PMI Quarterly on China Manufacturing

PMI indicates a slowing economy in China

- Output growth moderates.
- New orders index dips into contractionary zone.
- Backlogs of orders index falls slightly in December.
- Stocks of finished goods decrease at a relatively slow pace.
- Purchasing activities post a small decrease.
- Input prices index plunges.
- Ex-factory prices index stays below critical 50-mark in December.
- Imports index trends downward.
- Manufacturing employment continues to decrease.
- Suppliers' delivery quickens slightly.
- Purchasing managers become less optimistic.

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1.   PMI indicates a slowing economy in China

China's manufacturing PMI dropped from 50.2 in October to 50.0 in November. Afterwards, the index fell to 49.4 in December, dipping into the contractionary zone for the first time since August 2016. The latest figure indicates a slowing economy in China. (See exhibit 1)

It is noteworthy to recognize the discrepancy by size of enterprises. The PMI of 'large enterprises' went down from 51.6 in October to 50.6 in November, and dropped further to 50.1 in December, showing that 'large enterprises' have expanded at a slower pace recently. Meanwhile, the PMI of 'medium enterprises' rose from 47.7 in October to 49.1 in November, but then fell to 48.4 in December. The index was below the critical 50-mark in the past three months, indicating a continuous contraction of 'medium enterprises'. The PMI of 'small enterprises' went down from 49.8 in October to 49.2 in November, and dropped further to 48.6 in December, the lowest level since March last year, indicating that the situations facing 'small enterprises' have been deteriorating. (See exhibit 2)

The headline PMI fell below the critical 50-mark in December, pointing to a slower growth of the Chinese economy. The output index trended downward in the past three months, showing that output growth has decelerated recently. This was due largely to a weakening domestic and export demand: For the first time since March 2016, the new orders index dipped into the contractionary zone in December[1]; the new export orders index went down to 46.6 in December, the lowest level since December 2015. The direct and indirect impact of the ongoing China-US trade frictions on the demand for industrial products have been gradually unfolding.

Meanwhile, prices of industrial products have started to fall: the ex-factory prices index dropped below 50 in November and went further down to 43.3 in December. Besides the weak demand, another possible reason behind the decrease in product prices was the recent fall in prices of materials. The input prices index fell below 50, registering 44.8 in December.

Looking ahead, we expect that the central government will increase its efforts to stimulate China's economy. The Central Economic Work Conference, a meeting which sets the tone for the economic tasks this year, was held on 19-21 December last year. According to the statement issued after the conference, China will take stronger and more effective actions to carry out the proactive fiscal policy; bigger tax and fee cuts will be introduced and the issuance of special local government bonds will be increased substantially; the prudent monetary policy should be 'neither too tight nor too loose', and the government will keep liquidity 'reasonably ample', improve

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1 The 'new orders index' covers both domestic and export orders. That is to say, the manufacturers are not asked to differentiate between domestic and export orders when filling in questionnaires.

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monetary policy transmission, increase direct financing, solve financing difficulties and lower financing costs for private enterprises and small businesses. We believe that these policies will help alleviate the downward pressure on the Chinese economy.

In view of the currently weak domestic and export demand, China's economic growth is set to moderate in the near future. Overall, we predict that the headline PMI will fluctuate within a lower range of 48 to 50 and the real GDP growth will decelerate to 6.3% yoy in 1Q19. Challenges facing Chinese manufacturers include ongoing trade frictions between China and the US, strong government's determination to tackle pollution problem, intense competition in the international market, and the weak demand for luxury products. Overall, we expect that the industrial production (VAIO) growth will moderate to around 5.0-5.5% yoy in 1Q19.

Exhibit 3 shows that the fall in the headline PMI in December was due to the drop in the output index (which weighs 25% in the computation of the headline PMI) and the new orders index (weighs 30%). In December, 12 of the 13 sub-indices were lower than their respective levels in the previous month. (See exhibit 4)

Among the 12 sub-indices (i.e. excluding the suppliers' delivery time index), 2 stayed in the expansionary zone over the past three months (i.e. output and business expectations). Meanwhile, the indices of new export orders, backlogs of orders, stocks of finished goods, imports, stocks of major inputs and employment stayed in the contractionary zone over the same period.

China's manufacturing PMI has so far done a satisfactory job in predicting economic growth. Exhibit 5 plots the quarterly real GDP yoy growth rates versus the monthly PMIs since January 2014. It could be seen that the PMI demonstrates a fairly good track record of forecasting the growth trend of the economy at least over the next few months. Based on this chart we project that the real GDP growth will be 6.3% in 1Q19.

Exhibit 1: Headline PMI, January 2017 to December 2018
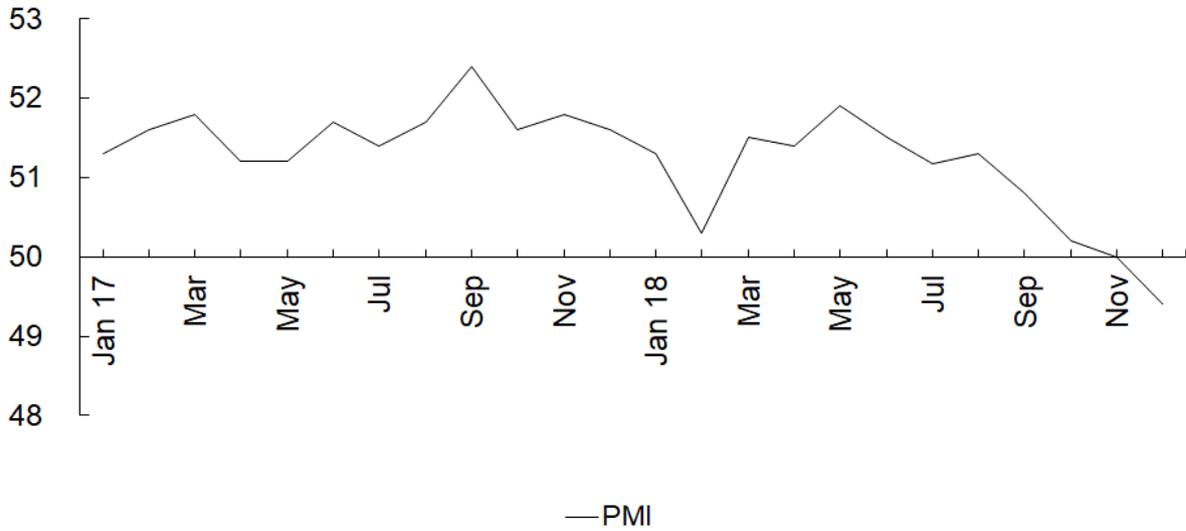
Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics
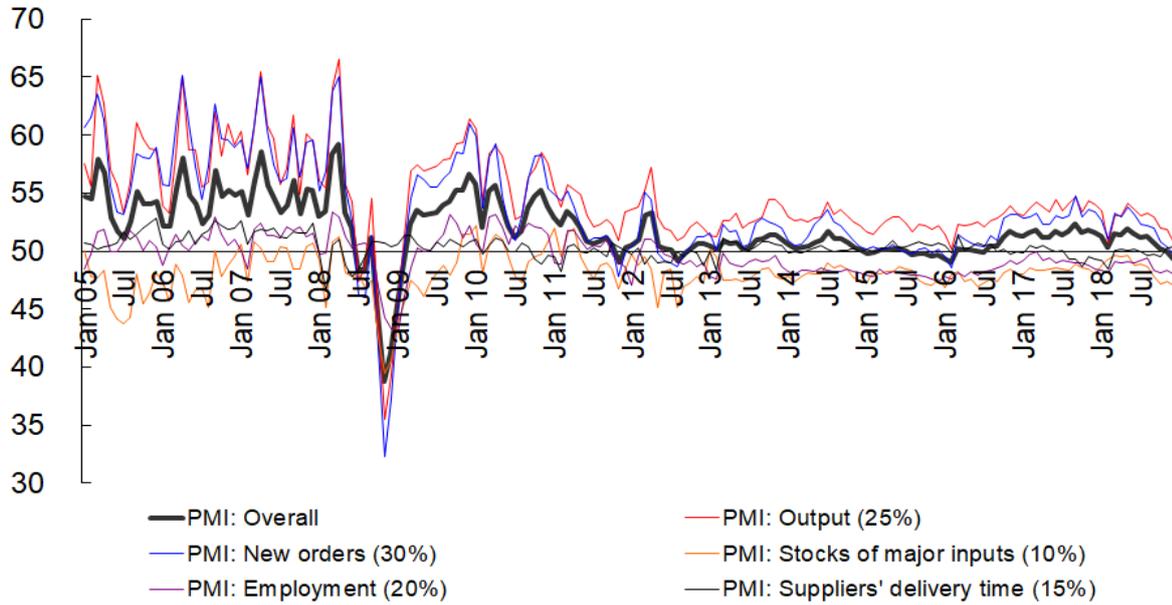
Exhibit 2: PMIs of large enterprises, medium enterprises and small enterprises, October to December 2018
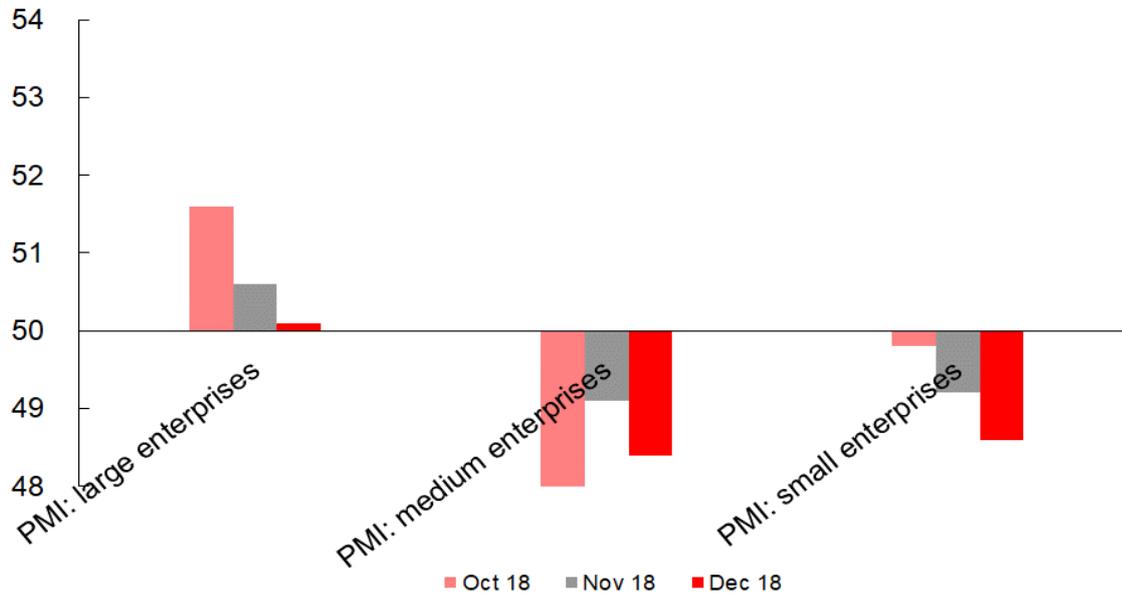
Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

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Exhibit 3: Headline PMI and sub-indices, January 2005 to December 2018

PMI = Output x 25% + New Orders x 30% + Stocks of Major Inputs x 10% + Employment x 20% + (100 - Suppliers' Delivery Time) x 15%

Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

Exhibit 4: Headline PMI and all sub-indices, October to December 2018

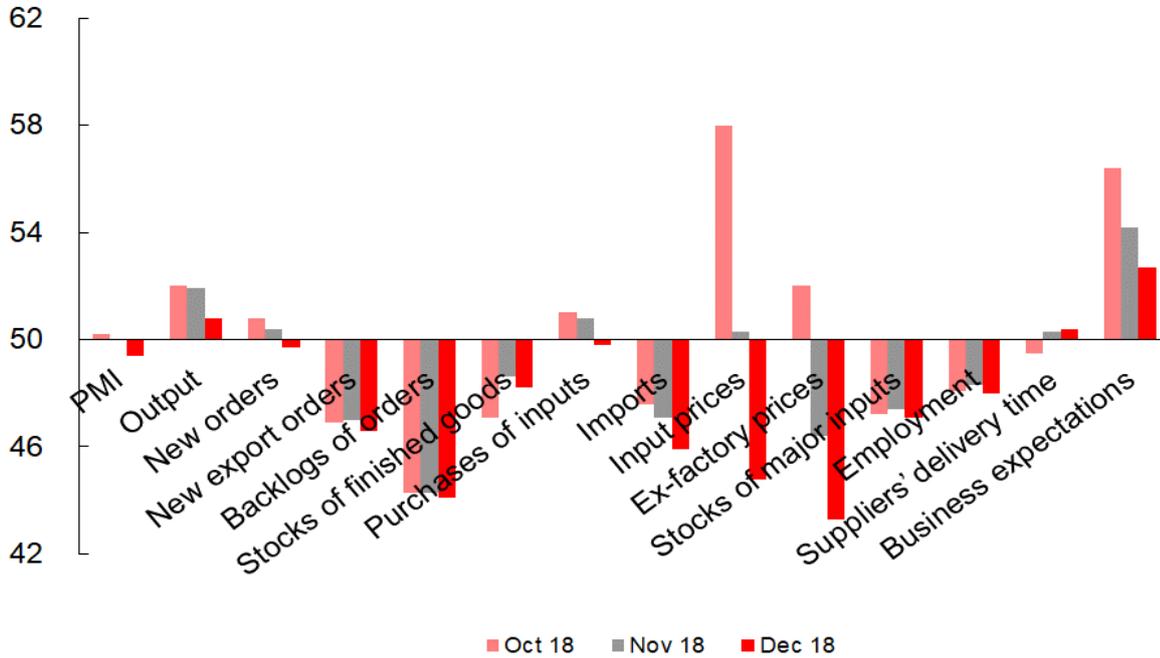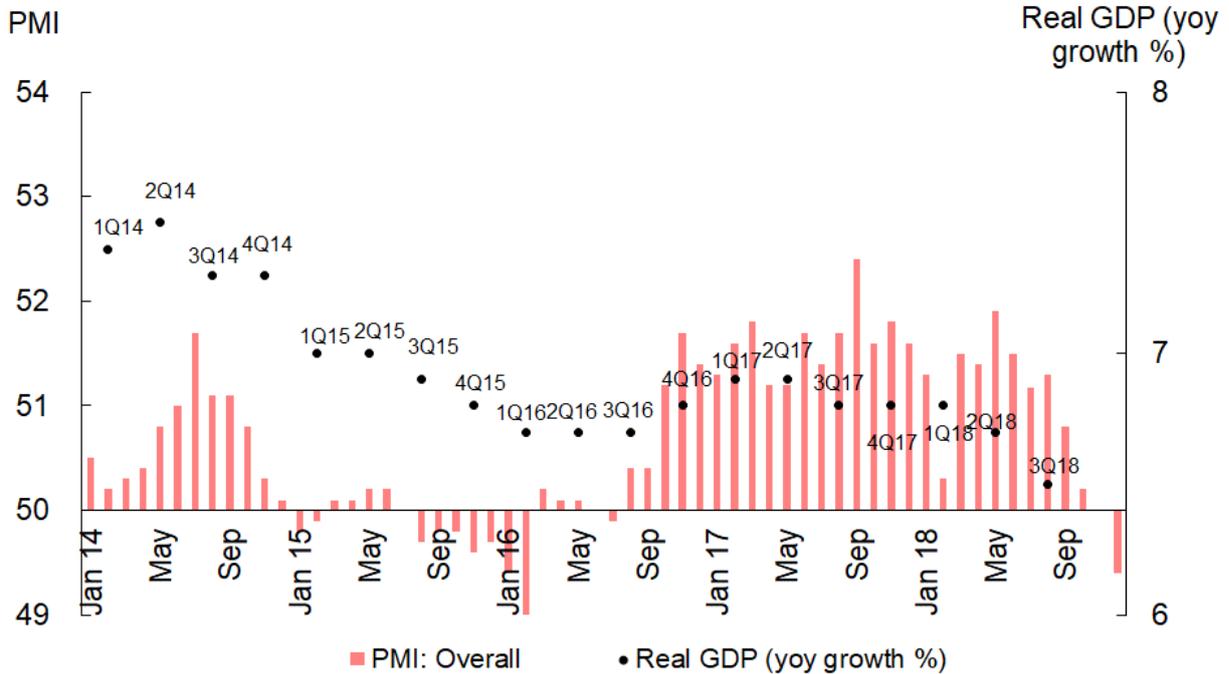*Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics*

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Exhibit 5: Headline PMI and real GDP growth, January 2014 to December 2018

Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

2.   Output growth moderates

The output index fell from 52.0 in October to 51.9 in November, and then dropped at a faster pace to 50.8 in December, the lowest level in ten months. The index readings in the past three months indicate a recent moderation in the output growth. (See exhibit 6)

Exhibit 7 shows that the output growth was mainly fuelled by new orders growth instead of restocking activities, as the stocks of finished goods index has stayed in the contractionary zone for sixty nine consecutive months. However, output may grow strongly later when manufacturers have finally run out of their inventory or regained confidence to restock.

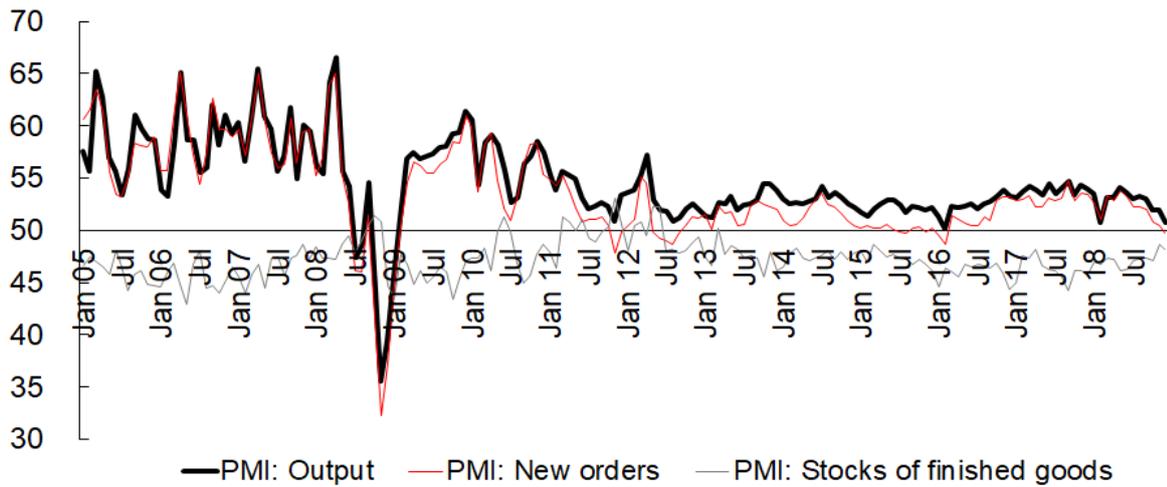**FUNG BUSINESS INTELLIGENCE**

Exhibit 6: Output index, January 2017 to December 2018
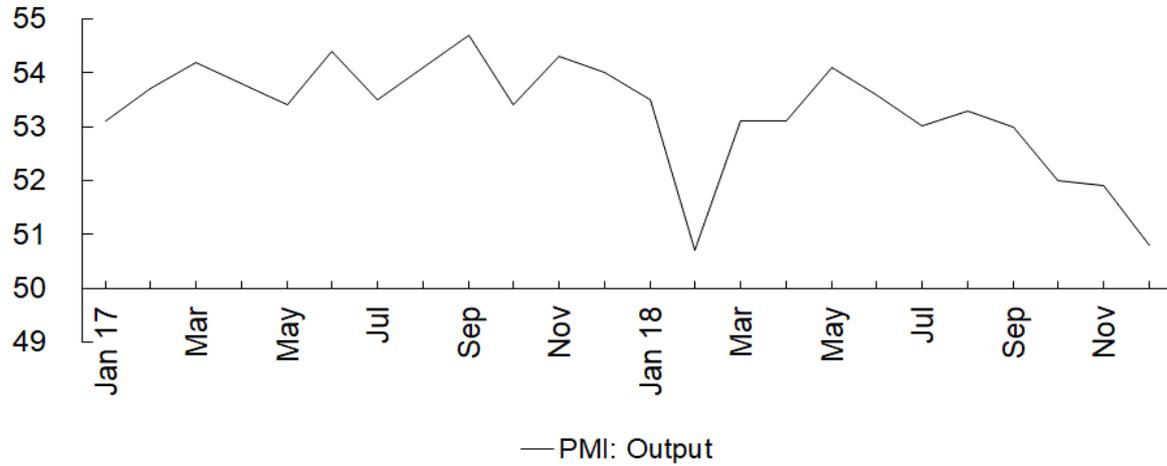
Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

Exhibit 7: Output, new orders and stocks of finished goods, January 2005 to December 2018

Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

Exhibit 8 demonstrates the correlation (with some lags) between the output index and the year-on-year growth of value-added of industrial output (VAIO). Looking ahead, we expect that the VAIO growth will moderate to around 5.0-5.5% yoy in 1Q19. In the coming months, a weakening domestic and export demand is likely to put a drag on the growth of industrial activities. Challenges facing Chinese manufacturers include ongoing trade frictions between China and the US, strong government's determination to tackle pollution problem, intense competition in the international market, and the weak demand for luxury products.

