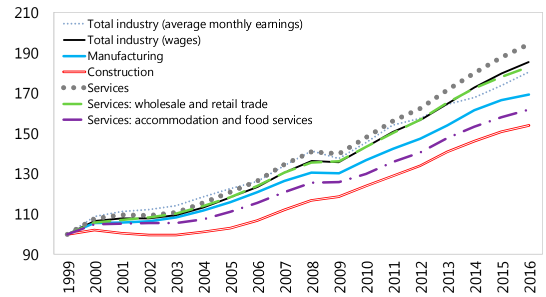
Sources: Banks' financial reports and annual reports; and IMF staff estimates.
1/ Classification varies by bank. OCBC, location of credit risk; DBS, location of borrower incorporation; and UOB, booking location.

Figure 8. Singapore: Social and Equality Indicators

Industry-wide average monthly earnings increased by 3.7 percent in 2016 and nominal wages increased across sectors for six consecutive years since the GFC.

Nominal Wages by Industry 1/

(Index 1999=100; excluding employers' contributions to CPF)

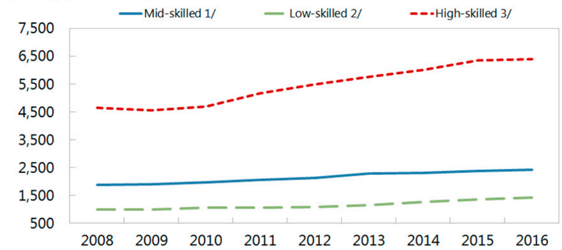


Sources: Haver Analytics; and IMF staff calculations.
1/ Based on wage changes granted by private sector establishments (with at least 10 employees) to full-time resident employees with continuous employment of at least a year. Wages are inclusive of bonuses.

Median wages for low-skilled workers grew at a faster pace in recent years; at 7.2 percent compound annual rate since 2013.

Weighted Gross Monthly Median Wages

(In Singapore Dollars)

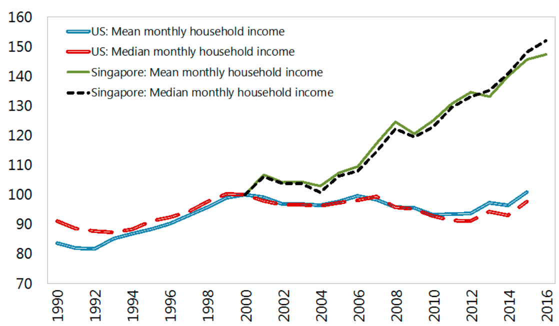


Sources: Singapore, Ministry of Manpower; and IMF staff calculations.
1/ Mid-skilled comprises clerical support workers; sales and service workers; craftsmen; plant and machine operators; and assemblers.
2/ Low-skilled comprises cleaners; laborers; and related workers.
3/ High-skilled comprises managers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

Median household income continued on an upward trend, rising at 3.5 percent compound annual rate since the GFC.

US and Singapore: Mean and Median Household Income 1/

(2000=100)



Sources: Singapore, *Key Household Income Trend 2016*; U.S. Census Bureau; and IMF staff calculations.
1/ 2016 data for U.S. is not available.

While largely stagnant during 2000–06, real incomes of lower income groups have recently increased considerably.

Average Monthly Real Household Income by Decile 1/

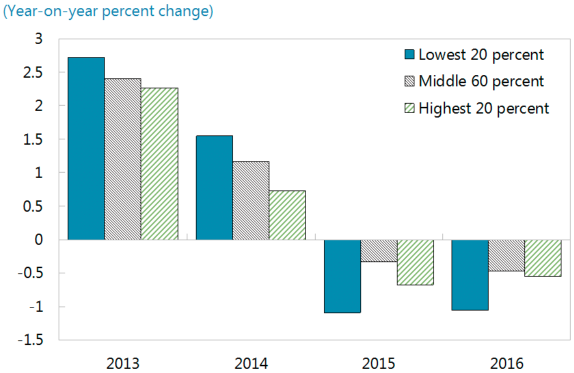
Decile	2000	2016	Cumulative Change (in percent) 2000–2016	2000–2006	2006–2016
Total	1,735	2,804	61.6	18.5	36.4
1st-10th	315	391	24.2	-6.6	33.0
11th-20th	537	767	42.8	1.1	41.2
21st-30th	720	1,124	56.1	9.2	42.9
31st-40th	911	1,434	57.4	10.6	42.3
41st-50th	1,119	1,772	58.4	12.0	41.4
51st-60th	1,366	2,170	58.9	13.4	40.1
61st-70th	1,669	2,668	59.9	14.8	39.2
71st-80th	2,093	3,363	60.7	17.2	37.1
81st-90th	2,821	4,781	69.5	25.0	35.6
91st-100th	5,801	10,249	76.7	31.0	34.9
Memo:					
Top dec/bottom dec	18.4	26.2			

1/ Income from work per household member in employed households. 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).

Lower rate of inflation has helped everybody, but the bottom 20 percent gained the most in recent years.

Inflation by Income Group

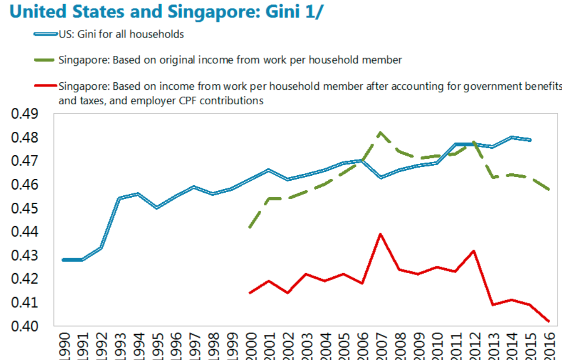
(Year-on-year percent change)



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

Government policies (taxes and benefit payments) are also contributing to a reduction in inequality

United States and Singapore: Gini 1/

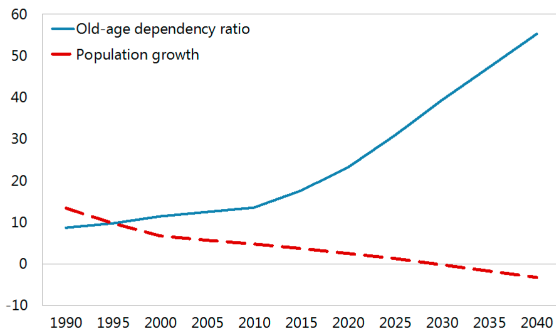


Sources: *Key Household Income Trends 2016*; and U.S. Census Bureau.
1/ 2016 Data for United States is not available.

Figure 9. Singapore: Demographic Transition

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

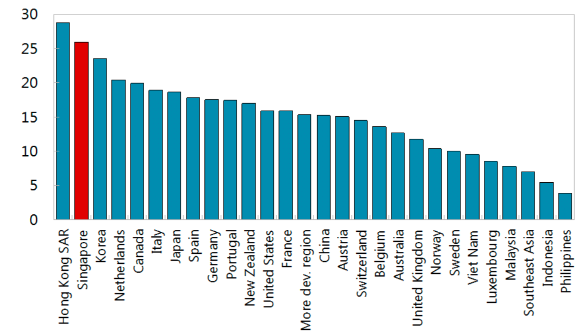
Old-Age Dependency Ratio and Population Growth
(In percent)



Source: United Nations, World Population Prospects, 2015 Revisions.

Singapore's aging speeds is among the highest in the region and in advanced economies.

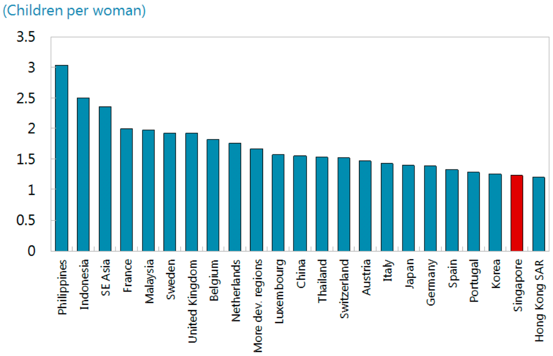
Aging Speed Comparison: Change Between 2010 and 2030
(In percent)



Source: United Nations, World Population Prospects, 2015 Revisions.

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

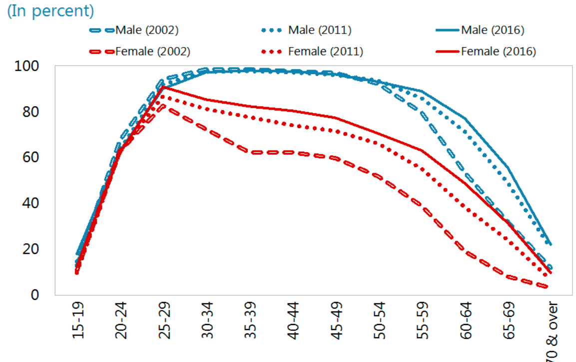
Total Fertility, 2010-2015
(Children per woman)



Source: United Nations, World Population Prospects, 2015 Revisions.

Labor force participation rates have been rising for both male and female workers, but there is scope to further raise participation rates for women.

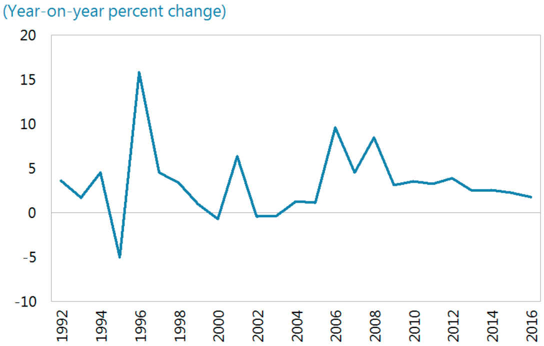
Resident Labor Force Participation Rate by Gender and Age
(In percent)



Source: Comprehensive Labor Force Survey, Ministry of Manpower.

