ECONOMIC SURVEY

OF SINGAPORE

FIRST QUARTER 2018

MTI
MINISTRY OF TRADE
AND INDUSTRY
SINGAPORE

May 2018

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Republic of Singapore

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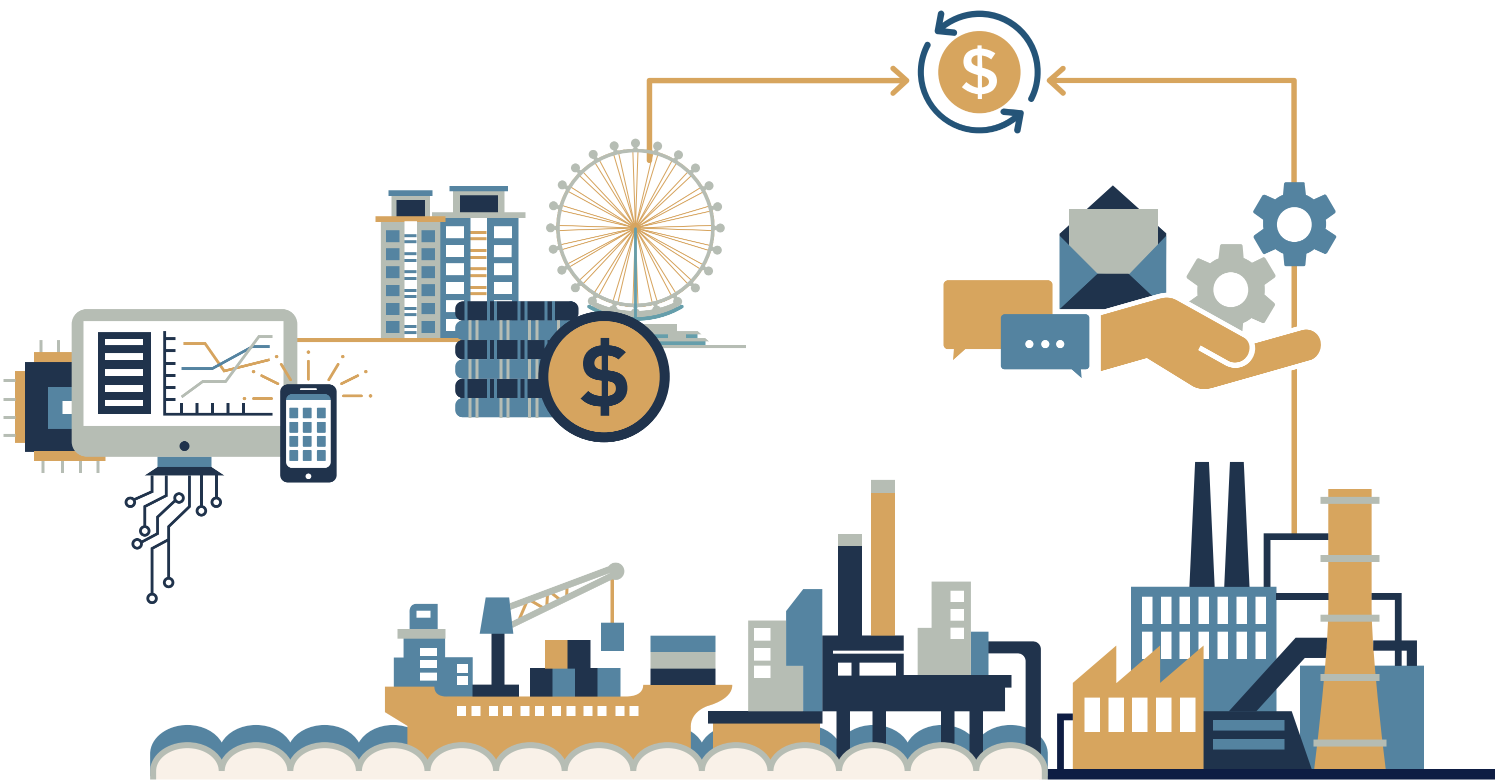

MAIN INDICATORS OF
THE SINGAPORE ECONOMY

OVERALL ECONOMY

	4Q17	1Q18
Real GDP (Year-on-Year Growth)	+3.6%	+4.4%
GDP at Current Market Prices	$117.6 billion	$114.7 billion

PRICES

	4Q17	1Q18
Consumer Price Index - All Items (Year-on-Year Growth)	+0.5%	+0.2%
Domestic Supply Price Index (Year-on-Year Growth)	+3.2%	-0.1%

LABOUR MARKET

	4Q17	1Q18
Change in Employment (Quarter-on-Quarter Growth)	12.7 thousand	1.2 thousand
Overall Unemployment Rate	2.1%	2.0%
Value-added per Worker (Year-on-Year Growth)	+3.8%	+4.3%

COSTS

	4Q17	1Q18
Unit Labour Cost of Overall Economy (Year-on-Year Growth)	+0.9%	-1.2%
Unit Business Cost of Manufacturing (Year-on-Year Growth)	+6.2%	+0.9%
Unit Labour Cost of Manufacturing (Year-on-Year Growth)	-0.5%	-5.9%

MERCHANDISE TRADE

	4Q17	1Q18
Merchandise Exports	$134,219 million +6.6% Year-on-Year Growth	$128,665 million +2.3% Year-on-Year Growth
Merchandise Imports	$120,928 million +9.1% Year-on-Year Growth	$112,857 million +2.8% Year-on-Year Growth

SERVICES TRADE

	4Q17	1Q18
Services Exports	$58,487 million +3.2% Year-on-Year Growth	$57,711 million +6.1% Year-on-Year Growth
Services Imports	$60,871 million +5.0% Year-on-Year Growth	$58,878 million +3.4% Year-on-Year Growth

CHAPTER 1

THE SINGAPORE ECONOMY

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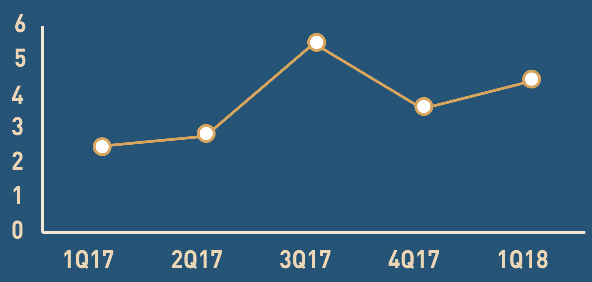
ECONOMIC PERFORMANCE

Real GDP grew by

4.4% in 1Q18

Quarterly Growth (Year-on-Year)



Main Drivers of Growth in 1Q18

Manufacturing

1.8%-point contribution

Finance & Insurance

1.2%-point contribution

In total, these sectors accounted for

68% of GDP growth

LABOUR MARKET

Resident Unemployment Rate

2.8% in 1Q18

Employment (Q-O-Q CHANGE)

1,200 employed

Sectors with the Highest Employment Growth in 1Q18

Sector	Employed
Other Services Industries	7,400 employed
Financial & Insurance Services	2,100 employed
Information & Communications	2,000 employed

PRODUCTIVITY

Value-added per Worker grew by

4.3% in 1Q18

Sectors with the highest Value-added per Worker Growth in 1Q18

Sector	Growth
Manufacturing	12.2%
Finance & Insurance	6.4%

COSTS

Overall Unit Labour Cost declined by

1.2% in 1Q18

Within the manufacturing sector

0.9%	-5.9%
Unit Business Cost	Unit Labour Cost

PRICES

The Consumer Price Index (CPI) rose by

0.2% in 1Q18

Categories with Price Increases

2.9%	2.3%	1.3%
Education	Healthcare	Food

Quarterly Growth (Year-on-Year)

INTERNATIONAL TRADE

Total Merchandise Exports rose by

2.3% in 1Q18

EXPORTS

8.6%	1.0%	1.1%
Oil Domestic Exports	Re-exports	Non-Oil Domestic Exports

Total Services Exports rose by

6.1% in 1Q18

Main Drivers of Services Export Growth were...

11.5%	5.6%	20.2%
Financial Services	Transport Services	Charges for the use of Intellectual Property

OVERVIEW

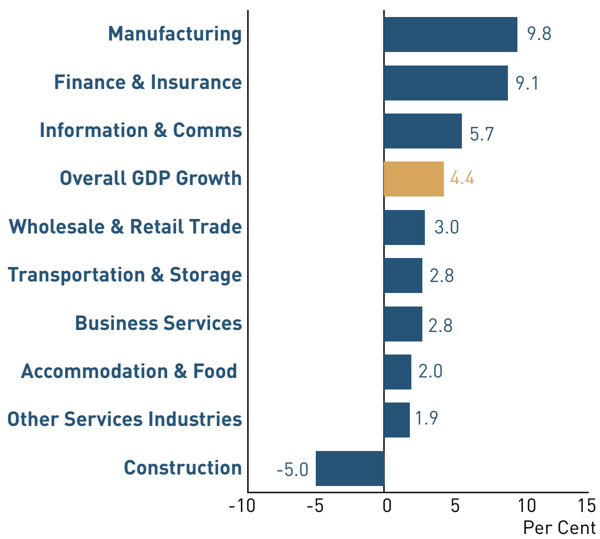
In the first quarter of 2018,

- The economy expanded by 4.4 per cent compared to the same period in 2017. The sectors that contributed the most to GDP growth were the manufacturing and finance & insurance sectors.
- The seasonally-adjusted overall and resident unemployment rates declined in March 2018 as compared to December 2017 and the same period a year ago. Retrenchments were also lower in the first quarter compared to the preceding quarter and the same period a year ago.
- Total employment rose by 1,200 on a quarter-on-quarter basis in the first quarter, compared to the decline of 6,800 registered in the same quarter a year ago. Excluding foreign domestic workers, employment declined by 2,100 in the first quarter, a smaller decline compared to the same period a year ago. The contraction was mainly due to a decrease in Work Permit Holders in the construction and marine shipyard[1] sectors.
- The Consumer Price Index rose by 0.2 per cent on a year-on-year basis, easing from the 0.5 per cent increase in the previous quarter.

OVERALL PERFORMANCE

The economy grew by 4.4 per cent on a year-on-year basis in the first quarter, faster than the 3.6 per cent growth in the previous quarter (Exhibit 1.1). On a quarter-on-quarter seasonally-adjusted annualised basis, the economy expanded by 1.7 per cent, slower than the 2.1 per cent growth in the preceding quarter.

Exhibit 1.1: GDP and Sectoral Growth Rates in 1Q 2018



The manufacturing sector grew at a robust pace of 9.8 per cent on a year-on-year basis in the first quarter, accelerating from the 4.8 per cent growth in the previous quarter. Growth was broad-based, with all manufacturing clusters recording output expansions, except for the biomedical manufacturing cluster.

The services producing industries expanded by 4.1 per cent year-on-year, faster than the 3.5 per cent growth in the preceding quarter, with all services sectors registering expansions. The finance & insurance sector posted the strongest pace of growth (9.1 per cent), followed by the information & communications (5.7 per cent) and wholesale & retail trade (3.0 per cent) sectors. The transportation & storage, business services, accommodation & food services and other services sectors also recorded positive growth of 2.8 per cent, 2.8 per cent, 2.0 per cent and 1.9 per cent respectively.

By contrast, the construction sector shrank by 5.0 per cent, the same pace of decline as in the previous quarter. The decline was due to continued weakness in public sector and private sector construction activities.

The sectors that contributed the most to GDP growth in the first quarter were the manufacturing and finance & insurance sectors (Exhibit 1.2). Collectively, they accounted for 68 per cent of overall GDP growth during the quarter.

1 *This refers to shipbuilding and ship repairing within the transport equipment industry.*

Exhibit 1.2: Percentage-Point Contribution to Growth in Real GDP in 1Q 2018 (By Industry)

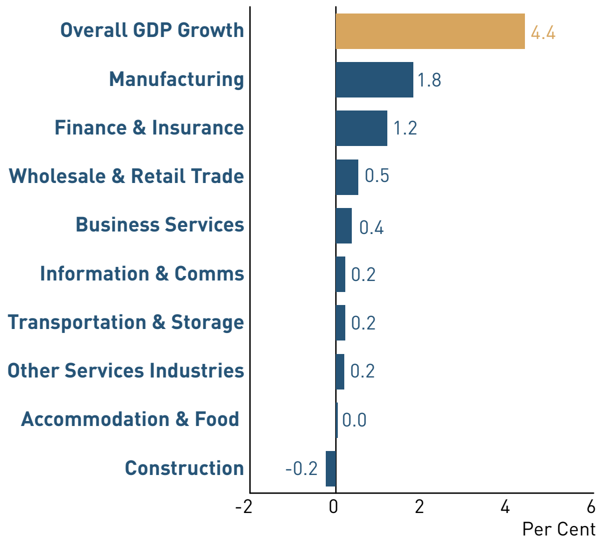


*Exhibit 1.3: Changes in Total Demand**

	2017				2018
	I	II	III	IV	I
Total Demand	3.7	3.7	5.5	4.9	**3.7**
External Demand	5.4	2.5	4.4	4.2	**3.8**
Total Domestic Demand	-0.6	7.3	8.5	6.6	**3.6**
Consumption Expenditure	0.3	3.2	5.7	4.4	**4.0**
Public	4.0	5.3	7.1	0.5	**9.6**
Private	-0.9	2.7	5.3	5.5	**2.0**
Gross Fixed Capital Formation	-3.2	-3.5	-2.7	2.2	**0.2**
Changes in Inventories	0.2	4.7	4.1	2.4	**0.7**

* *For inventories, this refers instead to change as a percentage of GDP in the previous year.*

SOURCES OF GROWTH

Total demand rose by 3.7 per cent year-on-year in the first quarter, moderating from the 4.9 per cent growth in the previous quarter (Exhibit 1.3). The expansion in total demand was supported by both external and domestic demand. External demand rose by 3.8 per cent, slightly slower than the 4.2 per cent growth in the previous quarter.

Domestic demand also rose at a slower pace of 3.6 per cent in the first quarter, compared to 6.6 per cent in the previous quarter. This was partly due to a smaller build-up in inventories, while the pace of increase of the other components of domestic demand also moderated.

Growth in gross fixed capital formation (GFCF) slowed to 0.2 per cent, from 2.2 per cent in the previous quarter. This came on the back of a 5.0 per cent decline in public GFCF, which was in turn largely weighed down by lower investment spending on public construction & works and transport equipment. On the other hand, private sector investments registered a 1.8 per cent increase, supported by robust growth in investment spending on private machinery & equipment and transport equipment, even as investment spending on private construction & works declined.

Meanwhile, consumption expenditure rose by 4.0 per cent in the first quarter, slightly slower than the 4.4 per cent growth in the previous quarter. Growth during the quarter was largely driven by a 9.6 per cent increase in public consumption, while private consumption growth was resilient, at 2.0 per cent.

LABOUR MARKET

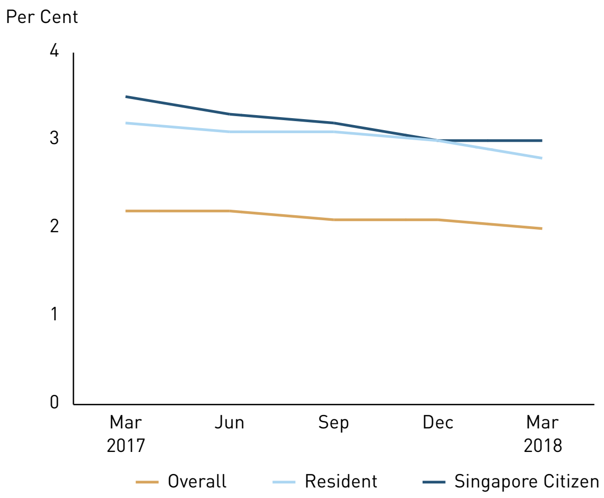
Unemployment and Retrenchment[2]

The seasonally-adjusted unemployment rate declined in March 2018 compared to December 2017 at the overall level (from 2.1 per cent in December 2017 to 2.0 per cent in March 2018) and for residents (from 3.0 per cent to 2.8 per cent), but remained unchanged for citizens (3.0 per cent) (Exhibit 1.4). The overall, resident and citizen unemployment rates in March 2018 were all lower when compared to the same period a year ago.

