AMRO Annual Consultation Report

Singapore - 2016

The ASEAN+3 Macroeconomic Research Office (AMRO)

January 2017

Acknowledgements

1. This Annual Consultation Report on Singapore has been prepared in accordance with the functions of AMRO to monitor, assess and report to its member macroeconomic status and financial soundness and to identify the relevant risks and vulnerabilities, and assist them in the timely formulation of policy recommendation to mitigate such risks (Article 3(a) and (b) of AMRO Agreement).

2. This Report is drafted on the basis of the Annual Consultation Visit of AMRO to Singapore from 8 September to 20 September 2016 (Article 5 (b) of AMRO Agreement). The AMRO Mission team was headed by Dr Sumio Ishikawa, AMRO's Group Head and Lead Economist. The team also included Simon Liu Xinyi (Singapore desk economist), Anthony Tan (Senior Economist), Enrico Tanuwidjaja (Financial Specialist) and Edmond Choo (Research Assistant). AMRO Director Dr Junhong Chang and Chief Economist Dr Hoe Ee Khor also participated in key policy meetings with the authorities. This AMRO Annual Consultation Report on Singapore for 2016 was approved by Dr Khor Hoe Ee, AMRO Chief Economist.

3. The analysis in this Report is based on information available up to 31 December 2016.

4. By making any designation of or reference to a particular territory or geographical area, or by using the term "member" or "country" in this Report, AMRO does not intend to make any judgements as to the legal or other status of any territory or area.

5. No part of this material may be disclosed unless so approved under the AMRO Agreement.

6. On behalf of AMRO, the Mission team wishes to thank the Singapore authorities for their comments on this Report, as well as their excellent meeting arrangements and hospitality during our visit.

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Executive Summary

In the March 2016 Country Surveillance Report*, AMRO staff highlighted that Singapore's economic growth had been supported by the buoyant services sector, inflation remained low, and risks for the financial sector could arise from negative spillovers from regional capital outflows.* ***Since the March Report,*** *economic growth has weakened somewhat on account of persistent weak external demand and its spillover on domestic demand. The marine and offshore engineering industry in particular, continued to be in distress. International trade generally remains weak, although the current account surplus has increased with the fall in domestic demand as well as an improvement in the terms of trade. Monetary policy has been accommodative with the exchange rate depreciating in real terms, but the policy space has become narrower. On the other hand, Singapore has fiscal space and the authorities have increased fiscal spending to support domestic activity and economic restructuring. While the financial system remains sound, there are signs of deterioration in asset quality. Although corporates continue to deleverage, leverage remains high and sensitive to interest rate hikes. Property market prices continue to adjust gradually even as supply has already come on stream. While the likelihood of financial distress is limited, downside risks could arise if interest rates increase sharply and the economy remain weak.*

1. **Despite the surprisingly strong estimate of GDP growth in Q4 2016, the economy will continue to be faced with strong headwinds from external conditions and weaknesses in the domestic sector.** Sluggish external demand and ongoing regional supply chain adjustments would weigh on Singapore's economy, despite recent resurgence of electronics production. The lackluster external environment has also impacted services sectors, such as corporate banking. At the same time, businesses and households have become more cautious and the property sector is undergoing correction. Employment has been impacted more strongly than before, with retrenchments increasing in recent quarters. That said, near-term growth will be supported somewhat by bio-medical, tourism, ICT, health and education sectors.

2. **Inflation is subdued and the monetary policy stance was kept unchanged in October 2016,** following an easing move in April when the rate of appreciation of the SGD NEER policy band was set at zero percent. Upside pressure on core inflation is limited due to weak demand, although some recovery may be expected in the coming quarters from the pass-through of earlier monetary easing.

3. **An expansionary fiscal policy has been maintained to support the weak economy.** Fiscal spending is expected to increase considerably in FY 2016, especially in infrastructure and healthcare. In addition, Budget 2016 provided incentives for businesses to increase productivity and policies were introduced to build an inclusive society.

4. **Household debt and corporate debt have stabilized, but some segments of the corporate bond market have come under stress.** The household debt level has stabilized, due to the effects of macro-prudential measures. The corporate debt level is declining, but remains elevated, and some companies have come under stress, especially in the oil and gas sector, which saw an increasing number of defaults and other credit events.

Risks and Vulnerabilities

5. **The risks to growth will likely stem from external headwinds.** In the near term, weak global trade and subdued CAPEX growth could reinforce each other and provide downside risks to Singapore's growth outlook. In the longer run, emerging trade protectionism and inward looking policies in some economies could also pose downside risks.

6. **While the financial system is sound, there are signs of deterioration in credit quality.** Although the NPL ratios of banks are still low, they have been edging up persistently

over the past few quarters and there has been stress in some sectors, such as marine and offshore engineering. In addition, disruptions in some segments of the corporate bond market may reduce investor confidence.

7. Property market prices continue to adjust gradually even as supply has already come on stream. While the likelihood of financial distress is limited, downside risks could arise if interest rates increase sharply and the economy remain weak. There is a large supply in the pipeline of both residential and commercial properties, which is likely to put further downward pressure on prices in the next few years. However, there has been some recovery in the sales of residential properties with the decline in house prices, and demand has recently increased in the core central region reflecting the still low interest rate environment. Nevertheless, with prospect of a weak economy and looming supply in the pipeline, the risk of financial distress in the property market would need to be closely monitored particularly if interest rates were to rise substantially.

Policy Discussion

8. Given the weak outlook for the global economy and trade, the authorities in Singapore have provided strong policy support to help the economy restructure, including the setting up of the Committee on the Future Economy (CFE) in January 2016 and the policies announced in Budget 2016. The CFE has been set up to look into strategies to build a vibrant and resilient economy over the long term, and fiscal policy is set to play an active role in the decade-long push for higher productivity. Singapore will also continue to develop high value-added industries to offset any weakness in external trade.

9. An expansionary fiscal policy should be maintained to support growth while providing incentives for business upgrading and policies to build an inclusive society. Singapore has space for further fiscal expansion. While challenges remain in terms of productivity enhancement, efforts to formulate and implement effective measures should be continued in order to improve the quality of goods and services.

10. The authorities should remain vigilant about any spillover risks to the domestic financial sector. The pockets of corporate defaults, while isolated and contained, would need to be resolved in an efficient and orderly manner that does not undermine broader market confidence.

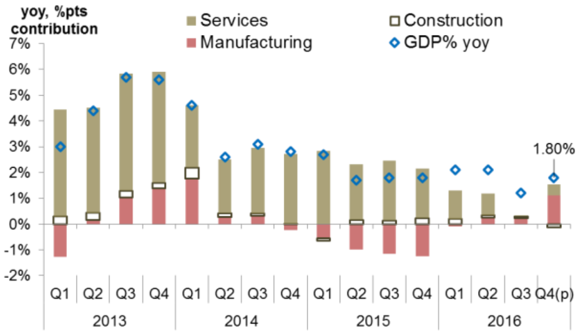
11. The authorities should continue to be vigilant about developments in the property market at this late stage in the cycle and as interest rates increase. In particular, the authorities should continue to monitor closely developments in the sector including assessing the role of the macro-prudential measures, to ensure stable and sustainable conditions in the market.

A. Recent Developments and Outlook

A.1 Macroeconomic Developments and Outlook

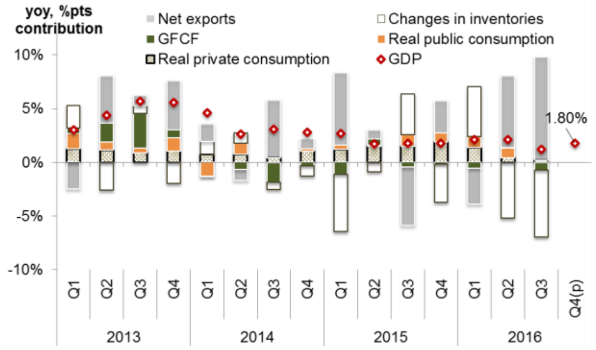
1. **Despite the unexpectedly strong estimate of GDP growth in Q4 2016, the economy will continue to be faced with strong external headwinds and weakness in the domestic services sector (Figure 1).** With the weak external demand, the economy grew modestly by 1.9 percent in H1 2016 and growth weakened further in Q3, despite the unexpectedly strong estimate of GDP growth in Q4 2016 due to stronger electronics and biomedical sectors. In particular, the marine and offshore engineering industry is undergoing a major correction due to the collapse in global oil prices. The weakness in the external demand has also gradually reduced the demand for services, such as corporate banking, and more recently domestic demand. Both private consumption and gross fixed capital formation were weak in Q4 2016 (Figure 2) but, on a more positive note, public consumption lent support to growth.

Figure 1. Singapore GDP, Supply Side



Source: Ministry of Trade and Industry (MTI) and Department of Statistics (DOS)

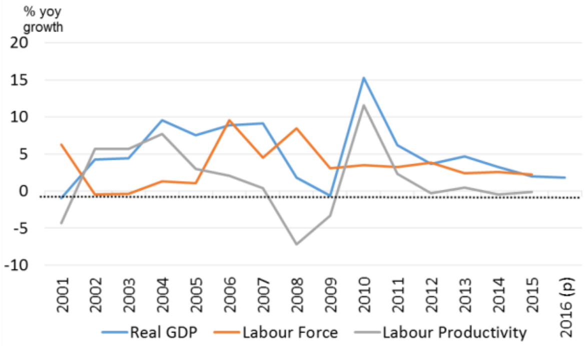
Figure 2.Singapore GDP, Expenditure Side



Source: MTI and CEIC

2. **Singapore is restructuring its economy with strong policy support to address structural challenges and enhance productivity, in view of a slowing labor force growth.** Unfortunately, external headwinds have coincided with domestic structural challenges. While labor force growth has continued to slow down due to the tighter foreign labour policy, productivity growth has also been low in the past few years (Figure 3), especially in the domestic-oriented sectors, such as construction. As a result, Singapore is restructuring its economy and is looking for new growth drivers and there have been persistent efforts by the Singapore authorities to enhance

Figure 3. Real GDP, Labour Force and Labour Productivity Growth



Source: Department of Statistics (DOS)

productivity, encourage innovation, and create new value. It is important that these restructuring efforts continue despite short-term volatility in economic growth.

3. Growth is expected to be modest at 1.0 to 1.5 percent in 2016 and 1.0 to 3.0 percent in 2017 [1] , supported by some promising sectors, especially bio-medical, tourism, information and communication technology (ICT), healthcare and education. In the coming quarters, the external headwinds are unlikely to dissipate much and domestic restructuring will require more time to bear fruit. The economy is expected to grow at a modest pace and be supported by sectors that are resilient to the global CAPEX cycle, such as bio-medical, tourism, ICT, healthcare and education. Given that the overall share of these sectors is still relatively small in Singapore, compared to other developed economies at a similar income level, there should be significant room to catch-up.

4. The Committee on the Future Economy (CFE) was set up in January 2016 to look into economic strategies to build a vibrant and resilient economy. Recognizing the need to re-position Singapore in the new global environment, a 30-member committee, including government officials and private sector leaders from both large and small companies, was formed in January 2016 to develop economic strategies for Singapore's future[2]. Currently, the CFE is tasked with charting the blueprint of Singapore's economic future, and is chaired by Minister for Finance Mr Heng Swee Keat and co-chaired by Minister for Trade and Industry (Industry) Mr S Iswaran. The CFE has five sub-committees looking at the following key areas: (1) Future Corporate Capabilities and Innovation, (2) Future Growth Industries and Markets, (3) Future of Connectivity, (4) Future City and (5) Future Jobs and Skills. The CFE has been consulting with trade associations, commercial chambers and trade unions, and the report is targeted for completion in early 2017.