Labor force growth has declined in recent years, after a period of very strong growth during 2005–2009…

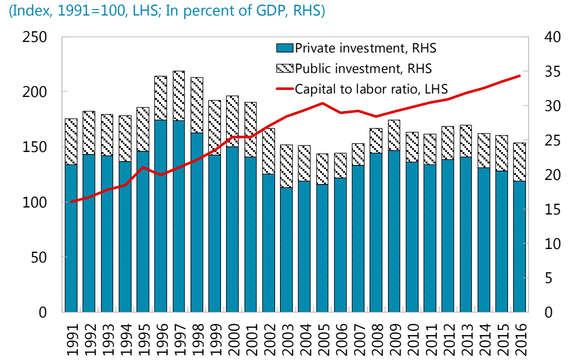
Labor Force Growth Rate
(Year-on-year percent change)



Sources: CEIC Data Co. Ltd.; and IMF staff calculations.

…contributing to an increase in the capital to labor ratio.

Capital to Labor Ratio and Investment
(Index, 1991=100, LHS; In percent of GDP, RHS)



Sources: Singapore, Department of Statistics; CEIC Data Co. Ltd.; and Haver Analytics.

Table 1. Singapore: Selected Economic and Financial Indicators, 2013–18

Nominal GDP (2016): US$297 billion
Main exports (percent of total domestic exports): Electronic products (21%); chemical products (20%)
GDP per capita (2016): US$52,961
Population (June 2016): 5.61 million
Unemployment rate (2016): 2.1 percent

					Projections	
	2013	2014	2015	2016	2017	2018
Growth (percentage change)						
Real GDP	5.0	3.6	1.9	2.0	2.3	2.5
Total domestic demand	4.9	-0.3	2.1	-0.1	1.6	3.3
Consumption	5.0	1.9	5.3	1.8	2.2	3.4
Private consumption	3.3	2.4	4.6	0.6	1.4	3.5
Gross capital formation	4.6	-3.6	-3.0	-3.3	0.4	3.1
Saving and investment (percent of GDP)						
Gross national saving	47.4	48.4	44.9	44.4	44.3	44.2
Gross domestic investment	30.5	28.6	26.8	25.3	24.5	24.5
Inflation and unemployment (period average, percent)						
CPI inflation	2.4	1.0	-0.5	-0.5	0.9	1.3
Core CPI inflation	1.7	1.9	0.5	0.9	1.6	1.7
Unemployment rate	1.9	2.0	1.9	2.1	2.1	2.1
Central government budget (percent of GDP) 1/						
Revenue	21.7	21.5	21.9	22.0	21.2	21.0
Expenditure	14.7	15.6	18.2	19.8	19.9	20.0
Overall balance	7.1	5.9	3.7	2.2	1.2	1.1
Primary balance 2/	0.0	-0.6	-2.4	-2.2	-3.1	-3.1
Money and credit (end of period, percentage change)						
Broad money (M2)	7.9	7.6	4.0	8.4	7.0	...
Credit to private sector	15.5	7.0	2.5	5.5	5.7	...
Three-month S$ SIBOR rate (percent)	0.4	0.5	1.2	1.0	...	...
Balance of payments (US$ billions)						
Current account balance	51.2	60.8	53.8	56.5	59.8	61.3
In percent of GDP	16.9	19.7	18.1	19.0	19.8	19.7
Goods balance	75.0	81.7	82.8	82.8	89.6	93.6
Exports, f.o.b.	447.7	442.7	379.5	361.6	404.0	425.7
Imports, f.o.b.	-372.7	-361.0	-296.7	-278.8	-314.5	-332.1
Financial account balance	33.9	52.5	51.5	59.3	50.5	50.6
Overall balance	18.2	6.8	1.1	-1.8	9.3	10.7
Gross official reserves (US$ billions)	273.1	256.9	247.7	246.6	255.9	266.5
In months of imports 3/	6.3	6.8	6.8	6.2	6.2	6.1
Singapore dollar/U.S. dollar exchange rate (period average)	1.25	1.27	1.37	1.38	...	...
Nominal effective exchange rate (percentage change) 4/	2.6	0.9	-0.3	0.9	...	...
Real effective exchange rate (percentage change) 4/	2.7	-0.3	-2.0	-1.0	...	...

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

1/ On a calendar year basis.
2/ Overall balance excluding investment income, capital revenue, and interest payments.
3/ In months of following year's imports of goods and services.
4/ Increase is an appreciation.

Table 2. Singapore: Balance of Payments, 2013–18 1/

	2013	2014	2015	2016	Projections 2017	2018
	(In billions of U.S. dollars)					
Current account balance	51.2	60.8	53.8	56.5	59.8	61.3
Goods balance	75.0	81.7	82.8	82.8	89.6	93.6
Exports, f.o.b.	447.7	442.7	379.5	361.6	404.0	425.7
Imports, f.o.b.	-372.7	-361.0	-296.7	-278.8	-314.5	-332.1
Services balance	-7.4	-6.0	-5.9	-5.9	-6.9	-8.3
Exports	139.7	153.4	148.6	149.6	153.0	158.0
Imports	-147.1	-159.4	-154.5	-155.6	-159.9	-166.3
Primary income balance	-10.0	-7.9	-13.2	-9.5	-11.2	-11.9
Receipts	65.7	67.4	62.9	65.5	68.5	71.0
Payments	-75.6	-75.3	-76.1	-75.0	-79.7	-83.0
Secondary income balance	-6.5	-7.0	-10.0	-10.9	-11.7	-12.1
Capital and financial account balance	33.9	52.5	51.5	59.3	50.5	50.6
Capital account (net)	0.0	0.0	0.0	0.0	0.0	0.0
Financial account (net)	33.9	52.5	51.5	59.3	50.5	50.6
Direct investment	-21.1	-21.8	-39.2	-37.7	-38.9	-40.5
Assets	43.6	52.2	31.4	23.9	25.8	28.2
Liabilities	64.7	74.0	70.6	61.6	64.7	68.7
Portfolio investment	63.6	48.2	54.4	20.7	18.7	18.7
Assets	62.1	54.1	48.9	24.5	23.2	23.2
Liabilities	-1.5	5.9	-5.5	3.8	4.5	4.5
Other investment and financial derivatives	-8.6	26.0	36.3	76.3	70.7	72.5
Net errors and omissions	0.9	-1.6	-1.2	1.0	0.0	0.0
Overall balance	18.2	6.8	1.1	-1.8	9.3	10.7
Memorandum items:						
Current account as percent of GDP	16.9	19.7	18.1	19.0	19.8	19.7
Goods balance as percent of GDP	24.8	26.5	27.9	27.9	29.7	30.1
Re-exports as percent of GDP	67.2	65.6	62.3	59.2	...	...
Net international investment position						
In billions of U.S. dollars	600	570	559	635	...	...
In percent of GDP	198	185	188	214	...	...

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, 2013–17 1/

	2013	2014	2015	2016	2017 Apr.	2017 Proj.
	(In billions of Singapore dollars, end of period)					
Net foreign assets	434	458	502	506	511	519
Monetary authorities	341	344	353	353	362	366
Banks	93	115	149	153	149	153
Domestic credit	745	800	823	864	885	908
Claims on resident private sector	640	685	702	741	754	783
Claims on central government	105	115	121	123	131	125
Other items (net)	-509	-535	-573	-556	-570	-556
M2	671	722	751	814	826	871
M1	241	262	279	294	298	310
Quasi-money	430	461	472	520	529	561
	(Annual percentage change)					
Domestic credit	13.0	7.3	2.9	5.0	8.2	5.1
Claims on private sector	15.5	7.0	2.5	5.5	7.3	5.7
M2	7.9	7.6	4.0	8.4	8.1	7.0
	(Contribution to M2 growth, in percent)					
Net foreign assets	4.4	3.5	6.1	0.6	4.5	1.6
Domestic credit (net)	13.8	8.1	3.2	5.5	8.7	5.4
Claims on private sector	13.8	6.6	2.4	5.1	6.7	5.2
Claims on central government (net)	0.0	1.4	0.8	0.4	2.0	0.2
Other items (net)	-10.3	-4.0	-5.2	2.3	-5.1	0.0
Memorandum items:						
Total loans to nonbanks (in billions of Singapore dollars) 2/	1,081	1,180	1,177	1,180	1,207	…
Total loans to nonbanks (annual percentage change)	19.2	9.2	-0.3	0.2	6.1	…

Sources: IMF, *International Financial Statistics*; and CEIC Data Co. Ltd.

1/ Based on domestic banking units (DBUs) and Asian currency units (ACUs).
2/ Total loans of DBUs and ACUs to both residents and nonresidents.

