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IN DEPTH

China

Our expanded China Momentum Indicator shows growth rebounding – for now

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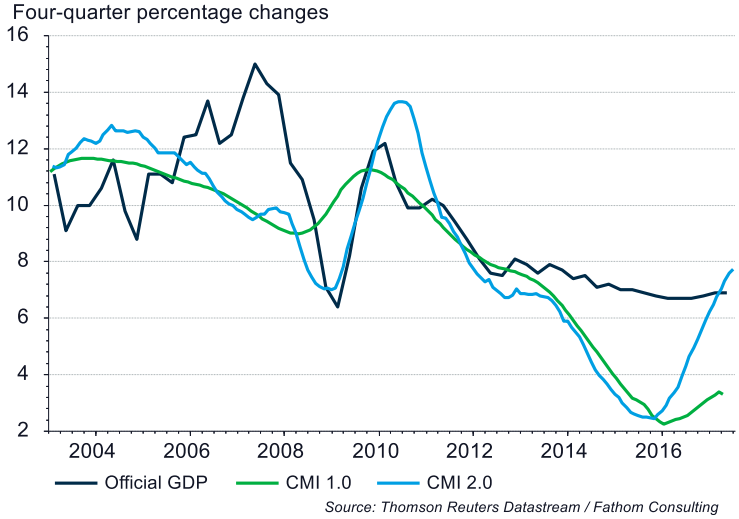
We have long been sceptical of official Chinese GDP statistics. To gain a better insight into economic activity we developed our China Momentum Indicator (CMI), first published in 2014. This note introduces our upgraded version – CMI 2.0 – which includes ten series rather than the previous three, and tracks a broader range of credit instruments. CMI 2.0 shows Chinese growth to have rebounded rapidly over 2016 and 2017, as the government 'doubles down' on its strategy of investment- and export-led growth. We believe this growth path to be unsustainable over the medium term.

Fathom's China Momentum Indicator

Four-quarter percentage changes



Source: Thomson Reuters Datastream / Fathom Consulting

Activity has picked up from 2.5% in October 2015 to 7.7% in June 2017, according to CMI 2.0

There is strong reason to believe that Chinese GDP statistics are less than fully reliable, as we examined in a *Thank Fathom it's Friday* post last September. For one, quarterly Chinese GDP statistics are released suspiciously early, three weeks after quarter-end, compared to four weeks in the US, UK and euro area and seven weeks in Japan. Given that China is a developing economy which is much larger than the UK and Japan, one

Despite publishing weeks earlier than any other major economy each quarter, absolute revisions to GDP estimates are small

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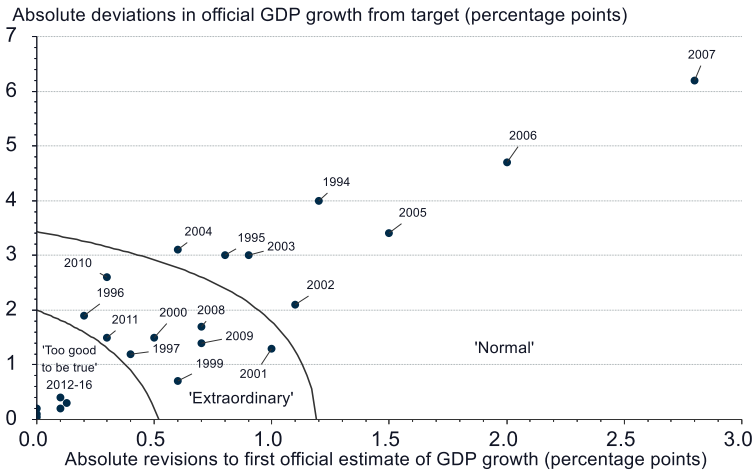
would expect its GDP to be more challenging to calculate. However, as the chart below shows, absolute revisions to the first official estimate of GDP growth have been remarkably low in recent years (much lower than in the UK or Japan), and simultaneously estimates have come in miraculously close to target. Either Chinese statisticians have had a (literally) incredible improvement in their ability to estimate GDP, or there is something fishy going on. Given that our CMI also demonstrates a significant slowing in economic activity from around 2013, which is not reflected in official data, we would opt for the latter explanation.