5. Looking at the five key areas, the general direction is for Singapore to tap its strengths, while overcoming geographical and resource constraints. Its strength includes a stable political system and sound legal system, a world class workforce and its position as a growing hub for data and market connectivity, with a technology-savvy workforce, Singapore aims rightly to reposition herself to find new areas of growth via the new CFE strategies and its key focus areas. However, as this process takes time to bear fruit, and given the current challenging global environment, growth may continue to be tepid over the next few years. Productivity improvement is a key component of this growth strategy and early efforts

1 The analysis in this Report is based on information available up to 31 December 2016. Lately, 2.0 percent for 2016 growth figure was first published on 17 Feb 2017, in MTI's Economic Survey of Singapore 2016, and 1.0 to 3.0 percent growth forecast is maintained for 2017, also published on 17 Feb 2017.

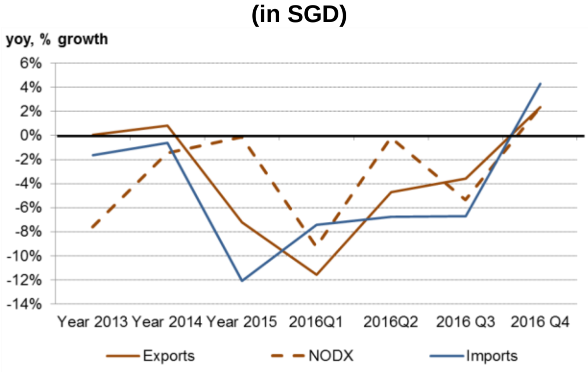
2 To review Singapore's economic policies and strategies is not new. In 2001, the then Prime Minister (PM) Goh Chok Tong created the Economic Review Committee, chaired by Mr Lee Hsien Loong, who was the Deputy PM at that time. About eight years later in 2009, PM Lee himself commissioned the Economic Strategies Committee, led by then Finance Minister Mr. Tharman Shanmugaratnam to brainstorm new and creative ways to ensure the economy's long-term growth.

to grow the FinTech sector, as well as to brand Singapore as a 'smart' nation have started to show promising results[3]. Its status as a regional financial center, as well as its strategic position amongst the emerging and young demography of South East Asia should also support this strategy.

A.2 Trade and the Balance Of Payments (BOP)

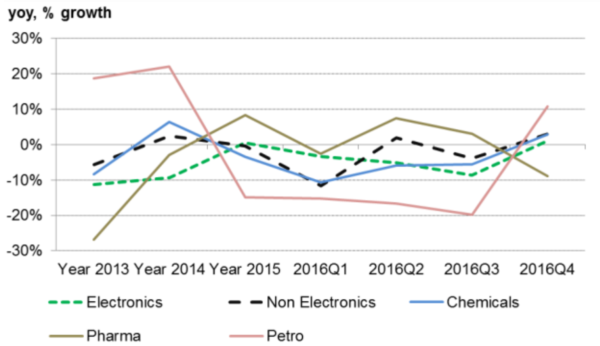
6. **Trade was weak (Figure 4), and Non-Oil Domestic Exports (NODX) contracted in 2016 on a yoy basis.** Both exports and imports contracted on a yoy basis in 2016, and NODX declined by 3.2 percent at the same time. Interestingly, in Q1-Q3, electronics exports declined on a yoy basis, while electronics production increased, partly because of production chain fragmentation, as some electronics firms locate their activities, such as design, in Singapore and outsource production activities overseas[4]. In Q4 2016, NODX grew slightly, supported by a sizable resurgence of NODX to China and Hong Kong, China (Figure 6), especially in November and December.

Figure 4.Growth of Exports and Imports by Value (in SGD)



Source: IE Singapore, CEIC and AMRO staff calculations

Figure 5. Growth of NODX by Product (in SGD)

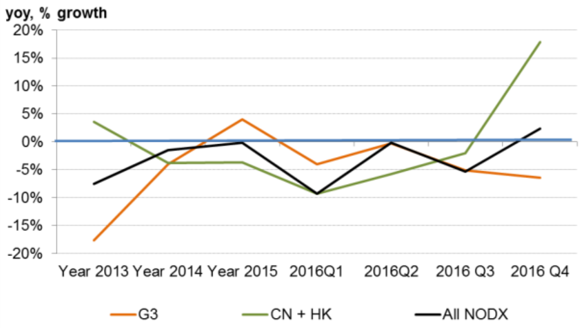


Source: IE Singapore, CEIC and AMRO staff calculations

7. **Services exports were also weak, although they have been holding up better than goods exports (Figure 7).** Services exports increased marginally in Q1-Q3 2016. Notably, exports of financial services declined due to a contraction in cross-border bank loans and weaker financial market sentiments in general, while travel services held up relatively well.

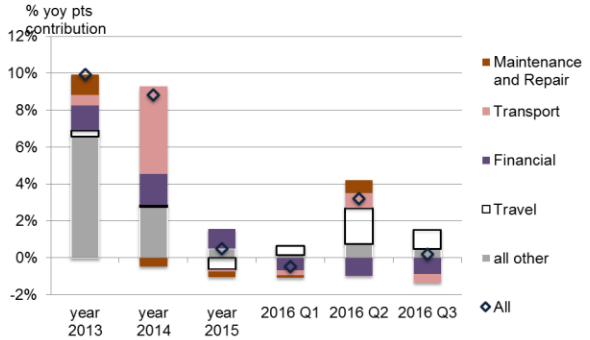
[3] MAS is supportive of FinTech innovation and some of its initiatives include: 1) setting out clear licensing requirements for FinTech activities with a startup only applying for the license for its specific activity; 2) allowing cloud computing to achieve economies of scale; and 3) creating a regulatory sandbox as a safe environment within which to test FinTech innovations.
[4] While R&D activities are captured in Singapore's electronics output, there may not be a corresponding increase in electronics NODX because of outsourcing.

Figure 6. Growth of NODX (non-oil domestic exports) by Value (in SGD)



Source: IE Singapore, CEIC and AMRO staff calculations

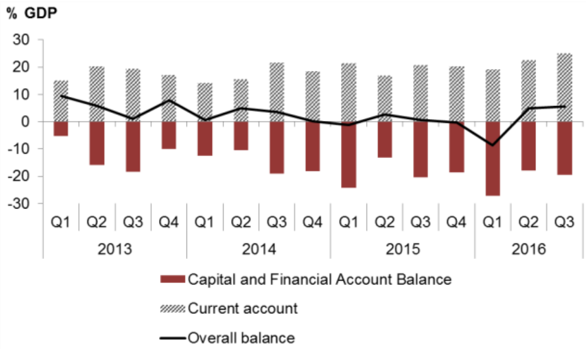
Figure 7. Growth of Services Exports (in SGD)



Source: CEIC and AMRO staff calculations

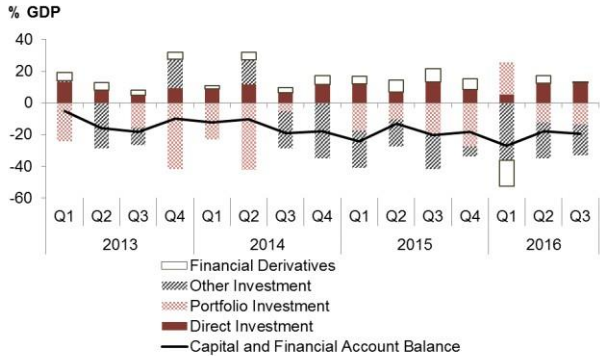
8. **Despite weak exports, Singapore continued to maintain its sizable current account surplus in Q1-Q3 at about 22.2 percent of GDP (Figure 8).** With the weak domestic demand and favorable terms of trade in goods, Singapore's current account in Q1-Q3 stood at 22.2 percent of GDP. At the same time, the deficit in the capital and financial account also widened slightly to 21.6 percent of GDP. As shown in Figure 9, from Q1 to Q3 2016, while direct investment was in surplus, there were large deficits in the "other investment" account, notably, a net reduction in the cross-border liability of domestic banks by SGD22.8 billion, as compared to a cumulative net increase of SGD284.5 billion from Q1 2010 to Q1 2015[5]. Banks reduced their cross-border liabilities partially due to reduced loan demand by overseas corporates.

Figure 8. Balance of Payments (% GDP)



Source: Department of Statistics Singapore, CEIC

Figure 9. Components of the Capital and Financial Account



Note: There has been a change in sign convention for the financial account, based on BPM6. A positive sign now indicates an increase in assets or liabilities, and net outflows in net balances. For ease of display, this figure still uses the previous sign conventions.

Source: Department of Statistics Singapore, CEIC

A.3 Labour, Inflation and Monetary Policy

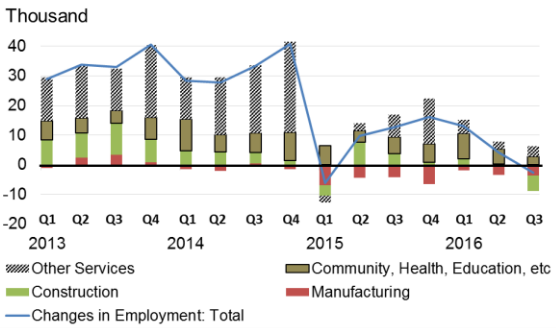
9. **Given weak economic growth, employment growth has slowed in recent quarters, and redundancies[6] have increased.** While the seasonally adjusted overall unemployment

[5] Singapore is a banking center, and banks obtain funding from overseas in order to lend to corporate overseas.

[6] Redundancy comprises retrenchment and early release of contract workers due to redundancy.

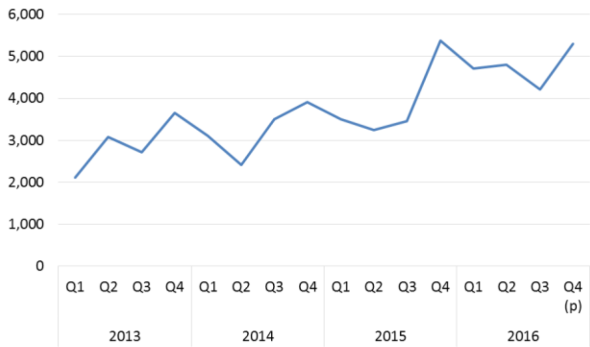
rate was low at 2.1 percent in September 2016, there are emerging weaknesses in the labor market. In the first three quarters of 2016, employment in the manufacturing and construction sector fell (Figure 10). At the same time, redundancies have increased (Figure 11). On the other hand, resilient demand have supported employment growth for community, health and education-related sectors.

Figure 10. Employment Change



Note: "Community, Health, Education, etc." includes Community, Social & Personal Services, Education & Public Administration, Health & Social Services and Other Community, Social & Personal Service
Source: Manpower Research & Statistics Department, Ministry of Manpower

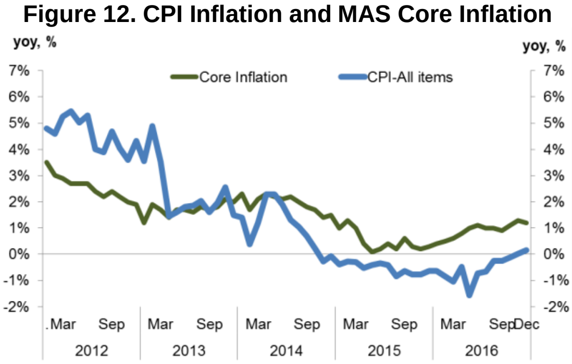
Figure 11. Redundancy



Source: Manpower Research & Statistics Department, Ministry of Manpower

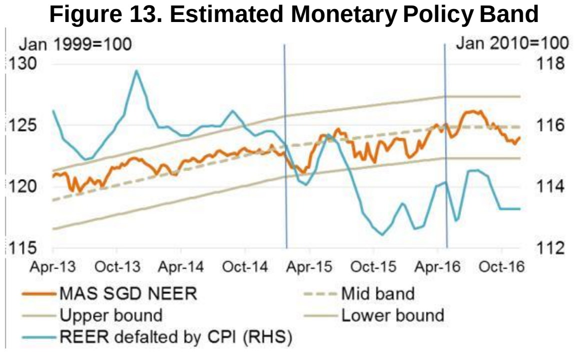
10. With weak overall demand and a softening labor market, inflation is subdued (Figure 12) and the monetary policy stance was kept unchanged in October 2016 (Figure 13). While both the core inflation and headline inflation has been gradually trending up reflecting the diminishing effects of the fall in oil prices, inflationary pressures remain subdued due to generally weak demand and a softening labor market. While GDP growth in Q3 was weak, a modest improvement is expected in the coming quarters, with the pass-through effects from earlier monetary policy easing. MAS is also of the view that "The current policy band provides some flexibility for the SGD NEER to accommodate the near-term weakness in inflation and growth". Therefore, the monetary policy stance was kept unchanged in October 2016, following an easing move in April when the rate of appreciation of the SGD NEER policy band was set at zero percent. The SGD NEER weakened slightly during the week following the U.S. Presidential election but it was well within the AMRO estimated policy band.