Table 4. Singapore: Indicators of Vulnerability, 2013–17

	2013	2014	2015	2016	2017 Latest 4/
Financial sector indicators					
Broad money (M2, percent change, y/y, end of period)	7.9	7.6	4.0	8.4	8.1
Private sector credit (percent change, y/y, end of period)	15.5	7.0	2.5	5.5	7.3
Credit to the property sector (percent change, y/y, end of period) 1/	11.8	9.0	8.2	3.1	2.9
Share of property sector credit in total nonbank credit (percent, end of period) 1/	44.9	46.3	50.7	50.8	50.0
Credit rating of local banks (S&P) 2/	AA-	AA-	AA-	AA-	AA-
Three-month S$ SIBOR (percent, end of period)	0.4	0.5	1.2	1.0	1.0
NPL ratio (local banks, percent, latest available) 3/	1.0	0.9	1.1	1.4	…
Capital adequacy ratio of local banks (percent, latest available) 4/	16.4	15.9	15.9	16.9	…
Asset market indicators (end of period)					
Stock prices (percent change, y/y)	0.0	6.2	-14.3	-0.1	15.0
P/E ratio	13.1	12.6	12.8	14.1	16.1
Stock prices of the finance sector (percent change, y/y)	-1.1	10.3	-12.8	1.1	16.2
Real estate prices (percent change, y/y)					
Private residential	3.2	-2.9	-3.9	-3.1	-2.8
Office space	4.9	3.2	2.5	-1.9	-6.4
Industrial space	10.5	2.5	-0.6	-7.0	-8.9
External indicators					
Current account balance (US$ billion)	51.2	60.8	53.8	56.5	13.7
In percent of GDP	16.9	19.7	18.1	19.0	18.4
Gross official reserves (US$ billion, end of period)	273.1	256.9	247.7	246.6	260.7
In months of next year's imports of goods and services	6.3	6.8	6.8	6.3	6.4
Real effective exchange rate (index, 2010=100, end of period)	114.2	112.5	110.2	108.5	108.8

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.
4/ Data for capital adequacy ratio in 2016 are as of end-September. Data for 2017 are observations for March, April, or May, depending on latest availal

Table 5. Singapore: Medium-Term Scenario, 2013–22

	2013	2014	2015	2016	Projections 2017	2018	2019	2020	2021	2022
Real growth (percent change)										
GDP	5.0	3.6	1.9	2.0	2.3	2.5	2.6	2.6	2.6	2.6
Total domestic demand	4.9	-0.3	2.1	-0.1	1.6	3.3	4.0	3.7	3.8	3.7
(Contribution to GDP growth, in percent)	3.6	-0.2	1.5	-0.1	1.1	2.3	2.8	2.6	2.7	2.7
Final domestic demand	5.3	0.7	3.7	0.2	1.1	2.1	3.6	3.8	3.9	3.8
Consumption	5.0	1.9	5.3	1.8	2.2	3.4	3.7	3.6	3.6	3.6
Private	3.3	2.4	4.6	0.6	1.4	3.5	4.0	4.0	4.0	4.0
Public	11.5	0.1	8.0	6.3	5.0	3.2	2.6	2.3	2.4	2.4
Gross capital formation	4.6	-3.6	-3.0	-3.3	0.4	3.1	4.7	3.8	4.2	4.0
Private	5.9	-6.1	-4.4	-6.2	-1.1	1.9	4.5	3.7	4.3	3.9
Public	-1.1	8.8	3.1	8.2	5.7	6.9	5.5	4.1	4.2	4.1
Gross fixed investment	5.7	-1.1	1.1	-2.5	-0.9	-0.2	3.3	4.1	4.6	4.3
Change in inventories 1/	-0.2	-0.8	-1.1	-0.2	0.3	0.8	0.4	0.0	0.0	0.0
Net exports /1	1.3	2.7	0.3	2.7	1.1	0.2	-0.2	-0.1	-0.1	0.0
Saving and investment (percent of GDP)										
Gross national savings	47.4	48.4	44.9	44.4	44.3	44.2	43.8	43.2	42.7	42.1
Government 2/	10.9	10.0	8.9	7.6	6.7	6.6	6.7	6.8	6.9	7.0
Private and other	36.5	38.4	36.0	36.7	37.6	37.5	37.1	36.4	35.8	35.1
Gross capital formation	30.5	28.6	26.8	25.3	24.5	24.5	24.8	25.0	25.4	25.6
Government 3/	4.4	4.9	5.1	5.4	5.5	5.6	5.7	5.8	5.9	6.0
Private and other	26.1	23.7	21.7	19.9	19.0	18.9	19.1	19.2	19.5	19.6
Inflation and unemployment										
(period average, percent)										
CPI inflation	2.4	1.0	-0.5	-0.5	0.9	1.3	1.7	1.9	1.9	1.9
Core CPI inflation	1.7	1.9	0.5	0.9	1.6	1.7	1.8	1.9	1.9	1.9
Unemployment rate	1.9	2.0	1.9	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Output gap	1.1	0.8	-0.5	-0.7	-0.5	-0.3	-0.1	0.0	0.0	0.0
Central government (percent of GDP) 4/										
Revenue	21.7	21.5	21.9	22.0	21.2	21.0	21.2	21.4	21.6	21.8
Expenditure	14.7	15.6	18.2	19.8	19.9	20.0	20.2	20.4	20.6	20.7
Overall balance	7.1	5.9	3.7	2.2	1.2	1.1	1.0	1.0	1.0	1.1
Primary balance 5/	0.0	-0.6	-2.4	-2.2	-3.1	-3.1	-3.2	-3.3	-3.4	-3.5
Merchandise trade (percent change)										
Export volume	3.8	2.4	2.0	1.3	4.8	4.0	3.8	4.1	4.4	4.6
Import volume	2.7	0.9	3.2	-0.9	4.2	4.4	4.6	5.0	5.3	5.8
Terms of trade	0.0	0.7	5.5	-0.8	-1.5	0.2	0.3	0.1	0.1	0.0
Balance of payments 6/ (percent of GDP)										
Current account balance	16.9	19.7	18.1	19.0	19.8	19.7	19.0	18.2	17.4	16.5
Balance on goods and services	22.4	24.6	25.9	25.9	27.4	27.4	26.9	26.5	26.1	25.2
Balance on primary and secondary income	-5.4	-4.8	-7.8	-6.9	-7.6	-7.7	-7.9	-8.3	-8.8	-8.6
Gross official reserves (US$ billions)	273	257	248	247	256	267	279	292	305	318
In months of imports 7/	6.3	6.8	6.8	6.2	6.2	6.1	6.1	6.0	5.9	5.8

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

1/ Contribution to GDP growth.
2/ Based on fiscal accounts data.
3/ Based on national accounts data.
4/ On a calendar year basis.
5/ Overall balance excluding investment income, capital revenue, and interest payments.
6/ The authorities recently migrated to the *Balance of Payments Manual 6* (BPM6), which resulted in some BOP data revisions.
7/ In months of next year's imports of goods and services.

Table 6. Singapore: Summary of Government Operations and Stock Positions, 2012/13–2017/18 1/

	2012/13	2013/14	2014/15	2015/16	2016/17		2017/18	
					Budget	Prel.	Budget 11/	Proj.
I. Statement of government operations								
	(In billions of Singapore dollars)							
Revenue	81.4	82.3	84.9	89.8	90.9	91.4	88.4	88.8
Taxes	50.1	51.1	54.1	55.6	59.2	58.2	59.4	59.6
Other revenue 2/	31.2	31.2	30.8	34.1	31.8	33.2	29.0	29.2
Of which : interest income	1.7	1.9	2.6	3.1	3.9	4.0	4.1	4.1
Expenditure	52.7	57.0	63.3	74.7	80.4	77.8	82.3	82.9
Expense	37.9	42.7	46.5	52.5	57.1	55.5	58.9	59.3
Compensation of employees	6.2	6.8	7.4	8.0	8.7	8.5	8.9	9.0
Use of goods and services	14.6	15.2	16.1	17.5	18.7	18.5	19.3	19.4
Expense not elsewhere classified	17.0	20.7	23.0	26.9	29.7	28.5	30.7	30.9
Grants, subventions & capital injections to organisations	6.7	7.1	7.9	9.4	11.4	10.6	12.5	12.6
Transfers	10.3	13.6	15.1	17.5	18.3	17.9	18.2	18.3
Net acquisition of nonfinancial assets	14.9	14.3	16.8	22.3	23.3	22.2	23.4	23.6
Development expenditure	13.5	13.0	15.3	20.8	20.9	20.2	20.4	20.5
Land-related expenditure	1.3	1.3	1.4	1.4	2.4	2.0	3.1	3.1
Gross operating balance	43.5	39.6	38.4	37.3	33.8	35.8	29.5	29.5
Net lending/borrowing	28.6	25.3	21.6	15.0	10.5	13.6	6.1	5.9
Net acquisition of financial assets	...	...	...	...	...	...	...	...
Net incurrence of liabilities	...	...	...	...	...	...	...	...
	(In percent of GDP)							
Revenue	22.3	21.6	21.5	22.0	21.9	22.0	20.8	20.9
Taxes	13.8	13.4	13.7	13.6	14.3	14.0	14.0	14.0
Other revenue 2/	8.6	8.2	7.8	8.4	7.7	8.0	6.8	6.9
Expenditure	13.7	15.0	15.8	18.9	20.8	20.0	19.8	19.9
Expense	10.4	11.2	11.8	12.9	13.8	13.4	13.8	13.9
Net acquisition of nonfinancial assets	4.1	3.7	4.2	5.5	5.6	5.4	5.5	5.6
Gross operating balance	11.9	10.4	9.7	9.1	8.2	8.6	6.9	6.9
Net lending/borrowing	8.7	6.5	5.7	3.1	1.1	2.0	1.0	1.0
Memorandum items:								
Primary balance 3/	0.8	0.0	-0.6	-2.4	-2.9	-2.2	-3.0	-3.1
Cyclically adjusted primary balance	0.7	-0.2	-0.7	-2.3	-3.1	-2.4	-2.9	-3.0
Expenditures on social development 4/	6.0	6.4	6.9	7.9	8.7	8.7	...	...
Land sales revenue	5.0	4.5	3.8	3.8	2.4	2.8	1.9	2.0
Spending from Endowment and Trust Funds (9)	0.8	1.0	1.0	1.2	1.3	1.3		
Fiscal impulse 5/	-1.5	1.3	-0.1	2.2	1.4	0.8	0.5	
Authorities' budgetary accounts 6/								
Operating revenue (1)	15.3	14.9	15.4	15.9	16.5	16.5	16.3	...
Total expenditure (2)	13.5	13.5	14.3	16.5	17.7	17.2	17.7	...
Primary fiscal balance (3)=(1)-(2)	1.9	1.4	1.1	-0.6	-1.2	-0.7	-1.3	...
Special transfers (excl. transfers to endowment funds) (4)	0.4	0.8	1.0	1.1	0.6	0.7	0.6	...
Basic balance (5)=(3)-(4)	1.5	0.6	0.1	-1.7	-1.8	-1.3	-1.9	...
Transfers to Endowment and Trust Funds (6)	2.0	1.5	2.2	1.5	0.9	0.9	0.9	...
Net investment returns contribution (7)	2.2	2.2	2.2	2.4	3.5	3.5	3.3	...
Overall balance (8)=(5)-(6)+(7)	1.6	1.3	0.1	-0.8	0.8	1.2	0.4	...
II. Stock positions	2012	2013	2014	2015	2016			
	(In billions of Singapore dollars, unless otherwise indicated)							
Gross financial assets 7/	...	817	834	878	941			
Gross debt 8/	385	390	387	421	463			
Gross debt (in percent of GDP) 8/	107	103	99	103	113			
Memorandum items:								
Government deposits at the Monetary Authority of Singapore 7/	147	163	114	115	124			
Temasek asset holdings 7/ 9/	198	215	223	266	242			
GIC asset holdings 10/					more than 140			

