

PMI Quarterly on China Manufacturing

China Federation of Logistics & Purchasing

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PMI indicates a relatively steady expansion of the manufacturing sector

- Output growth softens.
- New orders index rises to a two-year high; new export orders index returns to the expansionary zone.
- Backlogs of orders index falls in December.
- Stocks of finished goods drop at a faster pace.
- Purchasing activities increase at a relatively fast pace.
- Input prices index climbs to the highest level since March 2011.
- Imports index stays in the expansionary zone.
- Employment in the manufacturing sector shrinks at a quicker pace.
- Suppliers' delivery time remains unchanged.
- Chinese manufacturers become slightly pessimistic.

IN THIS ISSUE:

Headline PMI	3
Output	7
New orders & new export orders	9
Backlogs of orders	11
Stocks of finished goods & major inputs	13
Purchases of inputs	13
Input prices	16
Imports	19
Employment	21
Suppliers' delivery time	23
Business expectations	24

1. PMI indicates a relatively steady expansion of the manufacturing sector

China's manufacturing PMI climbed from 51.2 in October to 51.7 in November. The PMI then fell slightly to 51.4 in December, but was still the second highest level in 2016. The index readings in the past few months indicate that the manufacturing sector has expanded at a relatively steady pace, boding well for the development of the economy. (See exhibit 1)

It is noteworthy to recognize the discrepancy by size of enterprises. The PMI of 'large enterprises' advanced from 52.5 in October to 53.4 in November, and then stayed high at 53.2 in December. The latest reading indicates the relatively fast expansion of 'large enterprises'. Meanwhile, the PMI of 'medium enterprises' improved from 49.9 in October to 50.1 in November. Nevertheless, the index dropped to 49.6 in December, below the critical 50-mark, indicating that 'medium enterprises' have started to contract recently. The PMI of 'small enterprises' fell from 48.3 in October to 47.4 in November, and further to 47.2 in December, showing that 'small enterprises' have contracted at a quicker pace. (See exhibit 2)

The recent trend of the headline PMI suggests that the economy has been on solid footing. Both the new orders index and the new export orders index have been above the critical 50-mark in recent months, indicating the expansion of new domestic and export orders. Against this backdrop, manufacturers have become more active in purchasing production inputs: the purchases of inputs index stayed high in the past three months, fluctuating between 52.1 and 52.9 throughout October to December. Meanwhile, the output index rose to 53.9 in November, the highest level since August 2014, and then fell to 53.3 in December, showing that the output growth has softened recently. Also noteworthy is that the input prices index reached 69.6 in December, the highest level since March 2011. The index has continued to go up since July last year, showing that the prices of production inputs have risen at a faster pace in the past few months. Cost pressure on manufacturers has been intensifying .

Looking ahead, the Chinese government will put more efforts into maintaining stable economic growth and improving the quality of economic development in near term. According to the official media's report on the Central Economic Work Conference held in December 2016, the meeting which sets the key economic tasks for year 2017, China will adopt a prudent and neutral monetary policy to help maintain stable liquidity conditions, and will carry out a more active fiscal policy. Meanwhile, the government will accelerate the 'supply-side reforms', the main tasks of which include tackling the overcapacity problem, reducing housing inventories, de-leveraging, bringing down costs on enterprises and shoring up weak areas.

As there are signs of stable demand growth, we predict that China's economic growth will be



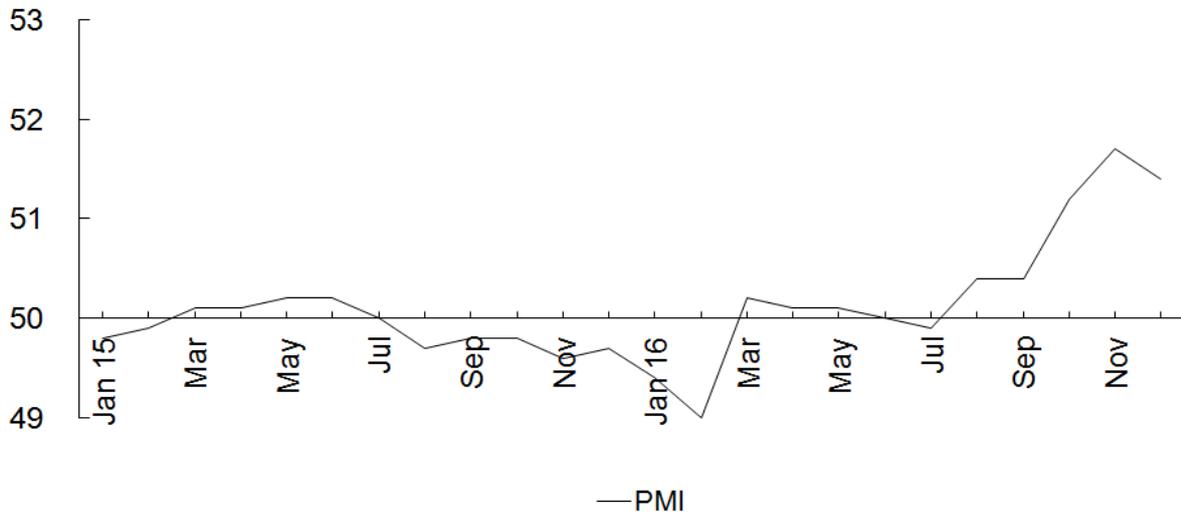
relatively stable in coming future. Going forward, we expect the headline PMI to hover around 51.5 in 1Q17. We also forecast the real GDP growth to be around 6.7% yoy in 1Q17. That being said, challenges facing Chinese manufacturers, however, include greater uncertainty in the US trade policies as Trump assumes presidency in January, intense competition in the international market, stronger government's efforts to cut excess capacities in various sectors, increasing labour and environmental costs, tough operating environment, reduction in return on capital as well as increasing amount of capital transferred out of industries. Overall, we expect that the industrial production (VAIO) growth will be around 6.2% yoy in 1Q17.

Exhibit 3 shows that the fall in the headline PMI in December was attributed to the drop in the output index (which weighs 25% in the computation of the headline PMI), the employment index (weighs 20%) and the stocks of major inputs index (weighs 10%). In December, 9 of the 12 sub-indices were lower than their respective levels in the previous month; 2 sub-indices (i.e. input prices and suppliers' delivery time) were higher than their respective levels in the previous month; the new orders index stayed unchanged. (See exhibit 4)

Among the 12 sub-indices, 4 stayed in the expansionary zone over the past three months (output, new orders, purchases of inputs and input prices). Meanwhile, the indices of backlogs of orders, stocks of finished goods, stocks of major inputs and employment stayed below 50 throughout the past three months.

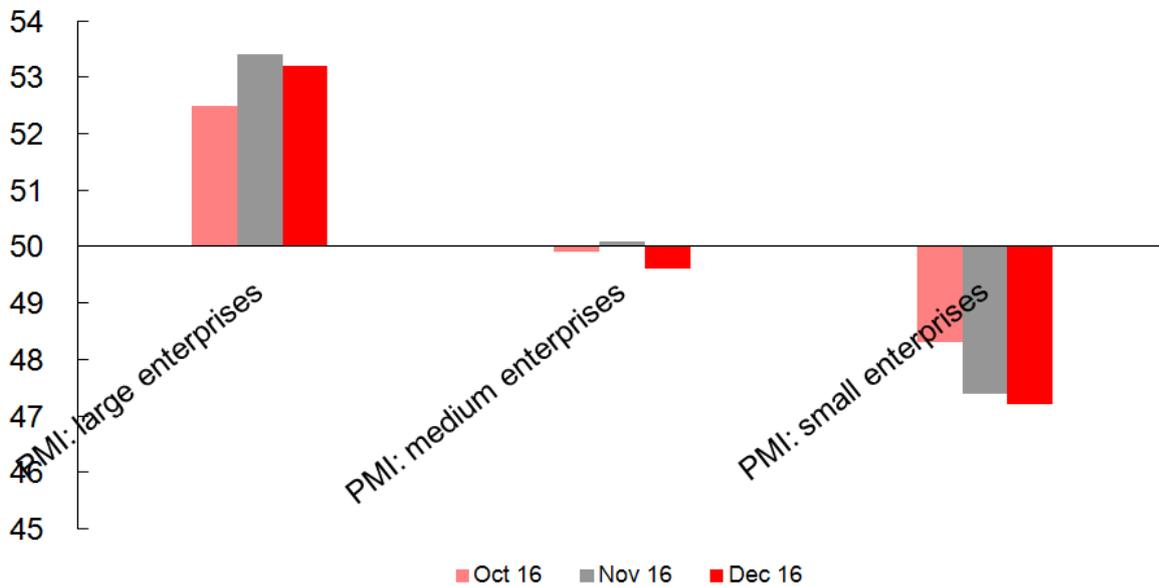
China's manufacturing PMI has so far done a satisfactory job in predicting economic growth. Exhibit 5 plots the quarterly real GDP yoy growth rates versus the monthly PMIs since its inception. It could be seen that the PMI demonstrates a fairly good track record of forecasting the growth trend of the economy at least over the next few months. Based on this chart we project that the real GDP growth will be around 6.7% yoy in 1Q17.