Figure 12. CPI Inflation and MAS Core Inflation



Source: DOS

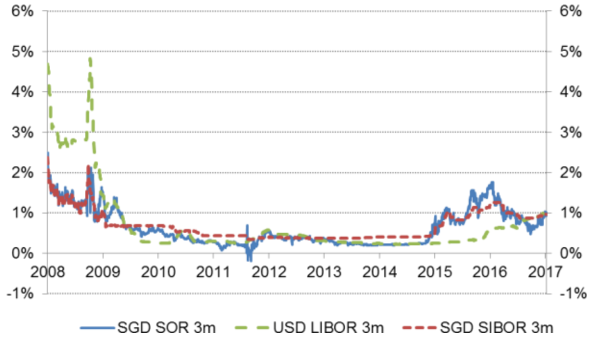
Figure 13. Estimated Monetary Policy Band



Sources: MAS, Bloomberg, DOS, CEIC and AMRO staff estimates

11. Singapore dollar short-term interest rates, including SIBOR and SOR declined before rebounding slightly after the US Fed rate hike in December 2016 (Figure 14). From the end of 2014 to early 2016, SGD interest rates increased, reflecting the expectation of US interest rate hikes and USD appreciation pressure. From April to November 2016, the trend reversed and SGD interest rates have fallen to levels similar to USD rates of the same tenor. This is due to the dovish Fed rate decision between April and November last year and a less bearish outlook for the SGD against the USD. After the Fed rate hike in December 2016, SGD interest rates rebounded slightly.

Figure 14. Interest Rates



Source: Bloomberg

A.4 Financial System

Table 1. Financial Soundness Indicators

	2015 Q4	2016 Q1	2016 Q2	2016 Q3	2016 Q3		
	for all banks in Singapore				DBS	OCBC	UOB
Total Risk-Based Capital Ratio (%)	15.9	16.4	16.6	16.9	16.5	17.6	16.6
Tier 1 Risk-Based Capital Ratio (%)	13.7	14.1	14.4	14.7	14.9	15.6	13.5
NPL Ratio (%)	1.6	1.7	2.0	2.1	1.3	1.2	1.6
Bank housing loan NPL Ratio (%)	0.4	0.4	0.4	0.4 (p)	n.a.	n.a.	n.a.
Oil and gas exposures (% of loans)	n.a.	n.a.	n.a.	n.a.	5.4	5.8	4.2
Oil, gas and other commodities exposures (% of loans)	n.a.	n.a.	n.a.	n.a.	9.5	14.1	7.4
NPA allowances (% coverage of NPAs)	n.a.	n.a.	n.a.	n.a.	100	101	111
Liquidity Coverage Ratio (LCR) (%)	n.a.	n.a.	n.a.	n.a.	115	133	148

Note: From 2015 Q4 to 2016 Q3, all banks in Singapore are included, not just local banking groups.
Source: The NPL ratio and Housing NPL ratio is from MAS. The oil and gas exposure for individual banks is from company websites. Other individual bank information is from Bloomberg and AMRO staff calculations. Oil and gas exposures and Oil, gas and other commodities exposures are from company data. Remaining information is from the IMF.

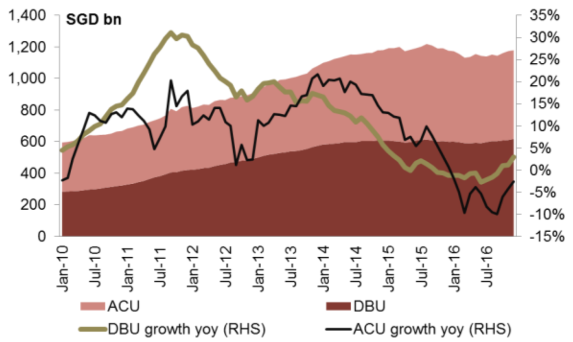
12. While banks have a high capital adequacy ratio, the NPL ratio has continued to rise for major local banking groups. As of Q3 2016, the local banking groups are well capitalized with high risk-based capital adequacy ratios (Table 1). However, the credit cycle has turned and credit quality is deteriorating. On average, the NPL ratio for the local banking groups has risen from 1.0 percent in Q3 2015 to 1.4 percent in Q3 2016[7], partly due to NPLs in the oil and gas services sector. Although the NPL ratio may rise further, the current ratio is still low and does not pose any significant risk to the soundness of the banks. With regard to liquidity, Singapore's banking system has remained liquid and the local banking groups have met their liquidity coverage ratio (LCR) requirements, with all currency LCRs above 100

[7] Equally weighted amongst banks.

percent. Foreign headquartered banks that are considered systemically important banks (DSIBs) in Singapore have also been able to comply with their LCR requirements in Singapore.

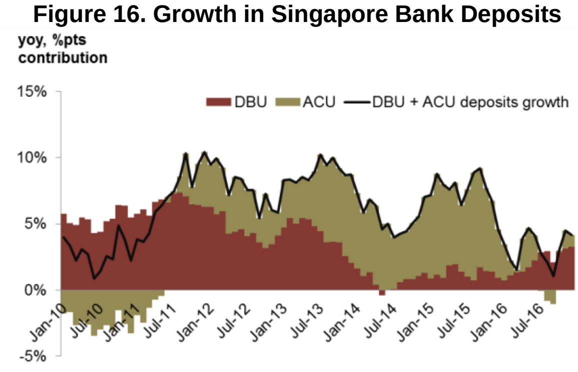
13. Corporates are deleveraging, and household loan growth has been weak, while deposits continued to grow. Weak output for most manufacturing sectors and trade have greatly reduced the demand for corporate loans, and bank loans declined recently on a yoy basis (Figure 15). Bank loans have also been constrained by the continuing macro-prudential measures in the property market. While deleveraging will enhance financial stability in the long run, at present it is a strong headwind for the economy, including the banking sector. On the other hand, deposits are still growing (Figure 16), therefore, the loan-to-deposit ratio continued to decline and there is ample liquidity in the banking system.

Figure 15. Lending by Singapore Banks



Source: MAS, AMRO staff calculations

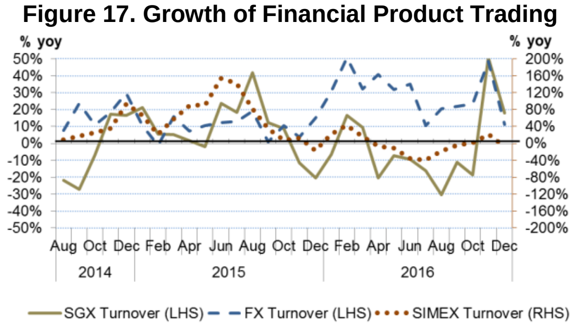
Figure 16. Growth in Singapore Bank Deposits



Source: MAS, AMRO staff calculations

14. The picture is mixed for other types of financial activity. Aside from bank lending, the picture is mixed for other types of financial activity. While equity and derivatives trading declined in recent quarters, due to sluggish equity markets and a high base effect in 2015 (Figure 17), other types of financial activity, such as insurance, wealth management, FX trading and financial technology continue to grow.

Figure 17. Growth of Financial Product Trading



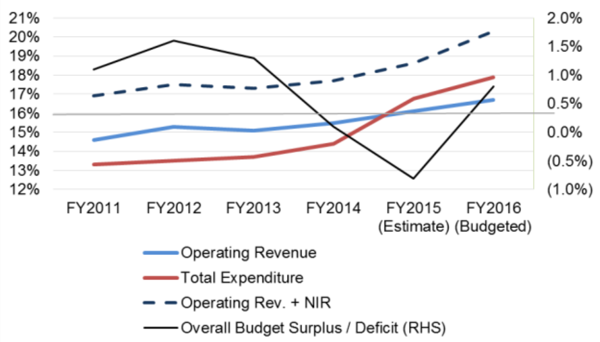
Note: SIMEX turnover is mainly in derivatives such, as futures. In 1999 SIMEX merged with SES and SCCS to form the Singapore Exchange (SGX).

Source: Singapore Exchange, Monetary Authority of Singapore, CEIC

A.5 Fiscal Position

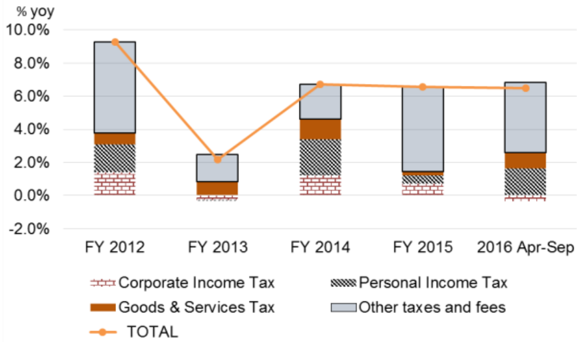
15. The government has continued to adopt an expansionary fiscal stance to support the economy (Figure 18). In FY2016, fiscal expenditures are set to expand to 17.9 percent of GDP, from 17.0 percent in FY2015. Operating revenue is also expected to increase, but at a slower rate than expenditure. As such, primary deficit is expected to widen slightly from 1.1 percent of GDP in FY2015 to 1.2 percent of GDP in FY2016. However, the rise in expenditure in FY2016 is supported by higher Net Investment Returns Contributions. As a result, the overall balance is expected to be a surplus of 0.8 percent of GDP. This expansionary fiscal policy should help to offset some near term cyclical headwinds and, more importantly, support longer-term restructuring.

Figure 18. Fiscal Position



Source: Ministry of Finance and DOS

Figure 19. Fiscal Revenue Growth



Source: Ministry of Finance and DOS

16. To foster economic restructuring, the government has introduced the Industry Transformation Programme to encourage innovation. Building on previous fiscal initiatives, the government has consolidated existing fiscal measures as well as introduced new initiatives to foster economic restructuring. On the consolidation front, information and application for some business grants have been consolidated via the Business Grants Portal, with more to follow subsequently. The National Trade Platform was also announced to eventually replace the current Tradenet and TradeXchange systems. It will be a one-stop trade information management system with new functionalities for businesses. To catalyse economic restructuring, new measures include a package of financing and tax Incentives to support enterprise scale-ups (the Automation Support Package), an extension of support for enterprise internationalization (through the Double Tax Deduction for Internationalisation), assistance for industry to leverage new technologies (through, for instance, the National Robotics Programme), increasing industry outreach through trade associations and chambers (the LEAD-Plus programme), strengthening innovation and enterprise networks through the formation of SG Innovate, and building a new, open and innovative urban environment (the Jurong Innovation District). There are also measures to provide financing and tax incentives to support enterprise scale-ups[8] and deepening industry innovation capabilities.[9] At the same time, fiscal policy is also aiming to support a nurturing, caring and resilient society.