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

1/ The fiscal year runs from April 1 through March 31. The presentation of the table is based on GFSM 2001.
2/ Includes revenue from land sales and investment income.
3/ Overall balance excluding investment income, capital revenue, and interest payments.
4/ Includes development and operating expenditure on education, health, national development, environment and water resources, culture, community and youth, social and family development, communications and information, and manpower (financial security). Includes spending on social development purposes from endowment and trust funds set up by the government.
5/ The fiscal impulse is the change in the cyclically adjusted operational balance, excluding top ups to endowments and trust funds.
6/ 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.
7/ 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.
8/ Gross debt stock figures are as at the end of the calendar year. Government debt is issued to develop domestic capital markets and to provide an investment vehicle for the mandatory saving scheme.
9/ The government of Singapore is the sole equity shareholder of Temasek.
10/ The Government Investment Corporation (GIC) is a private company wholly owned by the government of Singapore.
11/ The IMF staff projection for GDP is used to calculate the numbers for the 2016/17 budget in the authorities' budgetary accounts in percent of GDP.

Table 7. Singapore: Financial Soundness Indicators—Local Banking Sector, 2013–16 1/

	2013	2014	2015	2016 Q1	2016 Q2	2016 Q3
			(In percent)			
Capital adequacy ratio						
Regulatory capital to risk-weighted assets	16.4	15.9	15.9	16.4	16.6	16.9
Regulatory tier I capital to risk-weighted assets	13.8	13.6	13.7	14.1	14.4	14.7
Shareholders' equity to assets	8.4	8.6	9.1	9.3	9.4	9.5
Asset quality						
NPLs to nonbank loans	1.0	0.9	1.1	1.1	1.2	1.4
Total provisions to NPLs	135.4	152.5	130.8	127.6	113.3	102.7
Specific provisions to NPLs	34.8	32.6	26.2	25.1	25.3	23.4
Loan concentrations (in percent of total loans)						
Bank loans	15.5	14.0	12.7	12.3	13.0	12.7
Nonbank loans	84.5	86.0	87.3	87.7	87.0	87.3
Of which :						
Manufacturing loans	7.9	7.9	7.4	7.6	7.2	7.1
Building and construction loans	12.8	14.9	16.7	17.2	17.1	17.0
Housing loans	19.8	20.2	21.2	22.1	22.0	22.0
Loans to professionals and private individuals	8.4	9.0	9.1	9.1	9.2	9.2
Loans to nonbank financial institutions	8.8	7.2	6.9	6.7	6.6	7.0
Profitability						
After tax return on assets	1.0	0.9	1.0	1.0	1.0	1.0
After tax return on equity	11.5	10.3	10.8	10.7	10.4	10.4
Net interest margin	1.7	1.7	1.8	1.8	1.7	1.7
Non-interest income to total income	39.5	33.9	36.4	36.0	38.4	40.3
Liquidity (domestic banking units)						
Loans to deposits ratio	110.4	112.2	108.2	106.7	106.1	109.5

Source: Monetary Authority of Singapore.

1/ The data relates to all commercial banks, Singapore operations only.

Table 8. Singapore: International Investment Position, 2013–16

	2013	2014	2015	2016
	(In billions of U.S. Dollars)			
External assets	2,921	3,028	2,971	3,077
Direct investment	613	653	652	682
Portfolio investment	916	963	965	1,025
Equity securities	472	488	489	518
Debt securities	444	475	475	507
Other investment and financial derivatives	1,120	1,155	1,106	1,124
Reserve assets	272	258	248	246
External liabilities	2,321	2,458	2,412	2,442
Direct investment	897	1,019	1,082	1,096
Portfolio investment	195	207	173	179
Equity securities	164	172	144	148
Debt securities	32	35	29	31
Other investment and financial derivatives	1,229	1,232	1,157	1,167
Net international investment position	600	570	559	635
	(In percent of GDP)			
External assets	966	982	1001	1036
Direct investment	203	212	220	230
Portfolio investment	303	312	325	345
Equity securities	156	158	165	174
Debt securities	147	154	160	171
Other investment and financial derivatives	370	375	373	379
Reserve assets	90	84	84	83
External liabilities	767	798	812	822
Direct investment	297	331	365	369
Portfolio investment	65	67	58	60
Equity securities	54	56	48	50
Debt securities	10	11	10	11
Other investment and financial derivatives	406	400	390	393
Net international investment position	198	185	188	214

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

Appendix I. External Sector Report

	Singapore	Overall Assessment
Foreign asset and liability position and trajectory	**Background**. The net international investment position (NIIP) stood at about 214 percent of GDP in 2016, 26 percentage points higher than at end-2015, driven mainly by the current account (CA) surplus. Despite large and persistent CA surpluses, the NIIP to GDP ratio stands slightly below its 2010 level, and is significantly lower than the pre-Global Financial Crisis (GFC) peak of 265 percent of GDP in 2006. Projections on the CA balance and growth imply that the NIIP is likely to rise beyond the pre-GFC peak over the medium term. 1/ **Assessment**. The external balance sheet is not a major source of risk. Potential vulnerabilities posed by the large gross non-FDI liabilities (453 percent of GDP at the end of 2016)—predominantly cross-border deposit taking by foreign bank branches—are mitigated by banks' large short-term external assets and the authorities' close monitoring of banks' liquidity risk profiles. Singapore also has large official reserves and other official liquid assets. 2/	**Overall Assessment** The external position in 2016 was *substantially stronger than what is consistent with fundamentals and desirable policies*. The current account balance rose in 2016, driven mainly by improvements in the income balance, and strength of goods and services balance. The assessment for 2016 and the size of the imbalance are subject to a wide range of uncertainty reflecting Singapore's very open economy and position as a global trading and financial center. **Potential Policy Responses** While fiscal policy is providing welcome support to activity, more fiscal stimulus than envisaged, including on public healthcare, would be useful to boost domestic demand, close the output gap, and provide insurance against downside risks to growth. In this context, consideration should be given to time-bound unemployment insurance. Attuning the fiscal rule to the business cycle rather than the political cycle and including all the government's investment income in the budget's revenue stream would help address medium-term fiscal needs. Infrastructure spending could be accelerated; means-tested, categorical income transfers to families could be further expanded; and more could be done to help dynamic, innovative businesses, especially credit constrained ones. Finally, Singapore's ongoing structural reforms, along with the restrictions on foreign worker inflows (which puts upward pressure on firms' wage/rental ratios) should contribute to higher investment over the medium term.
Current account	**Background**. The large CA surplus of 19 percent of GDP in 2016, up by about 1 percent of GDP from 2015, reflects a strong goods balance that is somewhat offset by deficits in the services and income account balances. 3/ The recent oil price decline caused the oil trade deficit to narrow to near balance from an average deficit of 5 percent of GDP over 2010–14. 4/ However, the gains from lower oil price have been largely offset by weakness in marine engineering exports (oil rigs) and deterioration in the services and income accounts. Structural factors and policies that boost savings such as the financial center status, a limited social safety net, high income inequality and the rapid pace of aging combined with a mandatory defined-contribution pension scheme (whose assets were about 70 percent of GDP in 2015) are the main drivers of Singapore's high saving rate and strong external position. 5/ Fiscal policy in recent years has been associated with increased social and infrastructure spending, the continuation of which should support a lower CA surplus over the medium term. **Assessment**. Singapore is a small, very open economy, with a large positive NIIP and very high per capita income, that is aging rapidly. Such non-standard factors make a quantitative assessment of its CA balance subject to a wide range of uncertainty. Guided by the EBA framework, staff assesses the 2016 CA balance as *substantially stronger* than the level consistent with fundamentals and desirable policies, by 2½ to 8½ percent of GDP. 6/	
Real exchange rate	**Background**. The average real effective exchange rate (REER) depreciated by 1 percent in 2016 with respect to 2015. This modest depreciation followed a secular, 29 percent appreciation in the REER between 2004 and 2013. As of May 2017, the REER weakened by 2.2 percent relative to its 2016 average. The nominal effective exchange rate (NEER) did not fluctuate much in 2016 (depreciating by about 0.9 percent relative to 2015) and has fluctuated in a narrow range since end 2016. **Assessment**. Notwithstanding the nonstandard factors that make a quantitative assessment difficult, staff assesses that the REER is around 5 to 17 percent weaker than warranted by fundamentals and desirable policies. This estimate is drawn from the CA assessment and a semi-elasticity of –½ of the CA balance with respect to the REER, consistent with Singapore's high level of openness. This assessment is subject to a wide range of uncertainty with regard to both the underlying CA assessment and the semi-elasticity of the CA balance with respect to the REER.	
Capital and financial accounts: flows and policy measures	**Background**. Singapore has a fully open capital account. The financial account deficit tends to rise during periods of lower uncertainty in global financial markets. It reflects in part reinvestment abroad of income from the foreign assets of the official sector. Financial flows also encompass sizable net inward FDI and smaller but more volatile net bank-related flows. 7/ In 2016, the deficit on the capital and financial account widened by about 2½ percentage points to 20 percent of GDP, the largest deficit in two decades, led by rising "other investment outflows". However, these were partially offset by a significant slowdown in portfolio investment outflows and largely stable direct investment inflows, with the latter increasing in the last two years. As a trade and financial center in Asia, negative sentiment in emerging and low-income countries in the region can affect Singapore significantly. **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 targets. Official reserves held by the Monetary Authority of Singapore (MAS) declined marginally in 2016, to US$ 246.6 billion (83 percent of GDP). Reserves peaked in 2013 and declined in 2014 and 2015, reflecting also valuation changes. As a financial center, prudential motives call for a large NIIP buffer, also in the form of reserves. Reserves were at US$264.6 billion in May 2017. **Assessment**. In addition to FX reserves held by the MAS, Singapore also has access to other official foreign assets managed by Temasek and the GIC. 8/ The current level of official external assets appear adequate, even taking into account prudential motives, and there is no clear case for further accumulation for precautionary purposes.	

