SPECIAL REPORT

TD Economics

November 14, 2016

TRACKING CHINA'S RE-BALANCING TO SERVICES-BASED ECONOMY

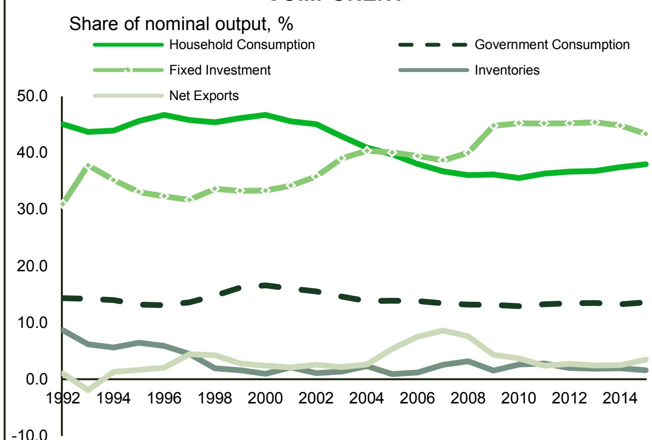
Highlights

- There remains a widely-held perception that China remains an economy dominated by investment and exports. Yet, after several decades of growing share, the tertiary or service sector now accounts for about half of GDP. A further transformation towards a service-driven economy led by the consumer is at the core of the Chinese government's longer-term plan.
- In recent years, the government has been balancing this longer-term objective with short-term challenges, notably an undesirable rapid slowdown in overall growth. In response, the government has undertaken significant additional stimulus measures that have further fanned the upward trend in debt.
- To the extent that the Chinese service sector activity can perform well, it would help to ensure the government meets its stated growth targets and reduce medium-term financial stability risks.
- Accordingly, a close monitoring of the performance of the service sector in China will be important. Based on our newly-constructed tracking model, tertiary output is poised to grow strongly for the second straight quarter, providing a solid underpinning for overall GDP growth.

Near the end of last year, the Chinese government released details of its 13th five-year plan, the outline that will shape economic and social policy over the next five years. In the plan, the government reiterated its desire to shift away from its traditional formula of rapid economic growth driven mainly by export and debt-fueled investment. Instead, the focus would be on delivering a more moderate and sustainable expansion with an increased role for service industry activity and personal consumption.

What tends to get overlooked is how far the Chinese economy has already transitioned away from the "old-economy" industries towards the tertiary or services industries. Twenty-five years ago, China's service industry comprised only 25% of GDP. Spurred by the rising incomes and wealth of Chinese consumers, the service industry's contribution to GDP has increased steadily, and now accounts for more than half. A continued evolution to the 70-80% service-industry shares recorded in the advanced world will take time, the speed of which will be determined by how quickly purchasing power gets transferred from producers to consumers as well as the implementation of a modern social safety net.

CHART 1: CHINA'S ECONOMY BY MAJOR COMPONENT



Source: China National Bureau of Statistics, TD Economics

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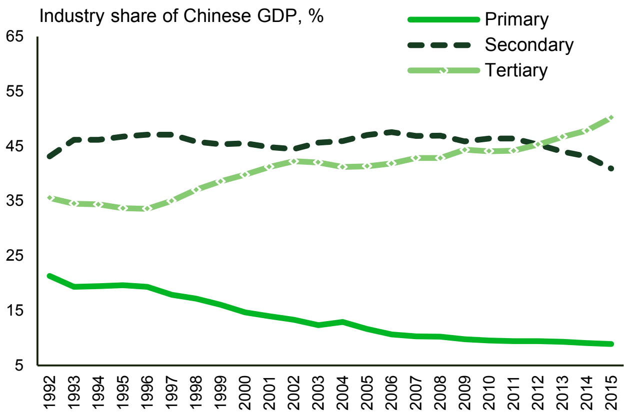
CHART 2: TERTIARY (SERVICES) INDUSTRY IS CHINA'S LARGEST



Source: China National Bureau of Statistics, TD Economics.

From a short-term perspective, much is riding on the performance of service industries in China. The government finds itself in a precarious position of balancing its long-term goals with short-term downward pressure on China's overall growth rate. Given this growing heft, continued robust service-industry expansion will be critical to both meeting the government's stated growth target of 6.5-7.0% as well as maintaining financial stability. Yet, there continues to be surprisingly little coverage on trends in the service industry relative to the economy's traditional drivers of manufacturing and construction. Part of this relates to inherent data challenges.

In response, we have designed a short-term tracker of tertiary or service industry activity that is derived from available monthly data as well as more high frequency indicators. While stimulus spending this year is largely responsible for supporting growth, activity in the service industry has sprung back since early-2016 weakness and has helped to stabilize growth China's growth well within the target range. Based on our near-term tracker, China's year-on-year pace of expansion is set to slacken in the fourth quarter of 2016, but is unlikely to fall below the 6.5% lower bound.