17. During the period from April to September 2016, both expenditures and operating revenues were on track to meet their targets. From April to September, total expenditures grew by 13.4 percent, led by development expenditure on transport and operating expenditure on healthcare. At the same time, operating revenue grew by 6.5 percent (Appendix III). Weak GDP growth in 2016 has not yet affected tax revenues due to the lagged effects of economic activity on tax revenue in Singapore. As Appendix III shows, both expenditures and operating revenues are on track to meet their FY 2016 targets.

[8] This includes the expansion of the SME Mezzanine Growth Fund, the increase of the Merger & Acquisition (M&A) allowance and the extension of the non-taxation of companies' gains on equity investments.

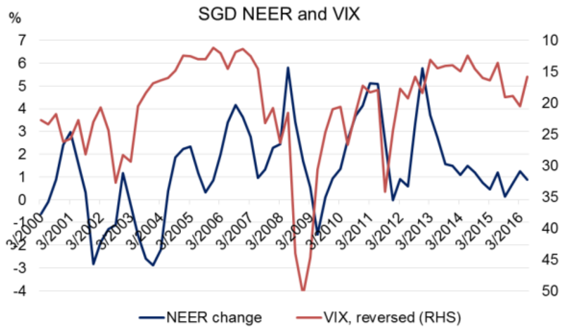
[9] This includes up to $4 billion directed to industry-research collaboration under RIE2020; a $1.5 billion top-up to the National Research Fund; and the provision of flexibility to businesses to write down the cost of acquiring Intellectual Property (IP) over different periods of 5, 10 or 15 years, instead of the current 5 years only.

B. Selected Issues

B.1 SGD NEER and Global Risk Aversion

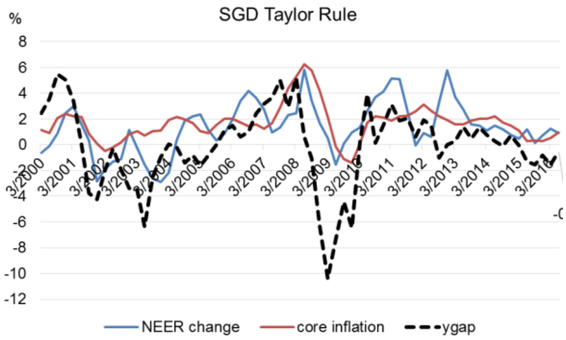
18. With uncertainty about future capital flows and volatility of exchange rates in this region, it is useful to consider the relationship between the SGD NEER and risk aversion and its implications for policy makers. Singapore uses the nominal exchange rate as its intermediate instrument for monetary policy rather than nominal interest rates or monetary aggregates**.** The exchange rate is managed against a trade weighted basket of currencies of Singapore's major trading partners which is allowed to fluctuate within an undisclosed policy band and is reviewed by MAS periodically. The band is also allowed to "crawl", reflecting underlying fundamentals. There have been a number of studies relating Singapore's monetary policy to a modified Taylor rule but less research on the relationship between the SGD NEER and the risk aversion. This section estimates a simple modified Taylor Rule to address the following questions: (i) what is the empirical relationship between the SGD NEER and risk aversion; and (ii) what are the implications for capital flow management.

Figure 20. Change in the SGD NEER and the VIX



Source: MAS, Bloomberg, AMRO staff estimates

Figure 21. The SGD Modified Taylor Rule



Source: MAS, Bloomberg, AMRO staff estimates

19. The relationship between the SGD NEER and risk aversion. According to the standard Taylor Rule, the policy interest rate is determined by the deviation of the inflation rate from the target rate and the output gap. In the case of Singapore, the policy interest rate is replaced by the change of SGD NEER as it is used as the monetary policy instrument. The VIX index was added to the independent variables to assess the impact of the risk aversion on the SGD NEER.

Technical Note for the Taylor Rule Estimation

Consider the following regression:

$$\Delta neer_t = \alpha + \rho\Delta neer_{t-1} + (1-\rho)(\beta_1(\pi_t - \bar{\pi}) + \beta_2 ygap_{t-1} + \beta_3(VIX_t - \overline{VIX})) + \varepsilon_t \ ,$$

or simply

$$\Delta neer_t = \alpha + \rho\Delta neer_{t-1} + \gamma_1(\pi_t - \bar{\pi}) + \gamma_2 ygap_{t-1} + \gamma_3(VIX_t - VIX) + \varepsilon_t \ ,$$

Where:

$\Delta neer_t$ is the yoy % change in the MAS SGD NEER, which is released by MAS
π_t is MAS core inflation
$\bar{\pi}_t$ is the long-term average of MAS core inflation,
$ygap_t$ is the output gap, measured as the % difference between actual real GDP and the HP filtered real GDP,
VIX_t is the CBOE implied volatility index.

Using quarterly data from Q1 2000 to Q1 2016, the estimates (t-values in brackets):

$$\underset{(0.7)}{\Delta neer_t = 0.22} + \underset{(7.5)}{0.63\Delta neer_{t-1}} + \underset{(1.2)}{0.18(\pi_t - \bar{\pi})} + \underset{(1.7)}{0.12 ygap_{t-1}} - \underset{(-1.9)}{0.04(VIX_t - \overline{VIX})} + \varepsilon_t$$

20. **The SGD NEER seems to vary negatively with the VIX but positively with the inflation rate and output gap.** The coefficient on the VIX (equities) index is statistically significant at -0.04 so if, for example, the VIX moves up by 10 points following the Brexit announcement, it would be associated with a 0.4 percent fall in the SGD NEER. The outcome is also robust to other risk aversion indicators, such as Merrill Lynch's MOVE bond Index. On the other hand, the coefficients for the inflation gap and GDP output gap are both positive at 0.18 and 0.12, respectively. This is consistent with the monetary policy intentions of the MAS and the findings of the IMF[10].

21. **This relationship is likely related to the ebb and flow of yield seeking capital flows in this region and their effects on the SGD.** Neighboring ASEAN local currency bonds have higher yields than those of the G3 and are attractive currencies for yield-seeking investors. When the financial market is more tranquil, the VIX is lower, risk appetite is higher and there are net capital inflows to the region since the carry trade would be more profitable. This pushes up the value of regional currencies, other things being equal. The reverse is true when the financial market is more volatile and the VIX is higher. As SGD is often used by investors as a proxy for regional currencies, it is also impacted to a certain extent.

22. **Therefore, the SGD NEER is affected by changes in financial market risk aversion.** The implication of our empirical findings is that SGD NEER movements are

[10] IMF, 2016, "Asean-5 Cluster Report—Evolution of Monetary Policy Frameworks, IMF Country Report No. 16/176, http://www.imf.org/external/pubs/ft/scr/2016/cr16176.pdf

affected, to some extent, by changes in the VIX and regional capital flows in general[11]. Thus, changes in global risk aversion and its influence on regional capital flows, will have implications for Singapore's exchange rate-centred monetary policy insofar as it affects the movement of the SGD NEER within the policy band. As MAS needs to support SGD NEER when risk aversion is high and regional capital outflows are strong, it makes the implementation of monetary policy more challenging, and is one of the reasons why Singapore has consistently build up a strong buffer of official foreign exchange reserves.

23. Unfortunately, large and volatile capital flows are a permanent feature of the global financial landscape and Asian economies have no choice but to manage the risks posed by capital flows[12]. Since the Asian financial crisis, the volatility and magnitude of capital flows to and from the regional economies has further increased. There is still no ideal solution for an open economy like Singapore to manage capital flows. Therefore, it is important to ensure the robustness of the financial system and to keep a sizable amount of reserves to back the credibility of the monetary system.

24. Despite the challenges, the negative relation between the SGD NEER and global risk aversion can benefit the economy in some respects. Movements of the SGD NEER within the policy band play an important shock absorbing role. If the SGD NEER weakens within its policy band due to increased risk aversion, the depreciated SGD NEER could support economic growth and function as a shock absorber. When there is a negative financial shock which dampens financial market activity, the VIX could rise and weakens the SGD NEER, which would be appropriate from a cyclical perspective.

B.2 The Non-Financial Corporate Bond Market in Singapore and Recent Developments

25. Singapore is a financial centre and its capital market has played a critical role in the economic growth and development of Singapore and the region. This section will discuss some of the features of Singapore's non-financial corporate (NFC) bond markets and some potential risks facing them.

26. Outstanding NFC bonds issued by corporates headquartered in Singapore is about SGD93 billion, as of October 2016, or about a quarter of Singapore's annual GDP. As shown in Table 2, the majority of these bonds are issued by NFCs both headquartered and incorporated in Singapore. They also include bonds issued by entities incorporated in other

[11] As pointed out by Khor and Kit (2007), large and volatile capital flows have brought with them other forms of risks and challenges, including excessive credit growth, sharp corrections in asset prices and high cost of sterilized foreign exchange interventions
[12] Khor Hoe Ee and Kit Wei Zheng (2007), "Ten Years from the Financial Crisis: Managing the Challenges Posed by Capital Flows", MAS staff paper, http://www.mas.gov.sg/~/media/resource/publications/staff_papers/Staffpaper48KitWZ.pdf

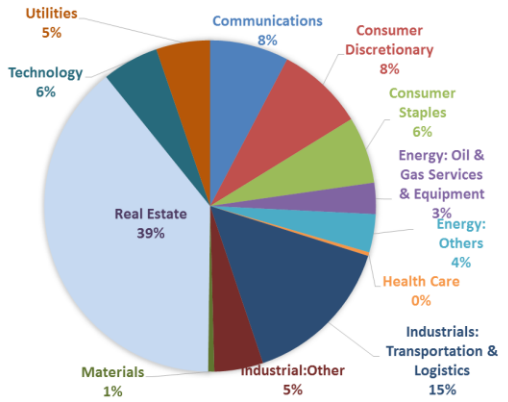
countries but whose ultimate parent company is registered in Singapore. Most of the bonds are in SGD but there is also a sizable amount denominated in USD. The Singapore bond market has broadened and deepened considerably over the past decade, although it is still not as developed as in other major financial centres, such as London and New York.

27. **NFCs in the real estate and transport and logistics sectors are the most important bond issuers in Singapore (Figure 22).** Real estate corporate bonds account for 39 percent of all Singapore NFC bonds, and a large share of them are issued by Real Estate Investment Trusts (REIT). This reflects Singapore's edge in REIT listing and financing activities. At the same time, as a global transportation and logistics hub, NFCs in transportation and logistics have also issued a sizable amount of bonds.

Table 2. Outstanding Singapore NFC Bonds

Headquartered and incorporated in Singapore	Outstanding = SGD 85.8 67% is in SGD 27% is in USD
Headquartered in Singapore and incorporated in other countries	Outstanding = SGD 7.8 5% is in SGD 87% is in USD

Figure 22. Sectorial Breakdown of Singapore NFC bonds

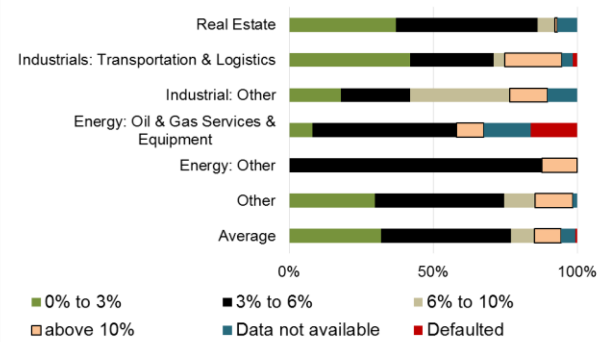


Note: Data are as of Dec/30/2016. We excluded bonds issued by financial institutions, government agencies and supranationals. We also excluded defaulted bonds issued prior to 1/1/2009, but included defaulted bond issued thereafter.
Source: Bloomberg, AMRO staff estimates

28. **Most of Singapore's NFC bonds have low yields but there is stress in some sectors, such as oil & gas services & equipment, and transportation and logistics (Figure 23).** The overall amount of defaults for bonds issued after 2009 is less than 1.0 percent of the total outstanding[13]. Moreover, 80 percent of all NFC bonds have yields to maturity of less than 6 percent. In particular, the majority in the real estate sector have low yields. The risk of systemic distress is low but some sectors are experiencing significant stress. The defaults are mostly in the oil & gas services & equipment sector. At the same time, a sizable share of bonds in the transportation and logistics sector have high yields. It reflects the weak performance of the marine and offshore engineering sector and also the current doldrums in the global shipping industry.