In March 2018, an estimated 64,800 residents, including 57,900 Singapore citizens, were unemployed. These were lower than the number of unemployed residents (68,500) and citizens (58,600) in December 2017.[3]

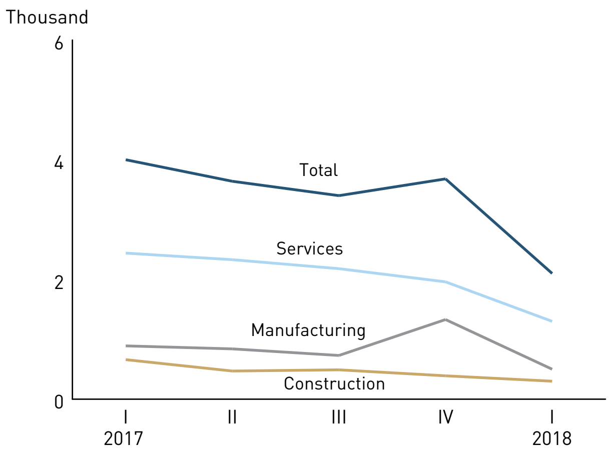
2 *Figures pertain to private sector establishments with at least 25 employees and the public sector.*
3 *Based on seasonally-adjusted data on the number of unemployed persons.*

Exhibit 1.4: Unemployment Rate (Seasonally-Adjusted)



Total retrenchments fell over the quarter. Around 2,100 workers were retrenched in the first quarter, down from 3,680 in the previous quarter and 4,000 in the same period a year ago (Exhibit 1.5). All broad sectors saw a decline in the number of retrenchments over the quarter. The number of retrenchments fell from 1,330 in the previous quarter to 500 in the first quarter for the manufacturing sector, from 390 to 300 for the construction sector, and from 1,960 to 1,300 for the services sector.

Exhibit 1.5: Retrenchments



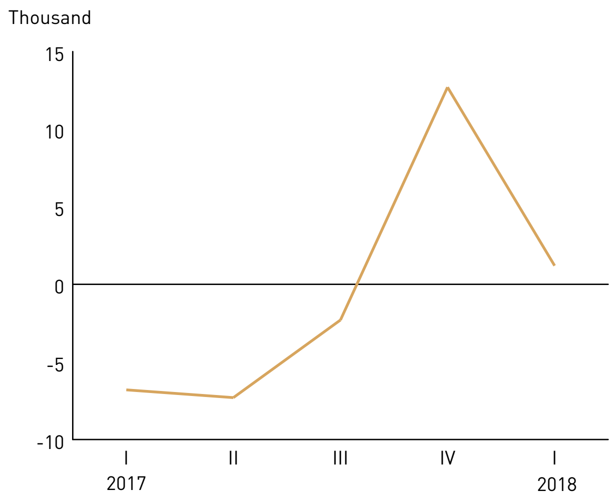
Employment[4]

Total employment rose by 1,200 on a quarter-on-quarter basis in the first quarter, compared to the decline of 6,800 registered in the same quarter a year ago (Exhibit 1.6). Excluding foreign domestic workers (FDWs), employment fell by 2,100 in the first quarter. This contraction was slower than the decline of 9,400 in the same period a year ago, largely due to a smaller fall in employment in the construction sector.

By broad sectors, manufacturing employment declined (-4,300) for the fourteenth consecutive quarter, as weak demand for oil rigs continued to weigh on employment in the marine shipyard sector. Employment in the construction sector also fell (-5,900) for the seventh consecutive quarter, in tandem with the continued weakness in construction activities (Exhibit 1.7). Work Permit Holders constituted the bulk of the employment losses in the manufacturing and construction sectors.

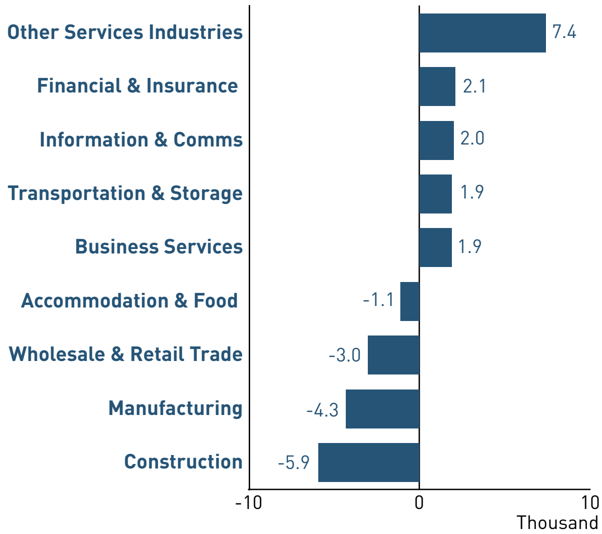
Nonetheless, the employment declines in these sectors were offset by employment gains in the services producing industries (11,200 including FDWs), particularly in sectors such as other services (7,400) and finance & insurance (2,100).

Exhibit 1.6: Change in Total Employment, Quarter-on-Quarter



4 *Based on preliminary estimates.*

Exhibit 1.7: Changes in Employment by Industry in 1Q 2018



Hiring Expectations

The hiring outlook of the manufacturing sector continued to be negatively affected by firms in the oil-related segments. According to EDB's Business Expectations Survey for the Manufacturing Sector, a net weighted balance of 4 per cent of manufacturers expected to hire fewer workers in the second quarter of 2018 as compared to the first quarter. The weak hiring sentiments were largely due to the marine & offshore engineering segment, where a net weighted balance of 49 per cent of firms expected lower levels of hiring. By contrast, firms in the computer peripherals and semiconductors segments were the most optimistic, with a net weighted balance of 21 per cent and 16 per cent of firms in the respective segments expecting to increase hiring in the second quarter.

Hiring expectations for firms in the services sector were positive. According to DOS' Business Expectations Survey for the Services Sector, a net weighted balance of 3 per cent of services firms expected to increase hiring in the second quarter of 2018. In particular, a net weighted balance of 15 per cent of firms in the financial & insurance services segment and 9 per cent of firms in the business services (excluding real estate) segment expected to hire more workers in the second quarter.

COMPETITIVENESS

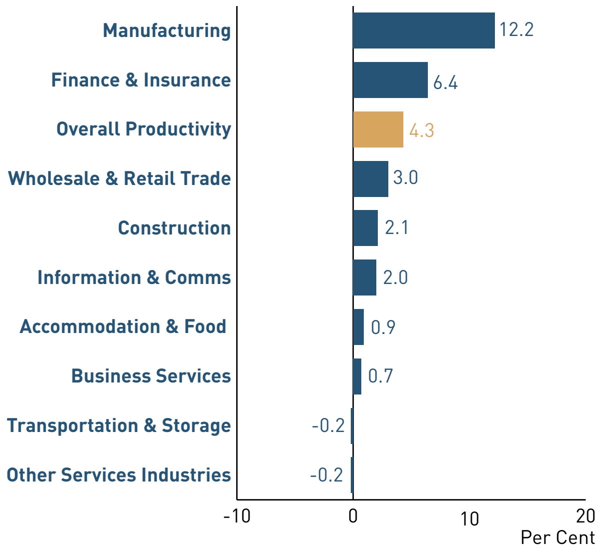
Productivity

Overall labour productivity, as measured by real value-added per worker[5], increased by 4.3 per cent in the first quarter compared to the same period a year ago (Exhibit 1.8). This was higher than the 3.8 per cent increase recorded in the previous quarter.

The manufacturing (12 per cent), finance & insurance (6.4 per cent) and wholesale & retail trade (3.0 per cent) sectors saw the highest productivity growth rates in the first quarter. By contrast, the other services (-0.2 per cent) and transportation & storage (-0.2 per cent) sectors experienced declines in productivity.

Outward-oriented sectors as a whole achieved stronger productivity growth than domestically-oriented sectors. Compared to the same period last year, the productivity of outward-oriented sectors rose by 5.8 per cent in the first quarter, picking up from the 5.0 per cent growth in the previous quarter.[6] For domestically-oriented sectors, productivity rose by 0.8 per cent, higher than the 0.2 per cent increase in the previous quarter.

Exhibit 1.8: Changes in Value-added per Worker for the Overall Economy and Sectors in 1Q 2018

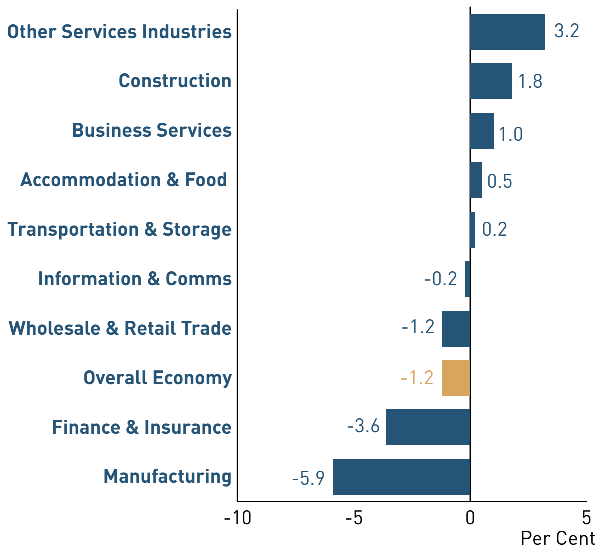


5 *Real value-added per actual hour worked is currently only available on an annual basis.*
6 *Based on MTI estimates. Outward-oriented sectors refer to manufacturing, wholesale trade, transportation & storage, accommodation, information & communications, finance & insurance and professional services. Domestically-oriented sectors refer to construction, retail trade, food & beverage services, other business services and other services industries.*

Unit Labour Cost and Unit Business Cost

Overall unit labour cost (ULC) for the economy fell by 1.2 per cent on a year-on-year basis in the first quarter, a reversal from the 0.9 per cent increase in the previous quarter (Exhibit 1.9). The decline in the overall ULC was due to labour productivity gains that exceeded the increase in total labour cost per worker.

Exhibit 1.9: Changes in Unit Labour Cost in 1Q 2018



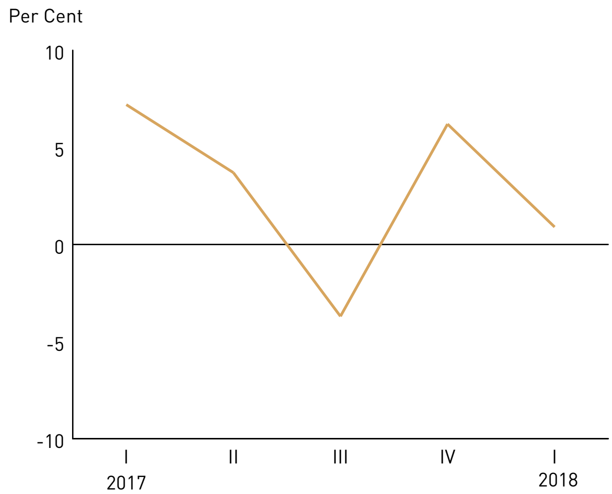
By sectors, the ULC for the manufacturing sector fell by 5.9 per cent year-on-year, the ninth consecutive quarter of decline, on the back of strong productivity gains in the sector.

On the other hand, the ULC for services producing industries was unchanged compared to a year ago, a moderation from the 1.5 per cent increase in the previous quarter. Most services sectors saw increases in their ULCs. Exceptions were the wholesale & retail trade, information & communications and finance & insurance sectors, which experienced a decline in their ULCs.

Meanwhile, construction ULC rose by 1.8 per cent, slightly slower than the 2.0 per cent increase in the preceding quarter, as the rise in total labour cost per worker outpaced labour productivity growth in the sector.

Unit business cost (UBC) for the manufacturing sector edged up by 0.9 per cent in the first quarter, a moderation from the 6.2 per cent increase in the previous quarter (Exhibit 1.10). The smaller rise in the manufacturing UBC was mainly due to a slower 3.3 per cent increase in the unit services cost (which includes royalties, utilities and other services costs such as professional and advertising fees), as compared to the 8.6 per cent increase in the preceding quarter. The decline in the manufacturing ULC also continued to dampen the increase in the UBC.

Exhibit 1.10: Changes in Unit Business Cost for Manufacturing

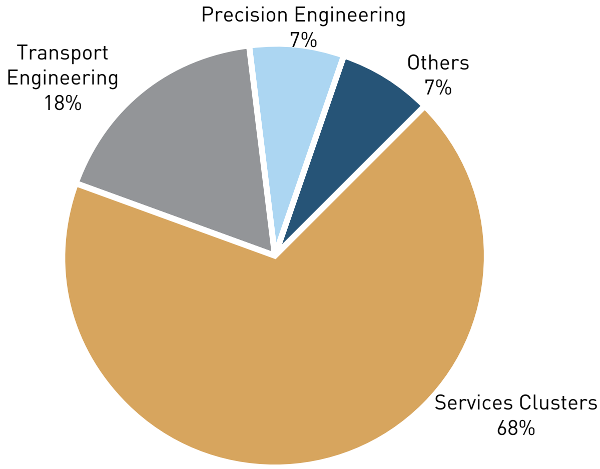


Investment Commitments

Investment commitments in terms of Fixed Asset Investments (FAI) and Total Business Expenditure (TBE) amounted to $840 million and $777 million respectively in the first quarter (Exhibit 1.11 and Exhibit 1.12).

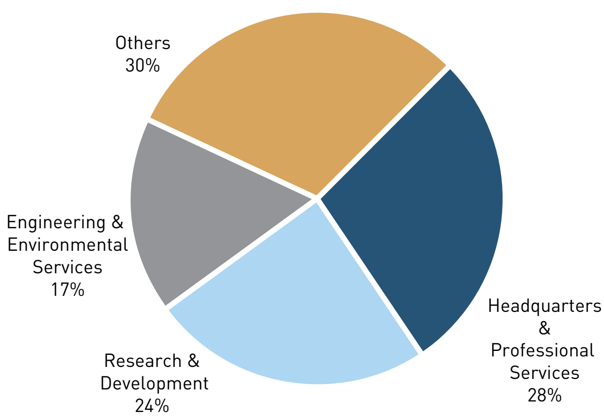
In terms of FAI, the largest contribution came from the services clusters, which garnered $572 million in commitments, mainly from the engineering & environmental services cluster. This was followed by the transport engineering cluster, which attracted $147 million in commitments. Investors from Singapore were the largest contributor to total FAI (42 per cent). In terms of foreign contributors, investors from the United States were the top contributor, accounting for $193 million (23 per cent) of total FAI commitments.

Exhibit 1.11: Fixed Asset Investments by Industry Cluster in 1Q 2018



In terms of TBE, the headquarters & professional services cluster attracted the highest amount of commitments, at $219 million, followed by the research & development cluster with $188 million. Investors from the United States contributed the most to total TBE, at $266 million (34 per cent), followed by investors from Asia Pacific (ex-Japan) at $175 million (23 per cent).

Exhibit 1.12: Total Business Expenditure by Industry Cluster in 1Q 2018



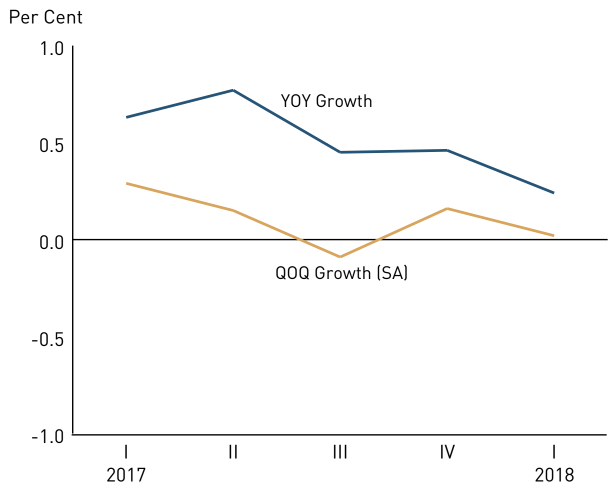
When fully realised, these commitments are expected to generate value-added of $2.6 billion and more than 2,600 jobs.

PRICES

Consumer Price Index

The Consumer Price Index (CPI) rose by 0.2 per cent on a year-on-year basis in the first quarter, easing from the 0.5 per cent increase in the preceding quarter (Exhibit 1.13). On a quarter-on-quarter seasonally-adjusted basis, the CPI was unchanged in the first quarter, easing from the increase of 0.2 per cent in the previous quarter.