Performance of Chinese statisticians



Source: Thomson Reuters Datastream / Fathom Consulting

What do Chinese statisticians know that we don't? One might say it's too good to be true

This view is lent weight by the statements of China's own authorities. In 2007, according to a State Department memo released by WikiLeaks, Li Keqiang, now the Premier of the State Council of the People's Republic of China, told a US ambassador that rather than trusting official Chinese GDP figures he relied on three alternative indicators of economic activity: railway freight; electricity consumption; and the issuance of bank loans.

Li Keqiang suggested rail freight, electricity consumption and bank loan growth as more reliable indicators of activity than official GDP

In our construction of CMI 1.0, first published in October 2014, we took Premier Li at his word, using principal component analysis (PCA) to create an index based on the growth rates of these three indicators. We calculated the first principal component, which is the weighted average that accounts for the greatest amount of the variation of all the input series. This series was then smoothed to filter out uninformative noise and transformed to have the same mean and standard deviation as official quarterly GDP since 2000.

The CMI, which has the additional benefit of being available at a monthly frequency, diverged from the official quarterly GDP figures around 2013, which is when we believe headline GDP figures started to be particularly egregiously 'fudged' by the Chinese government. Contrary to the official annual growth figure, which never fell below 6.9%, CMI 1.0 fell to a trough of 2.2% in January 2016 before picking up gradually over the past year.

CMI 1.0 had the advantage of a clear and unbiased motivation behind the choice of indicators; the selection was not our own but that of Premier Li. However, the point has been made, both internally at Fathom and from some of our clients, that a broader basket would better capture economic activity in China.

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This is especially true going forward, as China-watchers look for evidence that policy makers are encouraging a rebalancing of the economy to a more sustainable growth path reoriented to the consumer, rather than 'doubling down' on the past model of export- and investment-led growth. Our own view is that those in power have opted for the latter path, and that although this choice delivered an upswing in growth in 2016, it will ultimately threaten China's long-term growth prospects.

To this end we have expanded CMI 2.0 to include a total of ten rather than the previous three series. The full list of indicators is shown below, with new series in italics:

Our expanded CMI 2.0 now includes ten series, up from the previous three

Rail freight
Electricity consumption
Real total social financing
Port freight
Highway freight
Real retail sales
Real imports
Air passenger volumes
Oil consumption
The Goldman Sachs Commodity Price Index

The 'real total social financing' measure replaces the bank loans indicator used previously. As we explored in a note last month, there has been a massive expansion of credit in China over recent years, which has been necessary to fund its investment-led growth. China's ratio of private non-financial debt-to-GDP has now breached 200%, which is already 50% higher than that of the US the year before Lehman Brothers filed for bankruptcy. Such an expansion is unlikely to lead to sustainable growth due to funds flowing to projects and assets that generate little or no return; this underlies our belief that doubling down will not succeed in maintaining the kind of growth rates China has grown accustomed to, and Chinese authorities are expected to deliver.

There has been a massive expansion of credit in China in recent years to fund its investment-led growth

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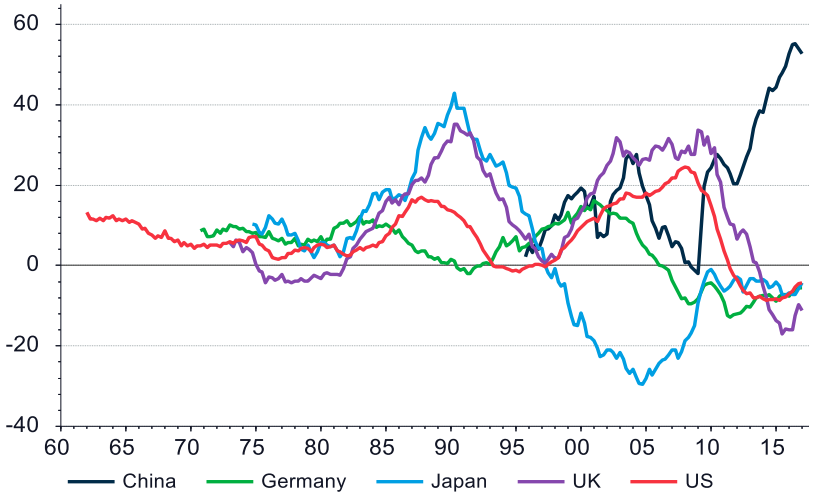
Credit to private non-financial sector