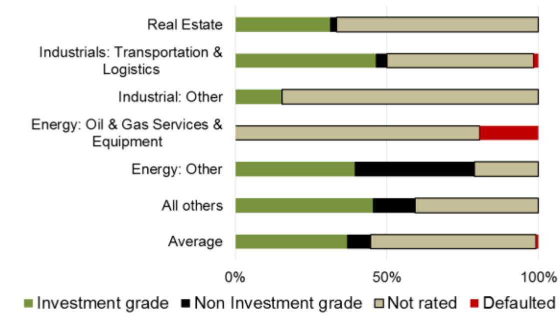
[13] We refrain to use the word "default rate" as the concept is different from percentage of default here.

Figure 23.Yield Distribution of NFC Bonds by Sector



Note: We use the average of the bid and ask yield to maturity to measure the interest rate for each bond as of Dec/30/2016. The weights are allocated using the notional amount of each bond. The sample is the same as Figure 22.
Source: Bloomberg, AMRO staff estimates

Figure 24. Rating Distribution of NFC Bonds by Sector



Note: A bond is considered "rated" as long as it is rated by one of the three rating agencies: Moody's, S&P or Fitch.
The weights are allocated using the notional amount of each bond. The sample is the same as Figure 22.
Source: Bloomberg, AMRO staff estimates

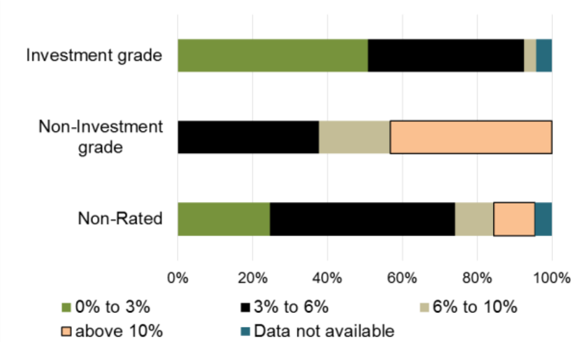
29. **About half of the NFC bonds are not rated and none of the bonds in the oil & gas services & equipment sector are rated (Figure 24), and there is a large divergence in yields in the non-rated category.** About half of the NFC bonds are not rated by any of the three major rating agencies and none in the oil & gas services & equipment sector are rated. As far as non-rated bonds are concerned, some have good credit quality, such as those in the real estate sector, as reflected by their low yields. However, there are quite a few corporates in the oil & gas services & equipment and transportation and logistics sectors which are in financial distress. As shown in Figure 25, for investment grade bonds, none are trading at a yield higher than 6 percent. While for non-rated bonds, there is a huge divergence in yields and hence in the perceived credit quality. For instance, non-rated real estate corporate bonds usually have low yields while those in the energy and industrial sectors are high.

30. **A sizable amount of bond holders are private banking clients and some have been hurt by the distress in related individual sectors.** Figure 26 shows the investor profile of SGD-denominated bonds (as defined in the Singapore Corporate Debt Market Development) issued in 2015, estimated at point of issuance[14]. Recent anecdotal evidence suggests that some bond issuers provide rebates to private bankers to offer their bonds to private banking clients. In the past, such rebates may not be disclosed to the clients. Although there is no systemic financial risk, this could hurt the reputation of Singapore as a wealth management centre. To mitigate such reputational risk, the Private Banking Industry Group (PBIG) has enhanced the disclosure standards in the Private Banking Code of Conduct (PB

[14] It is important to draw attention to the differences in data. There are two main differences: 1. AMRO's definition of NFC bonds (in paragraph 26) includes both SGD and non-SGD denominated debt, while data on Figure 26 is only for SGD-denominated debt. 2. Figure 26 shows investor profile of SGD-denominated bonds issued in 2015 and not the investor profile for all SGD-denominated bonds, or the investor profile of bonds as defined in paragraph 26, which includes non-SGD denominated bonds. Unfortunately, data on investor profile of total SGD-denominated outstanding bonds are not available.

Code)[15]. The enhanced disclosure requirements will safeguard investors' interests and benefit the development of Singapore's financial services sector.

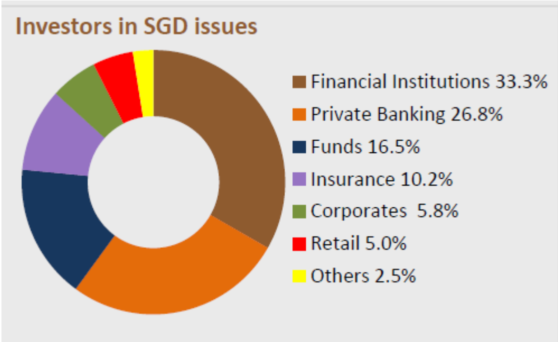
Figure 25. Yield Distribution of NFC Bonds by Rating Status



The sample is the same as in Figure 22.

Source: Bloomberg, AMRO staff estimates

Figure 26. Investor Profile of SGD Bond Issues



Note that the data is based on bonds issued in 2015 only and may not be reflective of the overall investor base – PBs probably hold a much smaller share.
Source: MAS, Singapore Corporate Debt Market Development 2016

31. Anecdotal evidence suggests that banks have become more cautious in lending to the marine and offshore sector and the authorities have taken measures to support the financial challenges facing this sector. Subsequent to the defaults and credit events in the oil and gas service sector, banks have become more cautious in extending credit to this sector. In November 2016, the MTI announced measures to address these financial challenges. They include enhancement to International Enterprise (IE) Singapore's finance scheme and the reintroduction of Spring's bridging loan for companies in the relevant sector. Singapore's marine and offshore sector remains competitive, the financial aid initiated by the authorities should help to alleviate their current financing difficulties so that they are better prepared when the market recovers.

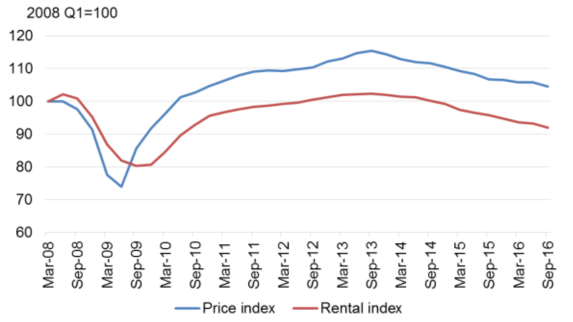
B.3 Private Residential Property Market[16]

32. Residential property prices had risen steadily after the Global Financial Crisis of 2008-9 until Q3 2013 and the government increased land supply correspondingly. Fuelled by the low interest rate environment and economic recovery from the GFC, non-landed residential property prices appreciated by 56.2 percent from Q2 2009 to Q3 2013 (Figure 27). To ensure housing affordability and financial stability, the Singapore government increased

[15] "Private banks will provide clients with a fee schedule at account opening, which sets out fees, charges and other quantifiable benefits (including commissions, rebates and retrocessions) for all investment products and services." "Private banks will also specifically disclose any rebates received from selling new bond issuances to clients prior to each transaction."
[16] Residential properties in Singapore include public housing (HDB), private landed housing and private non-landed. This section focuses on private non-landed only. This is because this sector draws great attention in housing market development, and its price and rental is the leading indicator for HDB.

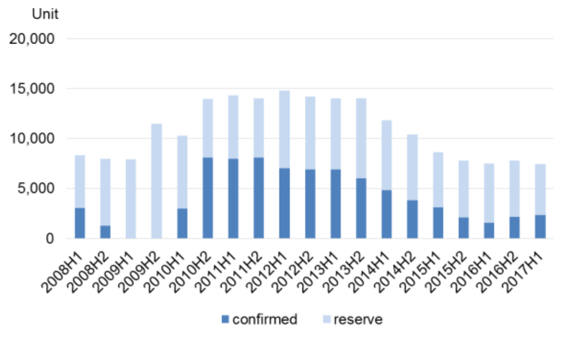
the land supply after the GFC (Figure 28) and, at the same time, introduced a number of macro-prudential measures to cool the property market.

Figure 27. Non-Landed Residential Property Price and Rental Price Indexes



Source: URA, CEIC

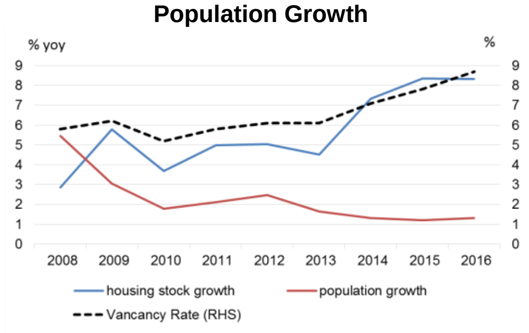
Figure 28. Land Supply



Note: Government Land Sales have Confirmed List sites and Reserve List sites. The Confirmed List sites are scheduled for sale on pre-determined dates while the Reserve List sites are launched for tender only upon successful application.
Source: URA

33. **As a result, the housing stock has increased rapidly and there is also a sizable supply in the pipeline.** Following the increase in the land supply, the housing stock has increased rapidly (Figure 29) and in Q3 2016 grew by 8.3 percent. In addition, there is a large supply in the pipeline, especially for 2017 and 2018.

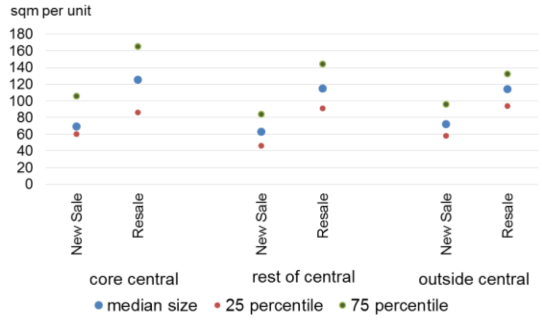
Figure 29. Property Stock and Total Population Growth



Source: URA, CEIC and AMRO staff calculations

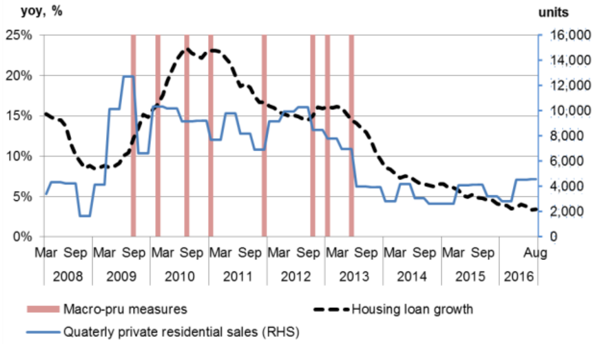
34. **This large supply, however, has to be qualified somewhat as the new properties are, on average, of much smaller size compared to existing properties.** Figure 30 compares the unit size of all new sales and resales of non-landed properties between November 2015 and October 2016. The median unit size of new sale units is 55 percent of the resale units in the core central district, and 58 percent of the resale units outside the central district. Therefore, housing supply growth in terms of square meters is much less than the growth in terms of the number of units. Assuming that an average new unit is the same size as 0.6 units of existing stock, then the housing stock grew by 5.0 percent in Q3 2016.