Exhibit 1: Headline PMI, January 2015 to December 2016



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

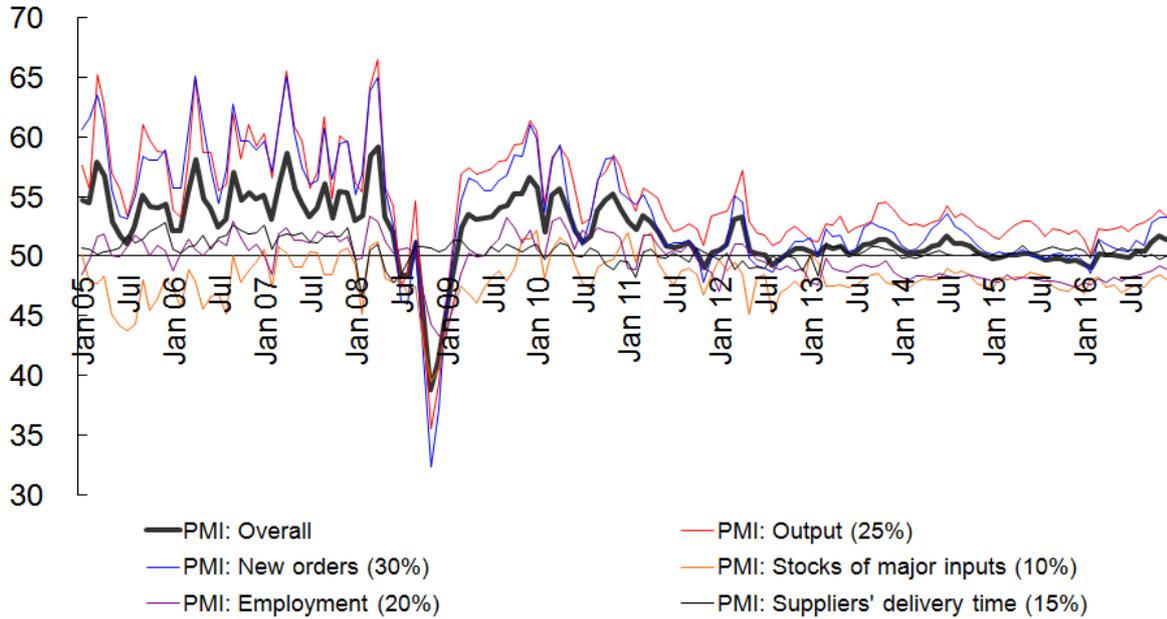
Exhibit 2: PMIs of large enterprises, medium enterprises and small enterprises, October to December 2016



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

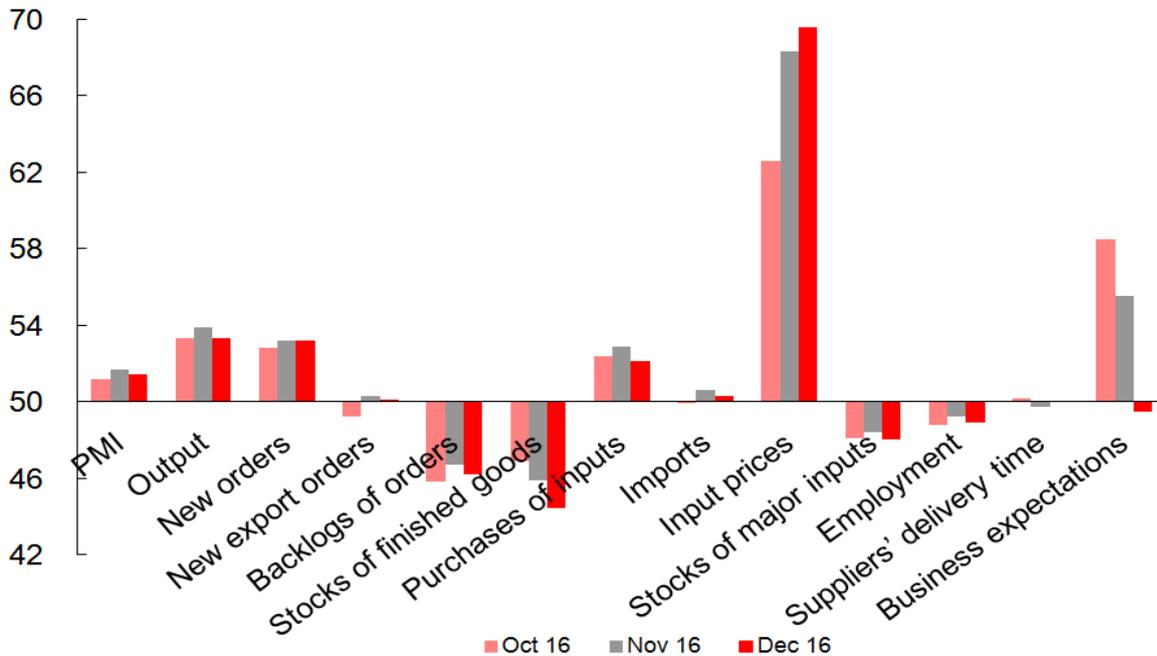
Exhibit 3: Headline PMI and sub-indices, January 2005 to December 2016

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



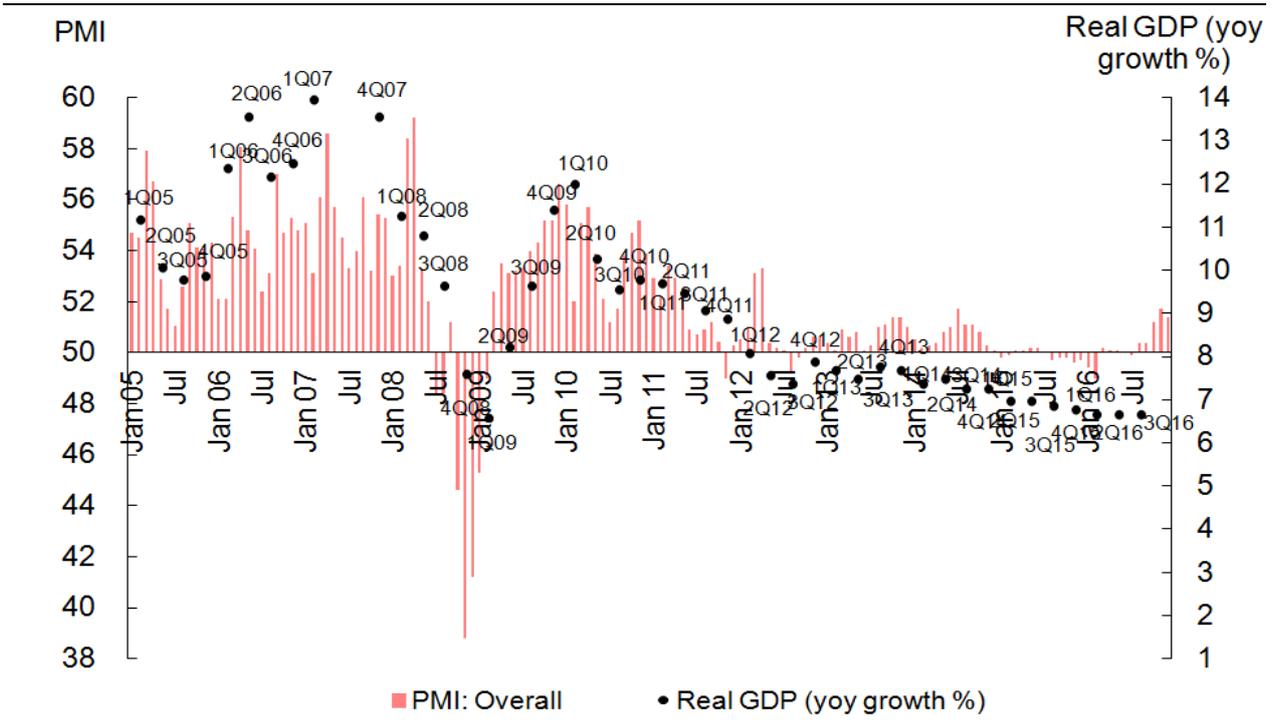
Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

Exhibit 4: Headline PMI and all sub-indices, October to December 2016



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

Exhibit 5: Headline PMI and real GDP growth, January 2005 to December 2016



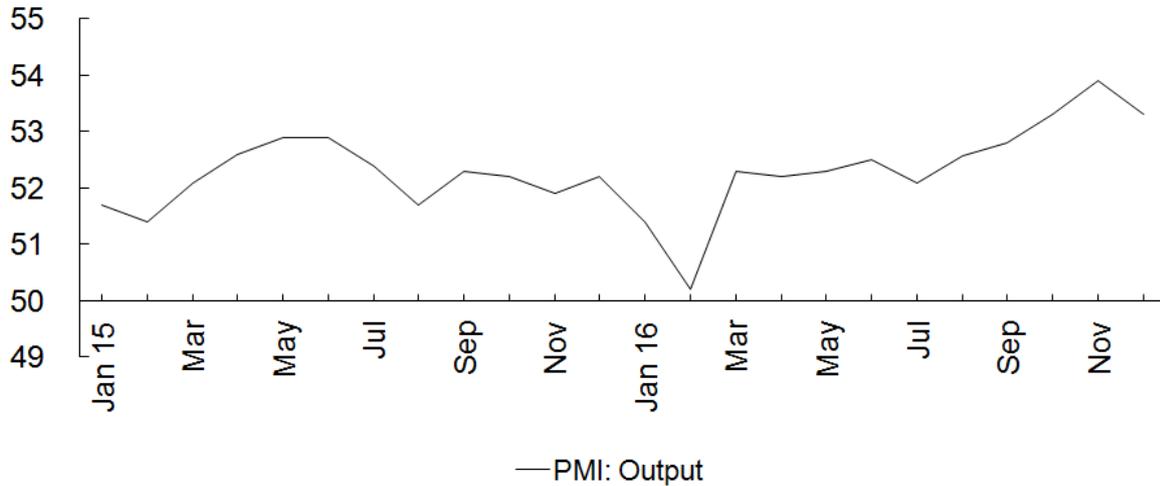
Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

2. Output growth softens

The output index rose from 53.3 in October to 53.9 in November, the highest level since August 2014. Afterwards, the index moderated to 53.3 in December. The latest reading indicates that the output growth has softened recently. (See exhibit 6)

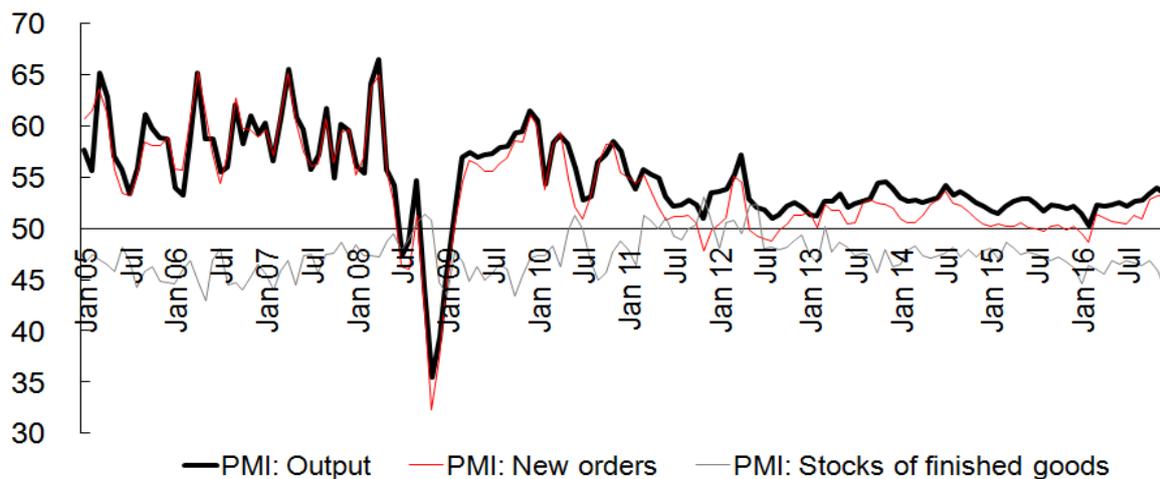
Exhibit 7 shows that the output growth was mainly fuelled by new orders growth instead of restocking activities, as the stocks of finished goods index has stayed in the contractionary zone for forty five consecutive months. However, output may grow strongly later when manufacturers have finally run out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