Exhibit 1.13: Changes in CPI



Among the CPI categories, food was the largest positive contributor to headline inflation in the first quarter, with prices rising by 1.3 per cent on a year-on-year basis on the back of price increases for food servicing services like hawker food and restaurant meals, as well as non-cooked food items such as fish & seafood and vegetables (Exhibit 1.14). Meanwhile, education costs rose by 2.9 per cent due to higher fees at kindergartens & childcare centres, commercial institutions, universities and polytechnics.

Healthcare costs increased by 2.3 per cent as a result of more expensive hospital services and outpatient services. Recreation & culture costs rose by 1.0 per cent on the back of higher costs of holiday travel. Transport costs edged up by 0.3 per cent on account of higher petrol prices, which had more than offset the effect of lower car prices and bus & train fares. Prices of household durables & services increased by 0.9 per cent as a rise in the salaries of foreign maids more than offset a dip in the prices of household durables. Prices of miscellaneous goods & services went up by 0.6 per cent as an increase in the prices of cigarettes outweighed the effect of cheaper personal care items. Clothing & footwear costs rose by 1.0 per cent due to more expensive footwear and ready-made garments.

Exhibit 1.14: Percentage Changes in CPI over Corresponding Quarter of Previous Year

Per Cent

	2017				2018
	I	II	III	IV	I
All items	0.6	0.8	0.4	0.5	**0.2**
Food	1.5	1.4	1.3	1.4	**1.3**
Clothing & Footwear	-0.9	1.4	1.6	0.4	**1.0**
Housing & Utilities	-3.2	-2.2	-2.4	-2.4	**-2.6**
Household Durables & Services	1.7	0.6	1.0	1.0	**0.9**
Health Care	2.7	2.7	2.6	2.0	**2.3**
Transport	3.8	3.4	1.5	1.7	**0.3**
Communication	0.3	0.4	0.6	1.0	**-0.1**
Recreation & Culture	0.4	0.0	0.2	0.6	**1.0**
Education	3.6	3.2	2.7	2.6	**2.9**
Miscellaneous Goods & Services	-0.1	0.1	0.4	0.2	**0.6**

The price gains in these CPI categories were partially offset by declines in other categories. Housing & utilities costs posed the largest drag on CPI-All Items inflation, declining by 2.6 per cent as a fall in accommodation costs and housing maintenance charges more than offset a rise in electricity tariffs and water prices. Communications costs fell by 0.1 per cent due to cheaper telecommunication services.

INTERNATIONAL TRADE

Merchandise Trade

Singapore's total merchandise trade rose by 2.5 per cent year-on-year in the first quarter, following the 7.8 per cent increase in the preceding quarter (Exhibit 1.15). The increase came on the back of a rise in both oil and non-oil trade. Total oil trade increased by 5.1 per cent in nominal terms on the back of higher oil prices compared to a year ago, while non-oil trade rose by 1.9 per cent.

Exhibit 1.15: Growth Rates of Total Merchandise Trade, Merchandise Exports and Merchandise Imports (In Nominal Terms)

Per Cent

	2017					2018
	I	II	III	IV	Ann	I
Merchandise Trade	16.3	9.5	11.6	7.8	11.1	**2.5**
Merchandise Exports	16.9	8.3	10.1	6.6	10.3	**2.3**
Domestic Exports	29.1	9.6	11.0	15.3	15.8	**3.5**
Oil	72.0	26.9	19.3	26.1	33.4	**8.6**
Non-Oil	15.0	3.0	7.6	10.4	8.8	**1.1**
Re-Exports	6.5	7.0	9.3	-1.3	5.2	**1.0**
Merchandise Imports	15.5	11.0	13.4	9.1	12.1	**2.8**
Oil	89.8	33.0	26.3	30.5	41.6	**3.7**
Non-Oil	3.0	6.2	10.4	4.0	5.8	**2.6**

Total merchandise exports rose by 2.3 per cent in the first quarter, following the 6.6 per cent increase in the preceding quarter. This marked the sixth consecutive quarter of growth, and was supported by increases in both domestic exports (3.5 per cent) and re-exports (1.0 per cent).

The increase in domestic exports was due to a rise in both oil and non-oil domestic exports. In particular, oil domestic exports grew by 8.6 per cent, supported by higher oil prices compared to levels observed a year ago. In volume terms, oil domestic exports declined by 1.5 per cent.

Non-oil domestic exports (NODX) grew by 1.1 per cent in the first quarter, a moderation from the 10 per cent growth in the previous quarter. Growth in NODX was driven by an increase in non-electronics NODX which outweighed the decline in electronics NODX.

Total merchandise imports rose by 2.8 per cent in the first quarter, easing from the 9.1 per cent increase in the previous quarter. Both oil and non-oil merchandise imports expanded. Specifically, oil imports increased by 3.7 per cent on the back of higher oil prices. Meanwhile, non-oil imports rose by 2.6 per cent, driven by an increase in both electronics and non-electronics imports.

Services Trade

Total services trade expanded by 4.7 per cent year-on-year in the first quarter, picking up from the 4.1 per cent growth in the previous quarter (Exhibit 1.16). Services exports grew by 6.1 per cent, up from the 3.2 per cent growth in the fourth quarter of last year. The increase in services exports was largely attributable to a rise in financial and transport services exports, as well as receipts from charges for the use of intellectual property. Meanwhile, services imports grew by 3.4 per cent, easing from the 5.0 per cent increase in the previous quarter. The growth in services imports was mainly due to increases in the imports of other business services, as well as insurance and transport services.

Exhibit 1.16: Growth Rates of Total Services Trade, Services Exports and Services Imports (In Nominal Terms)

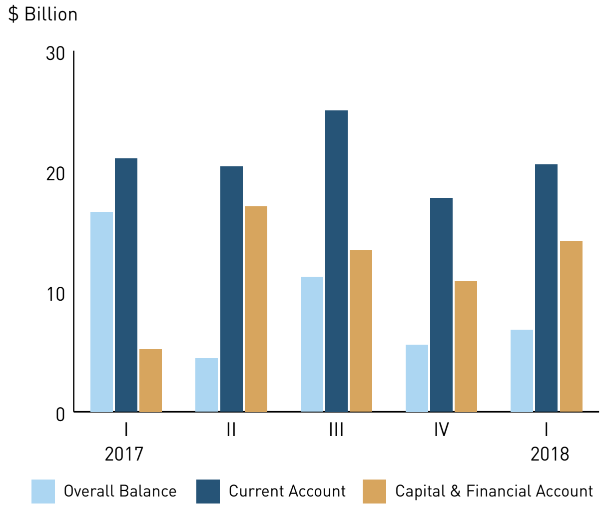
Per Cent

	2017					2018
	I	II	III	IV	Ann	I
Total Services Trade	4.1	3.9	6.6	4.1	4.7	**4.7**
Services Exports	4.8	3.7	5.3	3.2	4.2	**6.1**
Services Imports	3.5	4.0	7.9	5.0	5.1	**3.4**

BALANCE OF PAYMENTS

The overall balance of payments recorded a larger surplus of $6.8 billion in the first quarter, compared to $5.6 billion in the previous quarter (Exhibit 1.17).

Exhibit 1.17: Balance of Payments[7]



Current Account

The current account surplus rose to $21 billion in the first quarter, from $18 billion in the preceding quarter. This was due to an increase in the goods surplus as well as smaller deficits in the services, primary income and secondary income balances.

The surplus in the goods balance increased by $1.2 billion in the first quarter, as goods imports fell by more than exports. At the same time, the deficit in the services balance halved from $2.4 billion to $1.2 billion. Although net payments for insurance and transport services rose and net receipts for financial services fell, these were more than offset by lower net payments for travel services, charges for the use of intellectual property and other business services.

Meanwhile, the deficit in primary income balance narrowed slightly to $5.1 billion in the first quarter from $5.4 billion in the previous quarter, as primary income receipts rose more than payments.

7 Net inflows in net balances are indicated by a minus (-) sign. For more details regarding the change in sign convention to the financial account, please refer to DOS's information paper on "Singapore's International Accounts: Methodological Updates and Recent Developments".

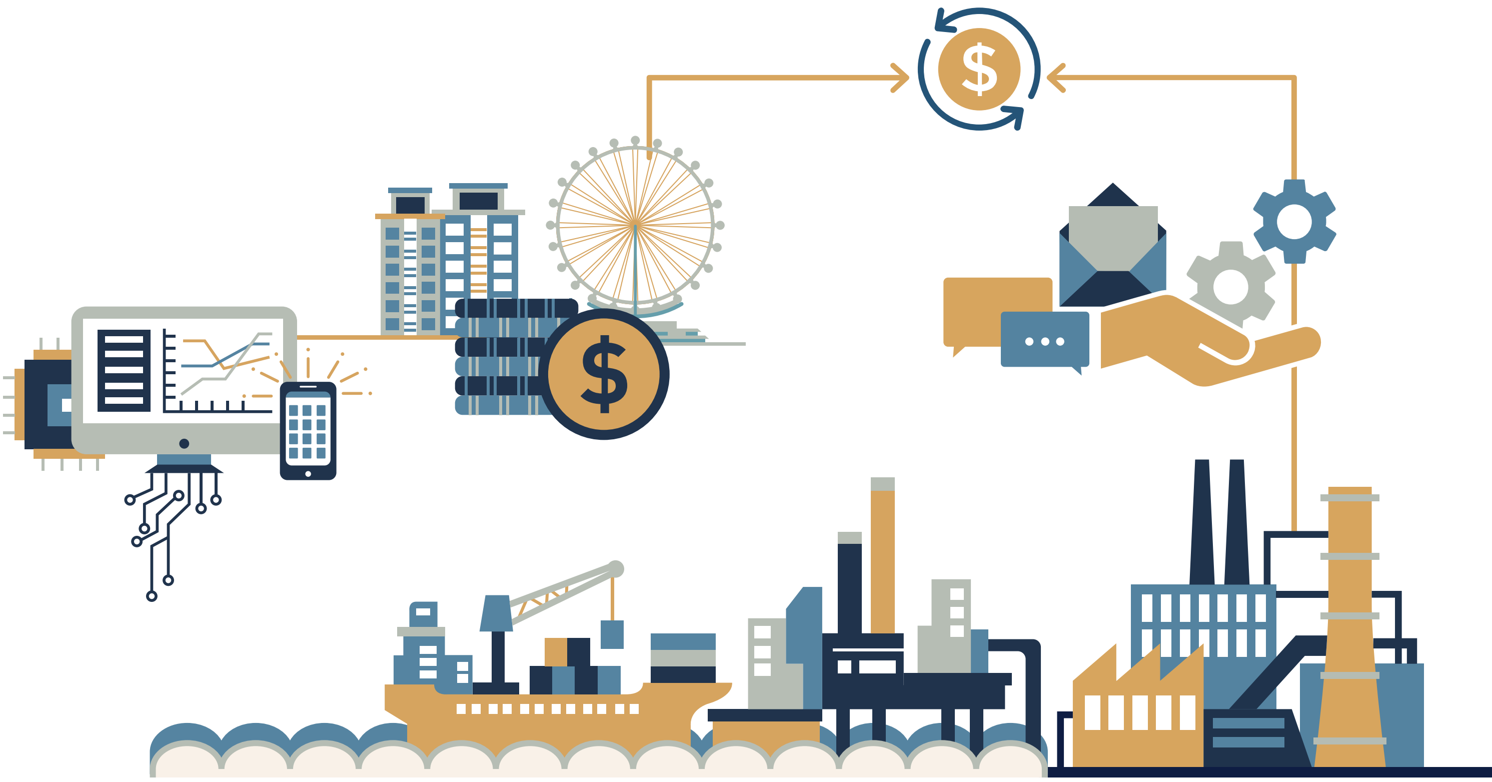
Capital and Financial Account

Net outflows from the capital and financial account rose to $14 billion in the first quarter, from $11 billion a quarter before. Net inflows of direct investment fell and net outflows of other investment increased, outweighing the reduction in net outflows of portfolio investment and the reversal in financial derivatives from net outflows to net inflows.

Net inflows of direct investment fell by $1.5 billion to $11 billion in the first quarter, as foreign direct investment into Singapore declined by more than the decline in residents' direct investment abroad.

At the same time, net outflows from the "other investment" account rose by $18 billion to $24 billion in the first quarter. This largely reflected the reversal from a net inflow to a net outflow position by deposit-taking corporations.

In comparison, net outflows of portfolio investment decreased by $9.9 billion to $6.2 billion in the first quarter. This was mainly due to a switch by domestic deposit-taking corporations from net purchases of overseas securities to net sales. Meanwhile, financial derivatives turned from net outflows of $1.3 billion in the fourth quarter of last year to net inflows of $4.6 billion in the first quarter.

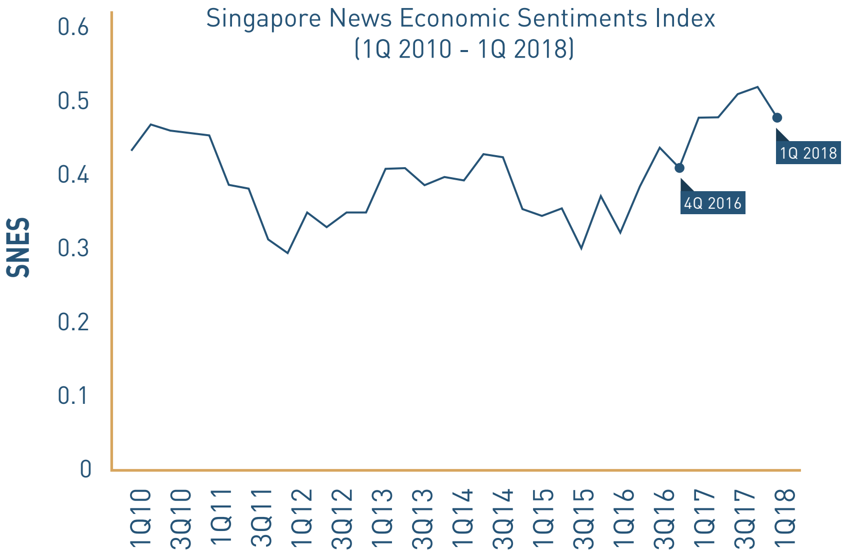


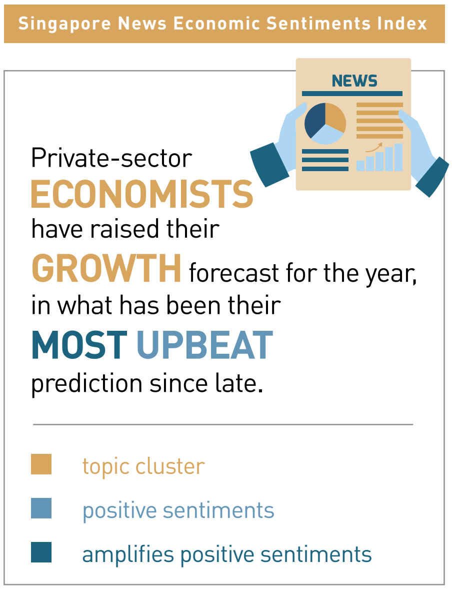
BOX ARTICLE 1.1

Recent Trends in Singapore News Economic Sentiments

INTRODUCTION

The Singapore News Economic Sentiments Index (SNES) is a measure of economic sentiments in Singapore. It is constructed by scoring local newspaper articles for economic sentiments. The SNES was high in 2017, but was sandwiched by dips in both 4Q 2016 and 1Q 2018.