Figure 30. Unit Size of New and Resale Properties



Source: URA and AMRO staff calculations

Figure 31. The Property Market and Macro-prudential Measures

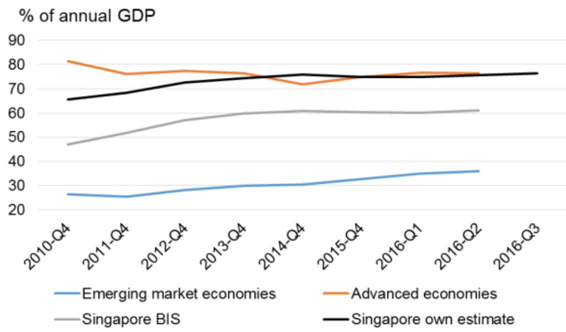


Source: URA, MAS and AMRO staff calculations

35. The vacancy rate has increased to a high level. As the increase in new supply of units has far exceeded demand, the vacancy rate has increased to a high of 8.7 percent, as of Q3 2016 (Figure 29) and is likely to increase further. This has put downward pressure on rentals as well as property prices.

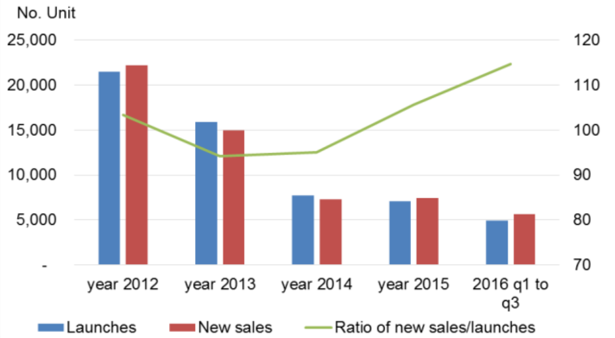
36. Demand is generally weak. Overall residential sales have been weak since Q3 2013 and the housing loan growth rate has moderated (Figure 31). As a result, Singapore household debt has stabilized at a level similar to other developed economies (Figure 32).

Figure 32. Household Debt to GDP Ratio



Note: BIS excludes household HDB loans, while we include them.
Source: BIS, DOS and AMRO staff calculations

Figure 33. Launches and New Sales

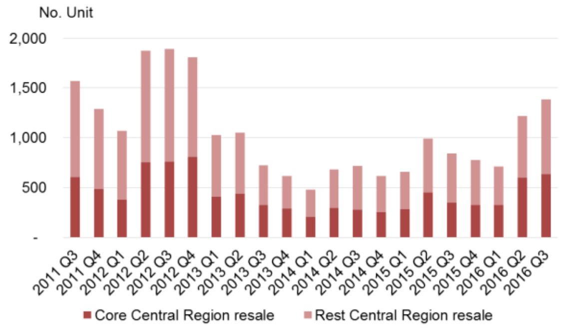


Source: URA

37. However, demand is still able to absorb supply for now, in part due to investment demand. Developers' launches have been well-absorbed in 2016 (Figure 33). While speculative activities have diminished, as indicated by falling sub-sale activities, investment demand has not diminished. There are a few indicators for this. First, although the newly launched properties are of a smaller unit size, the smallest are still the most popular, which could be an indication of investor demand as investors tend to prefer smaller-sized properties. Second, about half of the new housing supply in the pipeline has been sold and the outstanding unsold inventory is now below its historical average. Moreover, in addition to investment demand, some segments of the property market have seen nascent signs of recovery, such as the resale market in the core central and rest of central regions (Figure 34).

38. The property market is weak and is likely to weaken further especially if interest rates rise further. Overall, while the supply is large, demand is still healthy given the low interest rate environment. However, if the interest rate were increase significantly, the property market could be vulnerable to a sharp correction. Macroprudential measures implemented over the last few years have increased the resilience of the property market and mortgage loans to such risks. However, policy makers may need to watch these risks closely and consider adopting countervailing measures and selectively recalibrating their macro-prudential measures to orderly correction in the property market.

Figure 34. Property Resale Volumes



Note: BIS excludes household HDB loan while we include it.
Source: BIS, DOS and AMRO staff calculations

C. Risks and Vulnerabilities

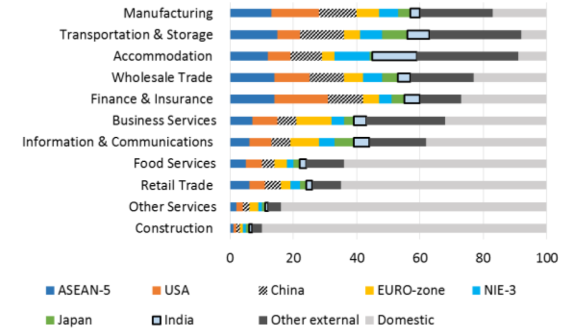
C.1 External Headwinds and Risks to Growth

39. Risks to growth stem from softer-than-expected external growth and investment in the short-run, and trade protectionism in the longer run. Singapore has an extremely open economy, especially manufacturing, transportation & storage, wholesale trade and finance and insurance, whose external demand account for more than 70 percent of total demand (Figure 35 and Figure 36). There is a risk that external demand will remain weak and, in addition, a continuing compositional shift from investment to consumption by Singapore's trading partners. This could hurt Singapore's growth in the short run. In addition, there is nascent trade protectionism in some key developed economies, especially the USA[17], which could undermine trade liberalization initiatives such as the Trans-Pacific Partnership (TPP), and hurt the Singapore economy in the longer run[18].

[17] According to MTI (2016 Q2), the U.S accounted for 10.1 percent of final demand for Singapore's goods and services in 2015, while according to the Department of Statistics, it accounted for 19.4 percent of FDI in Singapore as of end-2015.

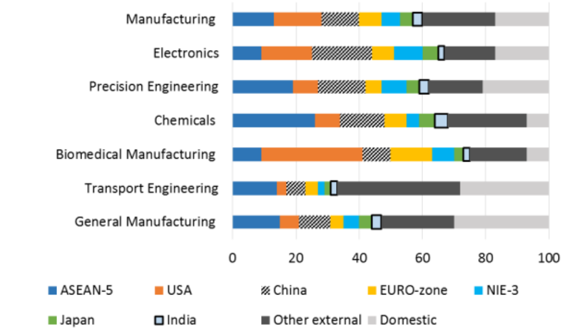
[18] The impact include not only on Singapore's direct trade with the partner concerned, such as the U.S., but also the indirect effects from falling GDP growth in Singapore's other trading partners who also trade with the US.

Figure 35: Sources of Final Demand for Singapore Products and Services



Source: Singapore Ministry of Trade and Industry (MTI) Q2 2016 report, featured article

Figure 36. Sources of Final Demand for Singapore manufacturing

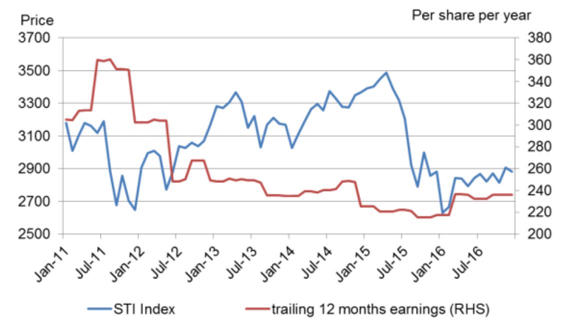


Source: Singapore Ministry of Trade and Industry (MTI) Q2 2016 report, featured article

C.2 Risks to Financial Stability

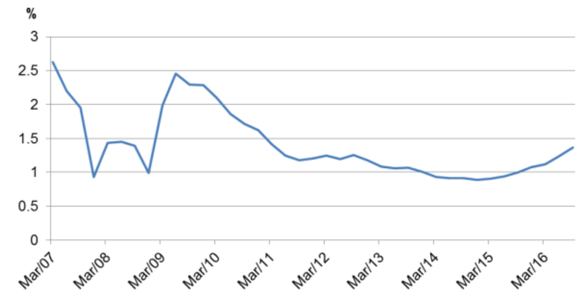
40. Due to weak GDP growth, risks to corporate earnings are still tilted to the downside in the coming quarters and this may adversely affect bank asset quality. The earnings of listed large-size corporate was weak despite some improvement since early 2016 and, at the same time, the local equity market has been lackluster (Figure 37). Small and medium-sized enterprises have been affected to a greater extent. As a result, bank loan credit quality has been gradually deteriorating, especially loans to the oil and gas services sector (Figure 38). After touching a secular low in late 2014, the banking NPL ratio has been edging up. On a positive note, the NPL ratio is still low and is unlikely to revisit the high levels of the early 2000s. In addition, banks' earnings and strong capital buffers should be able to absorb any credit losses in the future.

Figure 37. Singapore Stock Index and Earnings



Source: Company financial statements, Bloomberg

Figure 38. Banking NPL Ratio



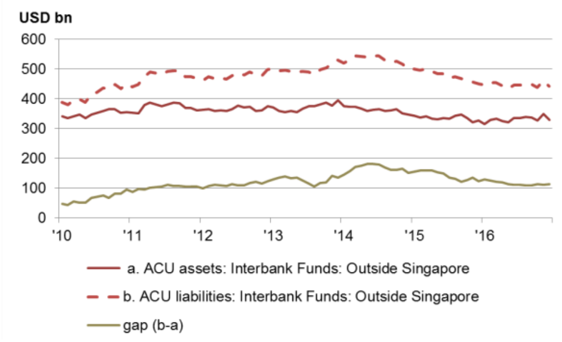
Source: Company financial statements, Bloomberg

41. There are also some emerging risks in the non-financial corporate bond market. With the increase in corporate bond defaults, the resolution of bond defaults warrants closer monitoring to ensure that it is orderly and does not undermine market confidence.

42. Both corporate and household debt is sensitive to a sharper-than-expected USD interest rate hikes. The majority of corporate and household debt is priced in relation to SIBOR and SOR, which generally move in tandem with USD LIBOR. As both corporate and household debt levels are high, they are sensitive to a sharper-than-expected USD interest rate hikes. While the recent Fed rate hike in December 2016 was well communicated and the impact has been muted, there is a risk of much more rapid hikes in 2017.

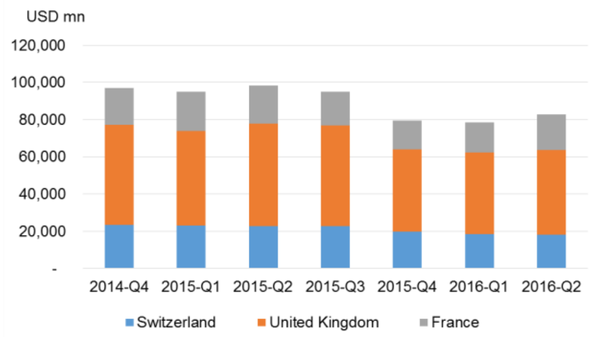
43. As a financial center, Singapore is exposed to the spillover effect of global tail risk events, such as the failure of a key European bank. As a financial center, cross border inter-bank credit is sizable in Singapore (Figure 39), and European banks also have sizable exposure to Singapore based on BIS consolidated banking statistics (Figure 40). Although Singapore does not receive much credit from the banks in the more vulnerable European sovereigns, such as Italy, Singapore will be impacted by the spillover effect of a tail risk event, such as a failure of a key European bank.

Figure 39. ACU Cross-border Interbank Assets and liabilities



Note: Interbank assets and liabilities include cross border intra-group funding.
Source: Monetary Authority of Singapore

Figure 40. Selected EU country exposure to Singapore



Note: This is based on BIS consolidated banking statistics. It excludes 4C banks and domestic positions. It is based on an immediate counterparty basis and on international claims.
Source: BIS

D. Policy Recommendations

D.1 Fiscal Role in Supporting Recovery and Fostering Restructuring

44. The economy is undergoing a weak recovery and fiscal policy should maintain an expansionary stance to support growth in the coming budget. Singapore has fiscal space and there is a room for further fiscal expansion. However, the room for more aggressive fiscal spending is constrained if there is a prolonged period of weak external demand. Singapore is obliged by law to balance its budget over the term of the government, which at the moment is from FY2016 to FY2020. This implies that any fiscal deficits must be fully offset by fiscal surpluses over a five year period.