Exhibit 6: Output index, January 2015 to December 2016



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 2016

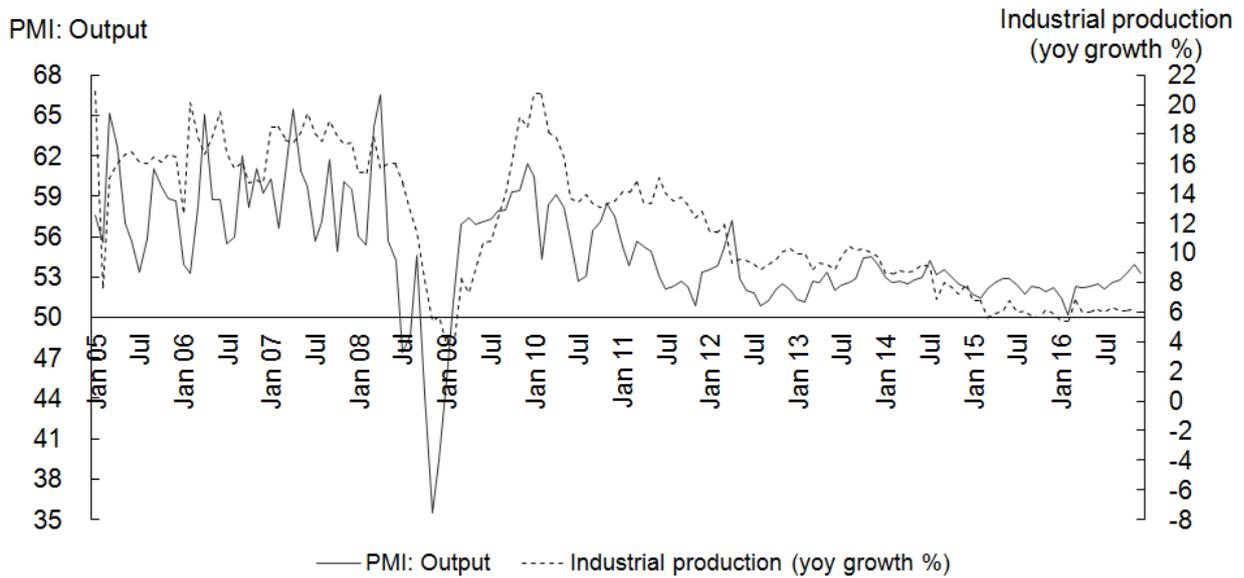


Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

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 be around 6.2% yoy in 1Q17, as the output index has stayed high in recent months. In the coming months, industrial activities will be supported by the positive impact of the government’s moves to boost domestic demand and alleviate cost burden on enterprises. Challenges facing Chinese manufacturers, however, include greater uncertainty in the US trade policies as Trump assumes presidency in January, intense competition in the international market, stronger government’s efforts to cut excess capacities in various sectors, increasing labour and environmental costs, tough operating environment, reduction in return on capital as well as

increasing amount of capital transferred out of industries.

Exhibit 8: Output index and industrial production growth, January 2005 to December 2016



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

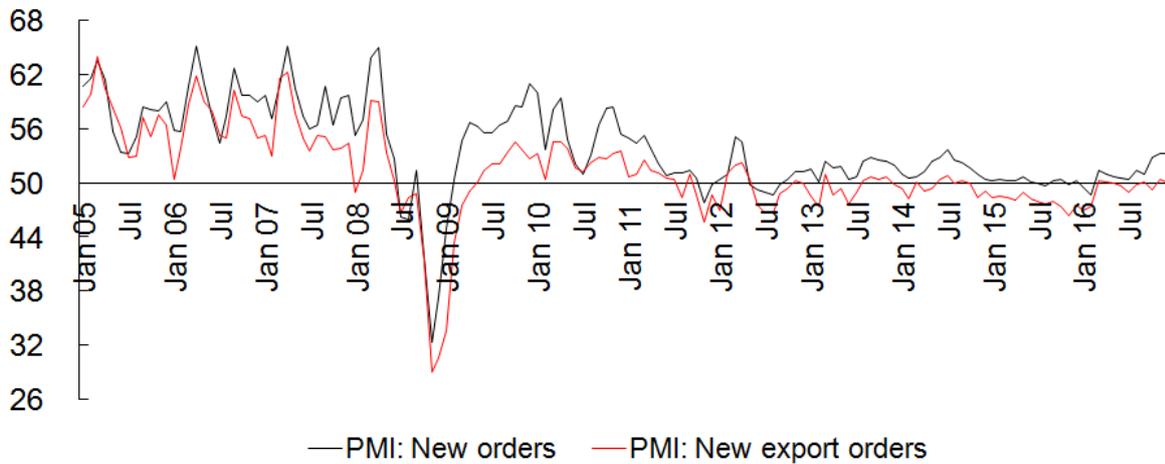
3. New orders index rises to a two-year high; new export orders index returns to the expansionary zone

The new orders index went up from 52.8 in October to 53.2 in November, the highest level since August 2014. The index then remained at 53.2 in December, indicating that the total new orders have increased at a stable pace recently.¹

After advancing from 49.2 in October to 50.3 in November, the new export orders index edged down to 50.1 in December, staying in the expansionary zone for two consecutive months. The index readings in November and December show that the new export orders have started to expand, albeit at a modest rate, in recent months. (See exhibit 9)

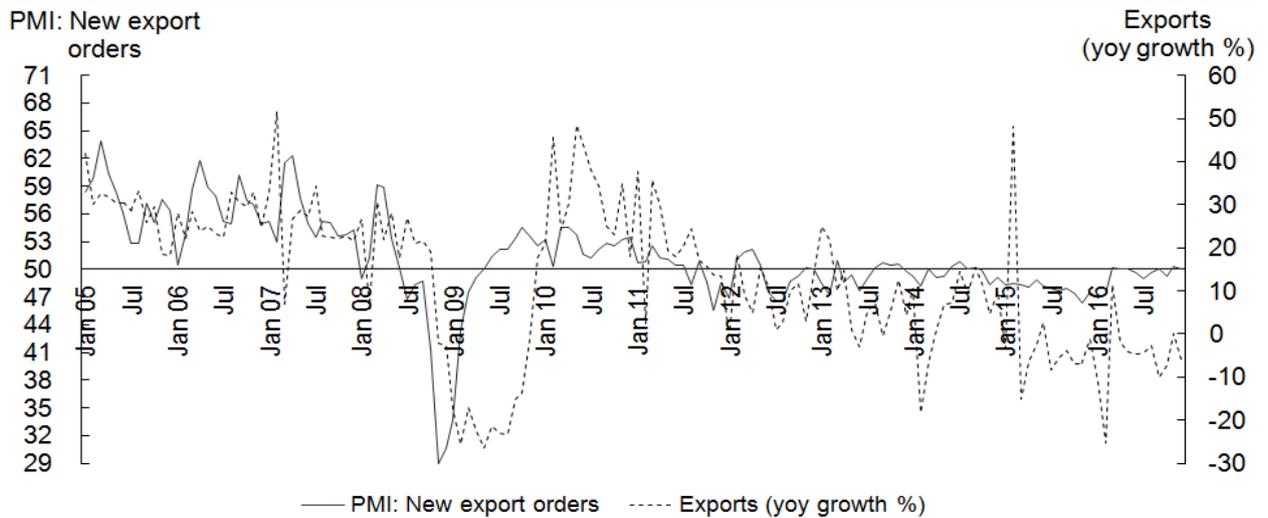
¹ The 'new orders index' covers both domestic and export orders. That is to say, the manufacturers are not asked to differentiate between domestic and export orders when filling in questionnaires.

Exhibit 9: New orders index and new export orders index, January 2005 to December 2016



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

Exhibit 10: New export orders index and export growth, January 2005 to December 2016



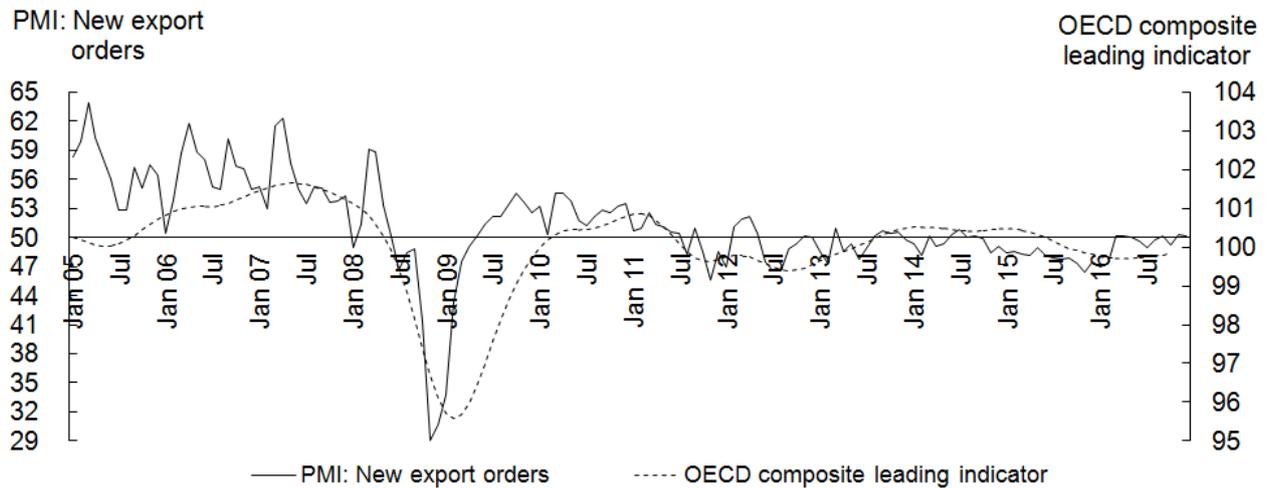
Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics, China Customs

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 returned to the expansionary zone in November, our confidence for China’s export prospects has improved. 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 indicator² has been on an upward trend since May last year, suggesting a

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.

continuous improvement in the global economy. All in all, we forecast that the year-on-year growth in China’s exports will improve to minus 2-3% in 1Q17.