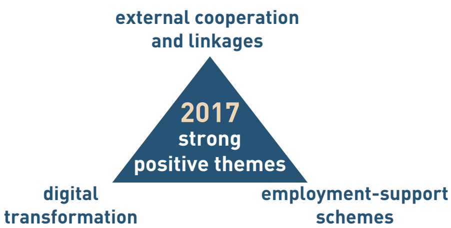




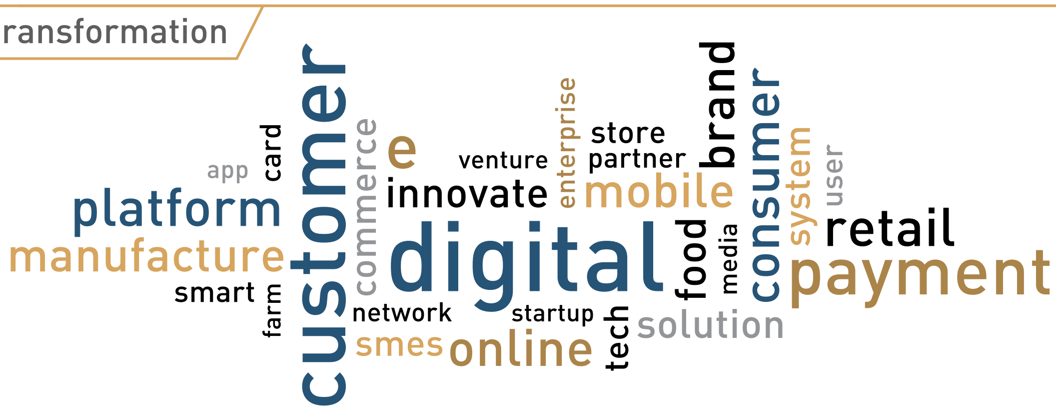
FINDINGS

FINDING 1

The strong sentiments in 2017 were primarily due to
(i) digital transformation,
(ii) employment-support schemes and
(iii) external cooperation and linkages

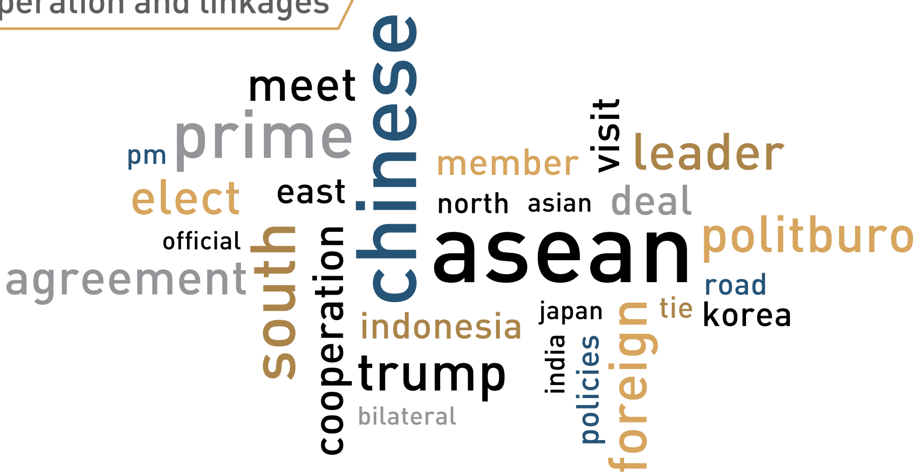


digital transformation



employment-support schemes

external cooperation and linkages



Note: The size of each term is proportional to its frequency.

▸ FINDING 2

Trade tensions contributed to the fall in economic sentiments in both 4Q 2016 and 1Q 2018.

POLICY TAKEAWAY

The SNES with its real-time and high-frequency properties can provide a useful tool monitoring the changing economic landscape. On top of that, the rich textual data, combined with innovative text mining methods allow deeper insights to be gleaned.

The Singapore News Economic Sentiments Index (SNES), developed by the Ministry of Trade and Industry, measures economic sentiments as reflected in local newspaper articles. Specifically, it taps on daily newspaper articles to provide a high-frequency and real-time indication of economic sentiments in Singapore. This article highlights recent trends in the SNES, and explores the key drivers of these trends.

The SNES: A Recap

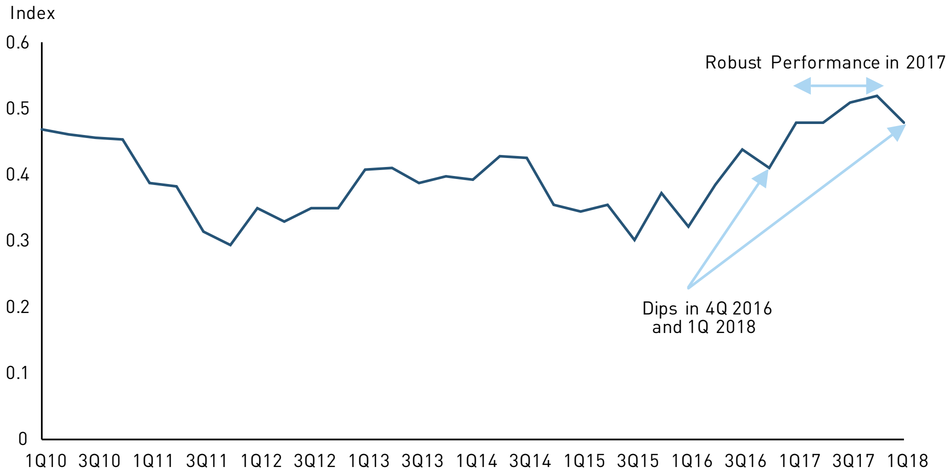
The SNES is constructed by first identifying economic-related articles in local newspapers. The news articles are then analysed at the sentence level using a proprietary polarity lexicon to determine the sentiments reflected in the sentence. Specifically, a numerical score is generated for each sentence to determine if it conveys positive (i.e., larger than 0), negative (i.e., smaller than 0) or neutral (i.e., equal to 0) sentiments. Contextual valence shifters are taken into account, to adjust for the effects of negators and amplifiers. For instance, words like "very" or "extremely" amplify the sentiment score, while words like "not" negate the score. The scores of all the sentiments-bearing sentences in an article are then averaged, and the scores for all the articles are aggregated based on the desired time frequency (e.g., daily, monthly or quarterly) to generate the corresponding SNES index.

Apart from the SNES, there are also other indices that are derived from newspaper articles. An example is the Singapore Economic Policy Uncertainty (EPU) Index, which is compiled by Baker, Bloom and Davis using the trade-weighted average of 19 other national EPU indices.[1] Each constituent country's EPU index gauges the level of economic policy uncertainty in the country by tracking the proportion of articles related to policy, economics and uncertainty found within the constituent country's own newspaper sources (Baker, Bloom and Davis, 2016).[2] Unlike the Singapore EPU, the SNES focuses on articles in Singapore-based newspapers, and distils general economic sentiments from these articles.

For the SNES, Lam (2016) had previously examined its correlation with major economic events from 2001 to 2016, as well as its correlation with quarterly GDP growth rates. This article extends the analysis to major economic events post-2016. Exhibit 1 plots the SNES from 1Q 2010 to1Q 2018. Notably, we find that economic sentiments as derived from local newspaper articles were robust across 2017, although these were sandwiched by dips in sentiments in 4Q 2016 and 1Q 2018. The next two sections will explore these trends in greater detail.

1 *The reference countries are Australia, Brazil, Canada, Chile, China, France, Germany, India, Ireland, Italy, Japan, Mexico, the Netherlands, Russia, South Korea, Spain, Sweden, the United Kingdom, and the United States.*
2 *Feng (2014) applied a similar methodology on Singapore-based newspapers.*

Exhibit 1: Singapore News Economic Sentiments Index (1Q 2010 to 1Q 2018)



Source: Ministry of Trade and Industry

Improving News Economic Sentiments in 2017

Economic sentiments as depicted by the SNES picked up in 2017 (Exhibit 1). For the full year, the average of the SNES over all 4 quarters stood at 0.50. This was much higher than the quarterly average of 0.39 since the start of the series in 2001. Notably, the SNES started to rise at the start of 2017 and continued to improve to reach a peak of 0.52 in 4Q 2017. The positive sentiments in 2017 also coincided with strong economic growth in the year, with full-year GDP growth coming in at 3.6 per cent, higher than the 2.4 per cent in 2016.

Using topic modelling techniques, the SNES can be further broken down so that the main drivers of the changes in sentiments can be explored.[3] In particular, we are able to classify all the articles that were captured by the SNES for 2017 into 10 topic clusters based on the overarching themes of the articles.[4] The sentiment scores of the articles within a topic cluster are then averaged to derive a sentiment score for each topic cluster.

Our findings show that the 3 themes with the most positive sentiment scores in 2017 were (i) digital transformation, (ii) employment-support schemes, and (iii) external cooperation and linkages (Exhibit 2). Compared to the overall sentiment score for 2017 (0.50), the sentiment scores for these 3 topic clusters were 32 per cent, 32 per cent and 14 per cent higher respectively, and were hence key drivers of the pickup in sentiments in 2017.

3 *In particular, we use Latent Dirichlet Allocation (LDA) to identify topic clusters. LDA learns the mixture of topics for each newspaper article and the words associated with each topic.*

4 *The 10 topic clusters identified were: (1) infrastructural developments, (2) external cooperation and linkages, (3) financial market performance, (4) natural resources (e.g., energy, water), (5) real estate, (6) corporate performance, (7) business regulatory issues, (8) digital transformation, (9) employment-support schemes (e.g., training, skills development), and (10) social support initiatives.*

Exhibit 2: 2017 Strong Positive Themes

Theme	Word Cloud	Illustrative Headlines
Digital transformation With rapid technological progress, more efforts are introduced from both the public and private sectors to ride on these technologies and increase efficiency		• Blockchain tech for inter-bank payments – The New Paper, 6 Oct 2017 • Telcos, lenders to spur SME digital adoption – The Straits Times, 17 Aug 2017 • Siemens opens its first global fully integrated digitalisation hub in Singapore – Business Times, 12 Jul 2017
Employment-support schemes Training programmes rolled out to help Singaporeans stay relevant in the labour market		• More people in Singapore took up subsidised training courses in 2016 – The Straits Times, 14 Sep 2017 • Firms can tap new state scheme to help local workers learn from overseas experts – Business Times Singapore, 11 Oct 2017 • New schemes to help PMETs find jobs in manufacturing industry – The Straits Times, 27 Apr 2017
External cooperation and linkages High level meetings between leaders of Singapore and our regional and international partners, to reaffirm our friendship		• Singapore, China to strengthen Belt and Road Initiative (BRI) cooperation in three areas – Today Singapore, 13 Jun 2017 • Singapore, UK renew economic-business pact with new areas of cooperation – Business Times Singapore, 22 Feb 2017 • Singapore, Indonesia celebrate 50 years of bilateral relations – Business Times Singapore, 18 Jan 2017

Protectionism and Trade Tensions: A drag on sentiments in 4Q 2016 and 1Q 2018

While improved regional and international cooperation was one of the key drivers of the pickup in economic sentiments as reflected in news articles in 2017, topic modelling suggests that a shift in attitude towards greater protectionism among major global players, most notably the US, posed a drag on sentiments in 4Q 2016 and 1Q 2018.

In particular, 4Q 2016 saw the election of US President Donald Trump, who had espoused anti-trade and anti-globalisation views on his campaign trail. Likewise, 1Q 2018 saw trade tensions ratcheting up with the US' imposition of steel and aluminium tariffs. The resulting exchanges between the US and China sparked fears of a trade war and its impact on a trade-dependent economy like Singapore. The sentiment scores of these two topic clusters were 34 per cent and 50 per cent lower than the overall sentiment scores in 4Q 2016 (0.41) and 1Q 2018 (0.48) respectively.

However, even though trade tensions between the US and China rose in 1Q 2018, bright spots remained given news reports of a continued appetite for increased cooperation among other economies. These included news of the signing of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) on 8 March 2018 by 11 countries, including Singapore, as well as news of efforts to push through other trade deals such as the Regional Comprehensive Economic Partnership (RCEP). Such developments had a countervailing effect on the overall negative trade sentiments brought about by the US-China trade tensions.

Conclusion

While economic sentiments as reflected in local newspaper articles dipped in 1Q 2018, our monthly SNES series show that sentiments have since recovered. In particular, the SNES rebounded in the month of April, supported by our work in cultivating good relations with international partners.

Overall, the SNES with its real-time and high-frequency properties provides an additional tool for us to monitor the changing economic landscape in Singapore. Advanced text mining methods can also be applied to help explain the changes in sentiments, thus allowing for deeper insights to be gleaned.

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Economics Division
Ministry of Trade and Industry

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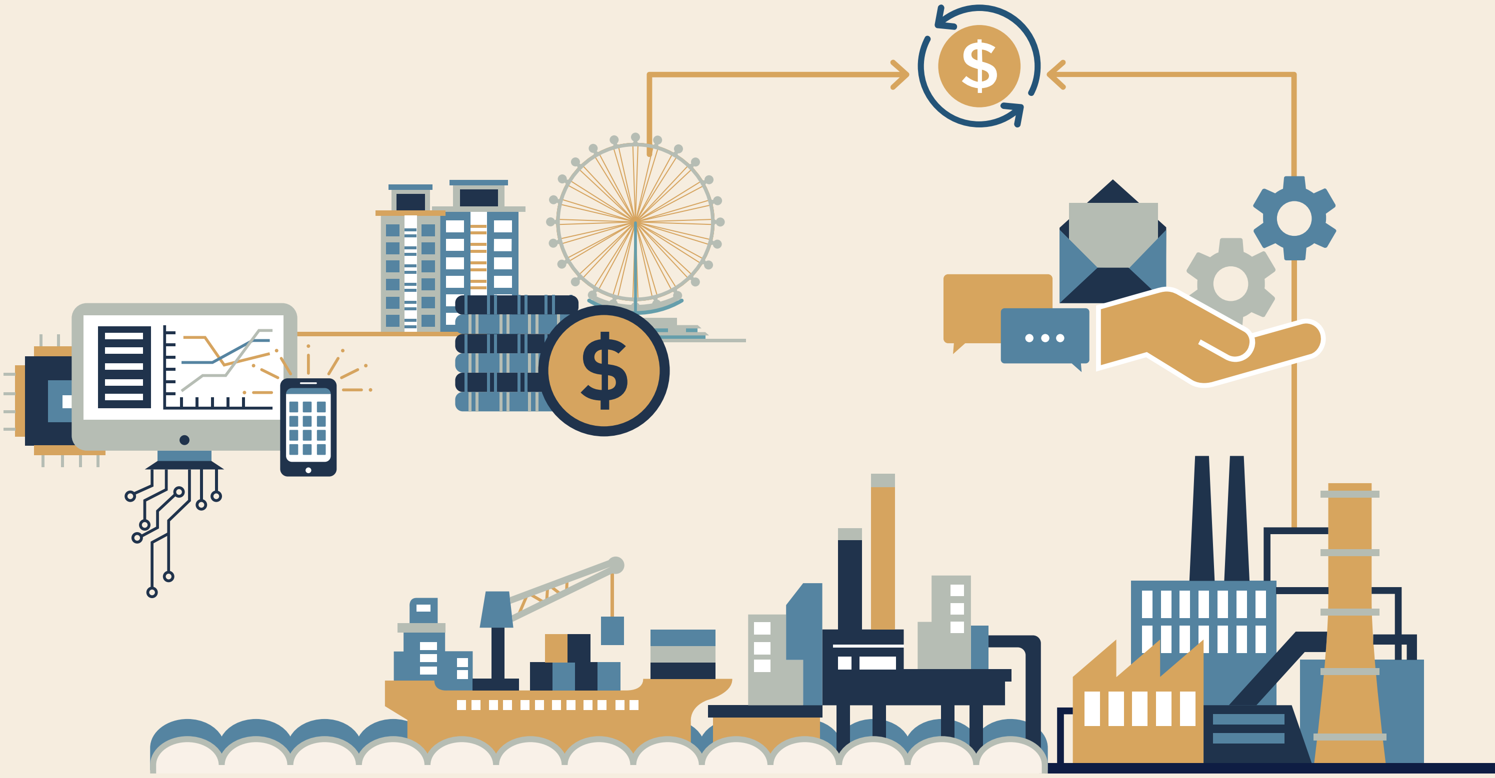


CHAPTER 2

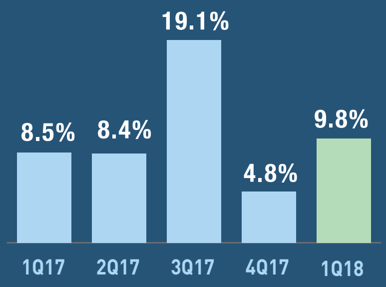
SECTORAL PERFORMANCE

CHAPTER 2

SECTORAL PERFORMANCE

MANUFACTURING

REAL GROWTH

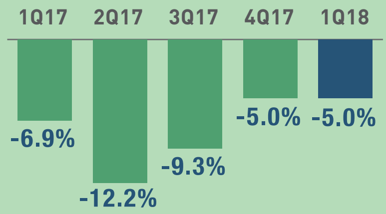


CLUSTERS IN MANUFACTURING SECTOR %-POINT CONTRIBUTION IN 1Q18

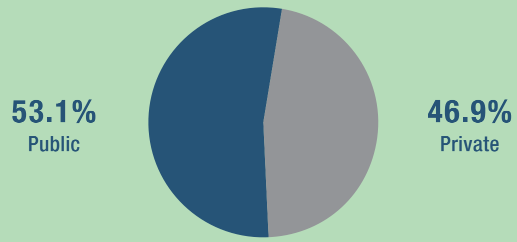
Electronics	6.8%
Precision Engineering	2.0%
Chemicals	0.9%
Transport Manufacturing	0.4%
General Manufacturing	0.2%
Biomedical Manufacturing	-0.4%