45. More importantly, fiscal policy should continue to be deployed to foster economic restructuring and long-term economic growth. Building on the previous year's initiatives, the 2016 Budget proposed measures to achieve long-term goals, in particular the Industry Transformation Programme, with initiatives such as the business grants portal, automation support packages, and support for an international and national trade platform. These initiatives are expected to help firms to adapt and find new opportunities within the changing domestic economy and abroad and should be continued.

D.2 Accommodative Monetary Policy

46. The authorities should continue to keep monetary policy accommodative in view of generally weak demand in the coming quarters, although the policy space has become more limited. Given the moderate economic growth, emerging weakness in the labor market and low inflation, there is room for monetary policy to be accommodative. On the other hand, Singapore remains competitive, and the fall in office and commercial rents will help to reduce the business costs. The current policy band with a zero appreciation slope is appropriate at this juncture, and it is also helpful to reduce upward pressure of the USD on Singapore dollar, which might affect SGD interest rates to some extent.

D.3 Safeguarding Financial Stability

47. In light of the vulnerability of some corporates and the expected Fed rate hikes, the authorities should continue to monitor and address these issues. The protracted period of weak corporate earnings and high corporate debt in some sectors will further exert downward pressure on corporate credit quality. As most of the loans in Singapore are related to short-term interest rates, which tend to move in tandem with U.S. interest rates, the expected Fed rate hikes will put further pressure on vulnerable corporates and households. While the worse period of loans becoming NPL may have passed, the authorities should continue to be vigilant about the potential risk to the real economy and the financial sector.

Appendix I. Property-Related Macro Prudential Measures in Singapore

Sep 2009	Increased government land sales Disallowed the interest absorption scheme and interest only housing loans
Feb 2010	Introduced Seller's Stamp Duty (SSD) on all residential properties and residential land sold within 1 year from the date of purchase. Lowered the Loan-to-Value (LTV) limit from 90 percent to 80 percent for housing loans granted by financial institutions (FIs)
Mar 2010	Increased the minimum occupation period (MOP) for non-subsidised HDB flats from 1 or 2.5 years to 3 years
Aug 2010	Holding period for the imposition of the SSD was increased from 1 year to 3 years for residential properties Increased the minimum cash down payment from 5 percent to 10 percent for property buyers who are taking housing loans from FIs and who already have one or more outstanding housing loans Lowered the LTV limit to 70 percent for housing loans granted by FIs to property buyers with one or more outstanding housing loans Increased the MOP of non-subsidized HDB flats from 3 to 5 years Disallowed concurrent ownership of resale HDB flats and private residential properties within the MOP
Jan 2011	Increased the holding period for imposition of the SSD from 3 years to 4 years and raised the rates to 16 percent, 12 percent, 8 percent and 4 percent for residential properties sold in the first, second, third and fourth year of purchase, respectively Lowered the LTV limit to 60 percent for housing loans granted by FIs to property buyers who are individuals with one or more outstanding housing loans Lowered the LTV limit to 50 percent for housing loans granted by FIs to corporate buyers
Dec 2011	Introduced the Additional Buyer's Stamp Duty (ABSD) at 10 percent for foreigners and non-individuals buying any residential property; 3 percent for Permanent Residents (PRs) owning one and buying a second and subsequent property; 3 percent for Singapore citizens owning two and buying a third and subsequent property.
Oct 2012	Imposed a limit of 35 years on the tenure of loans for residential property Lowered the LTV limit to 60 percent for housing loans granted by FIs to property buyers who are individuals with no outstanding housing loan if the tenure exceeds 30 years or the loan period extends beyond the buyer's age of 65 years Lowered the LTV limit to 40 percent for housing loans granted by FIs to property buyers who are individuals with one or more outstanding housing loans if the tenure exceeds 30 years or the loan period extends beyond the buyer's age of 65 years Lowered the LTV limit to 40 percent for housing loans granted by FIs to corporate buyers
Jan 2013	Raised the ABSD between 5-7 percentage points for all buyers and imposed ABSD on PRs purchasing their first residential property and on Singaporeans purchasing their second residential property Lowered the LTV limit to 20-50 percent for housing loans granted by FIs to property buyers who are individuals with one or more outstanding housing loans Increased the minimum cash down payment to 25 percent for property buyers who are individuals taking housing loans from FIs and who already have one or more outstanding housing loans Lowered the LTV limit to 20 percent for housing loans granted by FIs to corporate buyers Lowered the mortgage servicing ratio (MSR) cap from 40 percent to 35 percent of gross monthly income for housing loans granted by HDB for the purchase of HDB flats Introduced a MSR cap of 30 percent of gross monthly income for housing loans granted by FIs for the purchase of HDB flats Revised rules to disallow PRs from subletting their whole flat and introduced a requirement for PRs to sell their HDB flat if they buy a private residential property in Singapore Introduced measures for Executive Condominium (EC) developments: • Maximum strata floor area of new units capped at 160sm • Sales of new dual-key units restricted to multi-generational families • Developers allowed to launch units for sale 15 months from earlier of date of award of sites or after physical completion of foundation works Private enclosed spaces and private roof terraces treated as gross floor area Introduced SSD at 15 percent, 10 percent and 5 percent for industrial properties sold in the first, second and third year from the date of purchase, respectively
Jun 2013	Introduced a Total Debt Servicing Ratio (TDSR) threshold of 60 percent for property loans granted by FIs
Jul 2013	Restricted use of CPF funds and HDB loans for flats with remaining lease of less than 60 years While these measures were implemented in Jul 2013, they were announced in Jan 2013
Aug 2013	Lowered the MSR cap from 35 percent to 30 percent of gross monthly income for housing loans granted by HDB for the purchase of HDB flats Reduced the maximum tenure for HDB loans from 30 to 25 years Reduced the maximum tenure for loans granted by FIs for the purchase of HDB flats from 35 years to 30 years; Lowered the LTV limit to 60 percent for housing loans granted by FIs to HDB flat buyers with no outstanding housing loan, if the tenure exceeds 25 years or the loan period extends beyond the buyer's age of 65. Introduced a requirement for PR households to wait three years from the date of obtaining PR status before they can buy resale HDB flats

Dec 2013	Introduced a MSR cap at 30 percent for loans granted by financial institutions for EC units bought directly from property developers Cancellation fees for ECs were reduced from 20 percent to 5 percent of the purchase price Second-timer applicants who buy EC units directly from property developers would have to pay a resale levy similar to second-timer applicants who buy Build-to-Order (BTO) flats
Feb 2014	MAS broadens exemptions from the TDSR Threshold for Refinancing of owner-occupied residential properties purchased before the Implementation of TDSR Rules
Sep 2016	Refined TDSR rules for the refinancing of property loans to allow borrowers more flexibility in managing their debt obligations: • A borrower refinancing his owner-occupied housing loan is exempted from the TDSR framework. • A borrower refinancing his investment property loan may be exempted from the TDSR framework if he: (i) commits to a debt reduction plan with his FI to repay at least 3 percent of the outstanding balance over a period of not more than 3 years; and (ii) fulfils his FI's credit assessment.

Source: Urban Redevelopment Authority, Monetary Authority of Singapore

Appendix II. Selected Economic Indicators for Singapore

	2012	2013	2014	2015	2016	2017 proj.
Growth						
Real GDP (%yoy)	3.9	5.0	3.6	1.9	2.0	2.0
Real private consumption (%yoy)	3.7	3.3	2.4	4.6	0.6	2.2
Real public consumption (%yoy)	-1.5	11.5	0.1	8.0	6.3	8.0
Gross fixed capital formation (%yoy)	8.2	5.7	-1.1	1.1	-2.5	1.5
Exports of Goods & Services	1.4	5.8	4.0	2.6	1.6	2.5
Imports of Goods & Services	2.5	5.9	3.0	2.9	0.3	2.5
Manufacturing (%yoy)	0.3	1.7	2.7	-5.1	3.6	0.8
Construction (%yoy)	11.4	3.0	6.6	3.9	0.2	3.0
Services (%yoy)	4.7	7.2	3.9	3.2	1.0	2.5
Wholesale & Retail Trade	4.4	6.8	1.9	3.7	0.6	2.5
Transportation & Storage	5.0	4.1	3.0	1.6	2.3	1.5
Accommodation & Food Services	3.0	3.1	2.3	0.7	1.7	2.5
Information & Communications	7.8	8.0	7.4	-0.6	2.3	4.0
Finance & Insurance	5.9	17.2	9.1	5.7	0.7	1.5
Business Services	4.8	5.6	1.8	3.9	-0.9	1.0
Other Services Industries	2.6	2.1	3.9	1.2	3.1	2.5
Monetary						
MAS core inflation (%yoy)	2.5	1.7	1.9	0.5	0.9	1.2
Consumer price inflation (%yoy)	4.6	2.4	1.0	-0.5	-0.5	0.5
Unemployment rate, Annual Average	2.0	1.9	2.0	1.9	2.1	
3-month SGD Sibor (%end period)	0.4	0.4	0.5	1.2	1.0	
Fiscal	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017
Operating Revenue (% GDP)	15.3	15.1	15.5	16.1	16.7	16.0
Total Expenditure (% GDP)	13.5	13.7	14.4	16.8	17.9	18.2
Primary Surplus / Deficit (% GDP)	1.9	1.4	1.1	-0.7	-1.2	-2.2
Overall Budget Surplus / Deficit (% GDP)	1.6	1.3	0.1	-0.8	0.8	-0.2
Balance of Payment						
Exports of Goods (%yoy)	-0.2	1.2	0.1	-7.0	-4.3	3.0
Exports of Services (%yoy)	6.1	9.8	11.2	5.1	1.2	1.0
Current account (SGD bn)	62.8	64.0	77.1	73.9	78.1	75.0
Current account (% GDP)	17.4	16.9	19.7	18.1	19.0	17.9
Capital and Financial Account (SGD bn) 1	-30.7	-42.4	-66.5	-70.8	-81.9	-70.0
Direct investment, net (SGD bn)	46.0	26.4	27.6	53.9	52.1	40.0
Portfolio investment (net)	-98.5	-79.6	-61.1	-74.8	-28.6	-50.0
Other investment (net)	0.0	-5.6	-34.1	-67.1	-99.0	-60.0
Overall balance (SGD bn)	32.6	22.7	8.6	1.5	-2.5	5.0
Asset prices						
Straits Times Index (end period)	3167	3167	3365	2883	2881	
Property Price Index (2009Q1=100)	151.5	153.2	147.0	141.6	137.2	
Spot exchange rate (USD/SGD, period ave.)	1.25	1.25	1.27	1.37	1.38	
Official reserve assets (USD bn, end-period)	259.3	273.1	256.9	247.7	246.6	

Note: 1) There has been a change in sign convention for the financial account, based on BPM6. A positive sign now indicates an increase in assets or liabilities, and net outflows in net balances. To be consistent to Figure 9, this figure still uses the previous sign conventions.