Difference relative to ten-year moving average, percentage points



Source: Thomson Reuters Datastream / Fathom Consulting

A measure of credit is therefore an important element to include in our CMI, but looking at traditional bank loans alone, as in our previous CMI 1.0, does not capture the whole picture. As the chart below shows, recent credit expansion has been increasingly directed to off-balance-sheet vehicles, to help comply with capital adequacy requirements. The 'real total social financing measure' now used in CMI 2.0 includes off- as well as on-balance-sheet lending to more accurately track this.

Our CMI 2.0 incorporates both off- and on-balance-sheet loans

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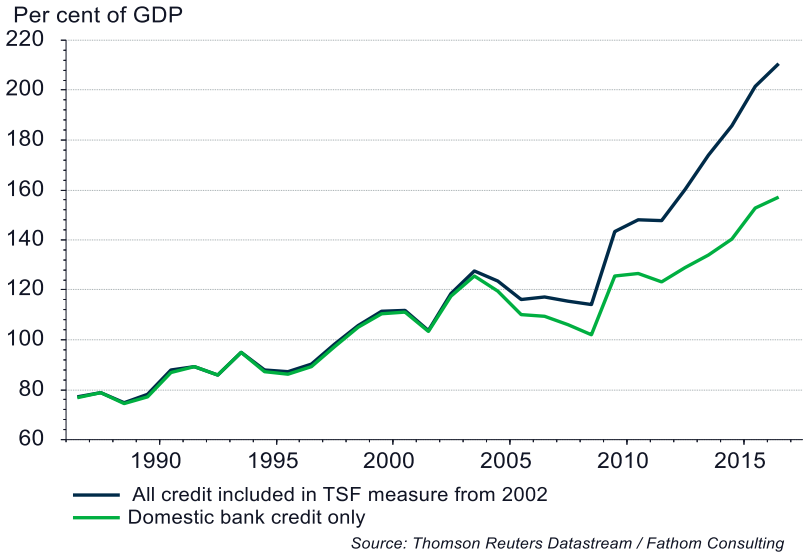
China credit to private non-financial sector



Source: Thomson Reuters Datastream / Fathom Consulting

In our choice of indicators we have, wherever possible, avoided measures used in the construction of the usual expenditure components of GDP, focusing instead on shadow measures of economic activity. We believe these to be less prone to manipulation than the headline GDP figures.

CMI 2.0 mostly uses shadow measures of economic activity rather than expenditure components of GDP

CMI 2.0 expands the range of freight variables from just railways to include highways and goods exported through ports, in addition to the commodity variables which correlate with domestic demand and activity. Financing, retail sales and air passenger volumes are included as representations of the services sector. The inclusion of real imports also captures the growing consumption of Chinese workers with increasing incomes, and the import of intermediate goods for use in industry.

The ten indicators in CMI 2.0 (shown on the chart below) are transformed to twelve-month growth rates, and the first principal component is calculated as described above. The nature of our chosen indicators means that there is a lot of noise in the outturns from month to month, and hence a lot of unwanted noise in their weighted component. To see through these transitory effects we use a 19-month centred moving average of the principal component series. Our use of a centred moving average rather than a backward-looking moving average makes our CMI more timely, although the latest nine months will be subject to revision as new information comes in.

Our smoothing method strikes a balance between picking up new data points and filtering out noise

The smoothed series is then rescaled to have the same mean and standard deviation as official four-quarter GDP growth over the sample 2002 to 2012.