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Exhibit 8: Output index and industrial production growth, January 2014 to December 2018
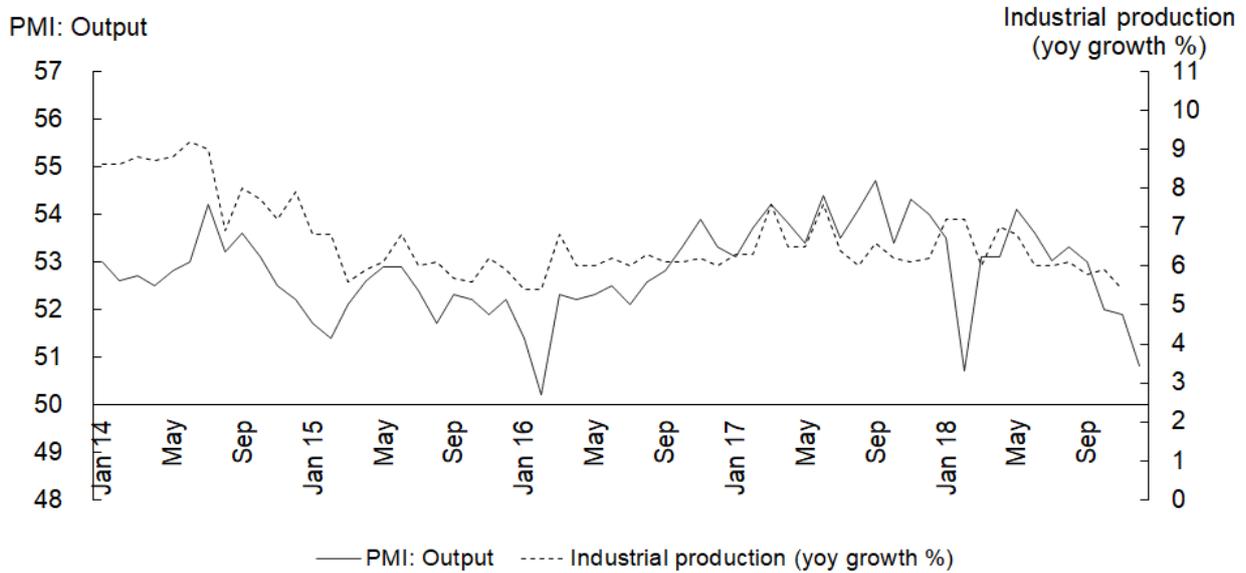
Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

3.   New orders index dips into contractionary zone

The new orders index dropped from 50.8 in October to 50.4 in November, and went down further to 49.7 in December, dipping into the contractionary zone for the first time since March 2016. Meanwhile, the new export orders index edged up from 46.9 in October to 47.0 in November, before falling to 46.6 in December, the lowest level since December 2015. These figures show that both domestic demand and foreign demand have been weakening lately. The direct and indirect impact of the ongoing China-US trade frictions have been gradually unfolding. (See exhibit 9)

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Exhibit 9: New orders index and new export orders index, January 2005 to December 2018
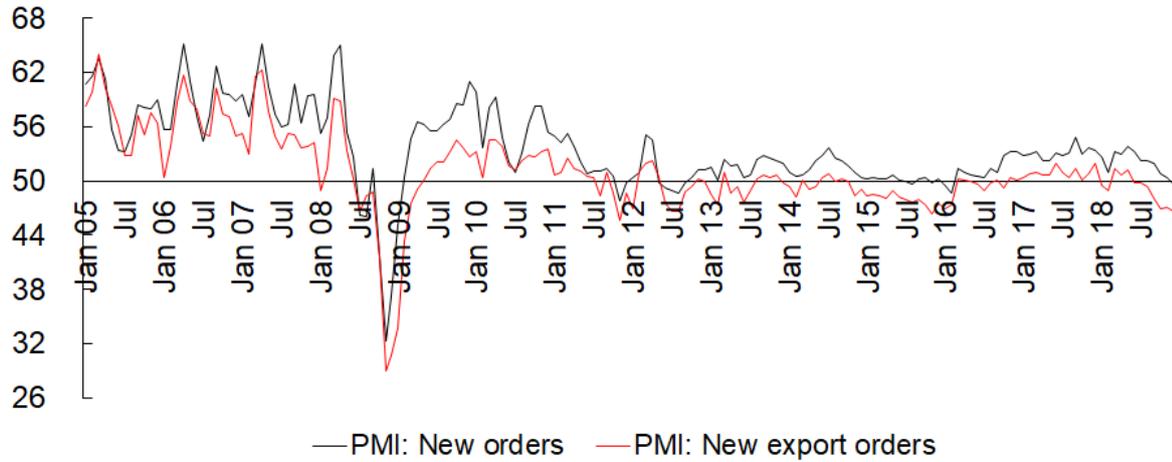
Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

Exhibit 10: New export orders index and export growth, January 2014 to December 2018
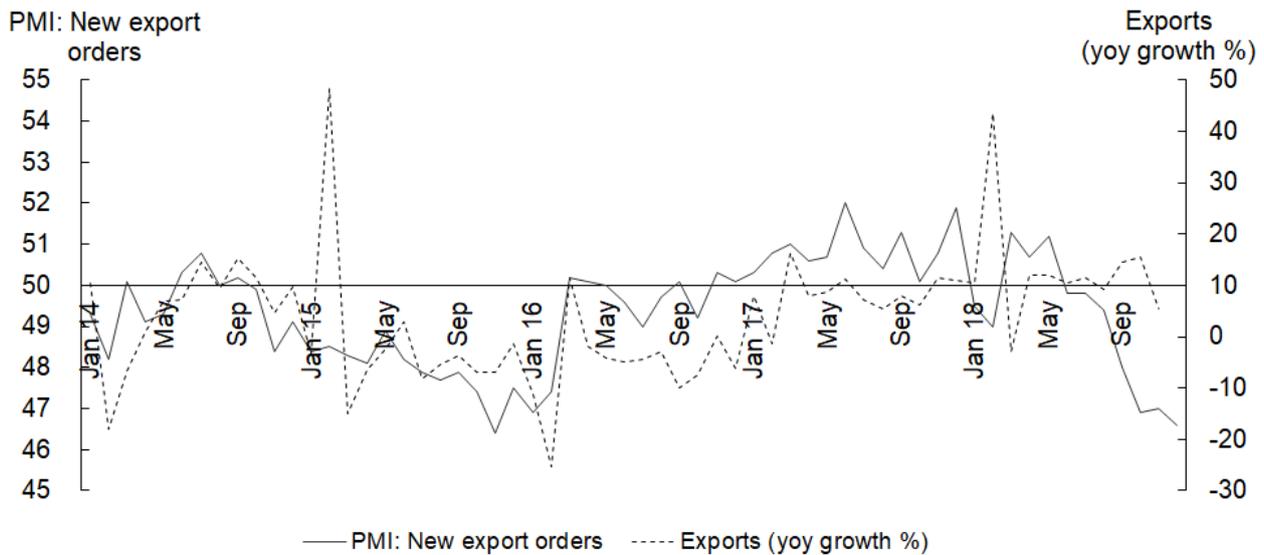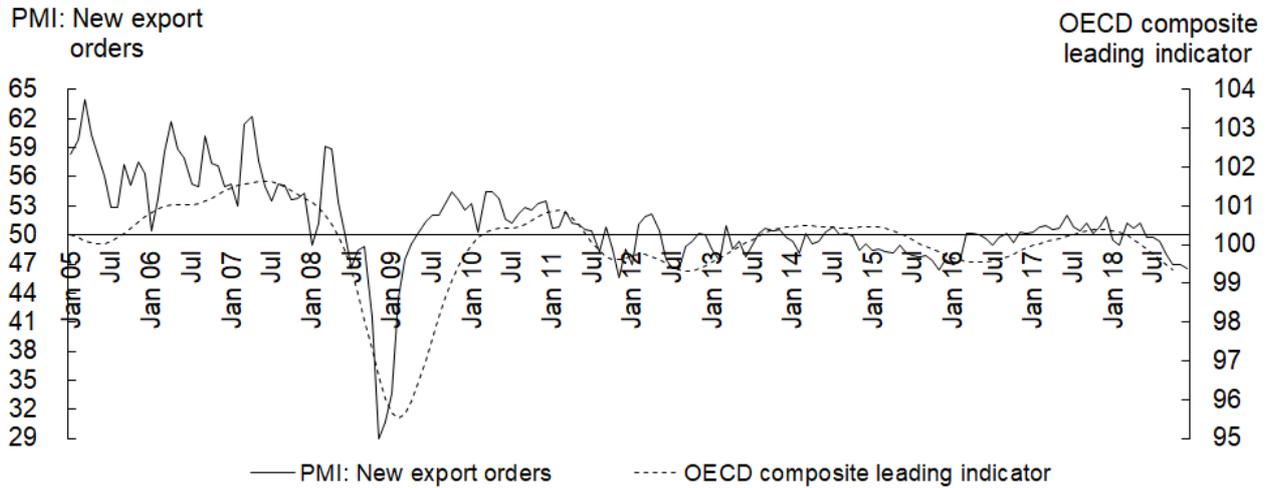

Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics, China Customs

Exhibit 10 plots the new export orders index against the year-on-year growth rates of China's exports. The correlation between the two indices is fairly high. As the new export orders index has been in the contractionary zone since June last year, we have become less optimistic about the near-term prospects of China's exports. Moreover, from exhibit 11 we can see that the new export orders index has been strongly correlated to the external economies, especially the developed economies. The OECD composite leading indicator[2] has continued to fall since

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2 The OECD composite leading indicator, compiled by the Organization for Economic Cooperation and Development, is designed to provide early signals of turning points (peaks and troughs) between expansions and slowdowns of economic activity, and covers Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland, Turkey, United Kingdom and United States.

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December 2017, suggesting a moderation in the growth of the global economy. All in all, we forecast that China's exports will show negative year-on-year growth in 1Q19.

Exhibit 11: New export orders index and OECD composite leading indicator, January 2005 to December 2018
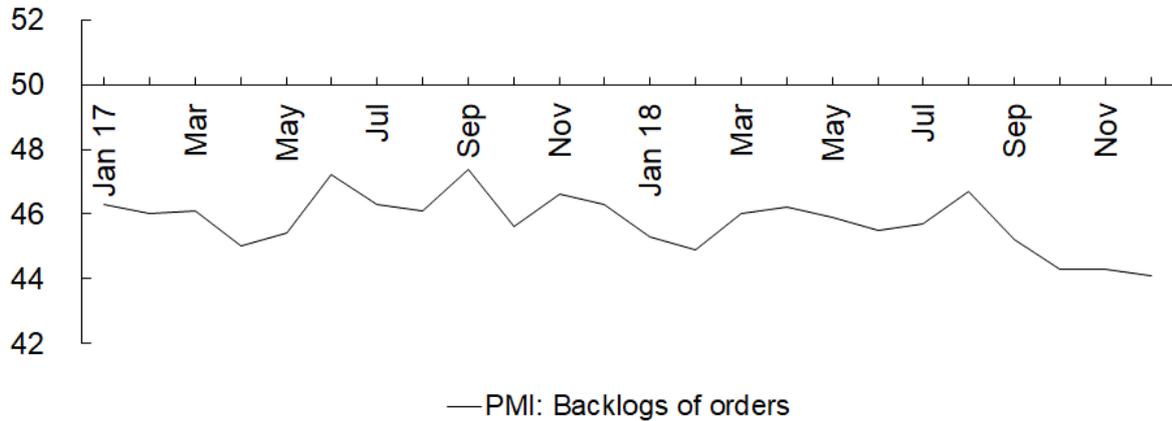

Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics, Organization for Economic Cooperation and Development

4.   Backlogs of orders index falls slightly in December

The backlogs of orders index was 44.3 in October and in November, before dropping slightly to 44.1 in December. Backlogs of orders have continued to decrease. (See exhibit 12)

Looking ahead, we expect the index to fall further in the near term, as indicated by the apparently very high correlation between the sub-index and the headline PMI, and the recent downtrend of the headline PMI. (See exhibit 13)

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Exhibit 12: Backlogs of orders index, January 2017 to December 2018

Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

Exhibit 13: Backlogs of orders index and headline PMI, January 2005 to December 2018
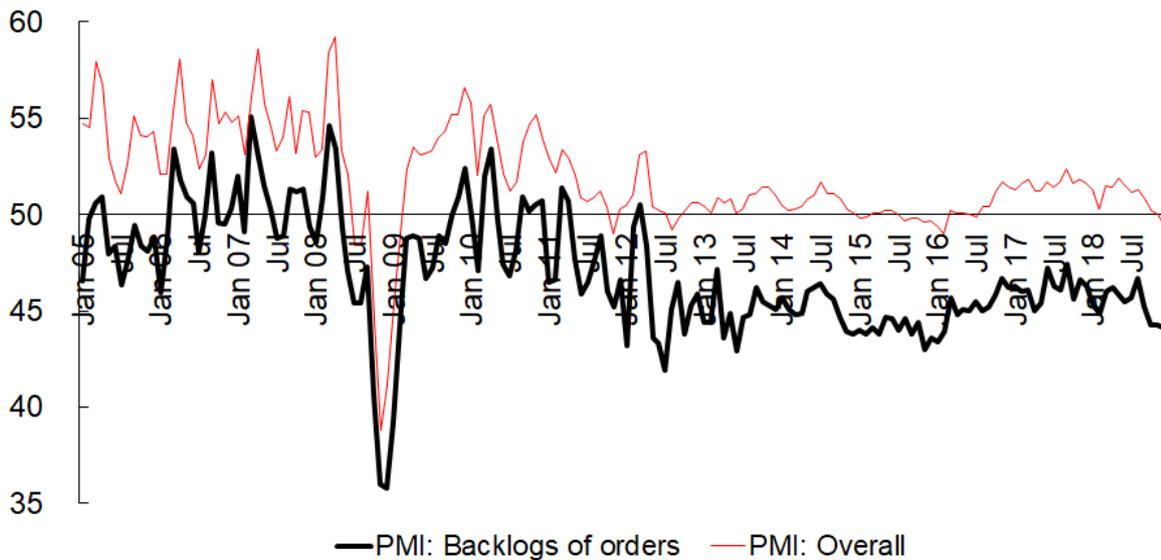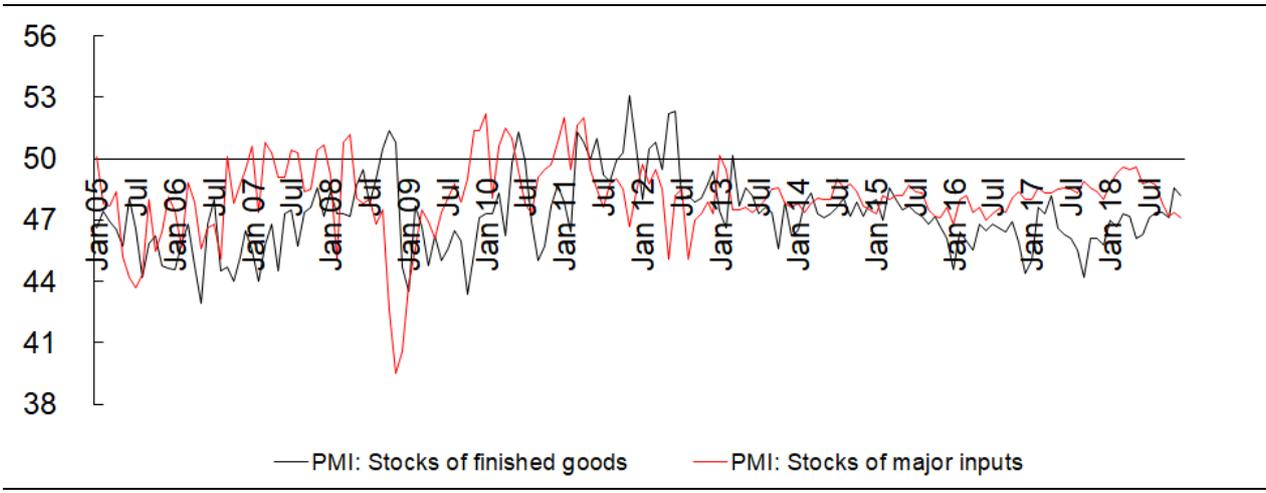

Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

5.   Stocks of finished goods decrease at a relatively slow pace

The stocks of finished goods index rose from 47.1 in October to a 44-month peak of 48.6 in November, and then stayed high at 48.2 in December, indicating that the stocks of finished goods held by manufacturers have decreased at a relatively slow pace lately. Meanwhile, the stocks of major inputs index stayed low at between 47.1 and 47.4 throughout October to December, indicating that stocks of major inputs have fallen at a relatively fast pace in recent months. (Exhibit 14)

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Exhibit 14: Stocks of finished goods index and stocks of major inputs index, January 2005 to December 2018
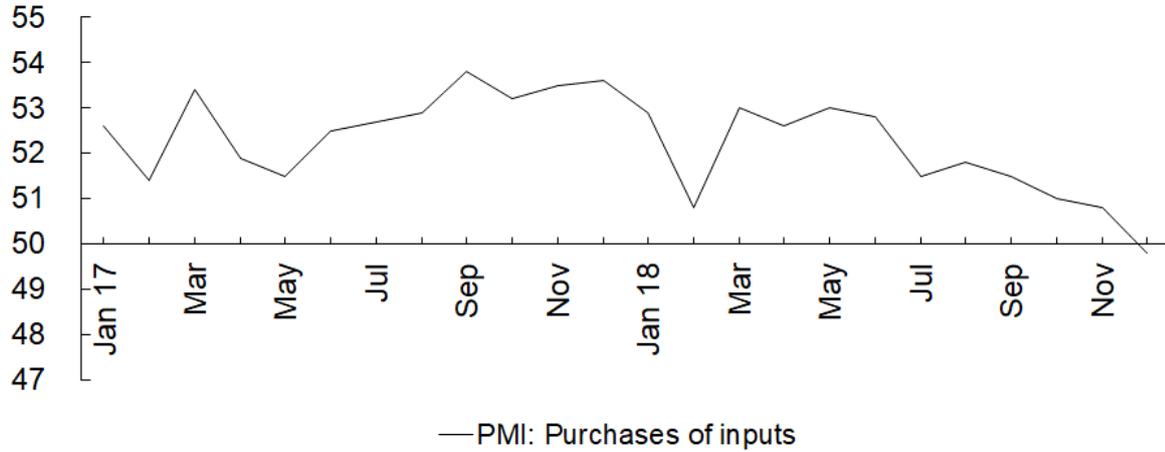

Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

6.   Purchasing activities post a small decrease

After falling slightly from 51.0 in October to 50.8 in November, the purchases of inputs index dropped to 49.8 in December. The latest reading was only slightly below the critical 50-mark, showing a small decrease in purchasing activities in December. (Exhibit 15)

A number of factors affect the purchasing activities of manufacturers, among which the amount of new orders received by manufacturers has been the most important factor. Exhibit 16 plots the purchases of inputs index against the new orders index. The correlation between the two sub-indices is very strong. This is intuitively easy to explain – as manufacturers usually need to purchase extra inputs to cope with new orders. We expect to see a continuous decrease in purchases if the fall in new orders persists. The purchasing activities also reflect business confidence. Exhibit 17 shows the association between the purchases of inputs index and the business expectations index. Credit conditions could be another factor. Finally, exhibit 18 shows that input prices, as well as the expected trend of input prices, are also important considerations when making purchasing decisions.

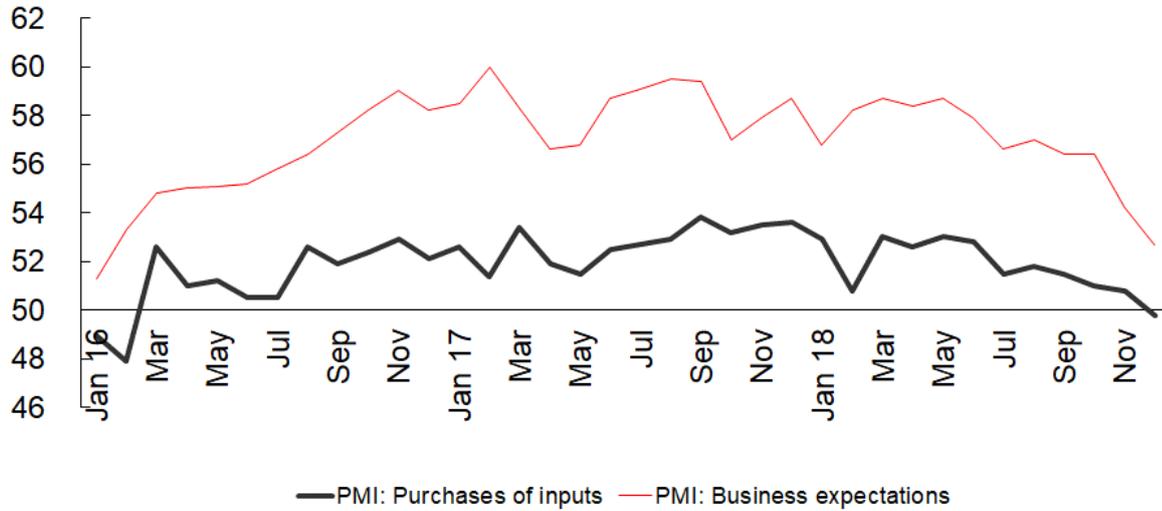**Exhibit 15: Purchases of inputs index, January 2017 to December 2018**

Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

Exhibit 16: Purchases of inputs and new orders, January 2005 to December 2018
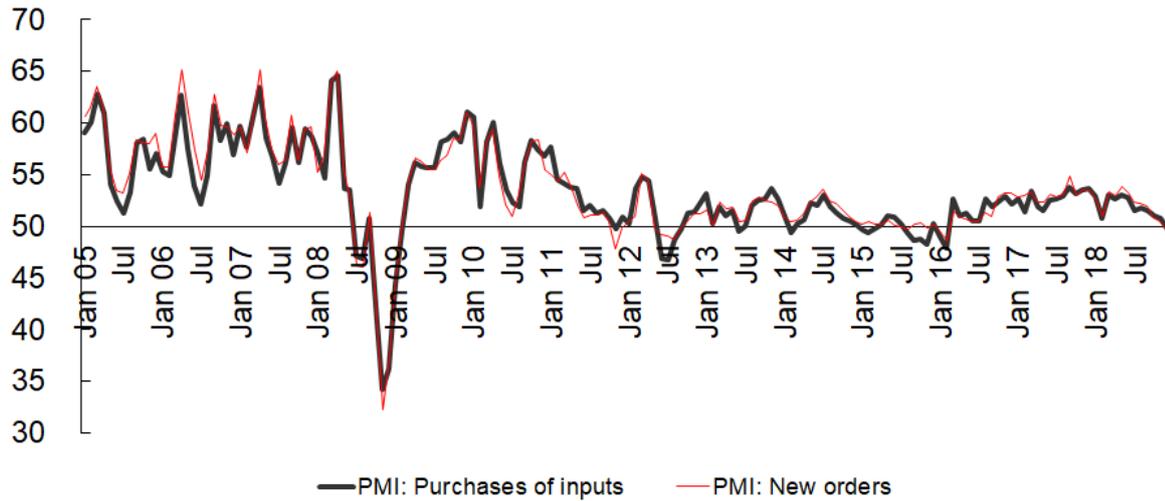
Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

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Exhibit 17: Purchases of inputs and business expectations, January 2016 to December 2018