CONSTRUCTION

REAL GROWTH



CERTIFIED PAYMENTS IN 1Q18

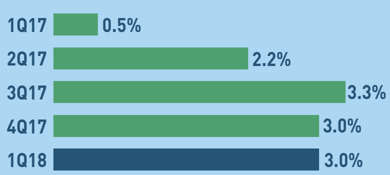


CONTRACTS AWARDED IN 1Q18

Institutional & Others	287.1%
Civil Engineering	237.4%
Residential	7.3%
Commercial	-32.4%
Industrial	-64.2%

WHOLESALE & RETAIL TRADE

REAL GROWTH

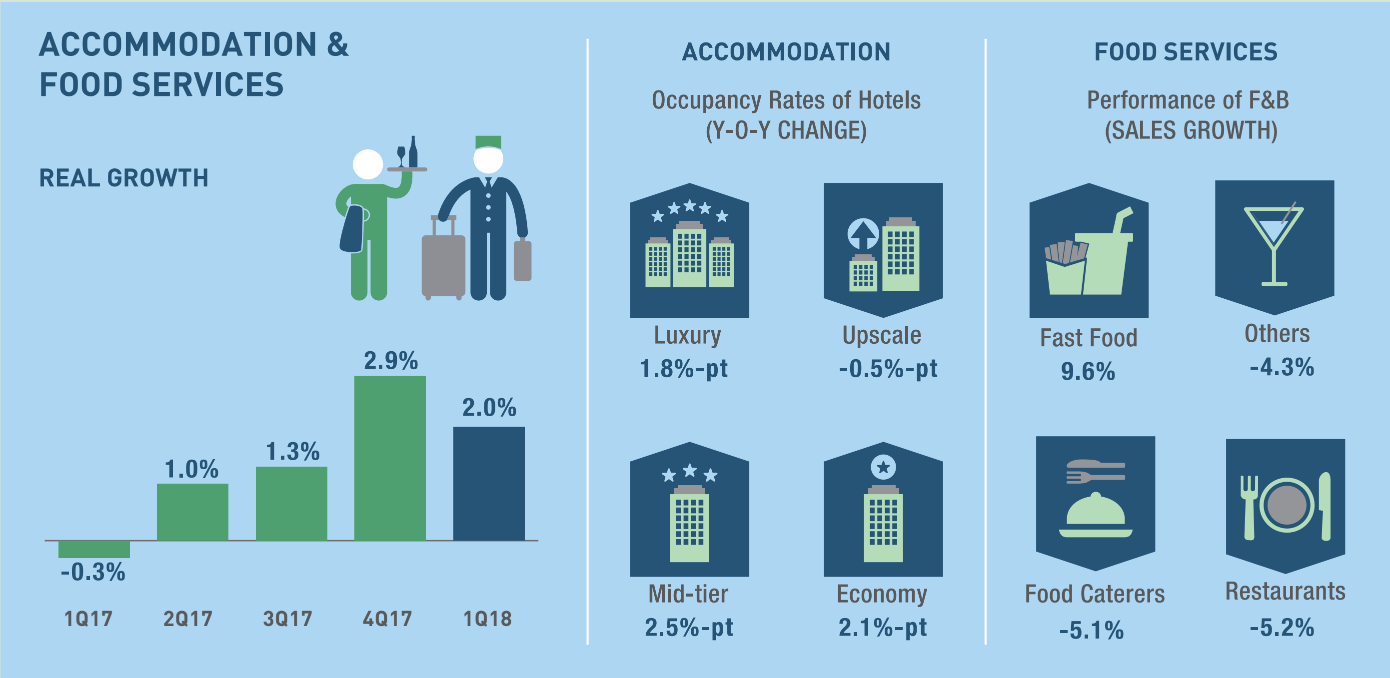


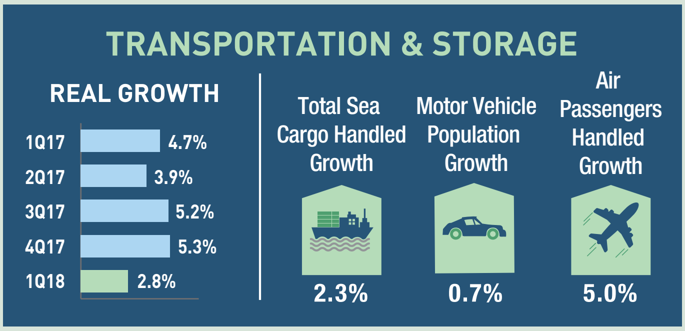
WHOLESALE TRADE

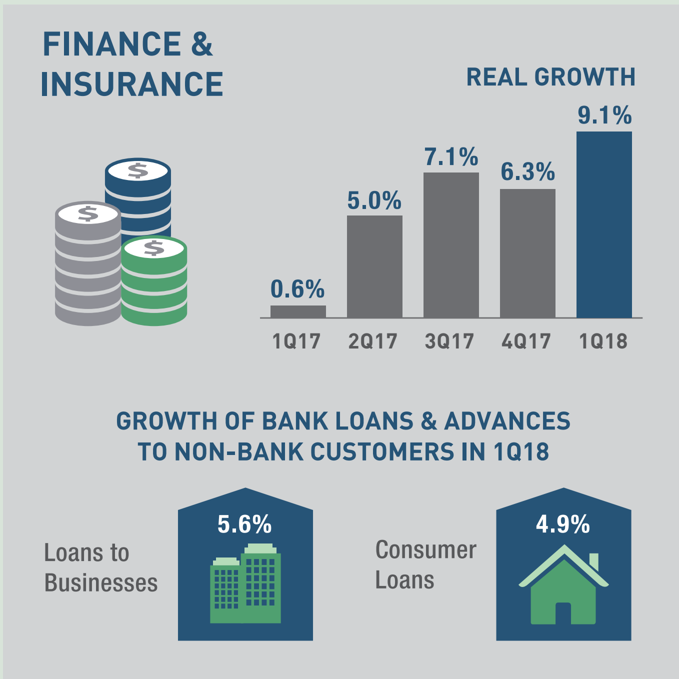
Foreign Wholesale Trade Index Growth	1.8%
Domestic Wholesale Trade Index Growth	3.2%

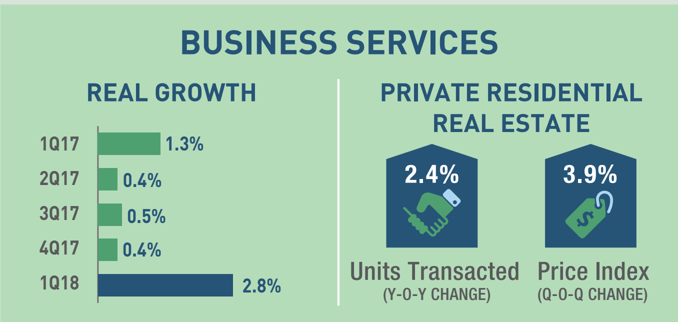
RETAIL TRADE

Retail Sales Index Growth (Non-motor Vehicles)	1.2%
Retail Sales Index Growth (Motor Vehicles)	-16.1%


ACCOMMODATION & FOOD SERVICES
REAL GROWTH
-0.3%
1.0%
1.3%
2.9%
2.0%
1Q17
2Q17
3Q17
4Q17
1Q18
ACCOMMODATION
Occupancy Rates of Hotels (Y-O-Y CHANGE)
Luxury 1.8%-pt
Upscale -0.5%-pt
Mid-tier 2.5%-pt
Economy 2.1%-pt
FOOD SERVICES
Performance of F&B (SALES GROWTH)
Fast Food 9.6%
Others -4.3%
Food Caterers -5.1%
Restaurants -5.2%


TRANSPORTATION & STORAGE
REAL GROWTH
1Q17 4.7%
2Q17 3.9%
3Q17 5.2%
4Q17 5.3%
1Q18 2.8%
Total Sea Cargo Handled Growth
2.3%
Motor Vehicle Population Growth
0.7%
Air Passengers Handled Growth
5.0%


FINANCE & INSURANCE
REAL GROWTH
0.6%
5.0%
7.1%
6.3%
9.1%
1Q17
2Q17
3Q17
4Q17
1Q18
GROWTH OF BANK LOANS & ADVANCES TO NON-BANK CUSTOMERS IN 1Q18
Loans to Businesses
5.6%
Consumer Loans
4.9%


BUSINESS SERVICES
REAL GROWTH
1Q17 1.3%
2Q17 0.4%
3Q17 0.5%
4Q17 0.4%
1Q18 2.8%
PRIVATE RESIDENTIAL REAL ESTATE
2.4%
3.9%
Units Transacted
(Y-O-Y CHANGE)
Price Index
(Q-O-Q CHANGE)

OVERVIEW

In the first quarter of 2018,

- The manufacturing sector expanded by 9.8 per cent, extending the 4.8 per cent growth in the previous quarter. All clusters recorded output expansions, with the exception of the biomedical manufacturing cluster, which posted a decline in output.
- The construction sector contracted by 5.0 per cent, unchanged from the previous quarter. The fall in construction output was due to continued weakness in both public sector and private sector construction activities.
- The wholesale & retail trade sector grew by 3.0 per cent, the same pace of growth as in the preceding quarter. Growth was supported by the wholesale trade segment.
- The transportation & storage sector expanded by 2.8 per cent, moderating from the 5.3 per cent expansion in the previous quarter. Growth was led by the water transport and air transport segments.
- The accommodation & food services sector posted growth of 2.0 per cent, slower than the 2.9 per cent increase in the previous quarter. Growth was supported by the accommodation segment.
- The finance & insurance sector grew by 9.1 per cent, an improvement from the 6.3 per cent growth in the preceding quarter. Broad-based improvements across segments, including the financial intermediation, fund management and insurance segments, contributed to the stronger performance of the sector.
- The business services sector expanded by 2.8 per cent, faster than the 0.4 per cent growth in the previous quarter, on the back of healthy growth in the others and professional services segments.

MANUFACTURING

The manufacturing sector grew by 9.8 per cent year-on-year in the first quarter, faster than the 4.8 per cent growth in the fourth quarter of last year (Exhibit 2.1). Growth during the quarter was supported by higher output across all clusters, with the exception of the biomedical manufacturing cluster, which registered a decline in output (Exhibit 2.2).

Exhibit 2.1: Manufacturing Sector's Growth Rate

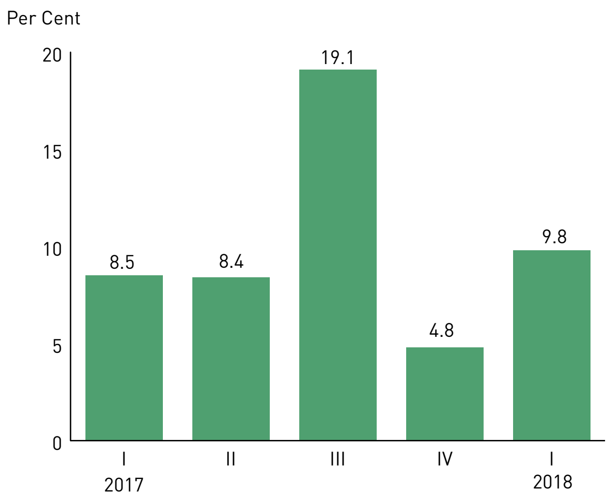
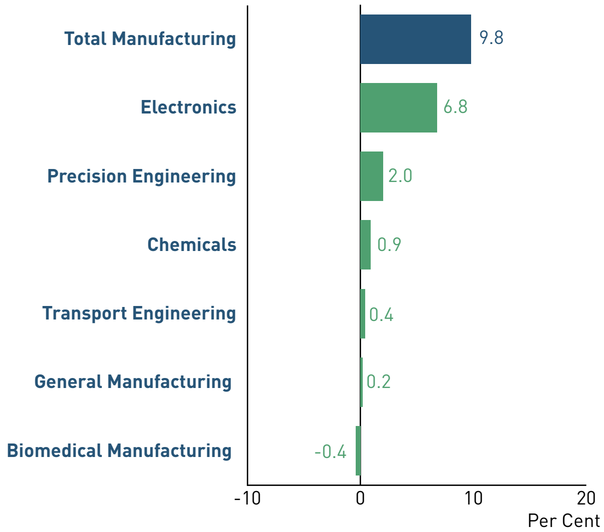


Exhibit 2.2: Percentage-Point Contribution to Manufacturing Sector's Growth in 1Q 2018



The output of the electronics cluster increased by 19 per cent in the first quarter, led by the semiconductors segment, which grew by 27 per cent. The robust performance of the semiconductors segment came on the back of strong global semiconductor demand from a broad range of end markets such as the smartphone, server, automotive and industrial markets. At the same time, the computer peripherals segment registered growth of 3.0 per cent in the first quarter, supported by an increase in demand for printer-related products. By contrast, output in the data storage, other electronic & modules, and infocomms & consumer electronics segments declined by 23 per cent, 10 per cent and 1.0 per cent respectively.

The precision engineering cluster expanded by 14 per cent in the first quarter, supported by both the precision modules & components (PMC) and machinery & systems (M&S) segments. Output in the PMC segment rose by 23 per cent, largely driven by an increase in the production of optical products. Meanwhile, the M&S segment grew by 8.9 per cent, supported by higher export demand for semiconductor-related equipment.

The output of the chemicals cluster rose by 10 per cent in the first quarter, with all segments recording output growth. Growth was led by the petrochemicals segment, which expanded by 17 per cent on the back of increased plant capacities. The healthy performance of the specialty chemicals segment (6.4 per cent) was underpinned by an increase in the production of mineral oil additives, while the other chemicals segment (6.5 per cent) recorded a higher production of fragrances. At the same time, petroleum throughput rose by 4.9 per cent, in part due to a low base caused by some plant maintenance shutdowns a year ago.

The transport engineering cluster expanded by 3.6 per cent in the first quarter, as a robust expansion in the output of the aerospace segment more than offset the output decline in the marine & offshore engineering (M&OE) segment. In particular, the aerospace segment expanded by 32 per cent on account of a higher volume of repair and maintenance work from commercial airlines. By contrast, the M&OE segment contracted by 20 per cent on the back of a drop in shipbuilding and repair activity, and weaker demand for oilfield & gasfield equipment.

The output of the general manufacturing industries cluster rose by 1.6 per cent in the first quarter. In particular, the food, beverages & tobacco segment recorded a strong performance (6.5 per cent) on account of a rise in the production of infant milk and beverage products. On the other hand, the printing and miscellaneous industries segments shrank by 7.0 per cent and 2.0 per cent respectively.

The biomedical manufacturing cluster contracted by 2.1 per cent in the first quarter. Within the cluster, the medical technology segment expanded by 5.1 per cent, supported by higher export demand for medical instruments. However, this was outweighed by a 4.7 per cent decline in the output of the pharmaceuticals segment, which could be attributed to the production of a different mix of active pharmaceutical ingredients.

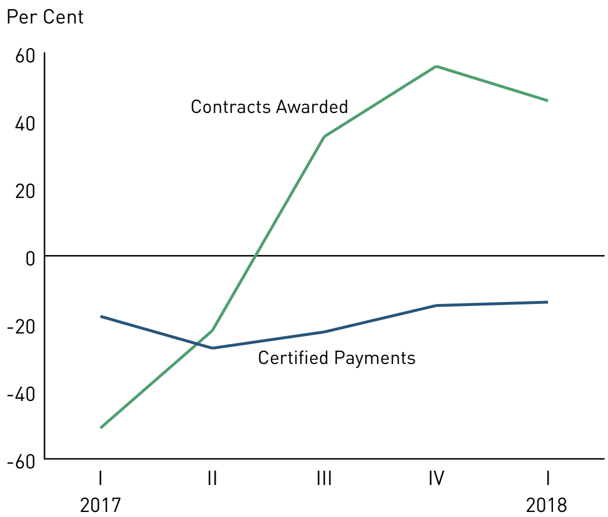
CONSTRUCTION

The construction sector shrank by 5.0 per cent year-on-year in the first quarter, unchanged from the previous quarter, due to weakness in both public sector and private sector construction output.