Exhibit 11: New export orders index and OECD composite leading indicator, January 2005 to December 2016



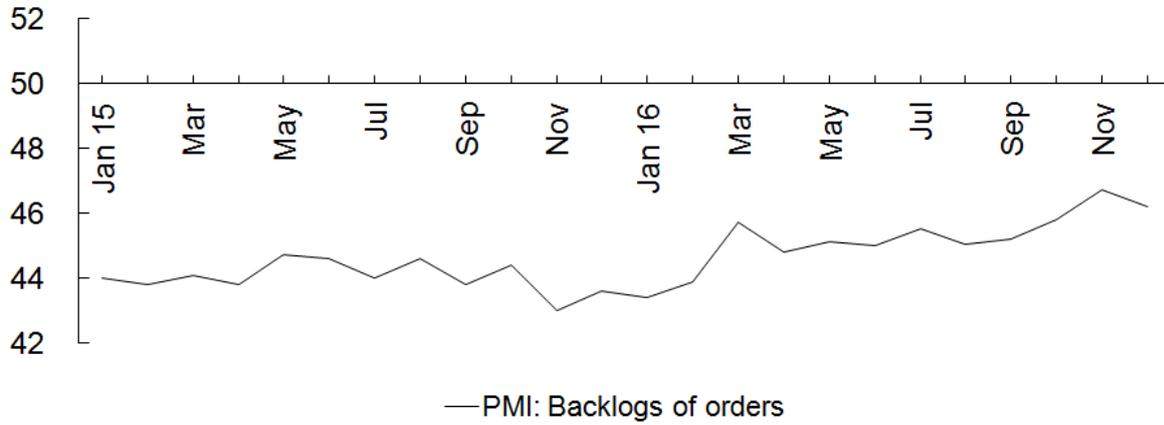
Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics, Organization for Economic Cooperation and Development

4. Backlogs of orders index falls in December

The backlogs of orders index rose from 45.8 in October to 46.7 in November, and then fell to 46.2 in December. The index has been in the contractionary zone since April 2012, indicating that backlogs of orders have continued to drop. (See exhibit 12)

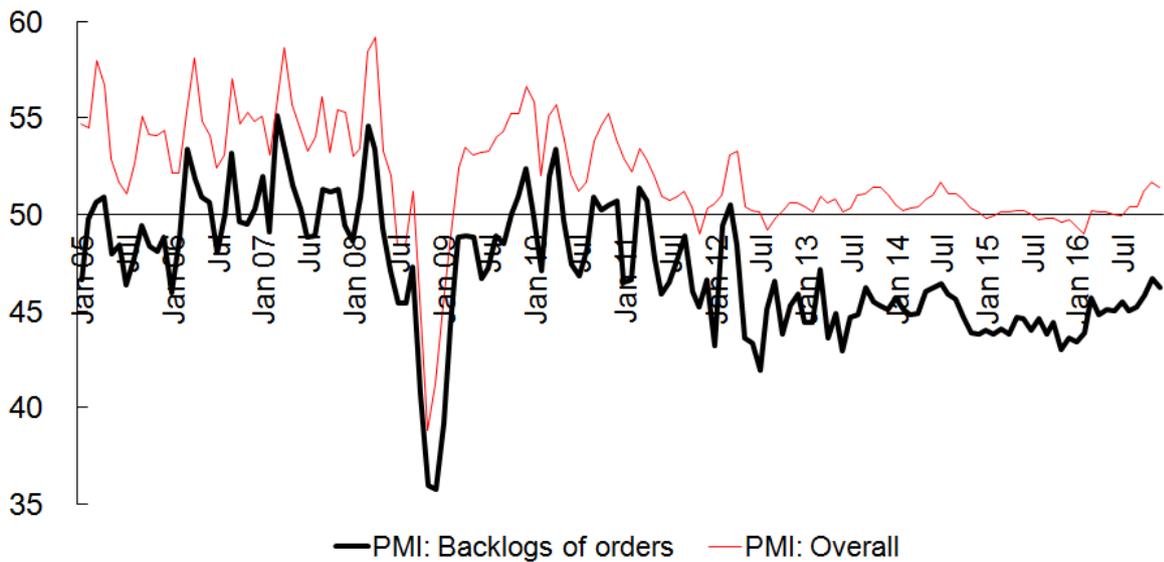
Looking ahead, we expect the index to edge down in the near term, as indicated by the apparently very high correlation between the sub-index and the headline PMI, and the recent drop in the headline PMI. (See exhibit 13)

Exhibit 12: Backlogs of orders index, January 2015 to December 2016



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

Exhibit 13: Backlogs of orders index and headline PMI, January 2005 to December 2016

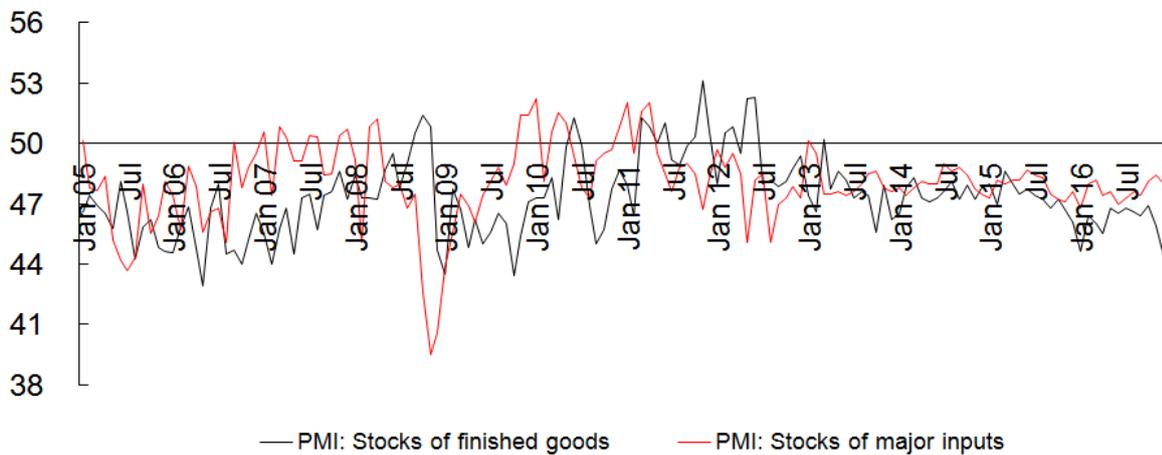


Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

5. Stocks of finished goods drop at a faster pace

The stocks of finished goods index dropped from 46.9 in October to 45.9 in November, and further to 44.4 in December, suggesting that stocks of finished goods held by manufacturers have dropped at a faster pace in recent months. Meanwhile, the stocks of major inputs index stayed between 48.0 and 48.4 throughout October to December. (Exhibit 14) The index remained below the critical 50-mark in the past three months, indicating the continuous fall in the stocks of major inputs.

Exhibit 14: Stocks of finished goods index and stocks of major inputs index, January 2005 to December 2016



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

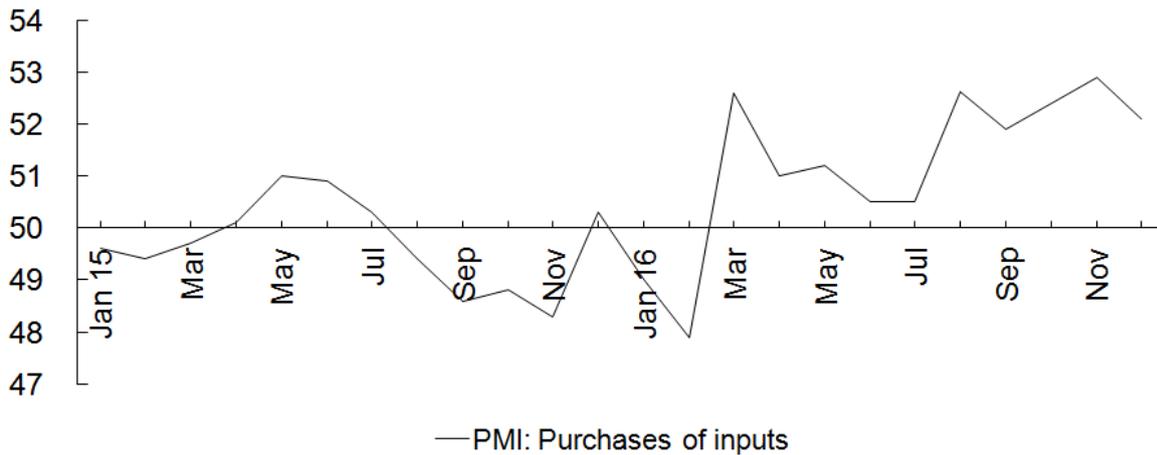
6. Purchasing activities increase at a relatively fast pace

The purchases of inputs index stayed high in the past three months, fluctuating between 52.1 and 52.9 throughout October to December. Purchasing activities have increased at a relatively fast pace in recent months. A possible reason is that, in the face of rising upstream prices, manufacturers have become more active in purchasing production inputs. (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 continuous increase in purchases if the increase in new orders persists. The purchasing activities also reflect business confidence.

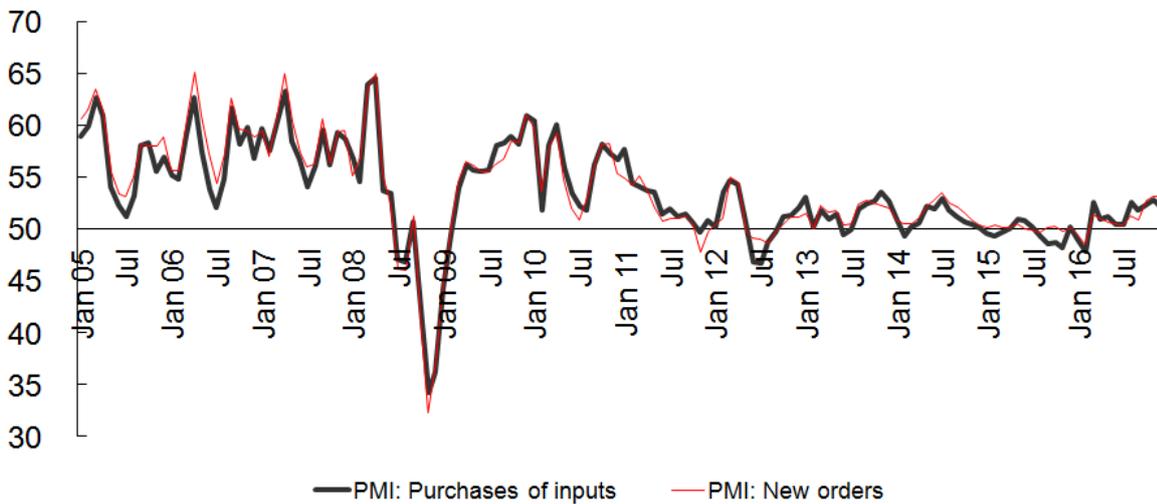
Exhibit 17 shows the association between the purchases of inputs index and the business expectations index. Credit conditions could be another factor. Finally, exhibit 18 shows that input prices, as well as the expected trend of input prices, are also important considerations when making purchasing decisions.