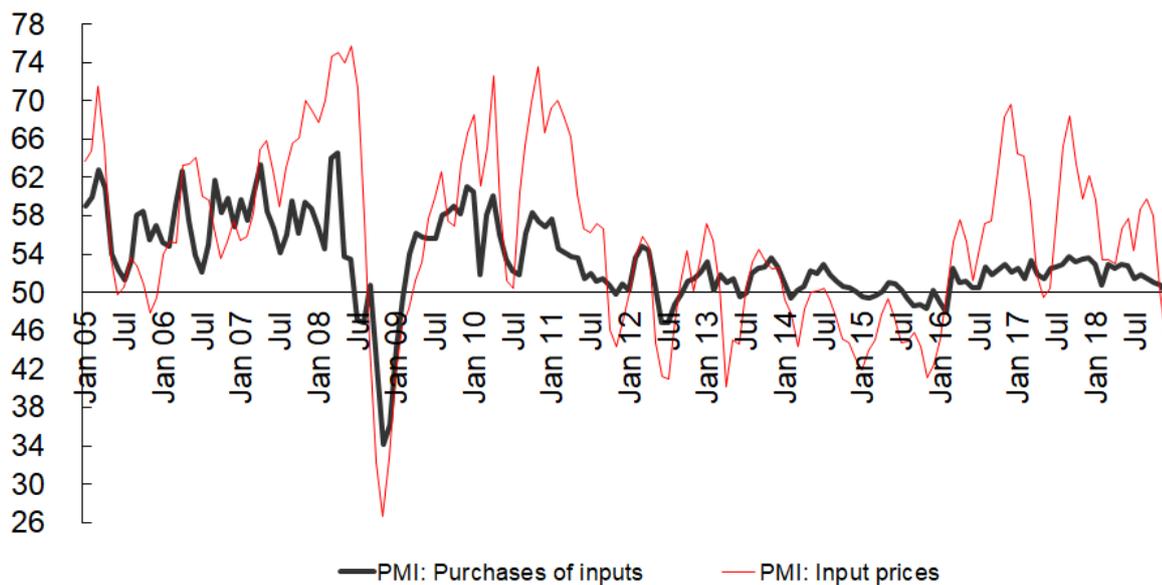PMI: Purchases of inputs — PMI: Business expectations

Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

Exhibit 18: Purchases of inputs and prices of major inputs, January 2005 to December 2018
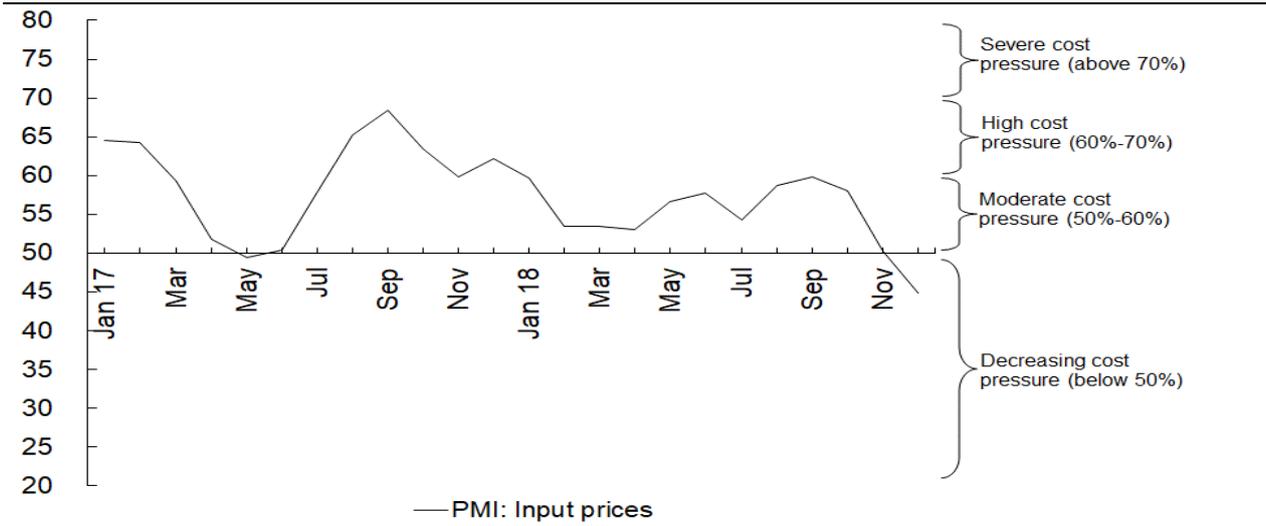

PMI: Purchases of inputs — PMI: Input prices

Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

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7.   Input prices index plunges

The input prices index plunged from 58.0 in October to 50.3 in November, and then fell sharply to 44.8 in December, below 50. The latest reading shows that prices of production inputs have started to fall, which would in turn reduce production costs on Chinese manufacturers. (Exhibit 19)

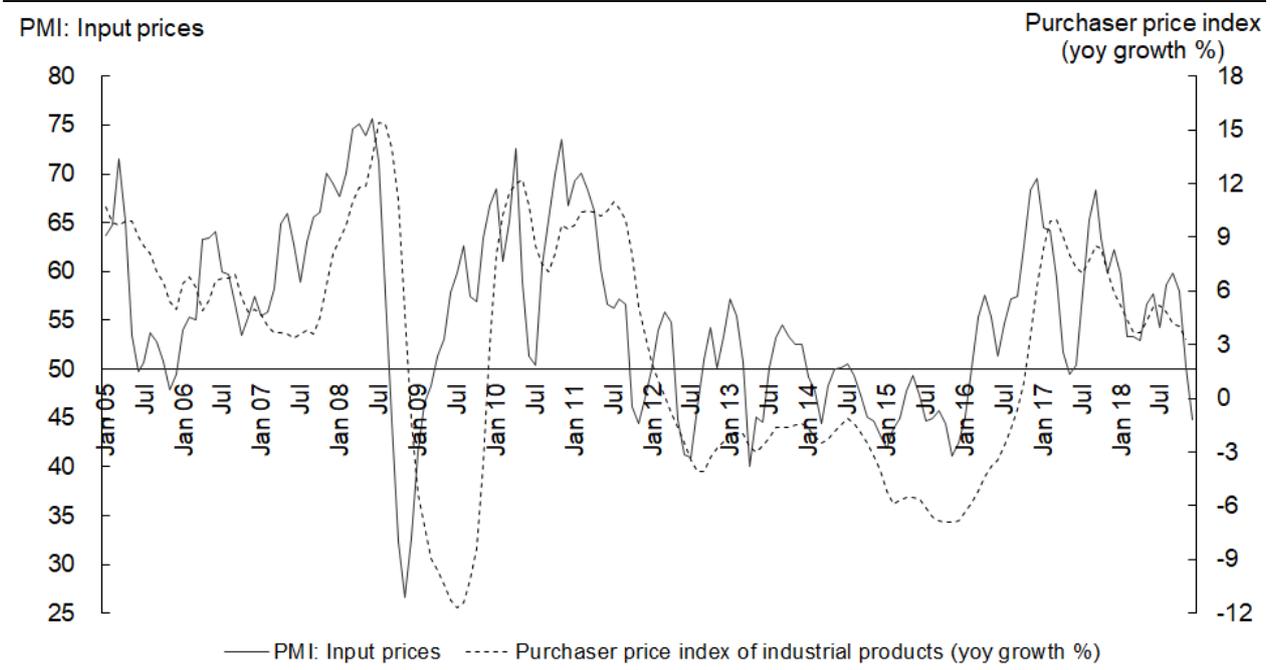**Exhibit 19: Input prices index, January 2017 to December 2018**

Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

Exhibit 20 shows that the input prices index is useful as a leading indicator of upstream prices. To show the association between the input prices index and 'midstream' prices, we plot the input prices index against the year-on-year growth of the producer price index (PPI)[3] in exhibit 21. Going forward, we expect that the purchaser price index and the producer price index (PPI) will go down in coming months. Consequently, the year-on-year growth rates for both the purchaser price index and the PPI will drop further in near future. Meanwhile, we forecast that the year-on-year CPI growth will go down in the coming months. Finally, to see the extent to which input costs of Chinese manufacturers are affected by global commodity prices, exhibit 22 puts together the input prices index and the Thomson Reuters/ CoreCommodity CRB index.[4]

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3 The producer price index of industrial goods (PPI), compiled by China National Bureau of Statistics, measures the prices of industrial products when they are sold for the first time after production.
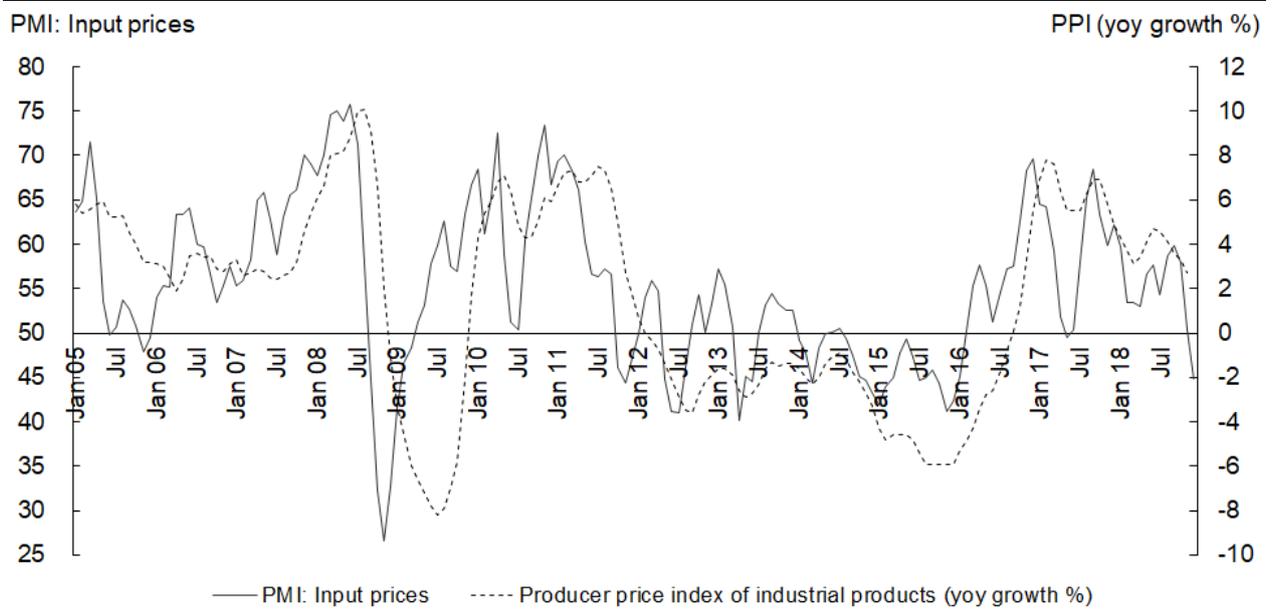4 The Thomson Reuters/ CoreCommodity CRB Index, which comprises 19 commodities such as crude oil, aluminum, corn, cotton, gold, natural gas, soybeans, etc, has served as one of the most recognized measures of global commodities markets.