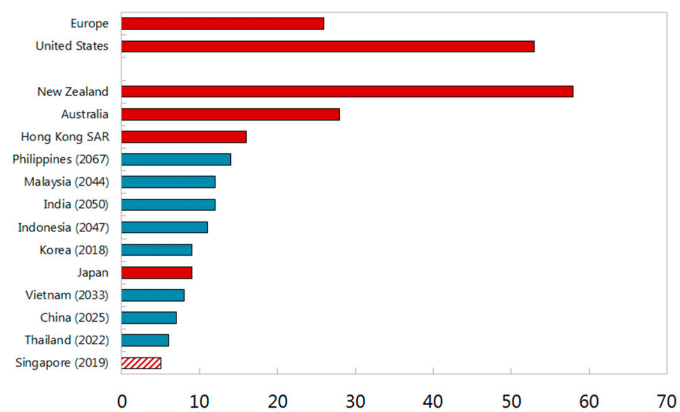
	Singapore (concluded)
Technical Background Notes	1/ Staff estimates in U.S. dollar terms. Valuation changes have been an important negative drag on the NIIP, suggesting CA measurement complexities typical of financial centers. 2/ Singapore's official reserves held by the Monetary Authority of Singapore (MAS) amounted to about 83 percent of GDP in 2016. 3/ Singapore has a negative income balance despite its large and positive NIIP position. This reflects the lower rate of return earned on its foreign assets relative to the return paid on its foreign liabilities. The lower return on foreign assets may reflect the fact that the composition of Singapore's assets is tilted toward safer assets which yield lower returns. 4/ Singapore is a net oil importer, with a net oil trade deficit of about 0.3 percent of GDP in 2016. The oil trade deficit would be smaller if one considers the high imported petroleum product content in Singapore's exports of petrochemicals and other oil intensive products and services like water transportation. In addition, Singapore has some sectors that are closely linked to investment in the oil sectors such as production of oil rigs. The decline in investment in the oil sector is expected to reduce Singapore's exports of these products, in particular if the oil price decline is sustained. 5/ Monetary policy has been eased in three steps since January 2015. The last monetary policy easing decision, announced in April 2016, involved lowering the trend appreciation of the NEER band from about 1 percent to zero percent per annum, and was motivated by the deceleration of core inflation. This easing appears to have had a limited positive effect on the CA balance. 6/ Nonstandard factors make quantitative assessment of Singapore's external position difficult and subject to significant uncertainty. Singapore is not included in the sample used to estimate the EBA models because it is an outlier along several dimensions (e.g., large external asset and liability positions, highly positive NFA position). Estimates from regression models that are guided by the EBA CA framework suggest that Singapore's CA surplus is mainly explained by the high level of productivity, fiscal surplus, status as a financial center, and its large NFA position. The model estimated CA gap is about 5½ percent of GDP (relative to a cyclically-adjusted level of the CA of about 18½ percent of GDP in 2016 and a norm of about 13percent of GDP). Identified policy gaps under the regression models are driven largely by the need for more fiscal spending to strengthen the social safety net. However, the estimated CA surplus norm could be overstated, in particular if the high NFA level is interpreted as a byproduct of past excessive surpluses. 7/ The latter is the result of considerably larger gross inflows and outflows. 8/ 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 70 percent of GDP.

Appendix II. Aging and Its Implications for Growth and External Balances[1]

1. Singapore is aging faster than other advanced economies. It took the US, Europe, Australia and New Zealand more than 25 years for their old-age dependency ratio to increase from 15 to 20 percent. The same transition is expected to take only about 5 years in Singapore. This is already affecting growth. Policy is also adapting to ongoing and prospective demographic change, including through higher healthcare and pension expenditure.

Number of Years for the Old Age Dependency Ratio to Increase from 15 to 20 Percent

(Ratio, population 65+ years/population 15–64 years)



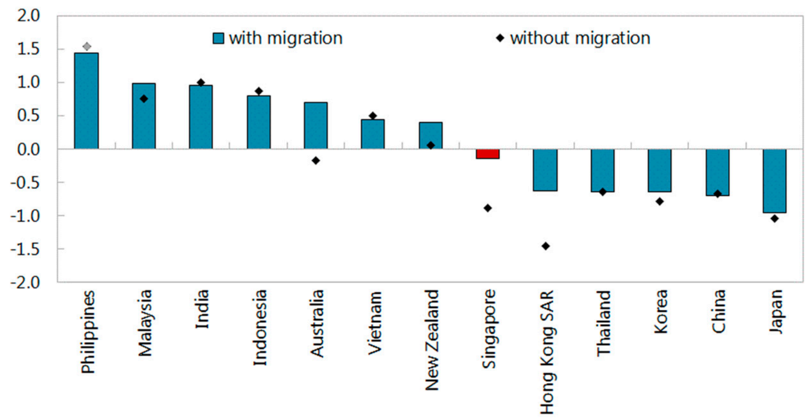
Sources: United Nations, Population Prospects, 2015; and IMF staff calculations.
Note: Historical data for countries are in red and projections for countries are in blue. Projections for 2016 onward based on the UN's medium fertility variant. The old age dependency ratio is defined as population 65+ years to population 15-64 years.

Growth

2. Demographic developments affect growth through various channels including the size of the labor force, productivity, and capital formation. The baseline impact (below) is based on various assumptions – unchanged total factor productivity (TFP) growth, unchanged age- and gender-specific labor force participation rates (LFPR) and employment rates; and constant capital-to-effective-labor ratio. Using these assumptions, we estimate long-term output using a production function approach with capital and labor as inputs. Finally, the estimates below compare output based on the UN medium-fertility scenario (which includes migration) to a hypothetical status-quo scenario that assumes constant population size and age structure. Separately, we also look at the United Nation (UN) zero-migration scenario to assess the impact of migration.

[1] Prepared by Umang Rawat (APD).

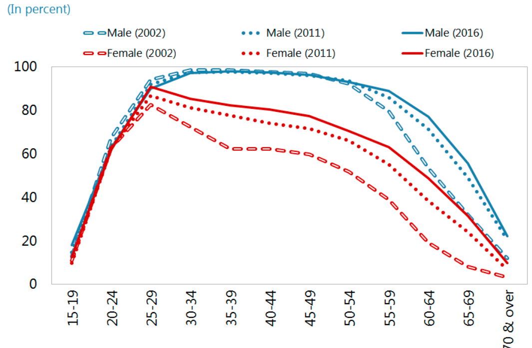
Singapore: Growth Impact of Demographic Trends
(Percentage point impact on real GDP growth; average over 2020-2050)



Sources: IMF staff estimates based on UN Population Prospects: 2015 Revision (Medium-fertility variant scenario), Penn World Tables 9.0, and IMF (2016).
Note: Migration projections follow historical trends. The growth impact estimates are based on the assumptions of unchanged labor force participation by age-gender cohort, constant capital-to-labor ratio, and TFP growth unchanged from historical average.

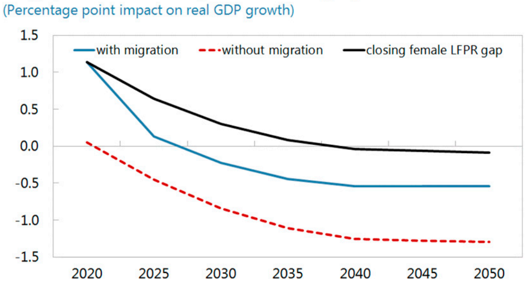
3. Demographics is likely to be a headwind for mature economies in the region. Furthermore, migration can go a long way to mitigate the negative impact of falling labor force, with the effect most prominent in Hong Kong SAR, Singapore, Australia, and New Zealand.

Singapore: Resident Labor Force Participation Rate by Gender & Age
(In percent)



Source: Comprehensive Labor Force Survey, Ministry of Manpower.