Exhibit 15: Purchases of inputs index, January 2015 to December 2016



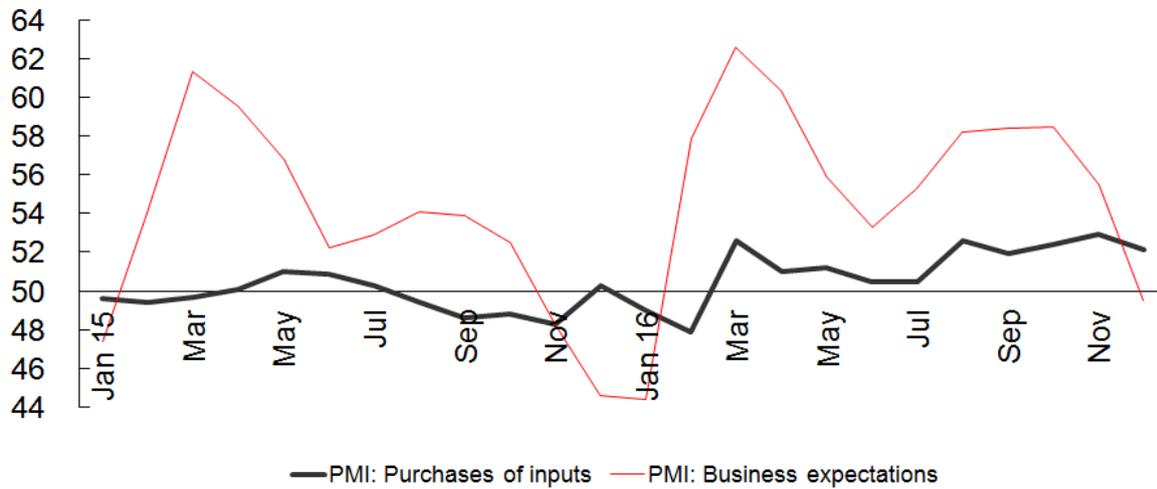
Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

Exhibit 16: Purchases of inputs and new orders, January 2005 to December 2016



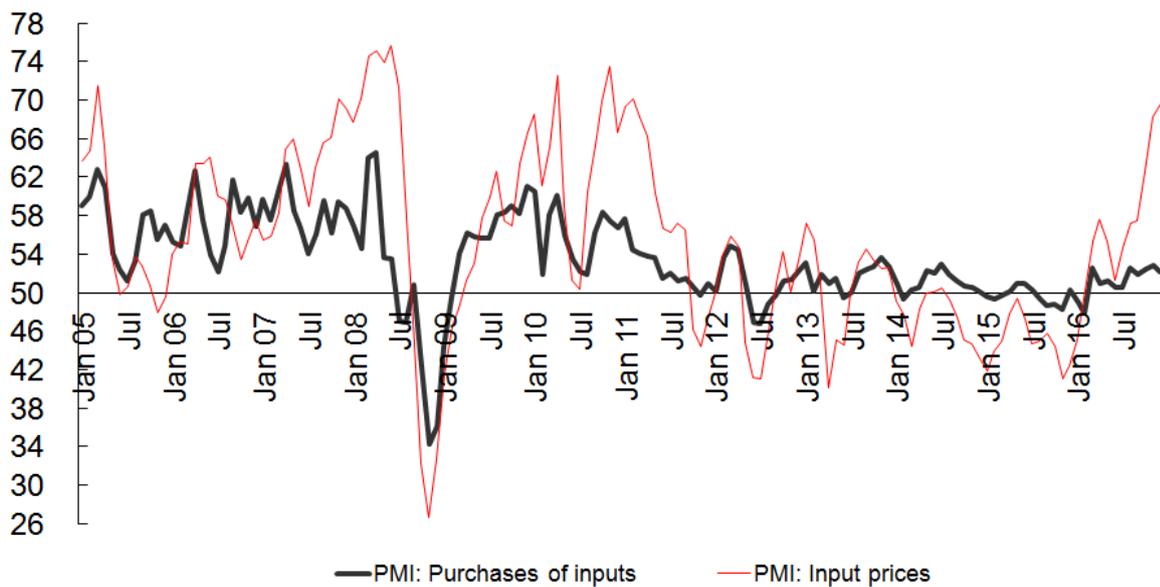
Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

Exhibit 17: Purchases of inputs and business expectations, January 2015 to December 2016



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 2016

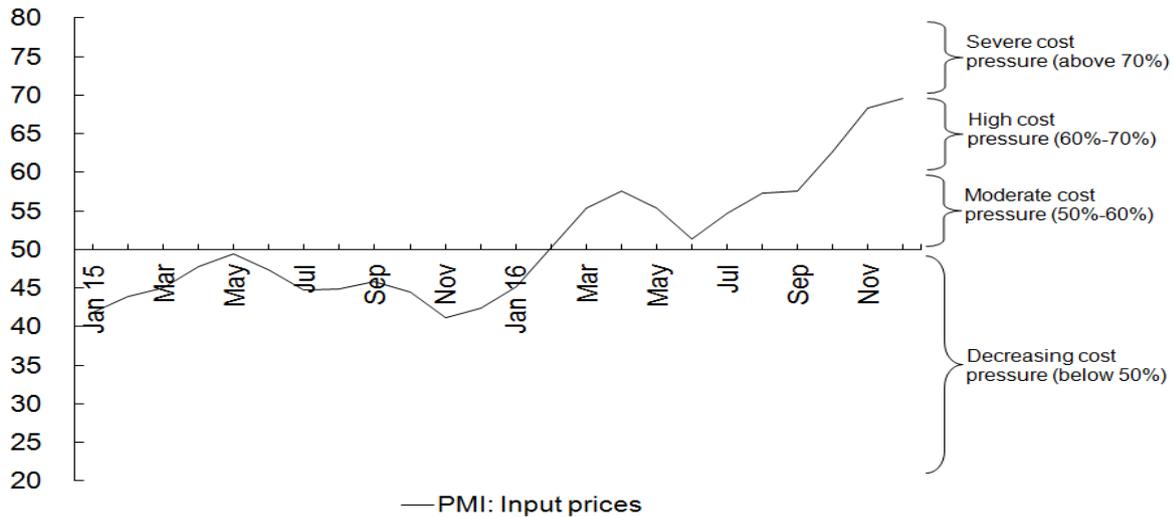


Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

7. Input prices index climbs to the highest level since March 2011

The input prices index went up from 62.6 in October to 68.3 in November, and climbed further to 69.6 in December, the highest level since March 2011. The December reading was well above the critical 50-mark, showing the marked rise in the prices of production inputs in the month. (Exhibit 19) It is noteworthy that the index has continued to rise since July last year, showing that the prices of production inputs have been rising at a faster pace in past few months. Cost pressure on manufacturers has been intensifying.

Exhibit 19: Input prices index, January 2015 to December 2016



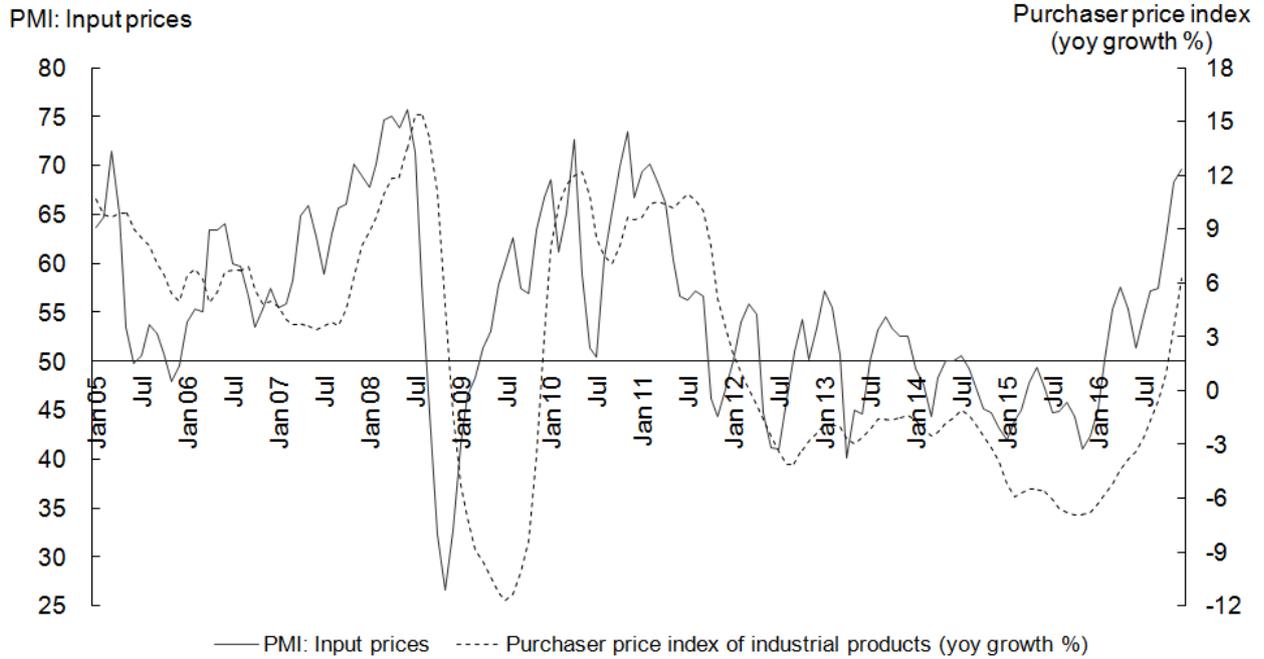
Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

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 year-on-year growth rates for the producer price index (PPI) and purchaser price index will go up further. We also forecast the CPI growth to fluctuate between 2.0% yoy and 2.5% yoy in 1Q17. 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

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.