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Exhibit 20: Input prices index and purchaser price index of industrial products, January 2005 to December 2018
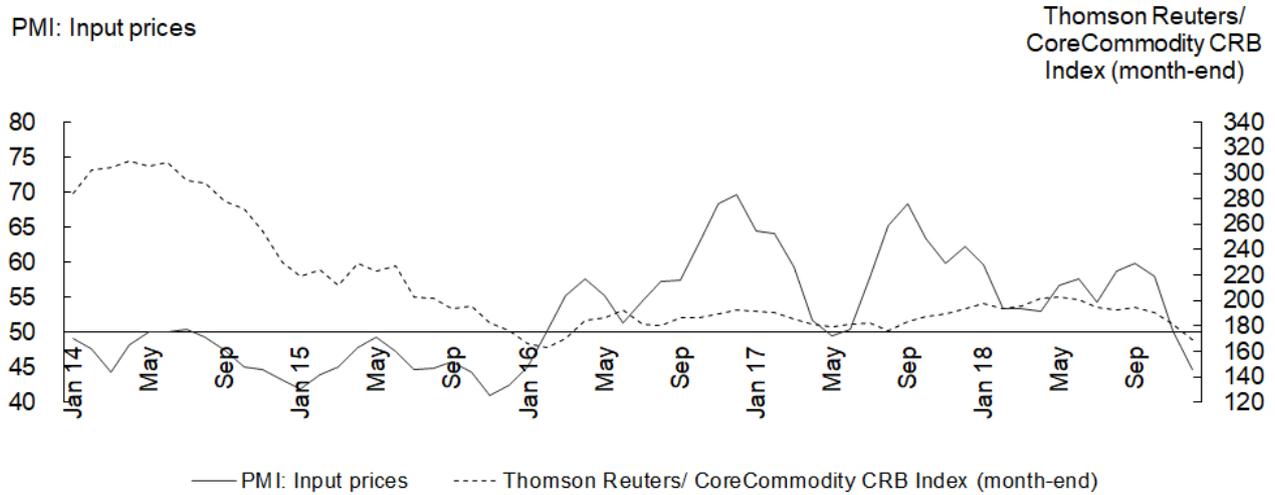

Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

Exhibit 21: Input prices index and producer price index, January 2005 to December 2018

Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

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Exhibit 22: Input prices index and Thomson Reuters/ CoreCommodity CRB Index, January 2014 to December 2018

Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics, Thomson Reuters

Exhibit 23 tries to give a convenient way of assessing and analyzing the profitability of Chinese manufacturers – since new orders represent source of new revenue and input prices represent production cost. If the former rises faster than the latter, profitability tends to improve, and vice versa. Input prices have dropped faster than new orders recently, and this may imply an increase in manufacturers' profit margins in the coming future unless ex-factory prices of finished goods continue to drop.

Exhibit 23: Input prices and new orders, January 2005 to December 2018
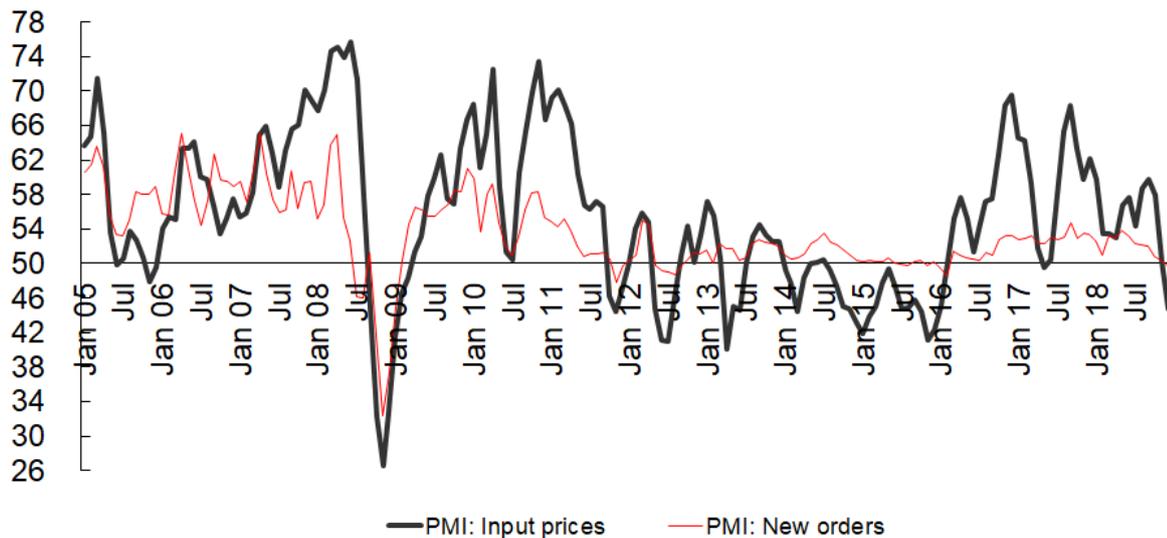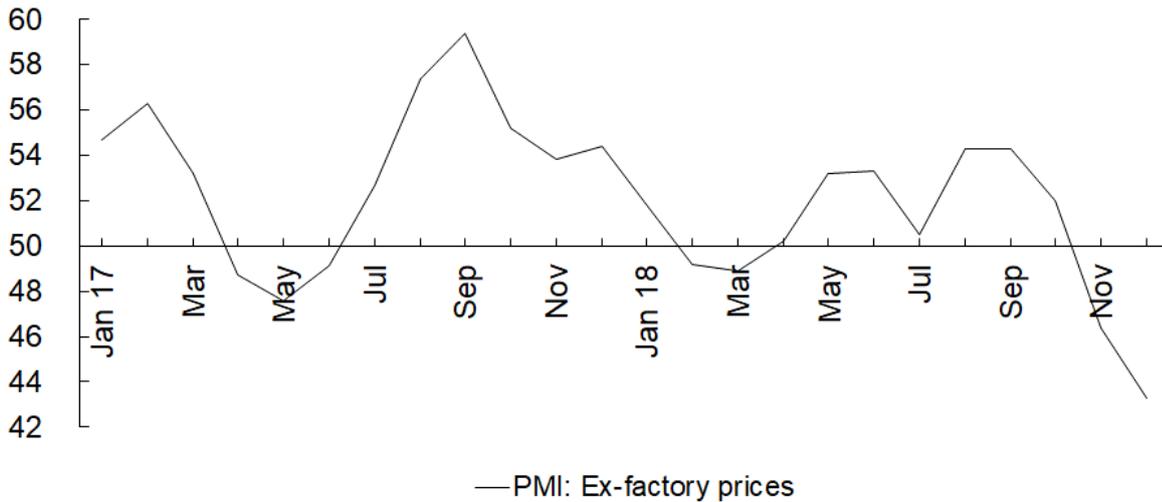

Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

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8.   Ex-factory prices index stays below critical 50-mark in December

The ex-factory prices index went down from 52.0 in October to 46.4 in November, and then fell to 43.3 in December. The index has been below 50 for two consecutive months, indicating that Chinese manufacturers have been reducing the ex-factory prices of finished goods.[5] (Exhibit 24)

Exhibit 24: Ex-factory prices index, January 2017 to December 2018

—PMI: Ex-factory prices

Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

9.   Imports index trends downward

The imports index went down from 47.6 in October to 47.1 in November. Afterwards, in December, the index fell to 45.9 in December, the lowest level since March 2016, indicating a weakening import demand for raw materials and parts used by the manufacturing sector. (Exhibit 25)

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5 The ex-factory prices index has been published since January 2017.
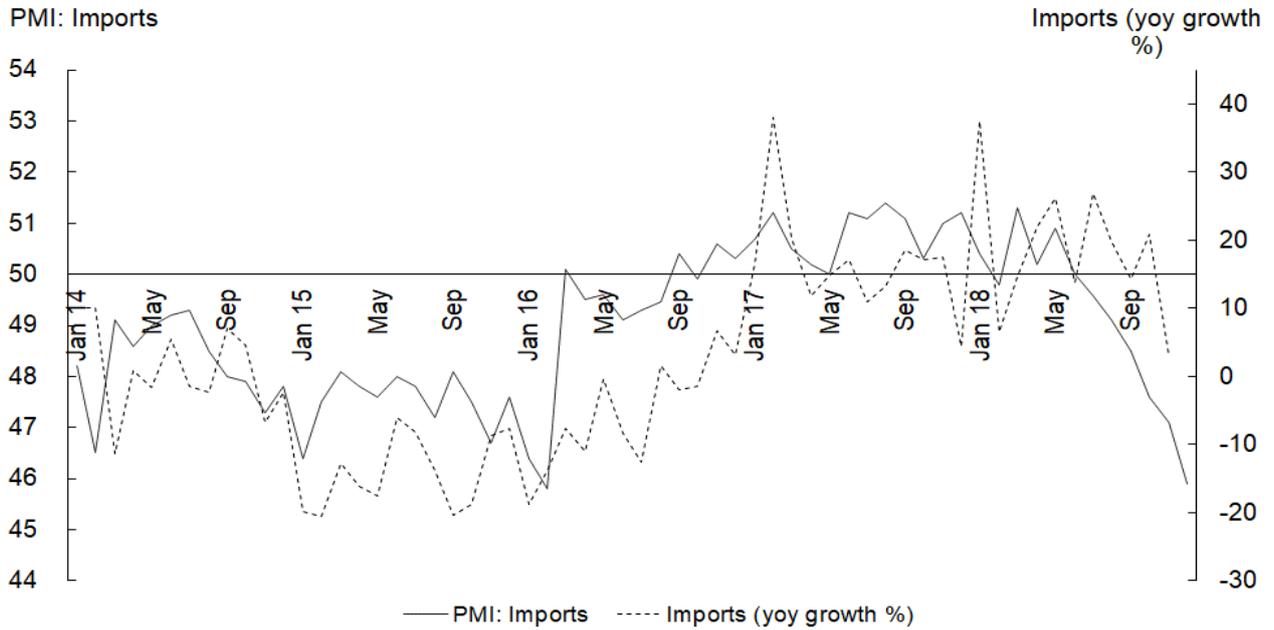
Exhibit 25: Imports index, January 2017 to December 2018
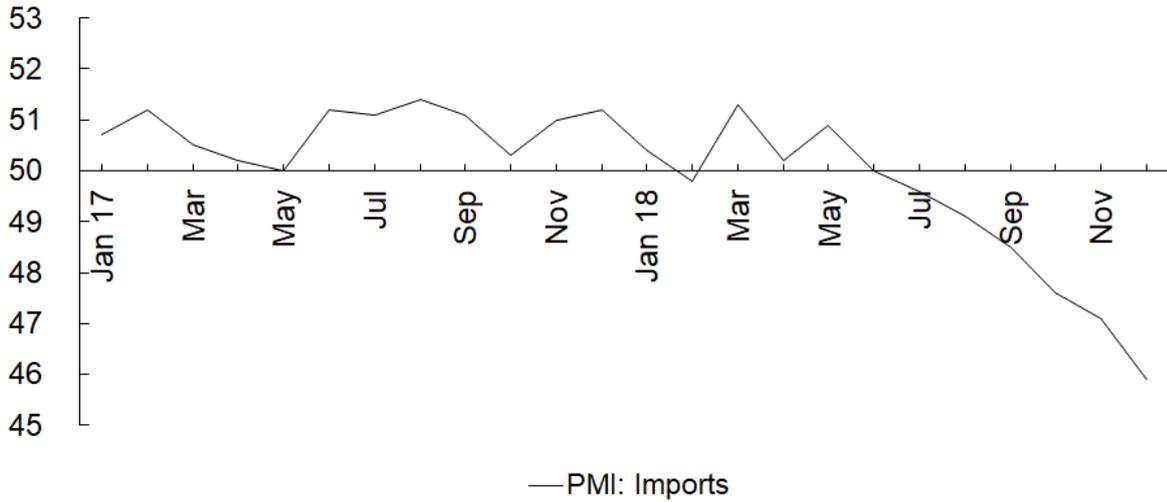
Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