In the first quarter, nominal certified progress payments (a proxy for construction output) fell by 14 per cent, similar to the 15 per cent drop in the preceding quarter (Exhibit 2.3). The contraction in construction output could be attributed to a decline in both public (-14 per cent) and private (-14 per cent) certified progress payments. The fall in public certified progress payments came on the back of a decline in public institutional & other building works (-15 per cent) and public civil engineering works (-9.1 per cent). Meanwhile, private certified progress payments were weighed down by a weakness in private residential building works (-27 per cent) and private industrial building works (-20 per cent).

On the other hand, construction demand in terms of contracts awarded continue to increase, growing by 46 per cent in the first quarter, extending the 56 per cent rise in the previous quarter (Exhibit 2.3). The increase was primarily due to a robust expansion in public sector construction demand (69 per cent), which was in turn driven by a surge in demand for public civil engineering works (349 per cent) and public institutional & other building works (192 per cent). Likewise, private sector construction demand rose by 16 per cent, a reversal from the 7.6 per cent decline in the previous quarter. The turnaround was mainly due to a surge in contracts awarded for private institutional & other building works, such as the development of nature-themed attractions at Mandai Park.

Exhibit 2.3: Changes in Contracts Awarded and Certified Payments

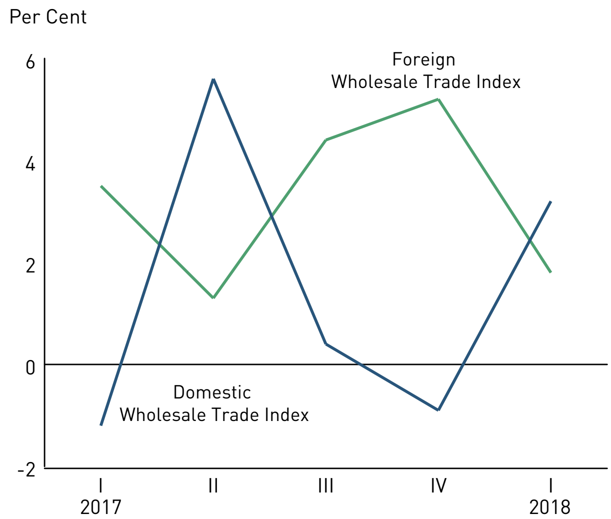


WHOLESALE & RETAIL TRADE

The wholesale & retail trade sector grew by 3.0 per cent year-on-year in the first quarter, the same pace of growth as in the previous quarter. Growth during the quarter was driven by the wholesale trade segment.

In turn, the wholesale trade segment was boosted by expansions in both domestic and foreign wholesale trade sales volumes (Exhibit 2.4). The domestic wholesale trade index rose by 3.2 per cent in the first quarter, reversing the 0.9 per cent contraction in the previous quarter. Growth in the domestic wholesale trade volume came on the back of expansions in the sales of petroleum & petroleum products (17 per cent) and electronic components (5.4 per cent).

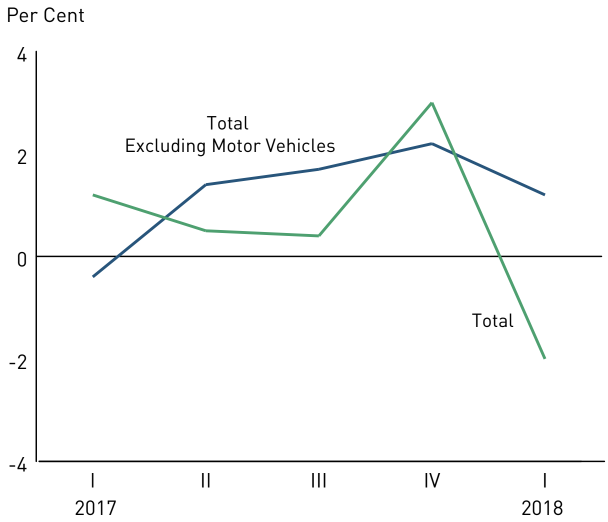
Exhibit 2.4: Changes in Wholesale Trade Index at Constant Prices



Meanwhile, the foreign wholesale trade index increased by 1.8 per cent in the first quarter, easing from the 5.2 per cent growth in the preceding quarter. Growth in the foreign wholesale trade volume was partly supported by a sustained expansion in the sales of petroleum & petroleum products. Specifically, the sales of petroleum & petroleum products rose by 6.3 per cent in the first quarter, extending the 9.2 per cent increase in the previous quarter. At the same time, growth in the sales of telecommunications & computers came in at 21 per cent in the first quarter, picking up from the 17 per cent in the previous quarter. These increases more than offset declines in the sales of metals, timber & construction materials (-20 per cent) and food, beverages and tobacco (-12 per cent).

For the retail trade segment, overall retail sales volume dipped by 2.0 per cent in the first quarter, reversing the 3.0 per cent expansion in the previous quarter. The decline in overall retail sales volume in the first quarter was caused by a 16 per cent fall in motor vehicular sales volume, which was a reversal from the 6.2 per cent growth registered in the preceding quarter. Nevertheless, a sustained recovery in non-motor vehicle sales provided some support to the retail trade segment (Exhibit 2.5). Notably, retail sales volume (excluding motor vehicles) expanded by 1.2 per cent in the first quarter, extending the 2.2 per cent increase in the previous quarter. The expansion in non-motor vehicle sales came on the back of an uptick in consumer sentiments as well as higher tourist expenditure on shopping. By categories of products, the sales volume of furniture & household equipment, wearing apparel & footwear and medical goods & toiletries rose by 5.9 per cent, 5.4 per cent and 4.4 per cent respectively.

Exhibit 2.5: Changes in Retail Sales Index at Constant Prices

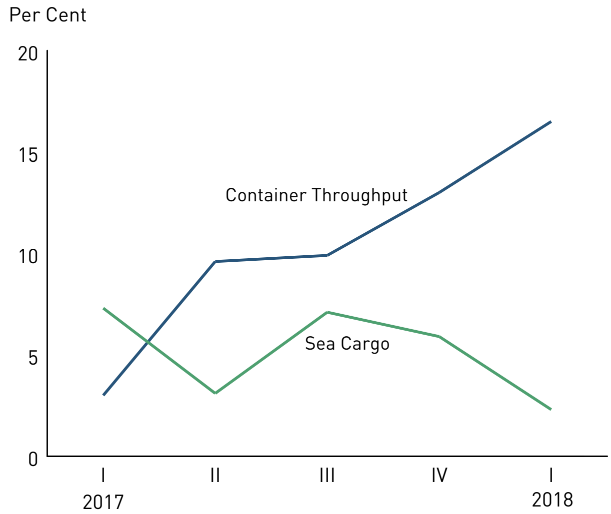


TRANSPORTATION & STORAGE

Growth of the transportation & storage sector came in at 2.8 per cent year-on-year in the first quarter, moderating from the 5.3 per cent in the previous quarter.

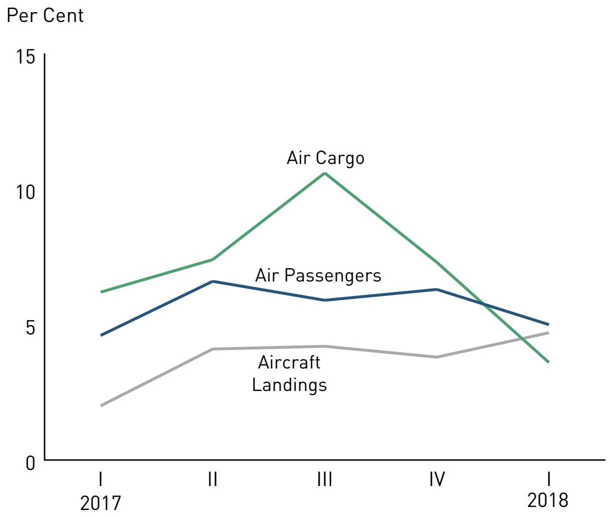
Within the sector, the water transport segment was supported by a 2.3 per cent increase in the volume of sea cargo handled, which was slower than the 5.9 per cent growth recorded in the previous quarter (Exhibit 2.6). In turn, the increase in volume of sea cargo handled came on the back of a robust 16 per cent expansion in container throughput handled at Singapore's ports, in line with the sustained growth in global container trade flows. On the other hand, a 7.2 per cent decline in oil-in-bulk shipments in the first quarter posed a drag on the growth of sea cargo handled at Singapore's ports.

Exhibit 2.6: Changes in Container Throughput and Sea Cargo Handled



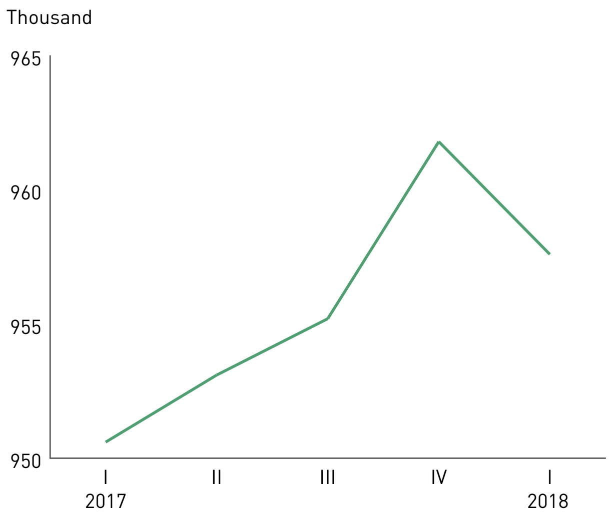
Similarly, the air transport segment was boosted by an increase in air passenger and air cargo volume handled at Changi Airport. Specifically, the volume of air passenger traffic passing through Changi Airport rose by 5.0 per cent in the first quarter, extending the 6.3 per cent increase in the previous quarter (Exhibit 2.7). The higher volume of air passenger traffic was underpinned by robust growth on the Singapore-India and Singapore-Thailand routes. Meanwhile, in tandem with the moderation in the growth of Singapore's non-oil export volumes, total air cargo shipments handled at Changi Airport rose by a slower 3.6 per cent in the first quarter compared to the 7.3 per cent growth in the preceding quarter. In addition, the number of aircraft landings increased by 4.7 per cent in the first quarter to reach 47,391, faster than the 3.8 per cent expansion in the previous quarter.

Exhibit 2.7: Changes in Air Transport



As of March 2018, the total number of motor vehicles registered with the Land Transport Authority was 957,562, representing a 0.7 per cent increase from a year ago (Exhibit 2.8). These comprised 546,170 private and company cars, 68,311 rental cars, 21,746 taxis, 19,218 buses, 140,280 motorcycles and scooters, and 161,837 goods vehicles & other vehicle types.

Exhibit 2.8: Motor Vehicles Registered

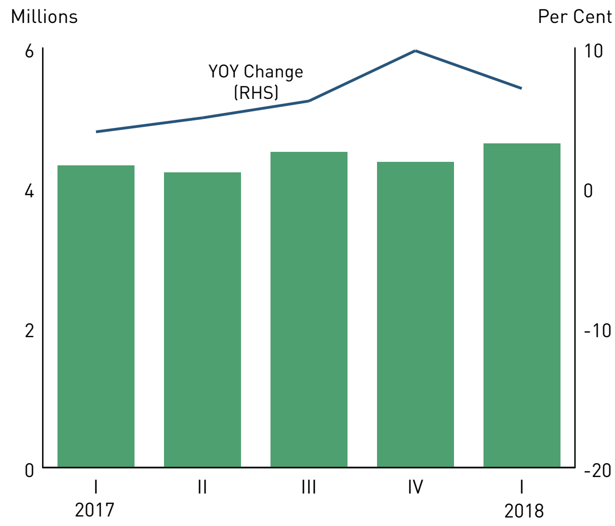


ACCOMMODATION & FOOD SERVICES

The accommodation & food services sector grew by 2.0 per cent year-on-year in the first quarter, moderating from the 2.9 per cent expansion in the preceding quarter. The sector's growth was bolstered by the accommodation segment.

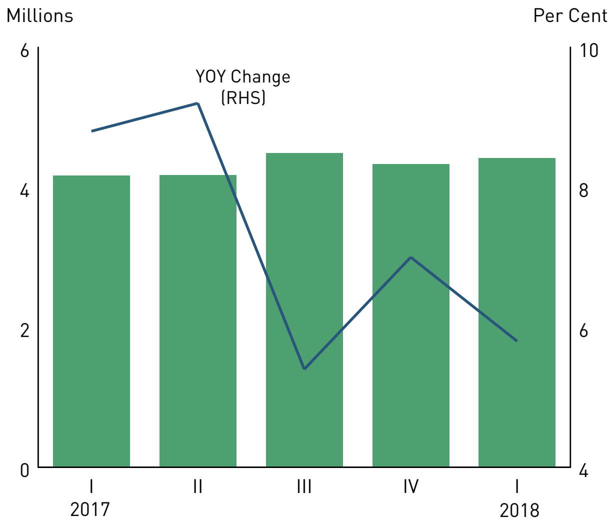
Total visitor arrivals rose by 7.1 per cent in the first quarter, following the 9.8 per cent increase in the previous quarter (Exhibit 2.9). This came on the back of buoyant travel demand from the Indian and Chinese source markets. Specifically, Indian and Chinese arrivals increased by 22 per cent and 9.6 per cent respectively in the first quarter.

Exhibit 2.9: Visitor Arrivals



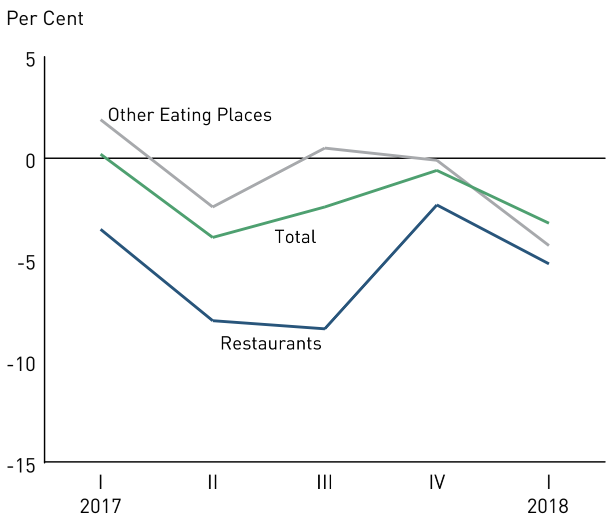
In tandem with the robust growth in visitor arrivals, gross lettings at gazetted hotels improved by 5.8 per cent in the first quarter, extending the 7.0 per cent increase in the previous quarter (Exhibit 2.10). The average occupancy rate of gazetted hotels rose by 1.7 percentage-points year-on-year to reach 86 per cent in the first quarter, as the rise in gross lettings outstripped the 3.7 per cent increase in available room-nights over the same period.

Exhibit 2.10: Gross Lettings at Gazetted Hotels



On the other hand, the food services segment contracted on the back of a 3.2 per cent decline in the overall volume of food & beverage sales in the first quarter (Exhibit 2.11). The latter was in turn due to weak sales volumes at restaurants, food caterers and other eating places. Specifically, the sales volumes at restaurants, food caterers and other eating places fell by 5.2 per cent, 5.1 per cent and 4.3 per cent respectively in the first quarter. The declines were partially offset by a 9.6 per cent expansion in the sales volume of fast food outlets.

Exhibit 2.11: Changes in Food & Beverage Services Index at Constant Prices

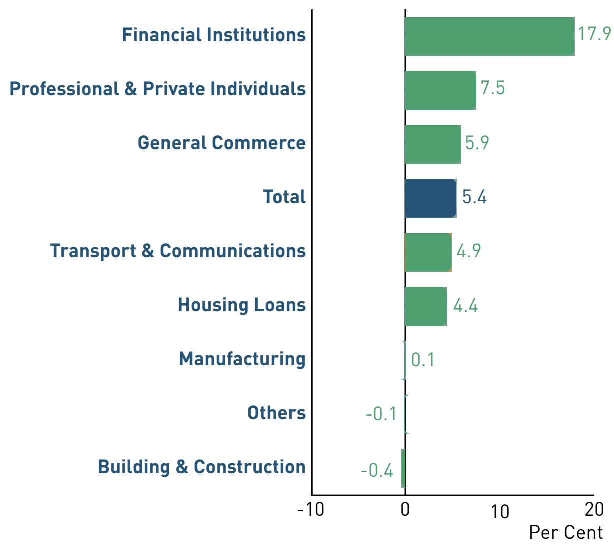


FINANCE & INSURANCE

The finance & insurance sector expanded by 9.1 per cent on a year-on-year basis in the first quarter, accelerating from the 6.3 per cent growth recorded in the preceding quarter.