Source: The Singapore authorities, CEIC, AMRO staff estimates

Appendix III. Government Accounts1/

SGD Billions	Actual FY2014	Estimated FY2015	Budget FY2016	2015 Apr-Sep	2016 Apr-Sep
OPERATING REVENUE	60.8	64.8	68.4	34.7	37.0
% GDP	15.5%	16.1%	16.7%		
% yoy	6.7%	6.6%	5.6%		6.5%
Tax Revenue	54.1	55.6	59.2	30.5	31.8
Income Tax	23.9	24.9	26.7	15.8	16.3
% yoy	8.6%	4.0%	7.5%		2.9%
Corporate Income Tax	13.4	13.8	13.4	9.9	9.8
Personal Income Tax	8.9	9.2	10.1	5.3	5.9
Withholding Tax	1.1	1.4	1.3	0.6	0.6
Statutory Boards' Contributions	0.5	0.4	1.9	0.0	0.0
Assets Taxes	4.3	4.5	4.4	1.8	1.8
Customs and Excise Taxes	2.5	2.8	2.9	1.2	1.2
Goods and Services Tax	10.2	10.3	10.6	5.3	5.6
% yoy	7.4%	1.3%	2.6%		6.2%
Motor Vehicle Taxes	1.6	1.8	2.9	0.8	1.1
Betting Taxes	2.6	2.7	2.7	1.3	1.3
Stamp Duty	2.8	2.8	2.5	1.4	1.6
Other Taxes	6.1	5.9	6.3	2.9	3.0
Fees and Charges	6.4	8.7	9.6	4.1	4.8
Vehicle Quota Premiums	3.4	5.4	6.3	2.5	3.3
Other Fees and Charges	3.0	3.2	3.3	1.6	1.5
Other Receipts	0.3	0.5	0.3	0.2	0.4
TOTAL EXPENDITURE*	56.6	67.4	73.4	26.5	30.0
% GDP	14.4%	16.8%	17.9%		
% yoy	9.5%	19.1%	8.9%		13.4%
Operating Expenditure	42.7	48.1	54.4	19.1	21.3
Education	10.7	11.2	12.1	3.6	3.4
Health	5.9	7.5	9.2	2.9	3.8
% yoy	7.5%	12.7%	13.2%		11.6%
Social and Family Development	1.7	1.3	2.4	1.1	1.2
Development Expenditure	14.0	19.4	19.0	7.4	8.7
% yoy	16.3%	38.6%	-1.8%		18.0%
Transport	5.5	10.3	8.8	3.5	5.2
% yoy	-0.3%	88.3%	-15.2%		45.5%
Trade and Industry	2.1	2.4	3.0	1.1	1.0
Primary Surplus/Deficit	4.2	-2.6	-5.0	8.3	7.0
% GDP	1.1%	-0.7%	-1.2%		
Less: Special Transfers Excluding Top-ups to Endowment and Trust Funds ***	3.9	4.5	2.7	n.a.	n.a
Basic Surplus / Deficit	0.3	-7.2	-7.7	n.a.	n.a.
Less: Top-ups to Endowment and Trust Funds **	8.5	6.0	3.6	n.a.	n.a
Add: Net Investment Returns Contribution ****	8.7	9.9	14.7	n.a.	n.a.
Overall Budget Surplus / Deficit	0.6	-3.3	3.4	n.a.	n.a.
% GDP	0.1%	-0.8%	0.8%	n.a.	n.a.

* Total Expenditure consists of operating expenditure and development expenditure.
** The government endowment fund is a fund established with an injection of government monies as principal, for which only the income earned will be used to finance specific programs on an ongoing basis. Examples include the Community Care Endowment Fund and Edusave Endowment Fund. The government trust fund is a fund established with an injection of government monies as principal, for which both the principal and income earned on the principal could be drawn down to finance specific programs on an ongoing basis. Examples include the National Research Fund and the GST Voucher Fund.
*** Refers to discretionary transfers made by the Government and these include one-off direct transfers to businesses and households.
**** Contributions from investment returns on Singapore's reserves, where Net Investment Returns (NIR) is the sum of: (1) up to 50 percent of the expected long-term real returns on the relevant assets specified in the Constitution; and (2) up to 50 percent of the Net Investment Income (NII) on the remaining assets. Through the NIR contributions that supplement the annual Budget, Singaporeans benefit from the investments of GIC and Temasek.
Source: Ministry of Finance, Department of Statistics Singapore

Appendix IV. Data Adequacy for Surveillance Purposes: A Preliminary Assessment

Criteria/ Key Indicators for Surveillance	Availability[(i)]	Reporting Frequency/ Timeliness[(ii)]	Data Quality[(iii)]	Consistency[(iv)]	Others, if Any[(v)]
National Account	Available	Quarterly, within 2 months after the end of the reference quarter (for preliminary data)	-	-	-
Balance of Payment (BOP) and External Position	Available	Quarterly, within 2 months after the end of the reference quarter (for preliminary data)	-	-	-
State Budget and Government/External Debt	Available	Central government revenue (monthly, within two months after the end of the reference period). Central government expenditure (quarterly, within two months after the end of the reference period). Gross External debt (quarterly, within four months after the end of the reference period). External Debt (monthly, within two months after the end of the reference period)	-	-	-
Money Supply and Credit Growth	Available	Monthly, within one month after the end of the reference period	-	-	-
Financial Sector Soundness Indicators	Available	Quarterly, within 6 months	-	-	-
State-Owned-Enterprises Statistics (vi)	Available if publicly listed on the stock exchange, otherwise limited	Quarterly data available for listed companies within two months of the reference Quarter, but not available for non-listed companies.	-	-	-
Housing Market Indicators	Available	Quarterly, within 2 months after the end of the reference quarter (for preliminary data)	-	-	-

Source: AMRO Staff Compilations. This preliminary assessment will form the "Supplementary Data Adequacy Assessment" in the EPRD Matrix.

Notes:
(i) Data availability refers to whether the official data are available for public access by any means.

(ii) Reporting frequency refers to the periodicity that the available data are published. Timeliness refers to how up-to-date the published data are relatively with the publication date.

(iii) Data quality refers to the accuracy and reliability of the available data given the data methodologies are taken into account.

(iv) Consistency refers to both internal consistency within the data series itself and its horizontal consistency with other data series of either same or different categories.

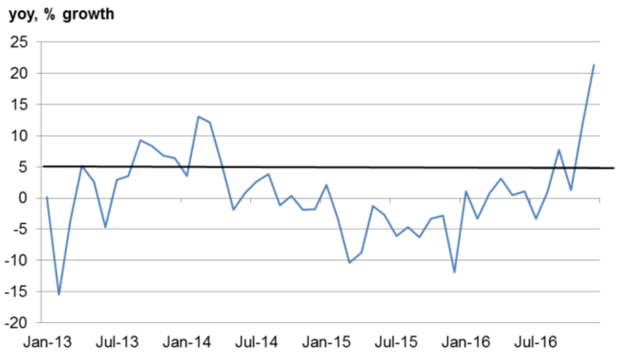
(v) Other criteria might also apply, if relevant. Examples include but are not limited to potential areas of improvement for data adequacy.

(vi) This refers to the government linked companies, not SOE.

Appendix V. Additional Figures

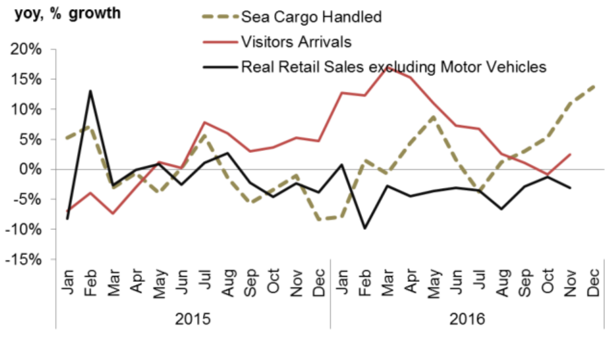
A. Real Sector

Industrial production has been generally weak despite a strong growth in Nov 2016.



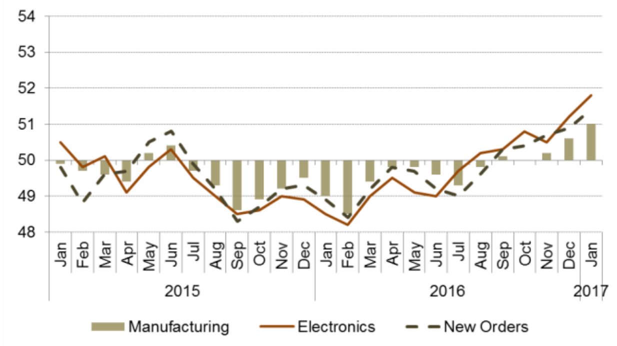
Source: Singapore Economic Development Board, CEIC

Weakness is emerging in some service sectors, such as retail.



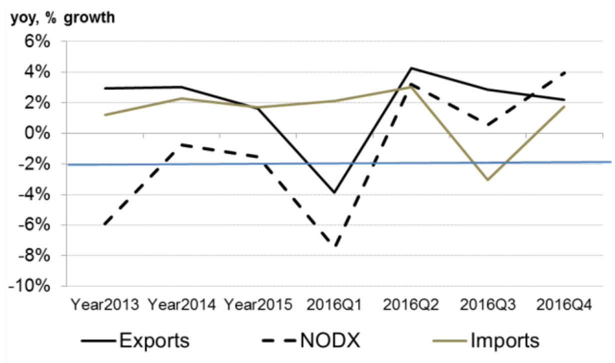
Source: Maritime and Port Authority of Singapore, Singapore Tourism Board, Department of Statistics, CEIC

PMI has been weak despite some improvement in recent months.



Source: Singapore Institute of Purchasing and Materials Management

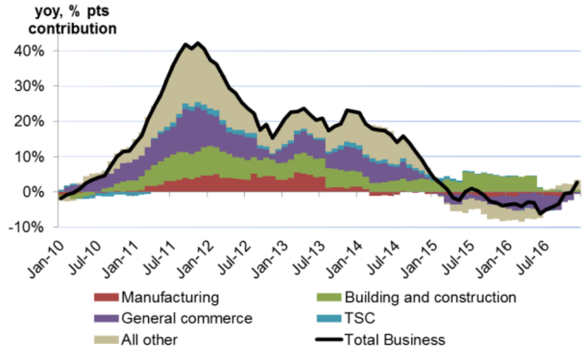
Trade in volume has been weak.



Source: IE Singapore, CEIC, AMRO staff calculations

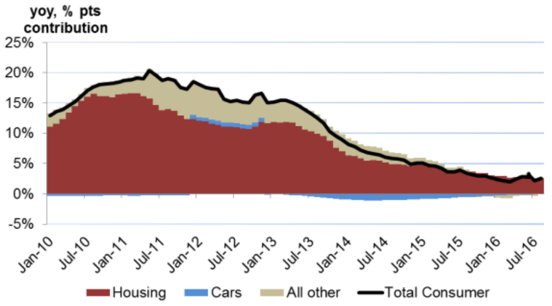
B. Financial Sector

DBU business loan growth has been weak.



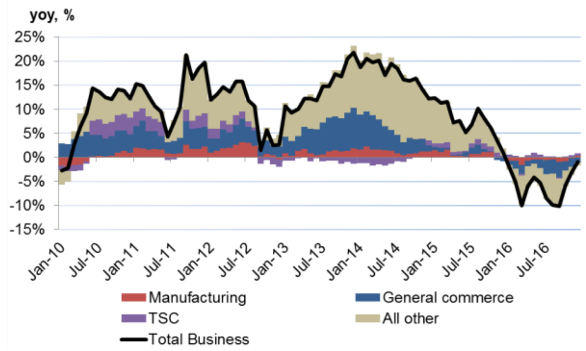
Note: TSC refers to transport, storage and communications.
Source: Monetary Authority of Singapore

DBU consumer loan growth has been supported by housing loan.



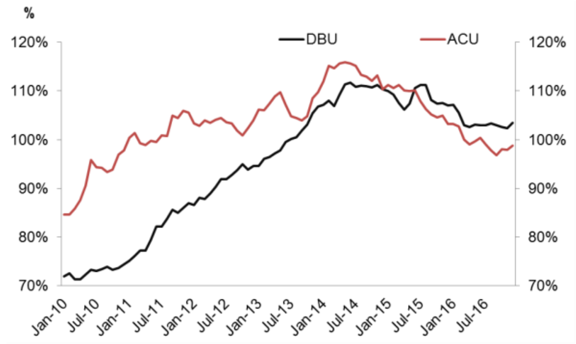
Source: Monetary Authority of Singapore

ACU business loan growth has also been weak.



Source: MAS, AMRO staff calculations

Loan-to-deposit ratios have declined.



Source: MAS, AMRO staff calculations