Looking further out to 2017, much uncertainty continues to overhang China's economic outlook. In recent weeks, the government has renewed efforts to clamp down on excesses within the residential property market, which – along with other mounting pressures – threaten to propel growth significantly below target. While the service industry won't be immune to these negative effects, the resilience it has displayed – during, for example, recent periods of equity market turmoil and housing price volatility – should continue to stand it in good stead. As such, look for services to provide an offset to softness in the goods sector next year.

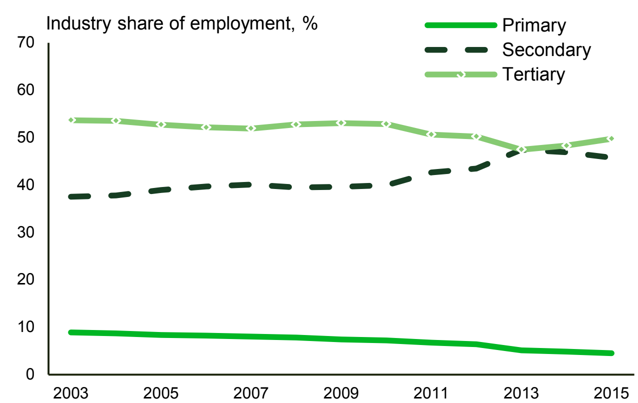
Understanding China's economic industries

National economic accounts are typically described as either the sum of national expenditures (household and government consumption, investment by firms and households, and the trade balance), or the sum of national income earned. Chart 1 shows the relative breakdown between these categories in China; fixed investment is responsible for the majority of aggregate economic output, followed by household consumption, and government consumption. A less commonly followed but equally valid method of accounting for economic output is to report output by the three major industrial categories: primary, secondary and tertiary.

For China, the primary industry generally encompasses raw material extraction, such as agriculture, forestry, and fishery industries. The secondary industry involves the transformation of raw materials into intermediate goods, and includes mining and oil and gas extraction (except auxiliary support services), most manufacturing, construction, and the production and distribution of electricity, steam, gas, and water. Finally, the tertiary industry serves as a catch-all category for all other types of industries, which typically involves the distribution of these raw and intermediate goods to their end use. As such, China's tertiary industry encompasses most of the service industries.

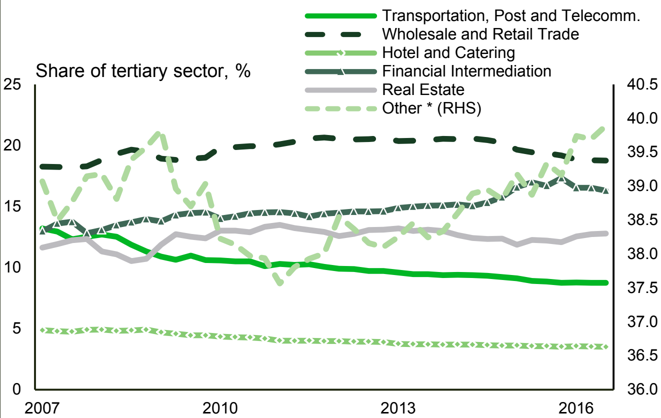
Chart 2 shows the evolution of the nominal share of each industry for China. The secondary industry has typically accounted for the majority of output through much of the 1990s and the early 2000s – a reflection of both a booming manufacturing industry and robust construction activity. However, the tertiary industry surpassed the secondary industry to become the dominant contributor to output as of 2012. Chart 3 shows that the tertiary industry remains the dominant employer in China, although recently employ-

CHART 3: TERTIARY (SERVICE) INDUSTRY IS CHINA'S LARGEST EMPLOYER



Source: China National Bureau of Statistics, TD Economics.

CHART 4: LARGEST SERVICE INDUSTRIES INCLUDE OTHER SERVICES, FINANCIAL INTERMEDIATION AND REAL ESTATE



Source: China National Bureau of Statistics, TD Economics. Last observation: 2016Q3
* Other includes industries such as public administration, health, and education.

ment in the secondary industry has picked up – a likely consequence of the additional economic stimulus brought on line by Chinese authorities to ensure a recovery from the financial crisis.