Singapore: Growth Impact of Demographics
(Percentage point impact on real GDP growth)



Sources: IMF staff estimates based on UN Population Prospects: 2015 Revision (Medium-fertility variant scenario), Penn World Tables 9.0, and IMF (2016).
Note: Migration projections follow historical trends. The growth impact estimates are based on the assumptions of unchanged labor force participation by age-gender cohort, constant capital-to-labor ratio, and TFP growth unchanged from historical average.

4. In Singapore, closing the gender-gap in LFPR could effectively cancel out the negative effect of the shrinking labor force over 2020–50.

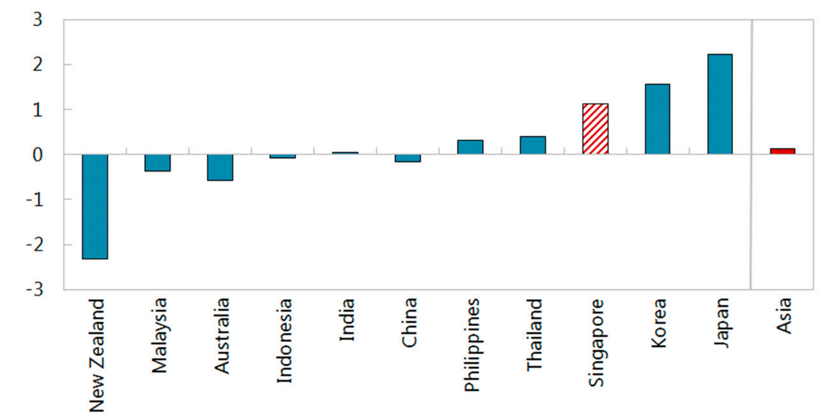
External Sector

5. The impact of demographics on saving, investment and the external balance is examined using the EBA model. The impact is captured using three variables – population growth, old-age dependency ratio, and aging speed (defined as the expected change in old-age dependency in 20 years). Both higher population growth (a proxy for youth dependency) and higher old-age dependency lead to lower savings. In contrast, higher aging speed implies a higher probability of survival and therefore a greater need for life-cycle savings. Therefore, the negative impact of old-

age dependency on savings is attenuated by rising aging speed. Overall, empirical estimates based on the IMF's External Balance Assessment (EBA) model suggest that higher old-age dependency is positively associated with the current account balance when aging speed is higher than the world average.

6. In 2020–30, other things equal, demographic trends are likely to exert upward pressure on current account balances in surplus countries, experiencing the fastest speed of aging. The current account is projected to improve on account of demographics until 2030, and gradually deteriorate after that. However, it should be noted that these results are based on a partial equilibrium analysis, which takes the values of other macroeconomic variables in the EBA model as fixed– for instance, the future expected growth rate, the level of relative productivity, relative output gap, and relative fiscal balance. The overall impact of demographics would depend on how aging interacts with these variables.

Singapore: Demographic Impact on Current Account Balance Norm
(Change from 2020 to 2030; in percent of GDP)

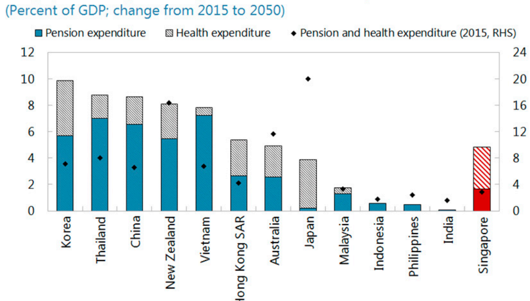


Sources: IMF staff estimates based on UN Population Prospects: 2015 Revision (Medium-fertility variant scenario), Penn World Tables 9.0, and IMF (2016).
Note: Migration projections follow historical trends. The growth impact estimates are based on the assumptions of unchanged labor force participation by age-gender cohort, constant capital-to-labor ratio, and TFP growth unchanged from historical average.

Fiscal Considerations

7. Health and pension expenditures are likely to rise in fast aging countries. The projected increase in age related spending depends on each country's position in the demographic transition and the specific characteristics of its pension and healthcare system. Given Singapore has a defined contribution pension system, the fiscal burden due to pension is expected to be much less than other ageing economies in the region. Age related healthcare spending in expected to increase more

Singapore: Projected Age-Related Public Expenditure Increases
(Percent of GDP; change from 2015 to 2050)



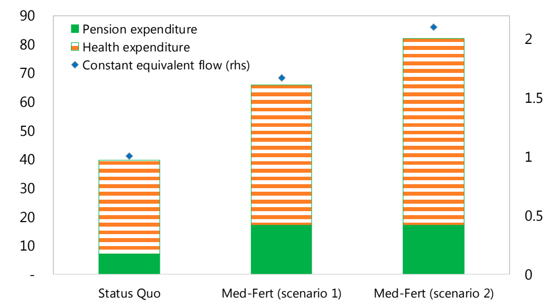
Source: IMF staff calculations.
Note: Based on UN Population Prospects: 2015 Revision (Medium-fertility scenario); and Amaglobeli and Shi (2016).

dramatically. This is based on public health spending increasing from 2 percent of GDP in 2015 to about 7 percent of GDP in 2050.

- Recurrent spending tied to aging could represent an additional cost of 66 percent of GDP over the next 35 years, or about 1¾ percent of GDP in constant equivalent flow per year. Status quo denotes a scenario where population size and age structure remains constant between 2015–2050. Scenario 1 shows age related spending under medium fertility UN scenario with public health spending projected to increase from 2 percent of GDP in 2015 to about 7 percent of GDP in 2050. Scenario 2 uses UN medium fertility assumptions however assumes a more rapid increase in public health expenditure - increasing to 7 percent of GDP in 2035 and 10½ percent of GDP by 2050.

Singapore: Present Value of Age-Related Spending

(In percent of 2015 GDP)



Source: IMF staff estimates.
Note: Based on UN Population Prospects: 2015 Revision (Medium-fertility scenario); and Amaglobeli and Shi (2016).

8. Therefore, aging is likely to have significant impact on fiscal outlays, which will also put a downward pressure on Singapore's current account balances.

Appendix III. Risk Assessment Matrix 1/

	Sources of Risk	Likelihood and Transmission	Expected Impact of Risk	Recommended Policy Response
External	**Policy uncertainty and divergence**	**High** Two-sided risks to U.S. growth with difficult-to-predict policies and global spillovers. In Europe, uncertainty associated with negotiating post-Brexit arrangements and with upcoming major elections. Singapore's high trade openness and position as a financial center would imply large spillovers. Diverging economic policies between the US and other major economies could cause sharp exchange rate movements.	**High**	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, loosen monetary policy, including recentering the NEER band if the shock is large, and recalibrate macro-prudential policy as necessary, while maintaining financial stability.
External	**Retreat from cross-border integration.**	**High** A fraying consensus about the benefits of globalization could lead to protectionism and economic isolationism, leading to reduced global and regional policy collaboration with negative consequences for trade, capital and labor flows, sentiment, and growth.	**High**	Continue to advocate for multilateralism, trade openness, and free flow of capital. Redouble efforts to accelerate ASEAN economic and financial integration.
External	**Weaker-than-expected global growth**	**Significant China slowdown and its spillovers: Low (short term)/Medium (medium term)** **Structurally weak growth in key AEs and EMs: High (for AEs) /Medium (for EMs)** *Direct and intraregional trade linkages.* A significant slowdown in China would have both direct and indirect effects on Singapore's exports, on the back of increasing direct trade links between China and the region. China is also the second largest source of tourists for Singapore. Domestic demand would also be hit through worsening investment sentiment. Singapore's high degree of openness and position as a financial center and a trading hub would imply large spillovers from advanced or emerging economies' lower growth. High household leverage and potential asset price corrections could exacerbate a slowdown in economic activity, with potential spillovers to banks. *Financial linkages*. Although most of the domestic banks' lending to China is assessed to be high quality, total exposures remain high. Widespread corporate defaults could lead to rising NPLs. More broadly, given Singapore's role as a financial center, financial stress in China could lead to a decline in investor sentiment, pullback of funding and market volatility. Potential inward spillovers from banks in advanced markets with significant presence in Singapore's domestic market.	**Medium to High**	Provide temporary and targeted fiscal support and loosen monetary policy to offset headwinds from a potential slowdown. Continue to monitor banks' exposures to China and the rest of the region. Use prudential policies and bank supervision to ensure risks are managed well. Continue to ensure that stress tests are up to date in an evolving environment with changing risks. Should growth weaken substantially, use temporary and targeted fiscal stimulus, loosen monetary policy. Including recentering of the NEER band, and recalibrate macro-prudential as necessary while maintaining financial stability.
External	**Tighter or more volatile global financial conditions**	**Significant further strengthening of the US dollar and/or higher rates: High** **European bank distress: Medium** *Corrections in asset prices* could affect growth prospects through wealth effects and deteriorate banks' capital, especially in light of the elevated levels of household and corporate debt and prevalence of variable interest rates. *A decline in financial sector activity*—an important driver of the economy and very sensitive to the global risk sentiment—could slow growth.	**Medium**	Ensure financial institutions maintain prudent risk management practices and have adequate liquidity and capital buffers. Continue to ensure that stress tests are up to date in an evolving environment with changing risks. Maintain close links with home country supervisors. Recalibrate macro-prudential policies to mitigate financial sector stress. In an extreme event, the strong official reserve position could provide an additional cushion. Swap lines with other central banks could complement this.
External	**Lower energy prices**	**Low** Singapore's marine engineering sector manufactures and exports equipment and services for offshore exploration and production to oil companies worldwide. Banks also lend to the oil sector. The negative impact is mitigated by the downstream operations that face lower costs of inputs.	**Medium to Low**	Continue to monitor banks' exposures to the affected sectors. Ensure stress tests of corporate and bank balance sheets are up to date. Provide temporary and targeted fiscal support to businesses in the oil and gas services sector.
Domestic	**Disorderly or excessive correction in property prices**	**Medium to Low** *Decline in collateral values and wealth effects* could trigger a fall in economic activity and bank lending with further adverse feedback effects on household indebtedness and property prices	**Medium**	Adjust macro-prudential policies while safeguarding financial stability. Use targeted assistance measures to households whose debt servicing capacity is adversely affected.
Domestic	**Low growth in productivity and investment**	**Medium** *Sharp increase in unit labor costs and loss of competitiveness.* Tighter immigration policy may reduce competitiveness and profitability and provide disincentives to invest in some sectors. *Higher than expected transitional costs* such as high frictional unemployment or higher than expected hallowing out in some sectors can have long-term effects on growth.	**Medium**	Adjust foreign worker policies to relax tightness in labor markets. Provide targeted and temporary fiscal stimulus in areas of education and skills training to help reduce frictional unemployment.
Domestic	**Delays in the implementation of AML standards and associated reputational risks**	**Medium** *Reputational risks.* If risks related to opaque ownership structures, including in the wealth management sector, are not adequately addressed, changes in perceptions about Singapore's good reputation could adversely affects the viability of the industry.	**Medium**	Continue to strengthen the AML/CFT regime in line with international standards, including with regard to entity transparency and international exchange of information.