Exhibit 26 shows that the imports index is highly correlated (with some lags) to the year-on-year growth rate in imports. We expect import growth to decelerate in 1Q19. Exhibit 27 illustrates the strong association between the imports index and the purchases of inputs index – as Chinese manufacturers purchase a large amount of production inputs and parts from overseas. Besides, China is a major importer of oil, iron ore and other raw materials. To see how heavily China's imports of inputs are affected by world commodity prices, we plot the imports index against the Thomson Reuters/ CoreCommodity CRB index. It is found that the imports index has been positively related to global commodity prices. (Exhibit 28)

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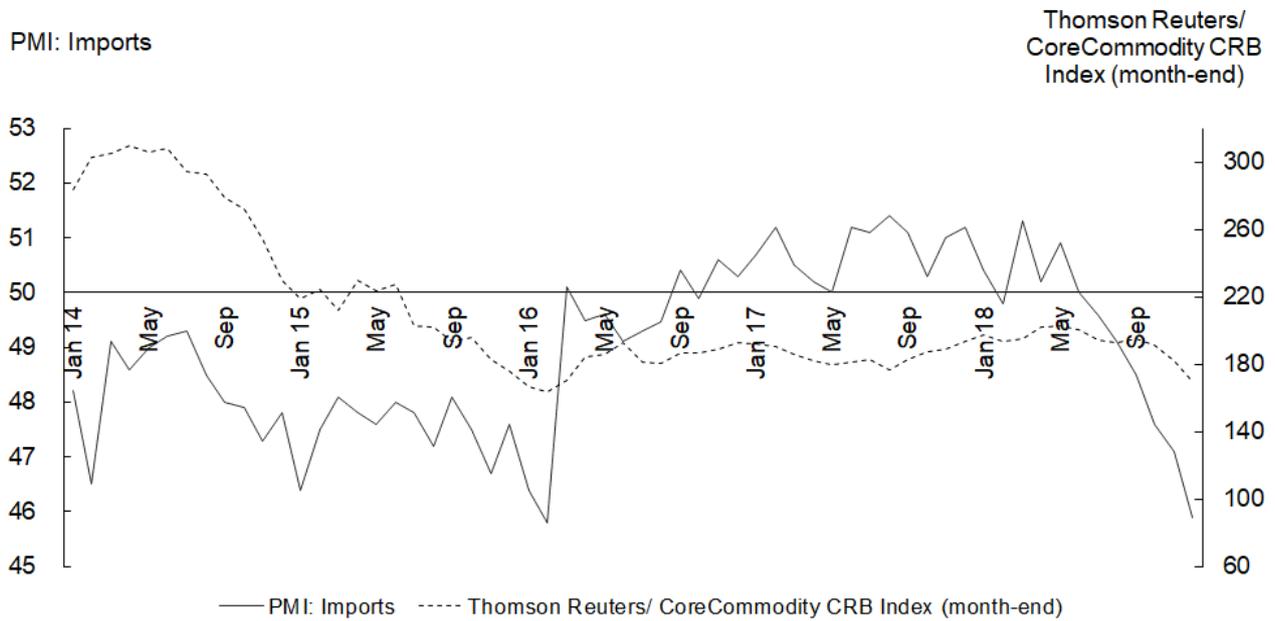**Exhibit 26: Imports index and import growth, January 2014 to December 2018**

Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics, China Customs

Exhibit 27: Imports and purchases of inputs, January 2005 to December 2018
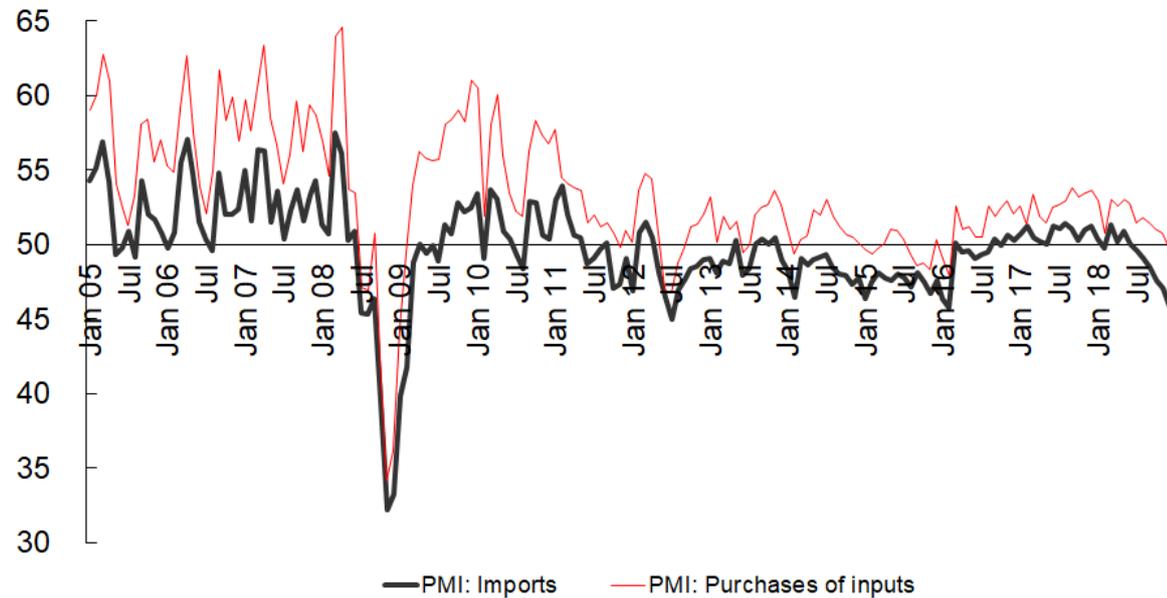
Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

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Exhibit 28: Imports index and Thomson Reuters/ CoreCommodity CRB Index, January 2014 to December 2018

Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics, Thomson Reuters

10. Manufacturing employment continues to decrease

The employment index rose slightly from 48.1 in October to 48.3 in November. However, the index then fell to 48.0 in December. (Exhibit 29) These figures show a continuous drop in manufacturing employment. The negative impact of the China-US trade frictions on export-oriented manufacturers enterprises has been unfolding and, consequently, manufacturing enterprises are employing fewer workers.

Exhibit 29: Employment index, January 2017 to December 2018
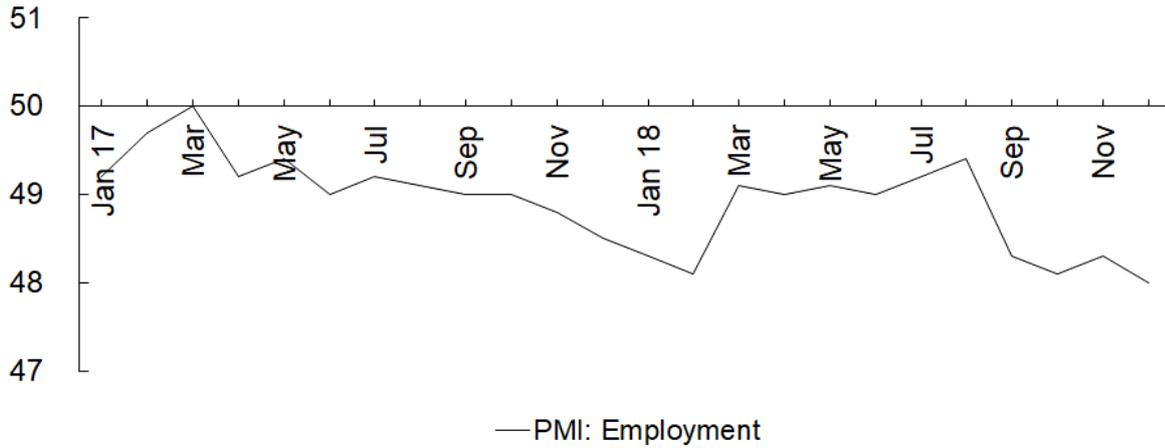
Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

Exhibit 30 proves that the employment in China's manufacturing sector has relied heavily on the export sector. Exhibit 31 and 32 give our readers some ideas about the extent to which the employment situation improves or deteriorates with the manufacturing sector and the overall economy.

Exhibit 30: Employment and new export orders, January 2005 to December 2018

Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

Exhibit 31: Employment index and headline PMI, January 2005 to December 2018

Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

Exhibit 32: Employment index and real GDP growth, January 2014 to December 2018

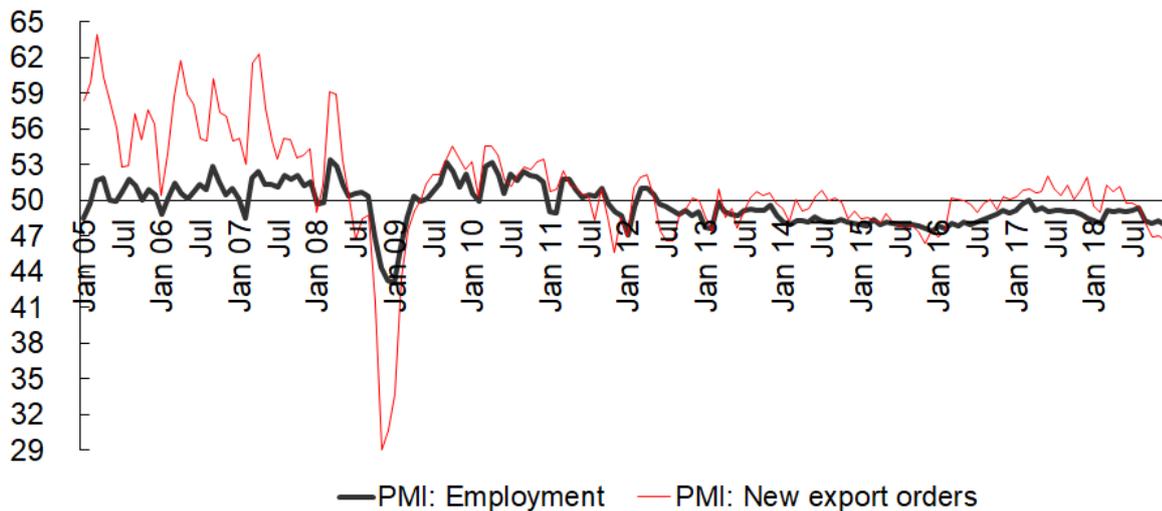*Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics*