The improvement in performance was broad-based across segments within the sector. Financial intermediation activities continued to register firm expansions on the back of the global cyclical uplift. In particular, Asian Currency Unit (ACU) non-bank lending grew by 20 per cent in the first quarter, maintaining the momentum from the previous quarter, as credit demand from East Asia and the Americas remained robust. Domestic Banking Unit (DBU) non-bank lending expanded by 5.4 per cent in the first quarter, similar to the 5.6 per cent recorded in the previous quarter, with increases in both business and consumer loans (Exhibit 2.12). Banks also posted gains in fees and commissions earned in segments such as trade financing and investment banking.

Exhibit 2.12: Growth of DBU Loans & Advances to Non-Bank Customers by Industry in 1Q 2018



Growth in the insurance segment was driven by sustained demand for both life and general insurance products, as well as supply-side expansions in the segment. Meanwhile, heightened volatility in global financial markets provided a fillip to sentiment-sensitive segments such as forex trading and securities dealing. For example, average daily trading volumes of forex and trading value of securities rose by 13 and 18 per cent respectively in the first quarter.

BUSINESS SERVICES

The business services sector grew by 2.8 per cent year-on-year in the first quarter, faster than the 0.4 per cent growth in the preceding quarter.

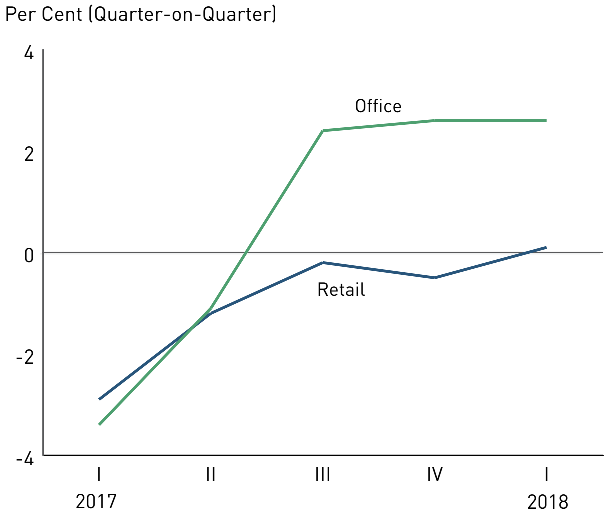
The healthy performance of the sector was primarily due to the others[1] and professional services segments, which expanded on the back of sustained growth in economic activities domestically and in the region.

On the other hand, the real estate segment continued to contract, although there were signs of improvement in the segment. The improvement was in part due to an increase in the prices and sales transactions of private residential units. In particular, private residential property prices rose by 3.9 per cent on a quarter-on-quarter basis in the first quarter, faster than the 0.8 per cent increase in the preceding quarter. This also marked the fastest increase since 2010. At the same time, the sales transactions of private residential units remained healthy, rising by 2.4 per cent year-on-year in the first quarter (Exhibit 2.13).

Exhibit 2.13: Total Sales Transactions for Private Residential Units and Private Residential Property Price Index

Meanwhile, the commercial office and retail space markets also saw signs of a recovery. For the private retail space segment, rentals rose by 0.1 per cent on a quarter-on-quarter basis in the first quarter, reversing the 0.5 per cent decline in the previous quarter (Exhibit 2.14). This also represented the first uptick in retail rentals after twelve consecutive quarters of decline. At the same time, the average occupancy rate of private retail space remained at 92 per cent in the first quarter, unchanged from the preceding quarter.

Exhibit 2.14: Changes in Rentals of Private Sector Office and Retail Spaces

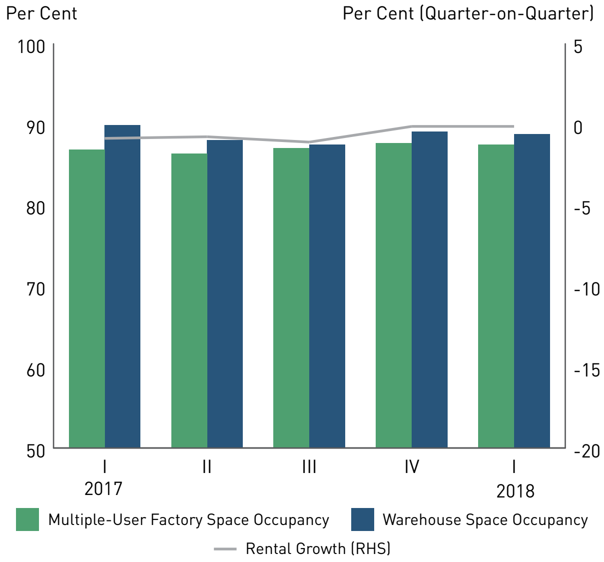


Similarly, for the private office space segment, rentals rose by 2.6 per cent on a quarter-on-quarter basis in the first quarter, the same pace of increase as in the previous quarter. Reflecting the healthy demand for office space, the average occupancy rate was maintained at 86 per cent in the first quarter, similar to the last quarter, despite an expansion in the supply of office space.

In the private industrial space market, overall rentals fell by 0.1 per cent on a quarter-on-quarter basis, extending the 0.1 per cent decline in the previous quarter (Exhibit 2.15). The occupancy rates for private sector multiple-user factory space and private sector warehouse space stood at 87 per cent and 89 per cent respectively in the first quarter, both of which were similar to the previous quarter.

1 *The others segment consists of (i) rental & leasing, (ii) other professional, scientific & technical services and (iii) other administrative & support services. Rental & leasing activities include rental & leasing of motor vehicles, rental & leasing of other machinery, equipment and tangible goods and the leasing of non-financial intangible assets.*

Exhibit 2.15: Occupancy Rate and Rental Growth of Private Sector Industrial Space



CHAPTER 3

ECONOMIC OUTLOOK

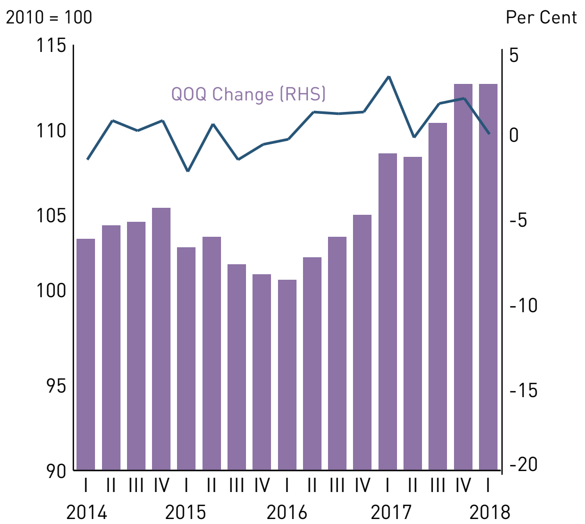
CHAPTER 3
ECONOMIC OUTLOOK

LEADING INDICATORS

On a quarter-on-quarter basis, the composite leading index (CLI) was unchanged in the first quarter, easing from the 2.1 per cent increase in the previous quarter (Exhibit 3.1).

Of the nine components in the CLI, six of them increased on a quarter-on-quarter basis, namely new companies formed, non-oil sea cargo handled, money supply, the US Purchasing Managers' Index, stock price and the stock of finished goods. By contrast, wholesale trade, domestic liquidity and non-oil retained imports declined compared to a quarter ago.

Exhibit 7.1: Composite Leading Index Levels and Growth Rate



OUTLOOK FOR 2018

The global economy has remained on a steady expansionary path since the start of the year, with full-year growth expected to improve slightly as compared to 2017. The IMF has also upgraded the 2018 growth outlook of some of Singapore's key final demand markets, including the US and Eurozone.

In particular, the US economy is projected to grow at a faster pace in 2018, partly due to a larger expected boost to private investment from the recent tax reforms. Stable labour market conditions will also continue to support private consumption in the US. Meanwhile, the growth outlook for the Eurozone economy in 2018 has also improved slightly in view of improving labour market conditions, as well as healthy business and consumer sentiments.

In Asia, China's economic growth is projected to slow this year as compared to 2017 on the back of a moderation in exports and investment growth, with the latter due in part to the scaling back of infrastructure investments. On the other hand, growth in the key ASEAN economies is expected to remain firm in 2018, supported by sustained improvements in domestic demand as well as merchandise exports.

However, alongside the improvement in the growth outlook of some of the key economies, uncertainties and downside risks in the global economy have also increased since early 2018. First, recent protectionist actions and tariff measures by the US have increased the risk of an escalation of global trade tensions. This could adversely affect international trade as well as dampen investor and consumer confidence, in turn weighing on global growth. Second, against the backdrop of rising global interest rates and generally tightening financial conditions, financial vulnerabilities in emerging market economies could surface, particularly for those with elevated debt levels, including in the region. If this occurs, there could be some pullback in investment and consumption growth in these economies.

On balance, the pace of growth in the Singapore economy is expected to remain firm in 2018, with growth supported primarily by outward-oriented sectors. In particular, the manufacturing sector is likely to continue to expand on the back of sustained growth in the electronics and precision engineering clusters, albeit at a more moderate pace as compared to 2017. Likewise, outward-oriented services sectors such as finance & insurance, transportation & storage and wholesale trade are projected to continue to benefit from healthy external demand. Growth is also expected to broaden to domestically-oriented services sectors like retail and food services over the course of the year, on the back of an improvement in consumer sentiments amidst the on-going recovery in the labour market. However, the performance of the construction sector is likely to remain lacklustre as the earlier weakness in construction demand, particularly from the private sector, is expected to continue to weigh on construction activities this year.

Taking into account the strong performance of the Singapore economy in the first quarter and the slightly improved external demand outlook for Singapore, MTI expects GDP growth for 2018 to come in at **"2.5 to 3.5 per cent"**, barring the full materialisation of downside risks.

FEATURE ARTICLE

FEATURE ARTICLE

AN EVALUATION OF THE IMPACT OF ENTERPRISE SINGAPORE'S LOAN SCHEMES

INTRODUCTION

Enterprise Singapore's (ESG) loan schemes complement commercial lending and avail financing to local SMEs through the sharing of the risk of loss on loans. ESG currently partners 16 Participating Financial Institutions to deliver a suite of loan schemes.

Our study focuses on these loan schemes:

SME Equipment Loan
supports equipment financing for companies with higher risk profiles

SME Micro Loan
is a broad-based scheme that provides working capital financing for micro-enterprises

SME Enhanced Micro Loan
provides working capital financing for young micro-enterprises (less than 3 years old) as they often face difficulties in obtaining commercial loans due to a lack of track record and collateral

Between 2008 and 2015, around 1,000, 6,100 and 1,400 firms took up Equipment, Micro and Enhanced Micro Loans respectively.

1,000 Firms took up Equipment Loans

6,100 Firms took up Micro Loans

1,400 Firms took up Enhanced Micro Loans

Between 2008 and 2015, around 1,300, 8,000 and 1,400 Equipment, Micro and Enhanced Micro Loans were taken up respectively.

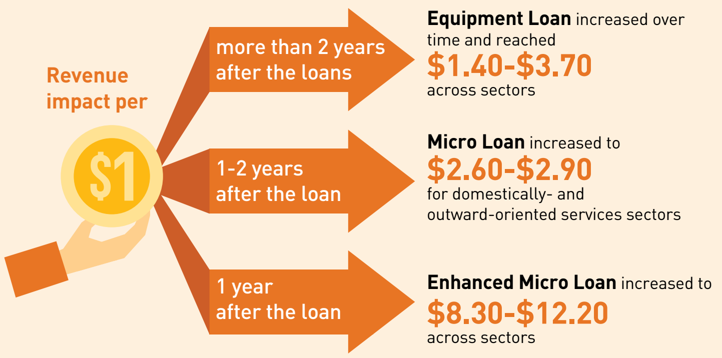
1,300 Equipment Loans taken up

8,000 Micro Loans taken up

1,400 Enhanced Micro Loans taken up

FINDINGS

FINDING 1
ESG's loans had a positive impact on firms' revenue, possibly by helping them with their working capital needs and hence allowing them to expand sales.



FINDING 2
ESG's loans did not have a significant impact on the exit rate of firms.

EXECUTIVE SUMMARY

- Enterprise Singapore (ESG)'s loan schemes complement commercial lending and avail financing to local small- and medium-sized enterprises (SMEs)[1] through the sharing of the risk of loss on loans with participating financial institutions. This study evaluates the impact of three ESG loan schemes (*viz*. Equipment loans, Micro loans and Enhanced Micro loans) on the revenue and exit probability of firms that received loans under these schemes.

- Our findings show that ESG's loans had a positive impact on firms' revenue, possibly by helping them with their working capital needs and hence allowing them to expand sales. We also find that Enhanced Micro loans had the largest impact on the revenue of firms – on average, for each dollar of loan received, the revenue of firms increased by $8.30 to $12.20 one year after receiving the loan.

- In terms of exit probability, we find that ESG's loans did not have a significant impact on the exit rate of firms. This suggests that ESG's loans had not inadvertently prevented the exit of firms and inhibited the natural functioning of the market.

The views expressed in this paper are solely those of the authors and do not necessarily reflect those of the Ministry of Trade and Industry or the Government of Singapore.[2]

INTRODUCTION

ESG's loan schemes complement commercial lending and avail financing to local small- and medium-sized enterprises (SMEs)[1] through the sharing of the risk of loss on loans with participating financial institutions. Specifically, the schemes encourage lending by financial institutions and assist deserving borrowers to gain access to financing by reducing the risk exposure of the lenders in areas where they are more risk averse or where they see minimal benefit based on the risk profile of borrowers. While ESG offers a suite of loan schemes, our study focuses on the Equipment, Micro and Enhanced Micro loan schemes.[3]

Equipment loans support equipment financing for companies with higher risk profiles, whereas the Micro loan scheme is a broad-based scheme that provides working capital financing for micro-enterprises.[4] The Enhanced Micro loan scheme was introduced in 2014 to provide working capital financing for young micro-enterprises (less than 3 years old) as such enterprises often encounter difficulties in obtaining commercial loans due to a lack of track record and collaterals. Please refer to Annex A for the eligibility criteria of the three loan schemes.

Among the firms that received any of the three types of loans, the majority of them took up only one loan between 2008 and 2015 (Exhibit 1).[5] Over this period, the Micro loan scheme saw the highest take-up at 8,000 loans, compared with 1,300 and 1,400 loans under the Equipment and Enhanced Micro loan schemes respectively (Exhibit 2).[6]

Given that ESG's loan schemes play an important role in addressing potential gaps in the market for loans, this study seeks to evaluate the impact of the schemes on the revenue performance of firms across sectors. Apart from the impact on revenue, the study also examines whether receiving an ESG loan inadvertently affected the probability of firm exit.