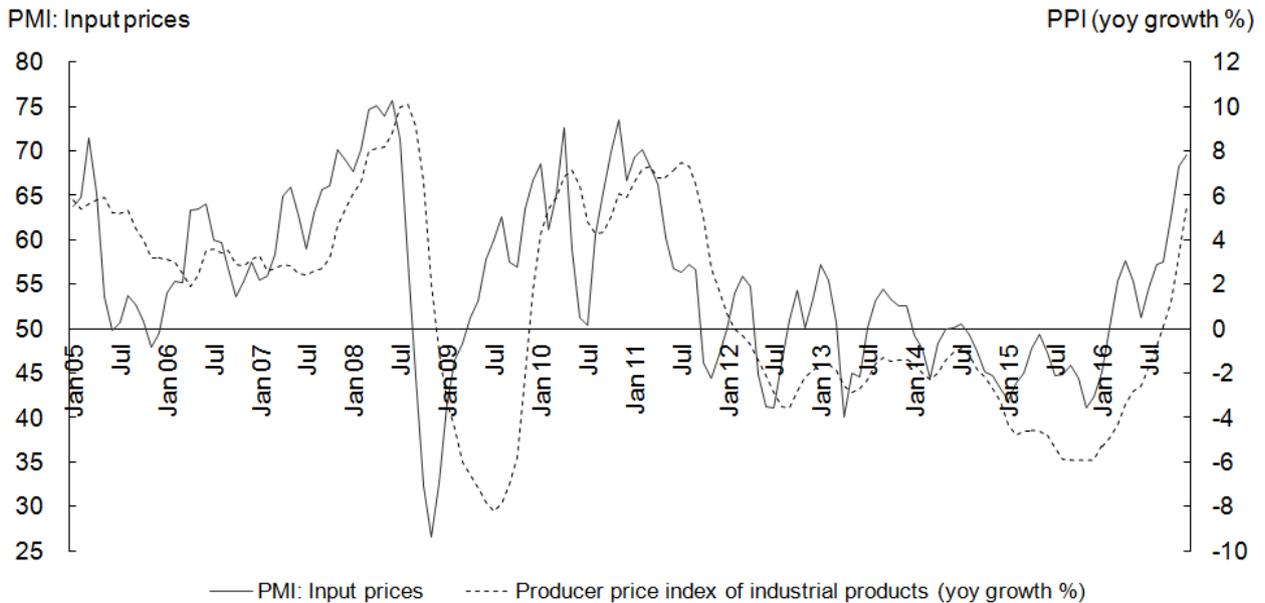
4 The Thomson Reuters/ CoreCommodity CRB Index, which comprises 19 commodities such as crude oil, aluminum, corn, cotton, gold, natural gas, soybeans, etc, has served as one of the most recognized measures of global commodities markets.

Exhibit 20: Input prices index and purchaser price index of industrial products, January 2005 to December 2016



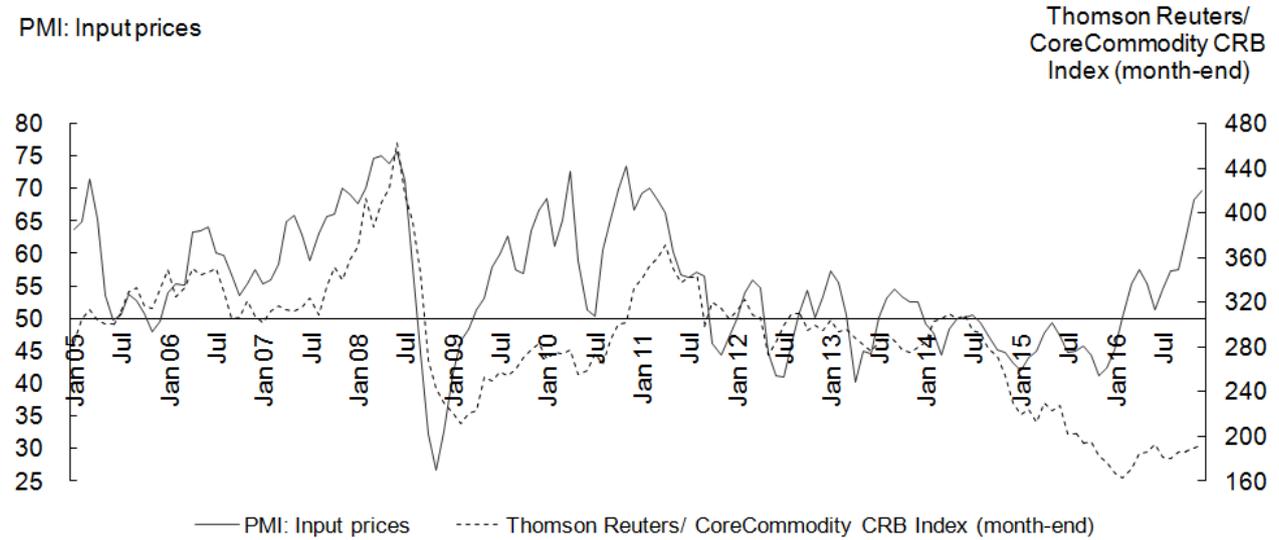
Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

Exhibit 21: Input prices index and producer price index, January 2005 to December 2016



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

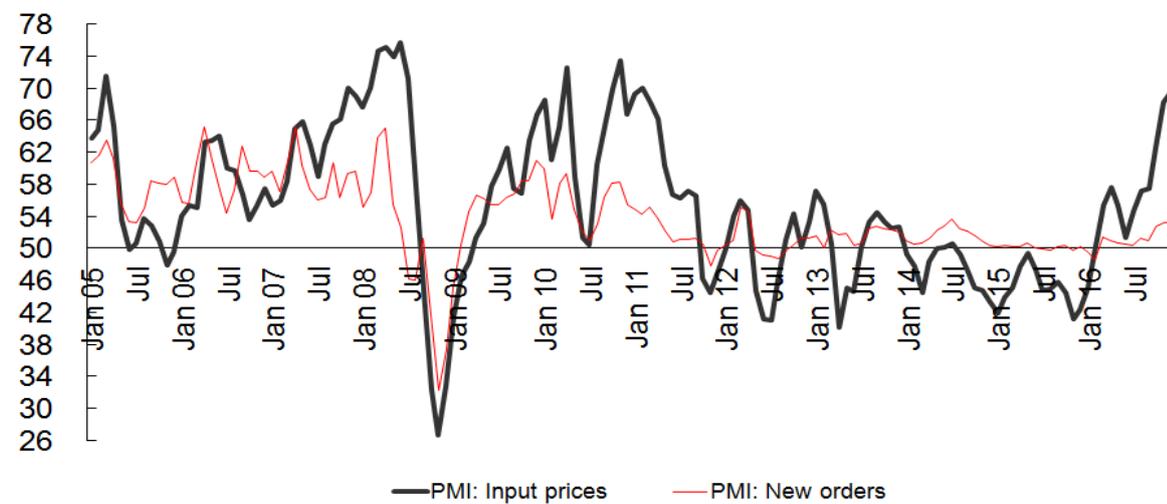
Exhibit 22: Input prices index and Thomson Reuters/ CoreCommodity CRB Index, January 2005 to December 2016



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. In recent months, input prices have risen faster than new orders. This may imply squeezed manufacturers’ profit margins in the near future.

Exhibit 23: Input prices and new orders, January 2005 to December 2016

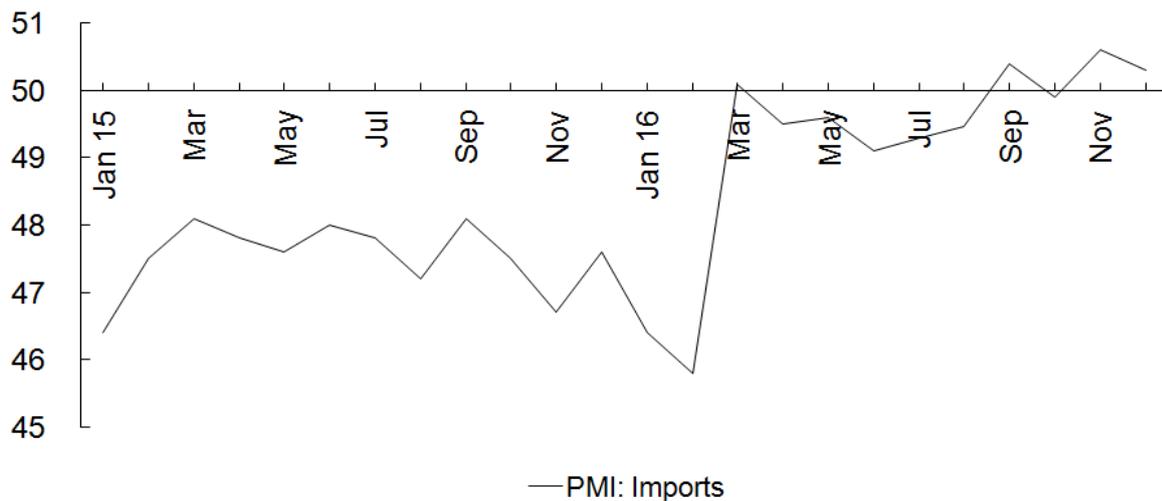


Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

8. Imports index stays in the expansionary zone

The imports index advanced from 49.9 in October to 50.6 in November. Afterwards, it went down to 50.3 in December, but was still in the expansionary zone. The index readings in the past two months show that the imports of raw materials and parts used in manufacturing have continued to recover. (Exhibit 24)