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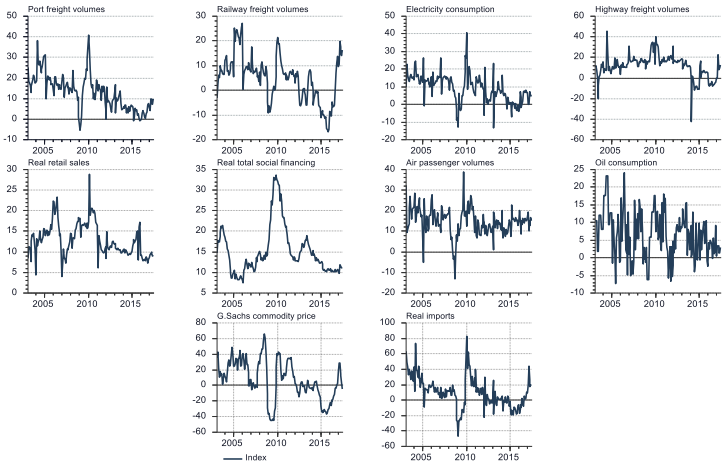
CMI 2.0 indicators

Twelve month percentage changes (unless otherwise stated)



Source: Thomson Reuters Datastream / Fathom Consulting

The chart on page 1 shows our final CMI 2.0 series. The new indicator better tracks official GDP figures during the slowdown and recovery from the global financial crisis in 2008, but diverges significantly from official GDP at the same point as CMI 1.0 and follows the same subsequent downward trajectory. The trough of GDP growth is slightly higher and earlier, at 2.5% in October 2015. Since that point our new indicator has rebounded far more strongly than CMI 1.0; in fact the latest reading of 7.7% growth for June is higher than the official GDP figure for 2017 Q2 of 6.9%. The rebound is due to five of the ten indicators displaying strong growth over the past year: all three freight indicators, especially railway freight, in addition to real imports and the commodity price index, have expanded at significantly higher rates than in the slump of late 2015. CMI 1.0, which picked up only railway freight out of these indicators, showed growth to be increasing, but did not capture the full extent of the rebound. This supports our belief that Chinese decision-makers have doubled down: unable to tolerate the slowdown associated with a rebalancing, which could threaten their own position and control, they have chosen to recommit to the model of export- and investment-led growth rather than a reorientation toward the consumer.

The choice to double down puts China on a lower long-term growth path

We do not have confidence in the sustainability of this growth path for China. In our central scenario for this quarter's *Global economic and markets outlook* we expect GDP growth as measured by CMI 2.0 to fall back to 6.4% by 2018. Our central forecast for the long term, relating to 2020-25, is for growth of around 4.5%, as maintaining the tactic of low consumption and continued investment in unproductive assets results in a falling return on capital which undermines growth. Of course, the authorities will likely continue to report faster growth.

Indeed when we look at the component breakdown of CMI 2.0 in the chart above we can see some early signals of the unsustainability of the current rebound. All five of the indicators discussed above which have been driving the expansion have turned down over the past two or three months. This will take time to feed through to our headline CMI, due to the smoothing method discussed above, but we believe the slowdown will persist.

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The doubling down path has been funded by a huge expansion of credit, and, despite introducing some tentative measures to improve lending standards earlier this year, we believe policymakers will be too fearful of a slowdown to take away the punch bowl. In our downside scenario, China suffers a banking crisis and enters recession. Unwilling to take the painful but necessary steps to restructure their financial system, they instead take piecemeal steps to recapitalisation, as Japan did in 1991, trapping them in the same low-growth environment faced by many developed economies.

Much of our long-term China view hinges on the sources of growth, in terms of the necessary transition away from manufacturing and towards greater reliance on the tertiary sector. In addition, the realisation of our forecast's downside scenario depends on the outlook for the financial system, where it is essential to consider off-balance-sheet lending in addition to traditional bank loans. In this vein we consider CMI 2.0 to be a more useful and comprehensive snapshot of economic activity in China.

A broader measure of activity is essential for understanding our China outlook

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