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 the mission). The relative likelihood is the mission'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). The RAM reflects the mission's views on the source of risks and overall level of concern as of the time of discussions with the authorities. Nonmutually exclusive risks may interact and materialize jointly.

Appendix IV. Public Debt Sustainability Analysis

1. **Background**. The debt sustainability analysis (DSA) framework for market access countries is used to assess Singapore's debt sustainability and other risks related to its funding and debt structure. To put Singapore's DSA in context, it should be noted that the government does not borrow to fund its budget. It has substantial net financial assets and therefore net public debt is negative. Fiscal operations are guided by a conservative fiscal rule according to which the government has to run a balanced budget over its term in office. The government is running fiscal surpluses in part because it earns substantial investment income on its financial assets which is not fully on budget.

2. **Macro-fiscal assumptions**. Growth is projected at 2.3 percent in 2017, rising to 2.5 percent in 2018 and 2.6 percent in the medium term. In staff's baseline projections, the central government surplus decreases from 2.2 percent of GDP in 2016 to 1.1 percent of GDP in 2022. The projected fiscal path is consistent with the authorities' targets and is supported by policy reforms announced in recent budgets.

3. **Data coverage**. Consistent with the data on government debt reported by the authorities, the fiscal assumptions in this DSA are based on the general government debt.

4. **Choice of framework.** Singapore's high level of government assets calls for using the basic framework.

5. **Debt is projected to fall.** Under the baseline, the debt-to-GDP ratio is projected to decrease gradually to 108 percent by 2022. Gross financing needs (GFN) are expected to remain at about 11 percent of GDP per annum in the medium term.

6. **A high level of financial assets mitigates the risks associated with public debt.** The gross government debt is high at about 113 percent of GDP at the end of 2016. However, the government of Singapore does not borrow to fund its budget and it has no external debt. Under the Protection of Reserves Framework in Singapore's Constitution and the Government Securities Act, the government cannot spend the funds raised from the debt securities it issues. The main types of debt securities issued by the government are Singapore Government Securities (SGS) and Special Singapore Government Securities (SSGS):

- SGS bonds and treasury bills are tradable debt instruments issued for the purpose of developing Singapore's debt markets.
- SSGS are non-tradable bonds issued primarily to the Central Provident Fund (CPF) Board, Singapore's national pension fund. At the end of 2015, the CPF's holdings of SSGS amounted to about 71 percent of GDP.

The government invests all borrowing proceeds, including through the sovereign wealth fund, GIC Pte Ltd. Most of the investments are held abroad. The investment returns exceed the debt servicing costs. Although GIC does not report assets, Temasek had assets of about 60 percent of GDP at end-March 2016. The latest budget document indicates that the government's gross financial assets amounted to about 234 percent of GDP at end-March 2016.

Singapore: Public Sector Debt Sustainability Analysis (DSA) – Baseline Scenario

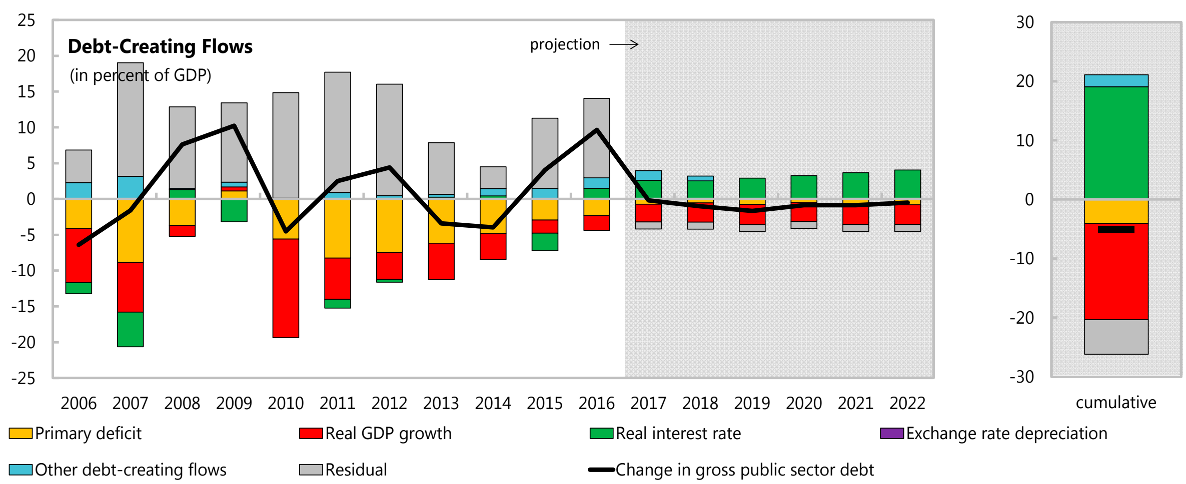
Debt, Economic and Market Indicators [1/]

	Actual			Projections					
	2006-2014 [2/]	2015	2016	2017	2018	2019	2020	2021	2022
Nominal gross public debt	98.1	103.2	112.9	112.7	111.7	110.0	109.1	108.3	107.8
Public gross financing needs	-6.3	-3.7	-3.3	6.6	11.0	10.8	11.2	11.0	11.0
Real GDP growth (in percent)	5.9	1.9	2.0	2.3	2.5	2.6	2.6	2.6	2.6
Inflation (GDP deflator, in percent)	1.2	2.5	-1.4	0.7	1.0	1.0	1.0	1.0	1.0
Nominal GDP growth (in percent)	7.1	4.5	0.5	2.9	3.5	3.7	3.6	3.7	3.7
Effective interest rate (in percent) [4/]	0.0	0.0	0.0	3.1	3.4	3.8	4.1	4.5	4.9

As of May 15, 2017		
Sovereign Spreads		
EMBIG (bp) 3/		-25
5Y CDS (bp)		N/A
Ratings	Foreign	Local
Moody's	Aaa	Aaa
S&Ps	AAA	AAA
Fitch	AAA	AAA

Contribution to Changes in Public Debt

	Actual			Projections							
	2006-2014	2015	2016	2017	2018	2019	2020	2021	2022	cumulative	debt-stabilizing primary balance [9/]
Change in gross public sector debt	0.5	4.1	9.7	-0.2	-1.0	-1.7	-0.9	-0.9	-0.5	-5.1	
Identified debt-creating flows	-10.6	-5.7	-1.4	0.8	0.0	-0.7	0.1	0.1	0.5	0.8	
Primary deficit	-5.3	-2.9	-2.3	-0.7	-0.5	-0.8	-0.5	-0.8	-0.8	-4.1	1.3
Primary (noninterest) revenue and grants	20.9	21.2	21.3	20.0	20.3	20.5	20.7	20.9	21.1	123.5	
Primary (noninterest) expenditure	15.6	18.3	19.0	19.3	19.8	19.7	20.2	20.1	20.3	119.4	
Automatic debt dynamics [5/]	-6.3	-4.3	-0.5	0.1	-0.2	0.1	0.6	0.9	1.3	2.8	
Interest rate/growth differential [6/]	-6.3	-4.3	-0.5	0.1	-0.2	0.1	0.6	0.9	1.3	2.8	
Of which: real interest rate	-1.0	-2.5	1.5	2.6	2.5	2.9	3.3	3.7	4.1	19.1	
Of which: real GDP growth	-5.3	-1.8	-2.0	-2.5	-2.7	-2.8	-2.7	-2.8	-2.8	-16.3	
Exchange rate depreciation [7/]	0.0	0.0	0.0	...	...	...	...	...	...	...	
Other identified debt-creating flows	1.0	1.5	1.5	1.3	0.7	0.0	0.0	0.0	0.0	2.0	
Net privatization proceeds (negative)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Contingent liabilities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Other change in financial assets	1.0	1.5	1.5	1.3	0.7	0.0	0.0	0.0	0.0	2.0	
Residual, including asset changes [8/]	11.1	9.8	11.1	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-5.9	



Source: IMF staff.

1/ Public sector is defined as central government.

2/ Based on available data.

3/ Long-term bond spread over U.S. bonds.

4/ Defined as interest payments divided by debt stock (excluding guarantees) at the end of previous year.