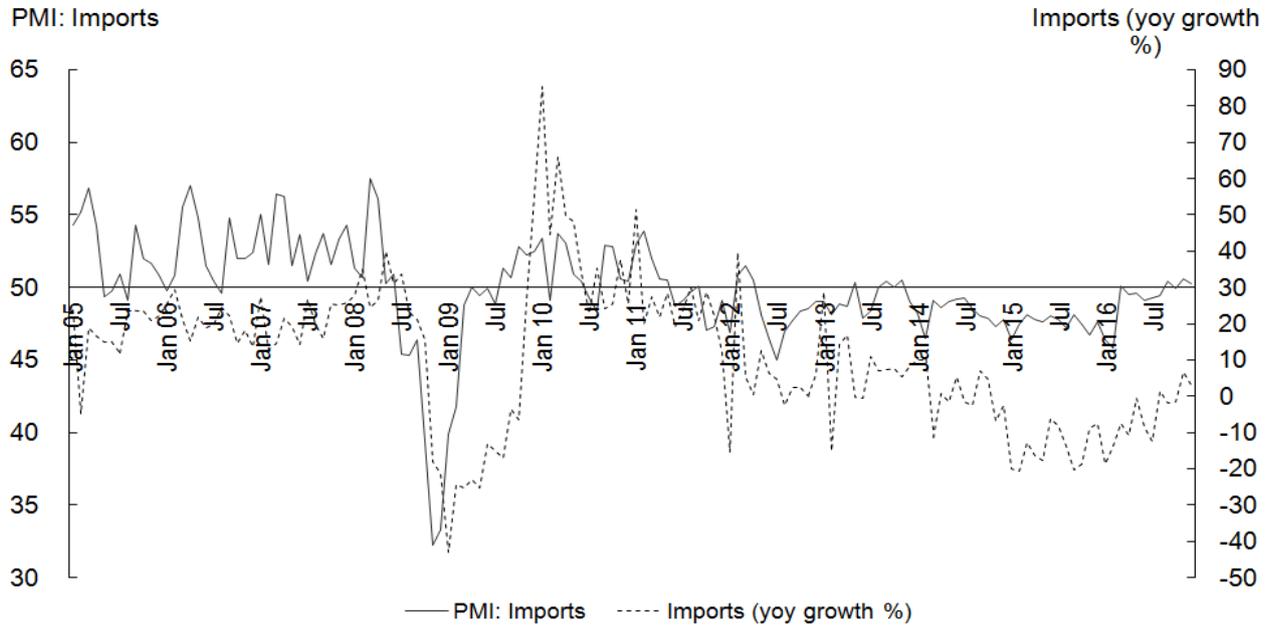
Exhibit 24: Imports index, January 2015 to December 2016



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

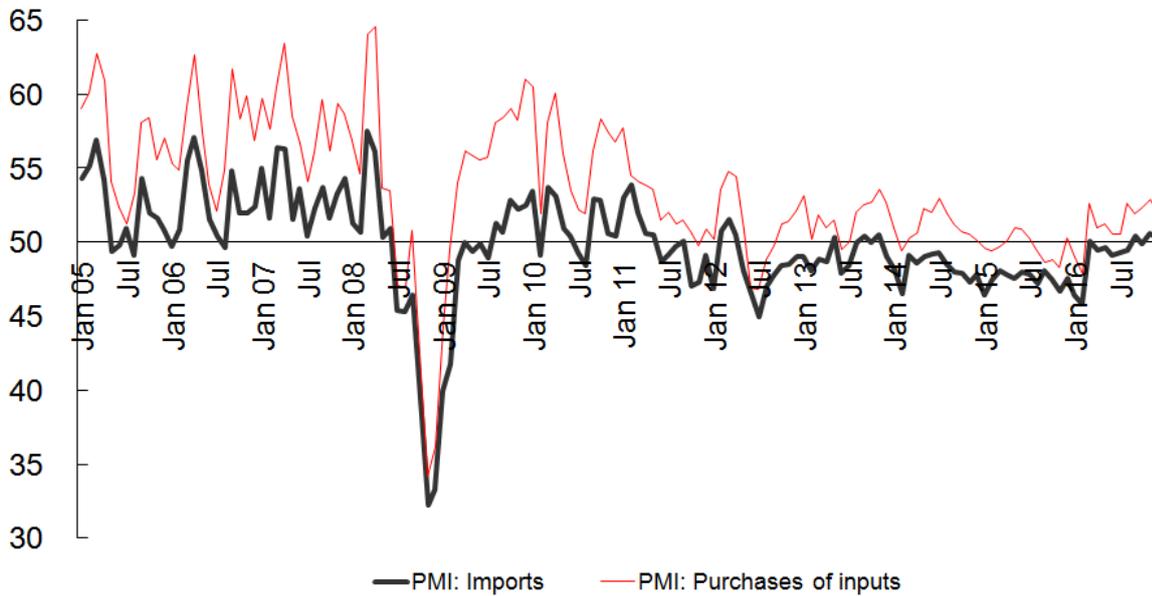
Exhibit 25 shows that the imports index is highly correlated (with some lags) to the year-on-year growth rate in imports. We expect imports to show positive year-on-year growth in 1Q17. Exhibit 26 illustrates the strong association between the imports index and the purchases of inputs index – as Chinese 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 27)

Exhibit 25: Imports index and import growth, January 2005 to December 2016



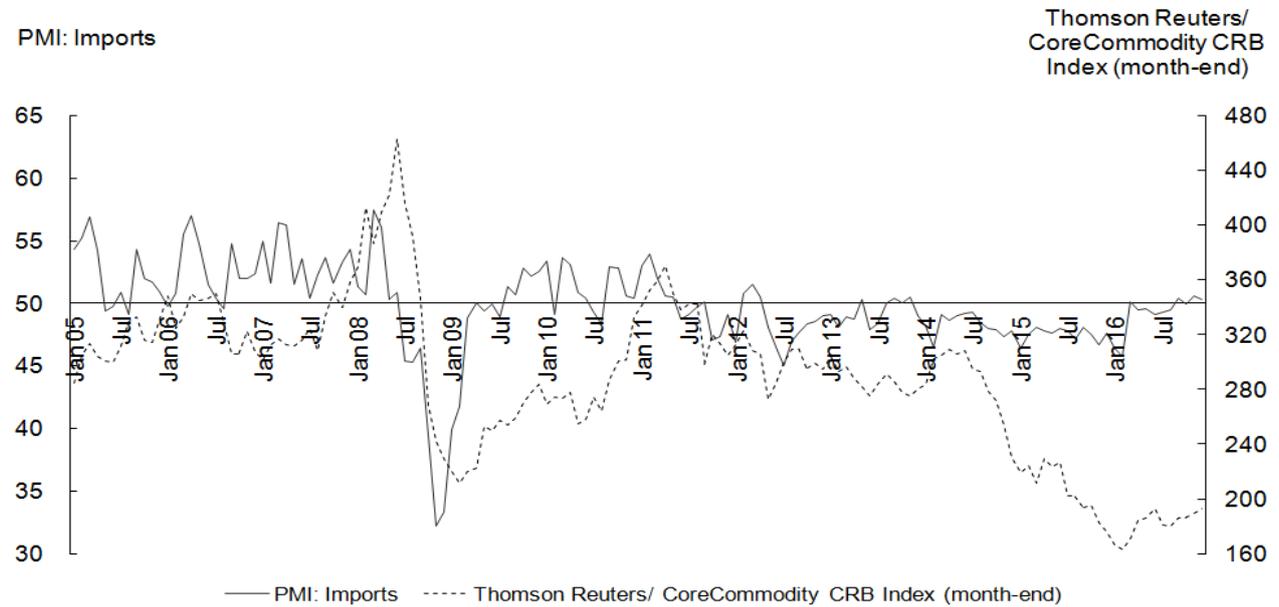
Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics, China Customs

Exhibit 26: Imports and purchases of inputs, January 2005 to December 2016



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

Exhibit 27: Imports index and Thomson Reuters/ CoreCommodity CRB Index, January 2005 to December 2016

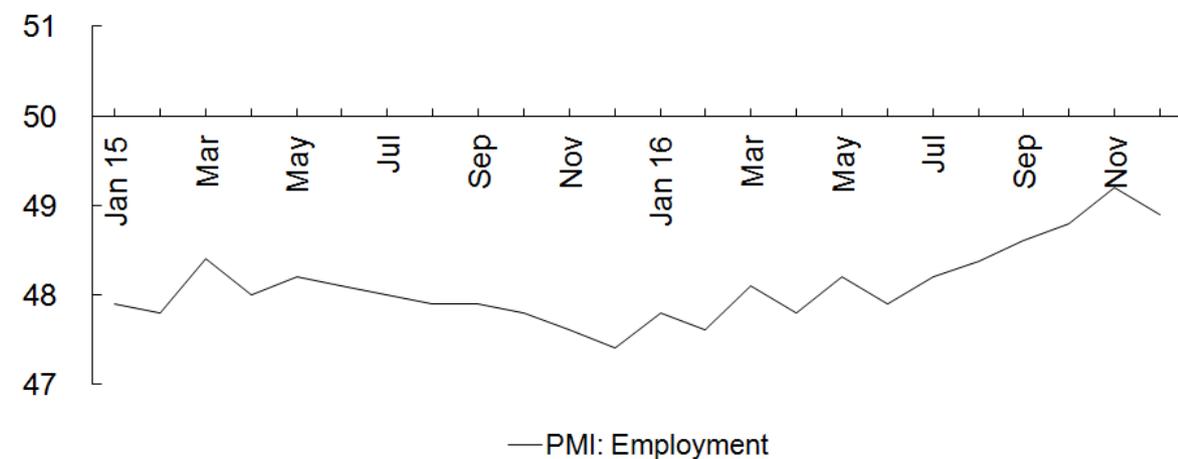


Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics, Thomson Reuters

9. Employment in the manufacturing sector shrinks at a quicker pace

The employment index rose from 48.8 in October to 49.2 in November, before dropping back to 48.9 in December. Employment in the manufacturing sector has shrunk at a quicker pace lately, partly attributable to the seasonal drop in employment near the end of the year. (Exhibit 28)

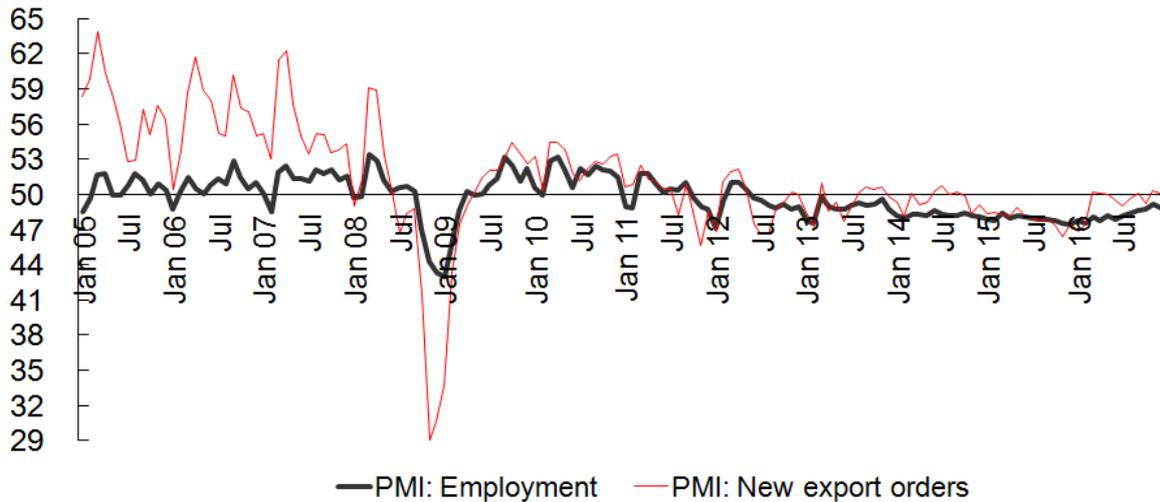
Exhibit 28: Employment index, January 2015 to December 2016