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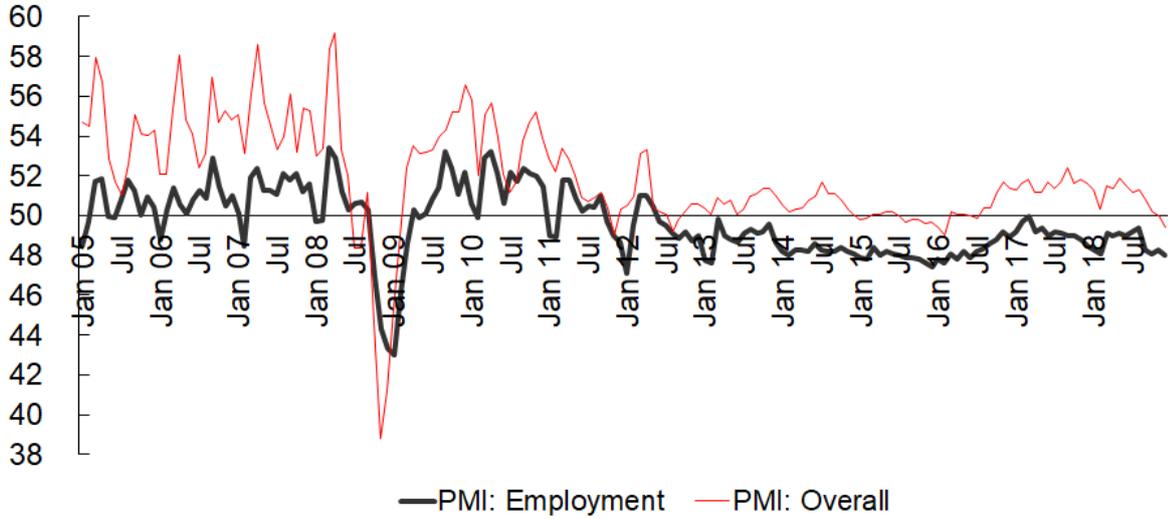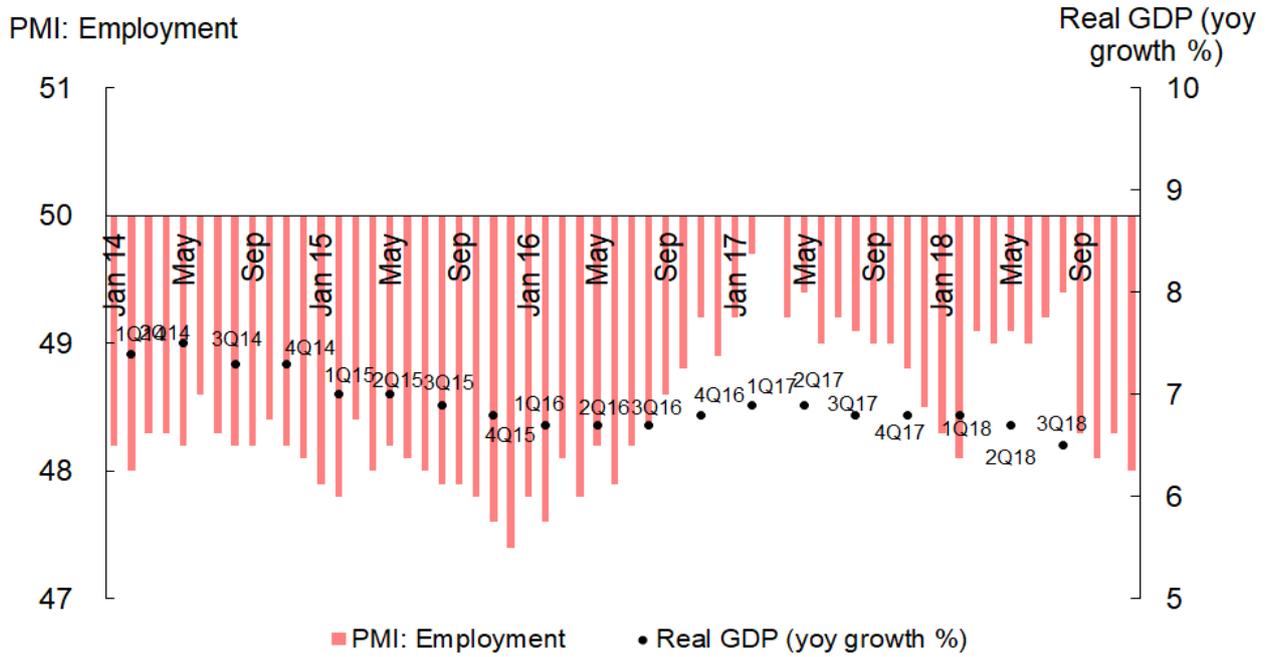
11. Suppliers' delivery quickens slightly

The suppliers' delivery time index rose from 49.5 in October to 50.3 in November, and further to 50.4 in December, the highest level since May 2017. The index readings in the past two months were slightly above the critical 50-mark, indicating that suppliers' delivery has slightly quickened recently. (Exhibit 33)

Exhibit 33: Suppliers' delivery time index, January 2017 to December 2018
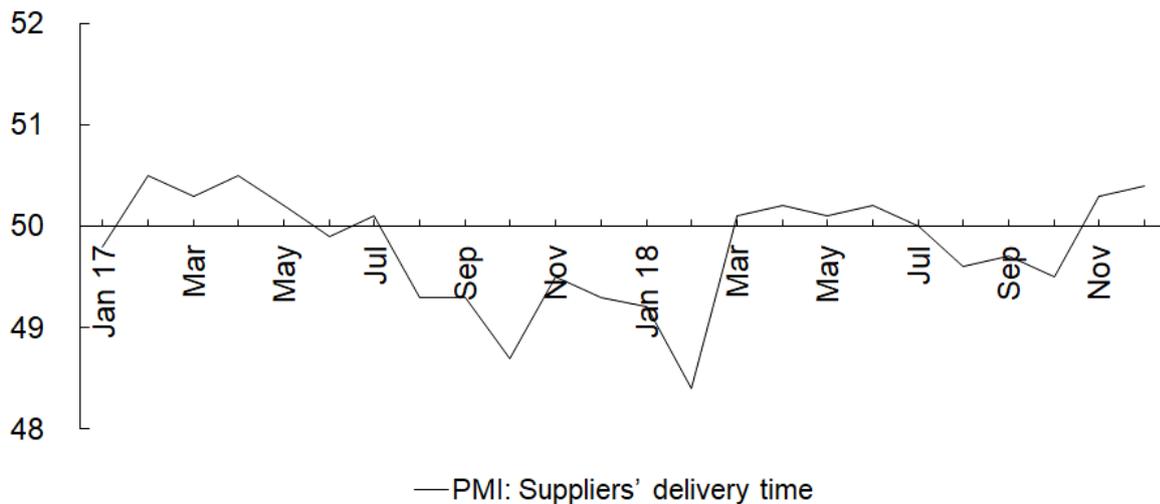
Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

12. Purchasing managers become less optimistic

The business expectations index dropped from 56.4 in October to 54.2 in November, and then fell to 52.7 in December. The downtrend indicates that purchasing managers have become less optimistic recently.[6] (See exhibit 34)

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6 Since January 2017, a new method of seasonal adjustment to the business expectations index has been adopted; and accordingly, the historical readings of the index have been revised.

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Exhibit 34: Business expectations index, January 2017 to December 2018
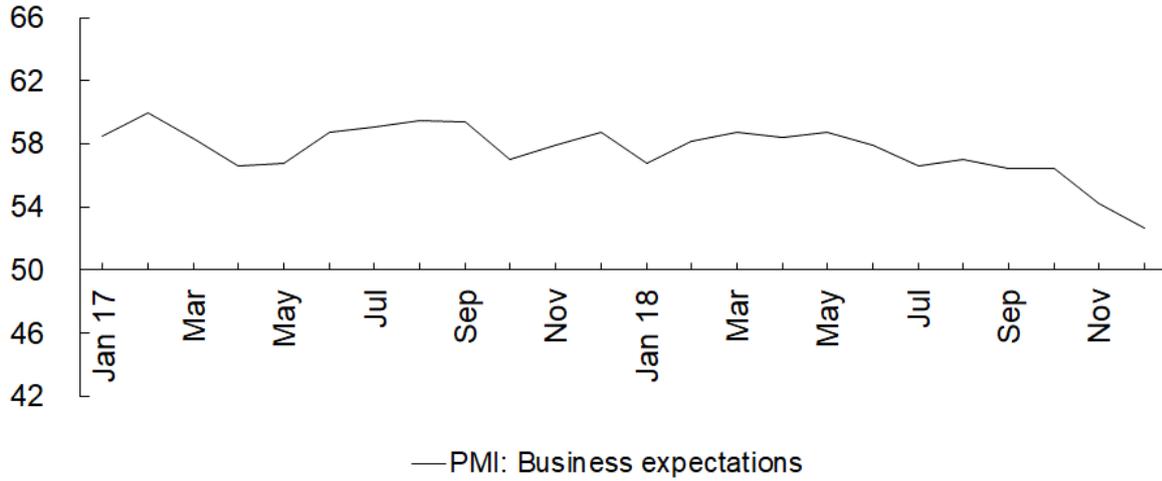
—PMI: Business expectations

Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

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About China Manufacturing PMI:

China Manufacturing Purchasing Managers' Index (PMI) provides an early indication each month of economic activities in the Chinese manufacturing sector. It is jointly published by China Federation of Logistics & Purchasing (CFLP) and the National Bureau of Statistics (NBS). Fung Business Intelligence is responsible for drafting and disseminating the English PMI report.

Every month questionnaires are sent to 3,000 manufacturing enterprises all over China. The data presented herein is compiled from the enterprises' responses about their purchasing activities and supply situations. CFLP makes no representation regarding the data collection procedures, nor does it disclose any data of individual enterprises. The PMI should be compared to other economic data sources when used in decision-making.

3,000 manufacturing enterprises in 31 industries from Eastern, Northeastern, Central and Western China are surveyed. The sampling of the enterprises involves the use of Probability Proportional to Size Sampling (PPS), which means the selection of enterprises surveyed is largely based on each industry's contribution to GDP, and the representation of each geographical region.

There are 13 sub-indicators in the survey: Output, New Orders, New Export Orders, Backlogs of Orders, Stocks of Finished Goods, Purchases of Inputs, Imports, Input Prices, Stocks of Major Inputs, Ex-factory Prices, Employment, Suppliers' Delivery Time and Business Expectations. An index reading above 50 indicates an overall positive change in a sub-indicator; below 50, an overall negative change.

The PMI is a composite index based on the seasonally adjusted indices for five of the sub-indicators with varying weights: New Orders—30%; Output—25%; Employment—20%; Suppliers' Delivery Time—15%; and Stocks of Major Inputs—10%. A PMI reading above 50 indicates an overall expansion in the manufacturing sector; below 50, an overall contraction.

Currently there are more than twenty countries and regions conducting the PMI survey and compilation, based on an internationally standardized methodology.

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About the Organisations:

China Federation of Logistics & Purchasing

China Federation of Logistics & Purchasing (CFLP) is the logistics and purchasing industry association approved by the State Council. CFLP's mission is to push forward the development of the logistics industry and the procurement businesses of both government and enterprises, as well as the circulation of factors of production in China. The government authorizes the CFLP to produce industry statistics and set industry standards. CFLP is also China's representative in the Asian-Pacific Logistics Federation (APLF) and the International Federation of Purchasing and Supply Management (IFPSM).

Fung Business Intelligence

Fung Business Intelligence collects, analyses and interprets market data on global sourcing, supply chains, distribution, retail and technology.

Headquartered in Hong Kong, it leverages unique relationships and information networks to track and report on these issues with a particular focus on business trends and developments in China and other Asian countries. Fung Business Intelligence makes its data, impartial analysis and specialist knowledge available to businesses, scholars and governments around the world through regular research reports and business publications.

As the knowledge bank and think tank for the Fung Group, a Hong Kong-based multinational corporation, Fung Business Intelligence also provides expertise, advice and consultancy services to the Group and its business partners on issues related to doing business in China, ranging from market entry and company structure, to tax, licensing and other regulatory matters.

Fung Business Intelligence was established in the year 2000.

Fung Group

The Fung Group is a privately held multinational group of companies headquartered in Hong Kong whose core businesses are trading, logistics, distribution and retailing. The Fung Group employs over 39,900 people across 40 economies worldwide, generating total revenue of over US$22.5 billion in 2016. Fung Holdings (1937) Limited, a privately held business entity headquartered in Hong Kong, is the major shareholder of the Fung group of companies.

Please visit www.funggroup.com for more about the Fung Group.

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