5/ Derived as [(r - π(1+g) - g + ae(1+r)]/(1+g+π+gπ)) times previous period debt ratio, with r = interest rate; π = growth rate of GDP deflator; g = real GDP growth rate; a = share of foreign-currency denominated debt; and e = nominal exchange rate depreciation (measured by increase in local currency value of U.S. dollar).

6/ The real interest rate contribution is derived from the numerator in footnote 5 as r - π (1+g) and the real growth contribution as -g.

7/ The exchange rate contribution is derived from the numerator in footnote 5 as ae(1+r).

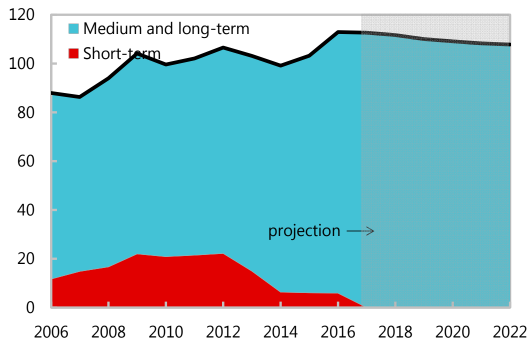
8/ Includes asset changes and interest revenues (if any). For projections, includes exchange rate changes during the projection period.

9/ Assumes that key variables (real GDP growth, real interest rate, and other identified debt-creating flows) remain at the level of the last projection year.

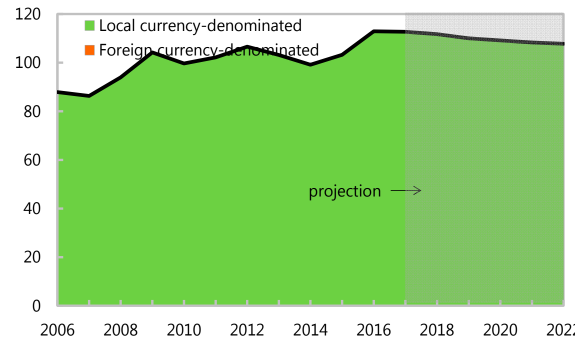
Singapore: Public DSA – Composition of Public Debt and Alternative Scenarios

Composition of Public Debt

By Maturity
(in percent of GDP)



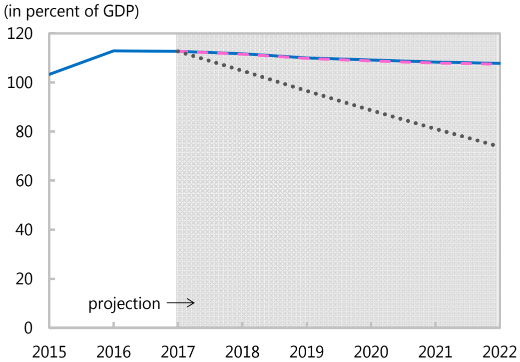
By Currency
(in percent of GDP)



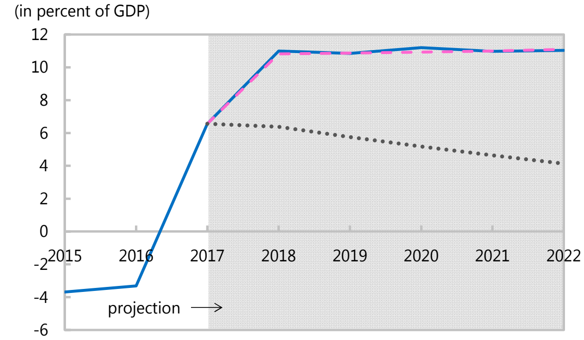
Alternative Scenarios

Baseline Historical Constant Primary Balance

Gross Nominal Public Debt
(in percent of GDP)



Public Gross Financing Needs
(in percent of GDP)



Underlying Assumptions
(in percent)

Baseline Scenario	2017	2018	2019	2020	2021	2022
Real GDP growth	2.3	2.5	2.6	2.6	2.6	2.6
Inflation	0.7	1.0	1.0	1.0	1.0	1.0
Primary Balance	0.7	0.5	0.8	0.5	0.8	0.8
Effective interest rate	3.1	3.4	3.8	4.1	4.5	4.9
Constant Primary Balance Scenario						
Real GDP growth	2.3	2.5	2.6	2.6	2.6	2.6
Inflation	0.7	1.0	1.0	1.0	1.0	1.0
Primary Balance	0.7	0.7	0.7	0.7	0.7	0.7
Effective interest rate	3.1	3.4	3.8	4.1	4.5	4.9

Historical Scenario	2017	2018	2019	2020	2021	2022
Real GDP growth	2.3	4.8	4.8	4.8	4.8	4.8
Inflation	0.7	1.0	1.0	1.0	1.0	1.0
Primary Balance	0.7	4.9	4.9	4.9	4.9	4.9
Effective interest rate	3.1	3.4	3.5	3.6	3.8	4.0

Source: IMF staff.

INTERNATIONAL MONETARY FUND

SINGAPORE

June 26, 2017

STAFF REPORT FOR THE 2017 ARTICLE IV CONSULTATION—INFORMATIONAL ANNEX

Prepared By	Asia and Pacific Department

CONTENTS

FUND RELATIONS

(As of May 31, 2017)

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)	3,313.96	85.15
Reserve tranche position	577.99	14.85
Lending to the Fund:		
New Arrangements to Borrow	110.49	

SDR Department

	SDR Millions	Percent of Allocation
Net cumulative allocation	744.21	100.00
Holdings	745.47	100.17

Outstanding Purchases and Loans: None.

Financial Arrangements: None.

Projected Payments to the Fund: None.

Exchange Arrangement

Singapore's de facto exchange rate arrangement is classified as "stabilized." The de jure exchange rate arrangement is "other managed." The Monetary Authority of Singapore (MAS) monitors its value 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 of Article VIII, Sections 2, 3, and 4 and maintains an exchange rate system free of 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. In a bid to contain a real estate price bubble, Singapore imposed additional stamp duties on purchases by foreigners and corporate entities of residential properties in Singapore.

Article IV Consultation

Singapore is on the 12-month consultation cycle. The 2016 Article IV consultation discussions were held during April 28–May 10, 2016 in Singapore and the Executive Board concluded the consultation on July 25, 2016 (IMF Country Report No. 16/263).

FSAP Participation

The FSAP Update involved two missions: May 15–22, 2013 and July 25–August 7, 2013. The findings were presented in the Financial System Sustainability Assessment (IMF Country Report No. 13/325).

Technical Assistance: None.

Resident Representative: Mr. Geoffrey Heenan has been posted in Singapore since January 2014.

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, dissemination of more disaggregated data would enhance the basis for macroeconomic policy analysis, particularly in the external, monetary and fiscal areas.	
National accounts: The Singapore Department of Statistics (DOS) has made improvements in data sources and methodology. The reconciliation of various national accounts estimates was conducted in 2014, resulting in lower statistical discrepancies. DOS has completed the rebasing of Singapore's national accounts to reference year 2010. **Price statistics**: DOS has completed the rebasing of the Consumer Price Index (CPI) to base year 2014. The CPI is rebased once every five years to reflect the latest consumption pattern and composition of goods and services consumed by resident households.	
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 has not submitted the standardized report forms (SRFs) for monetary statistics introduced in October 2004. The SRFs provide for accounting data to be broken down by instrument, sector, and currency.	
Balance of payments: In February 2012, the DOS concluded the migration of the balance of payments accounts to the 6th edition of the *Balance of Payments and International Investment Position Manual (BPM6*). The main changes relative to the 5th edition include: reclassification of repairs on goods and processing fees to services (from goods); reclassification of merchanting to goods (from services); and treating banks' Asian Currency Units (ACUs) as residents (previously they were regarded as nonresidents, and hence their transactions were excluded from the balance of payments). Data on Singapore's international investment position (IIP) is not provided on a disaggregated sectoral basis as suggested by the BPM6. The authorities have completed revising the IIP data to include all foreign assets held by Singapore's Government Investment Corporation. The associated flows were already included in the balance of payments data.	
II. Data Standards and Quality	
Singapore provides data on a timely basis and meets all the SDDS specifications. These include the coverage, periodicity, and timeliness of the data; and the dissemination of advance release calendars; quarterly certification of the metadata posted on the Fund's Dissemination Standards Bulletin Board; and provision of information to allow users to assess data quality.	No data ROSC is available.

Singapore—Table of Common Indicators Required for Surveillance (As of June 12, 2017)					
	Date of Latest Observation	Date Received	Frequency of Data[1]	Frequency of Reporting[1]	Frequency of Publication[1]
Exchange rates	6/12/17	6/12/17	D	D	D
International reserve assets and reserve liabilities of the Monetary Authorities[2]	5/2017	6/2017	M	M	M
Reserve/base money	4/2017	5/2017	M	M	M
Broad money	4/2017	5/2017	M	M	M
Central bank balance sheet	4/2017	5/2017	M	M	M
Consolidated balance sheet of the banking system	4/2017	5/2017	M	M	M
Interest rates[3]	6/12/17	6/12/17	D	D	D
Consumer price index	4/2017	5/2017	M	M	M
Revenue, expenditure, balance and composition of financing[4]—general government[5]	3/2016	9/2016	A	A	A
Revenue, expenditure, balance and composition of financing[4]—central government	4/2017	5/2017	M	M	M
Stocks of central government and central government-guaranteed debt[6]	2017:Q1	5/2017	Q	Q	Q
External current account balance	2017:Q1	5/2017	Q	Q	Q
Exports and imports of goods and services	4/2017	5/2017	M	M	M
GDP/GNP	2017:Q1	5/2017	Q	Q	Q
Gross external debt[7]	2016:Q4	3/2017	Q	Q	Q
Net international investment position	2016:Q4	3/2017	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, domestic bank, 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.