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

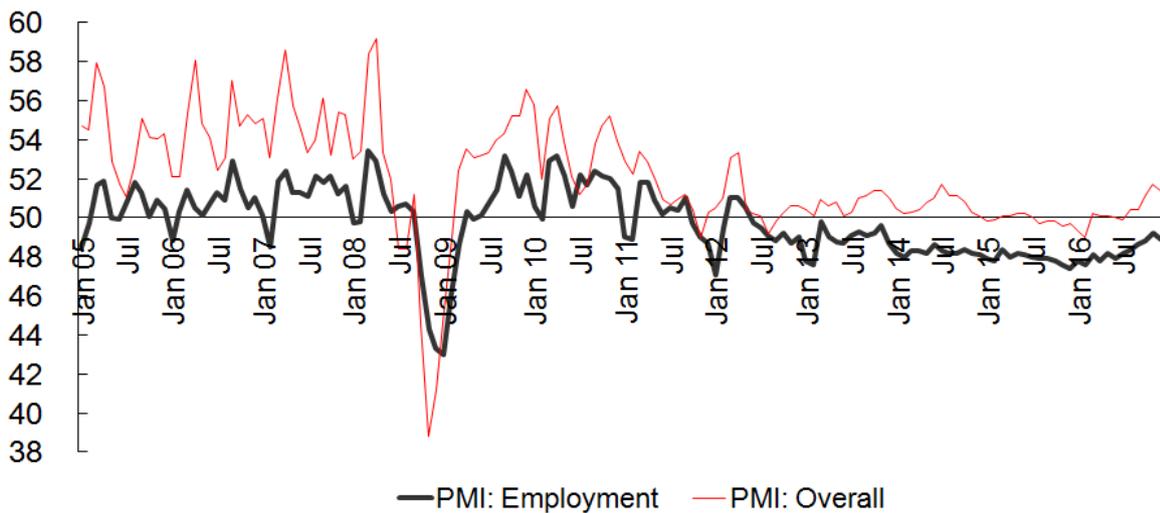
Exhibit 29 proves that the employment in China’s manufacturing sector has relied heavily on the export sector. Exhibit 30 and 31 give our readers some ideas about the extent to which the employment situation improves or deteriorates with the manufacturing sector and the overall economy.

Exhibit 29: Employment and new export orders, January 2005 to December 2016



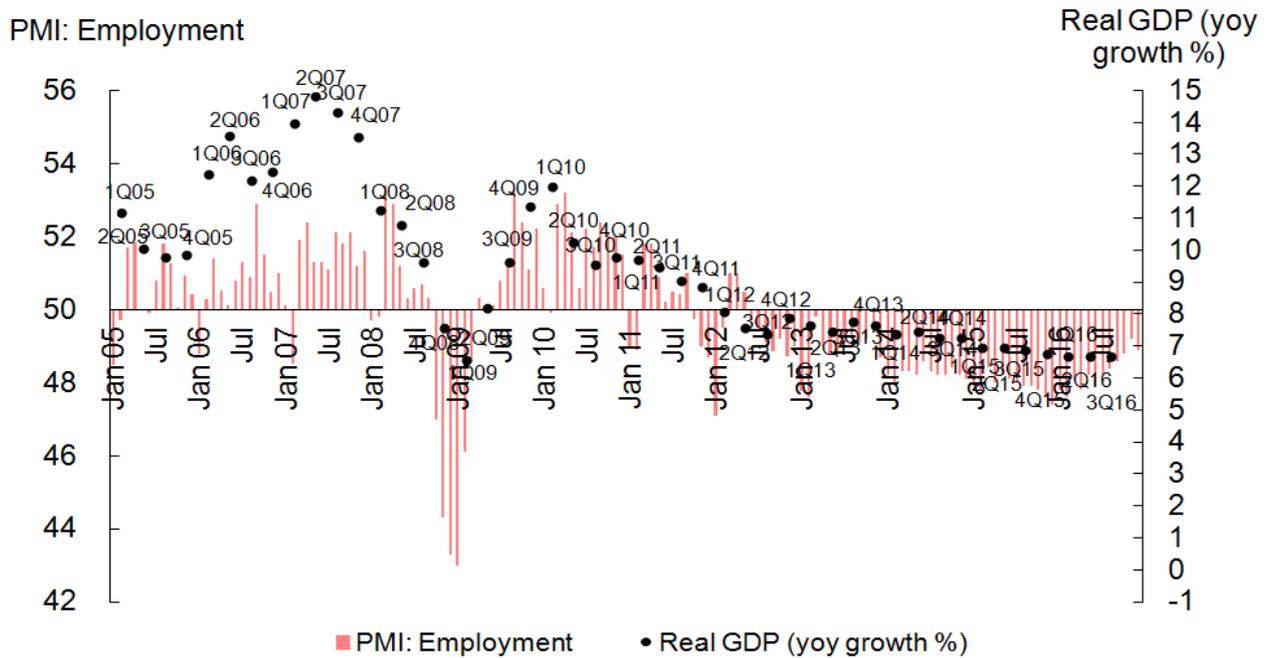
Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

Exhibit 30: Employment index and headline PMI, January 2005 to December 2016



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

Exhibit 31: Employment index and real GDP growth, January 2005 to December 2016

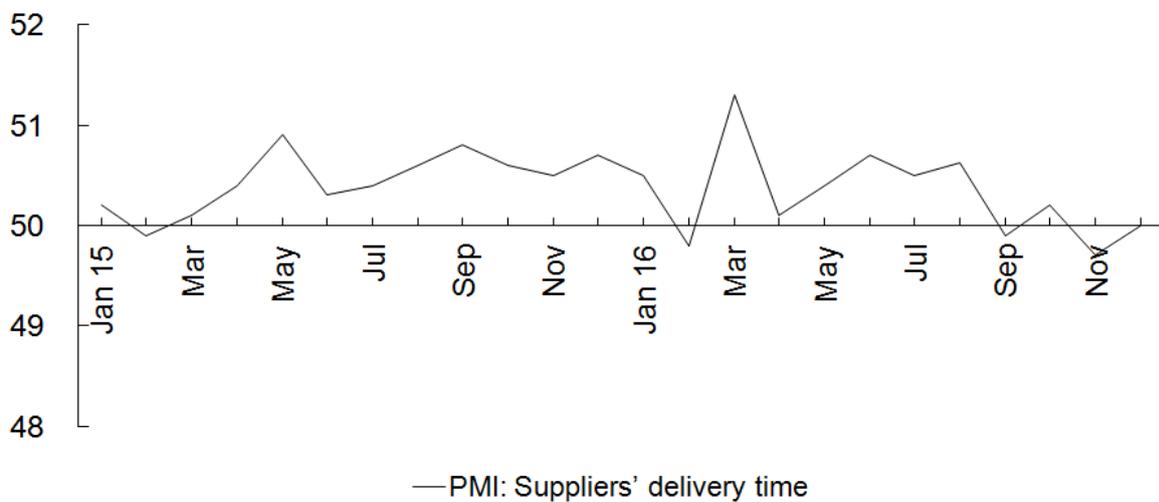


Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

10. Suppliers' delivery time remains unchanged

The suppliers' delivery time index fell from 50.2 in October to 49.7 in November. The index then rebounded to the neutral level of 50.0 in December, indicating that the suppliers' delivery time in the month was almost the same as in November. (Exhibit 32)

Exhibit 32: Suppliers' delivery time index, January 2015 to December 2016

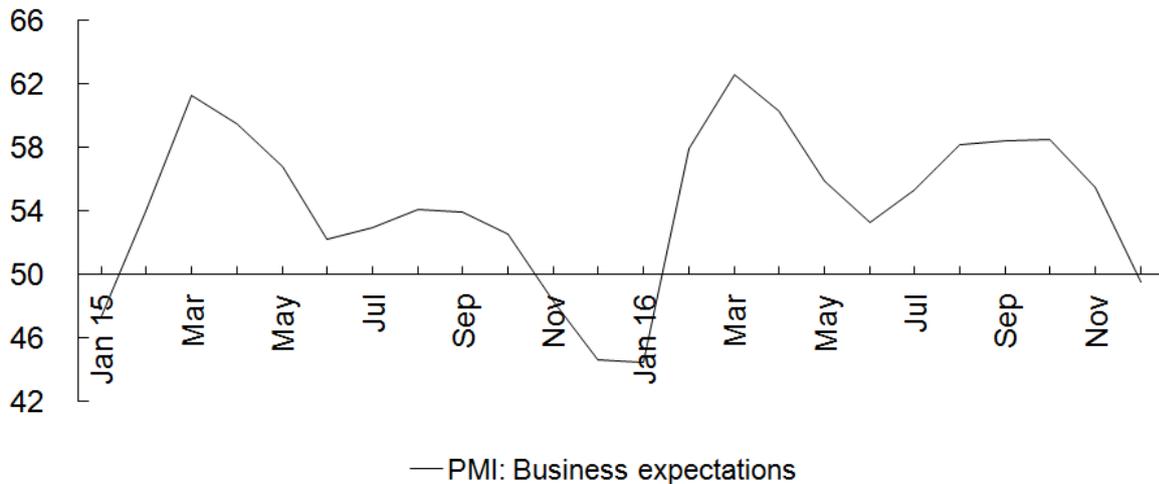


Source: China Federation of Logistics & Purchasing, China National Bureau of Statistics

11. Chinese manufacturers become slightly pessimistic

The business expectations index fell from 58.5 in October to 55.5 in November, and further went down to 49.5 in December. For the first time since February last year, the index fell below the critical 50-mark in December, indicating that purchasing managers have become slightly pessimistic about the near term outlook for their respective industries recently. (See exhibit 33)

Exhibit 33: Business expectations index, January 2015 to December 2016



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

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). The Fung Business Intelligence Centre 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 21 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 12 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, Employment, Suppliers' Delivery Time and Business Expectations. A 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.

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 45,100 people across 40 economies worldwide, generating total revenue of over US\$24.8 billion in 2015. Fung Holdings (1937) Limited, a privately held business entity headquartered in Hong Kong, is the major shareholder of the Fung group of companies.

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