1 *Local SME is defined to have at least 30 per cent local shareholding, and not more than S$100 million in group annual sales turnover or not more than 200 employees under the group.*
2 *We would like to thank Yong Yik Wei for her useful suggestions and comments. We are also grateful to Dennis Kuah and his team (Financing Ecosystem, ESG) for their inputs to this study. All remaining errors belong to the authors.*
3 *Other ESG loan schemes include SME Factory Loan, SME Working Capital Loan, SME Venture Loan, Internationalisation Finance Scheme (IFS) & Bridging Loan – Marine & Offshore Engineering, and Loan Insurance Scheme.*
4 *Micro-enterprises are defined to have not more than S$1 million in company annual sales turnover or not more than 10 employees under the company.*
5 *Firms can take up multiple loans under the same scheme subject to a cap on the maximum loan quantum per firm.*
6 *As the Enhanced Micro loan was only introduced in 2014, the number of loans under the scheme was observed for only two years in the dataset compared with the eight years of observations for the other two schemes.*

Exhibit 1: Distribution of Firms by Number of Loans Taken Up, 2008-2015

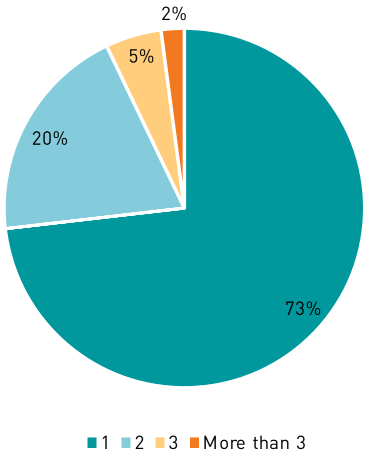
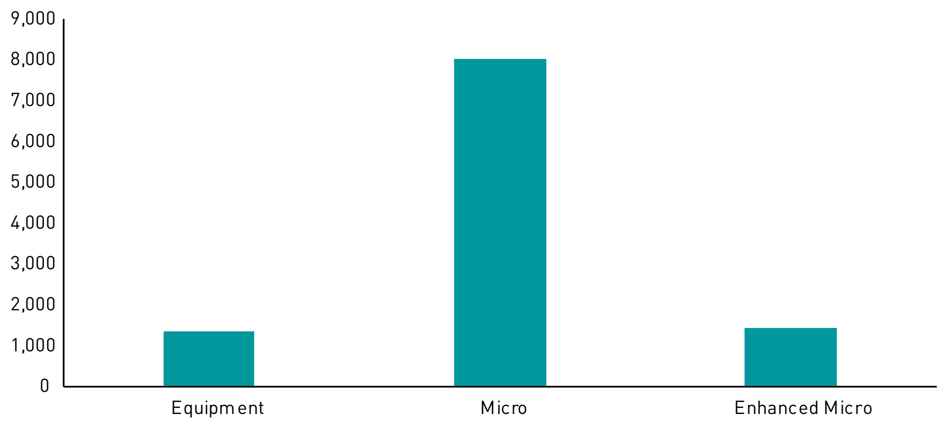


Exhibit 2: Number of ESG's Loans Taken by Loan Type, 2008-2015



LITERATURE REVIEW

International studies on the impact of firm-level assistance programmes have found mixed results. For example, Ottaviano and Sousa (2009) examined the impact of loans by the Brazilian Development Bank and found that the loans had no effect on manufacturing firms' performance. On the other hand, Girma et al (2006) found that government grant provision in the manufacturing sector in Ireland had a positive impact on plant performance. In Singapore, Chua et al (2015) found that the ESG's Capability Development Grant, a financial assistance scheme that aims to help local firms build capabilities and become more competitive, improved firms' revenue by 9.3 per cent on average. Examining the impact of the Infocomm Media Development Authority's (IMDA) iSPRINT scheme, Poh and Li (2016) similarly found that it had a positive effect on the revenue of firms that adopted solutions under the scheme.[7]

7 *The iSPRINT is a financial assistance scheme administered by IMDA that helps local SMEs to defray the costs of automating their business functions through information technology. The researchers found that for every 1 per cent increase in the project amount incentivised under iSPRINT, firms' revenue rose by 0.03 per cent on average.*

DATA AND EMPIRICAL METHODOLOGY

Our study uses an anonymised dataset that tracks individual firms annually from 2008 to 2015. The dataset contains firm-level characteristics, such as the revenue, age and industry of the firm. The dataset also includes data pertaining to ESG's loan schemes,[8] such as the type of loan taken up by the firm, the year in which the loan was taken, and the loan quantum.

Similar to other impact evaluation studies, selection bias is a key empirical concern that our study has to address in order to derive the causal impact of ESG's loan schemes.[9] According to the data, firms that took up ESG's Equipment, Micro and/or Enhanced Micro loans had lower revenue, value-added[10] and profits on average as compared to non-recipient firms (Exhibit 3).[11] Given that firms that received these ESG loans were inherently different from firms that did not, using the latter as a control group to evaluate the impact of ESG's loans would lead to biased results.

Exhibit 3: Characteristics of Firms That Received ESG's Equipment, Micro And Enhanced Micro Loans Compared To Those That Did Not

Outcome Variable (per firm)	SMEs that did not receive ESG's loans	SMEs that received ESG's loans
	Average from 2010-2015[12]	Before first loan
Revenue ($ million)	22.0	1.6
Value-added ($ million)	1.7	0.5
Profits ($ million)	1.0	0.1

To overcome the issue of selection bias, we therefore restrict our sample to the 7,249 firms that had ever received loans from the three ESG loan schemes between 2008 and 2015. We then exploit differences in the timing of when these firms received the loans to evaluate the impact of the loans on their revenue over time. This empirical strategy essentially uses the firms that received ESG's loans later as the control group for those that did so earlier.[13] By comparing changes in the revenue of the loan recipients after receiving the loan with the changes experienced by firms that had not yet taken up loans over the same period, we are able to isolate the causal impact of ESG's loan schemes.

In order to ensure that other firm-level differences that could affect firms' revenue are controlled for in our analysis, we also include firm fixed-effects as well as time dummies in our regressions. Including firm fixed-effects would remove the impact of time-invariant firm-level characteristics on the revenue of firms, while the inclusion of time dummies would remove the influence of macroeconomic factors.

8 *Only the ESG loan schemes that existed during the period 2008 to 2015 are covered in our dataset. Besides the Equipment, Micro and Enhanced Micro loans, the dataset includes the SME Factory loans and the Bridging Loan Programme (BLP) loans. The BLP was introduced as a temporary measure during the 2009 Global Financial Crisis.*
9 *See Angrist and Pischke (2009) for a discussion on the selection problem and econometric methods to overcome it.*
10 *Value-added is measured as the sum of profits and remuneration in this study.*
11 *The majority of the loans covered in our dataset are the Micro and Enhanced Micro loans, which are targeted at local micro-SMEs.*
12 *This time period is chosen to exclude the impact of the Global Financial Crisis on the performance of firms.*
13 *This is the same empirical strategy adopted in Chua et al's (2015) evaluation of the Capability Development Grant.*

Specifically, we adopt the following regression equation to estimate the causal impact of ESG's loans on firms' revenue over time:

$$Y_{it} = \sum_j \alpha_{1j} eqp_{it} + \sum_j \alpha_{2j} micro_{it} + \sum_j \alpha_{3j} enhmicro_{it} + \beta X_{it} + \gamma_i + \theta_t + \varepsilon_{it} \quad (1)$$

Where:

Y_{it} is the revenue of firm i in time t;
X_{it} denotes other firm characteristics, including firm's age, as well as indicators on the receipt of other ESG loans over the period (i.e., Factory loans or Bridging Loan Programme loans);
eqp_{it}, $micro_{it}$, $enhmicro_{it}$ are indicator variables that take on a value of 1 once firm i receives the first Equipment, Micro and Enhanced Micro loan respectively;
α_j are indicator variables for each of the following three time periods: the year that the firm received the loan, one to two years after the loan, and more than two years after the loan;
γ_i denotes the firm time-invariant fixed effects;
θ_t is a vector of year dummies that captures effects that are common to all firms in the specific year; and
ε_{it} is the error term that is assumed to be uncorrelated with the independent variables in all time periods.

The coefficients of interest in the above regression are α_{1j}, α_{2j} and α_{3j}, as they measure the effects of ESG's loan schemes on firms' revenue over time.

To estimate the effect of ESG's loans on firms' exit probability,[14] we further run the following random effects probit regression:

$$Exit_{it} = P(eqp\_sum_{it}, micro\_sum_{it}, X_{it}, \gamma_i, \theta_t) \quad (2)$$

Where:

$Exit_{it}$ is a dummy variable that takes on a value of 1 from the year firm i exits;
eqp_sum_{it}, $micro\_sum_{it}$ are the cumulative amounts of Equipment and Micro loans that firm i received up to year t respectively;[15] and
All other variables are as defined in equation (1).

For both equations (1) and (2), separate regressions are conducted for firms in the manufacturing, construction, domestically- and outward-oriented services sectors.[16]

RESULTS AND DISCUSSION

Our findings suggest that receiving an ESG loan has a positive and significant impact on the revenue of firms (Exhibits 4, 5 and 6). This is in line with the policy intent of helping firms with their working capital needs, which would in turn allow the firms to expand their sales.

Specifically, the revenue impact per $1 of Equipment loan increased over time and reached $1.40-$3.70 on average for firms across all sectors more than two years after the receipt of the loan (Exhibit 4).[17] Similarly, the revenue impact per $1 of Micro loan increased to $2.60-$2.90 on average for firms in domestically- and outward-oriented services sectors after one to two years of receiving the loan, before dipping slightly in subsequent years (Exhibit 5). Given that Enhanced Micro loans were only introduced in 2014, we could only study the revenue impact of Enhanced Micro loans up to one year after the receipt of the loan (Exhibit 6). We find that the revenue impact per $1 of Enhanced Micro loan increased to $8.30-$12.20 for firms across all sectors after one year, significantly larger compared to the impact of the other two loan schemes.

14 Firms are assumed to have exited if they were not observed in the last two years in our dataset.
15 Enhanced Micro loan was not included in this analysis as it was only introduced in 2014.
16 Domestically-oriented services sectors refer to construction, retail trade, food services, other business services, and other services industries. Outward-oriented services sectors refer to manufacturing, wholesale trade, transportation & storage, accommodation, information & communications, finance & insurance, and professional services.
17 Regression coefficients were converted to per dollar terms by dividing the coefficients for each loan type by the average loan amounts in the respective sectors.

Exhibit 4: Revenue Impact Per Dollar of Equipment Loan Over Time, by Sector

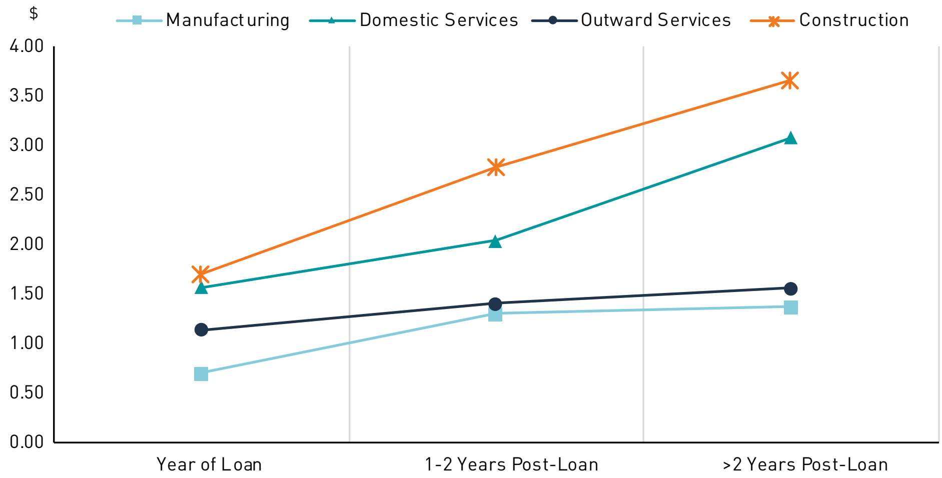
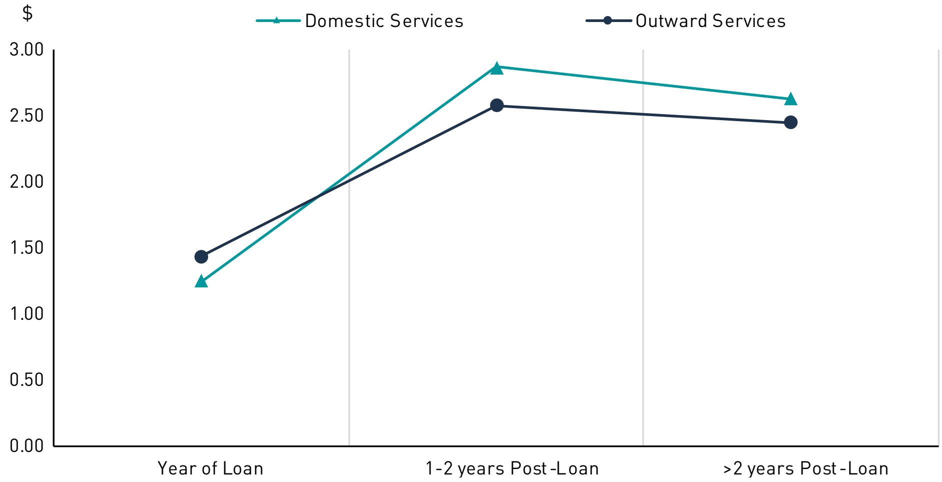
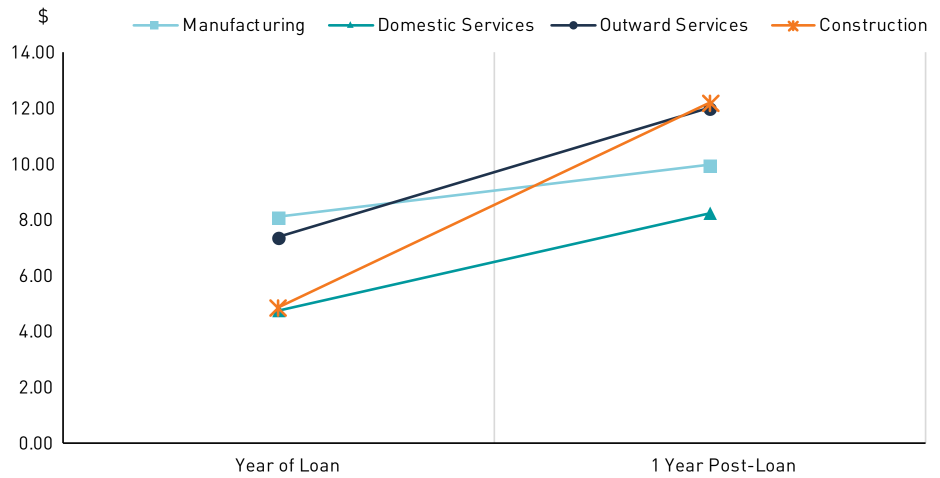


*Exhibit 5: Revenue Impact Per Dollar of Micro Loan Over Time, by Sector**



** For firms in the manufacturing and construction sectors, the revenue impact of the Micro loan was positive but statistically insignificant.*

Exhibit 6: Revenue Impact Per Dollar of Enhanced Micro Loan Over Time, by Sector



In terms of the effect of ESG's loans on the probability of firms' exit, we find that Equipment loans and Micro loans did not have a significant impact on the exit probability of firms across all sectors. This suggests that ESG's loans had not inadvertently prevented the exit of firms and thus inhibited the natural functioning of the market.

CONCLUDING REMARKS

In summary, this study finds that ESG's loans (specifically the Equipment, Micro and Enhanced Micro loans) had a positive impact on firms' revenue, possibly by helping them with their working capital needs and hence allowing them to increase sales. Enhanced Micro loans had a significantly larger impact on firms than the other two loan schemes one year after the receipt of the loans. This suggests that the Enhanced Micro loans are an important source of support for young micro-enterprises, which may require the additional credit to expand sales as they traditionally face greater difficulties in obtaining commercial loans. In terms of the revenue impact over time, Equipment loans were found to have a more sustained longer-term effect on firms as compared to Micro loans, suggesting that the additional fixed capital acquired had enabled firms to generate a revenue stream over time. Finally, our findings show that ESG's loans did not have a significant impact on the exit rate of firms.

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ANNEX A: ELIGIBILITY CRITERIA FOR ESG'S LOAN SCHEMES COVERED IN STUDY

Loan Terms					
Loan Type	Firm Size	Loan Tenure	Risk Sharing	Max Loan Quantum (Per Company)	Additional Criteria
Enhanced Micro Loan	<10 employees or annual sales < $1 million	Up to 4 years	70% Gov; 30% PFI	$100,000	Must be less than 3 years old
Micro Loan	<10 employees or annual sales < $1 million	Up to 4 years	50% Gov; 50% PFI	$100,000	-
Equipment Loan	Full SME criteria	Up to 8 years	50% Gov; 50% PFI	$15 million	Up to 90% financing ratio

Note: The following SME Criteria are applicable for ESG's loan schemes:
1) Incorporated & operating in Singapore; and
2) At least 30 per cent Local Shareholding; and
3) Company's Group Annual Sales of not more than S$100 million or company's Group Employment Size of not more than 200 staff.

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