China's service industry encompasses a broad swathe of economic activity

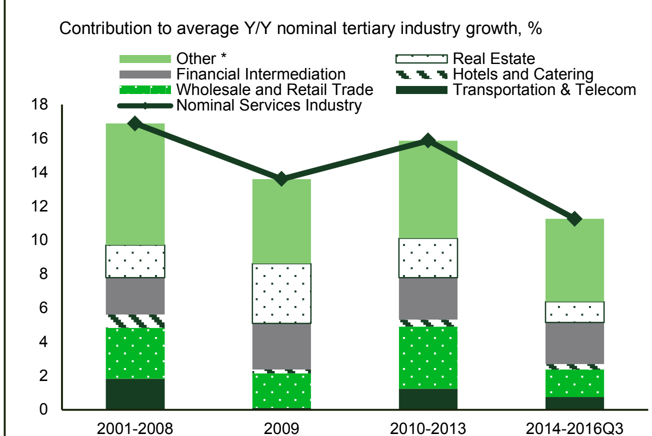
The Chinese tertiary industry includes a number of service industries such as real estate, hotel and catering, transportation, post & telecommunications, wholesale and retail trade, financial intermediation, as well as a number of other industries classified in the "other" category; other typically includes industries such as public administration, health, and education services (Chart 4). Given China's dynamic and rapid economic evolution over the past 16 years, the "other" category comprises the majority of tertiary industry activity (about 40% as of 16Q3). Wholesale and retail industries account for the second highest share of the tertiary industry (18%), followed by financial intermediation (about 16%). In fact, over the last several years, service industry growth has been supported by other, financial intermediation, and financial services – all of which acted to offset slower growth in real estate, and wholesale and retail trade (Chart 5).

The rotation away from investment-heavy growth and toward services that is currently underway in China is not without historical precedent; other nations went through the same transition as they developed into advanced economies. For example, the U.S., Taiwan, Japan, and South Korea have all transitioned from economies with activity concentrated in the secondary industry (construction, mining, and manufacturing) to economies with the majority of their output coming from their service industry (Chart 7). Moreover, this transition toward the service industry appears to serve as a rite of passage for developing economies as they progress toward advanced economy status: the correlation between per capita output (proxy for wealth) and services share of economic output has historically been close to one for other nations that have achieved this transition. Looking at Chart 7 it's clear that China still is far from becoming a services-driven economy, with much progress remaining in its convergence toward advanced economy levels of per capital wealth and service industry reliance. This will make achieving growth targets without exacerbating existing financial stability risks ever more challenging for Chinese policymakers.

While the historical evidence suggests an inevitable rotation of the Chinese economy toward services, a successful transition requires a healthy Chinese household sector. This implies that households reap much of the new gains in wealth as the Chinese economy becomes ever more prosperous. To do so would require the development of a strong system of transfers to states and local governments to help provide the necessary services that wealthier households will demand, and the development of social safety nets to help support households hurt by job losses from the shuttering of overcapacity industries. Wealthier households will also require development of a deeper, stable financial services industry to facilitate the management and expansion of household finances.

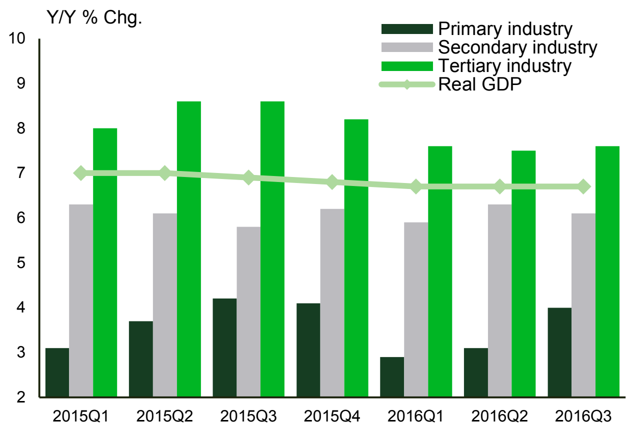
As Chinese households grow wealthier they will consume more goods and services. And, as is normal for developing economies in their early evolution toward middle-income status, the household saving rate in China is currently very high – historically a reflection of the lack of sufficient social safety nets, limited household access to credit, and domestic social factors (Chart 8). Moreover, the

CHART 5: OTHER AND FINANCIAL SERVICES CONTINUE TO FUEL SERVICE INDUSTRY GROWTH



Source: China National Bureau of Statistics, TD Economics.
*Other includes industries such as public administration, health, and education.

CHART 6: RECENT EVOLUTION OF CHINESE ECONOMIC GROWTH BY INDUSTRY



Source: China National Bureau of Statistics, TD Economics.

household debt to disposable income ratio in China is quite low but has been on the rise, with the upward trend likely a reflection of growing mortgage debt, the rising focus by Chinese authorities on improving access to credit, and a shift in household attitudes to be more accepting of debt. Altogether, a high saving rate coupled with increases in household debt should help spur consumption growth, reinforcing the transition of economic activity toward services.

Rotation to services is inevitable but not guaranteed

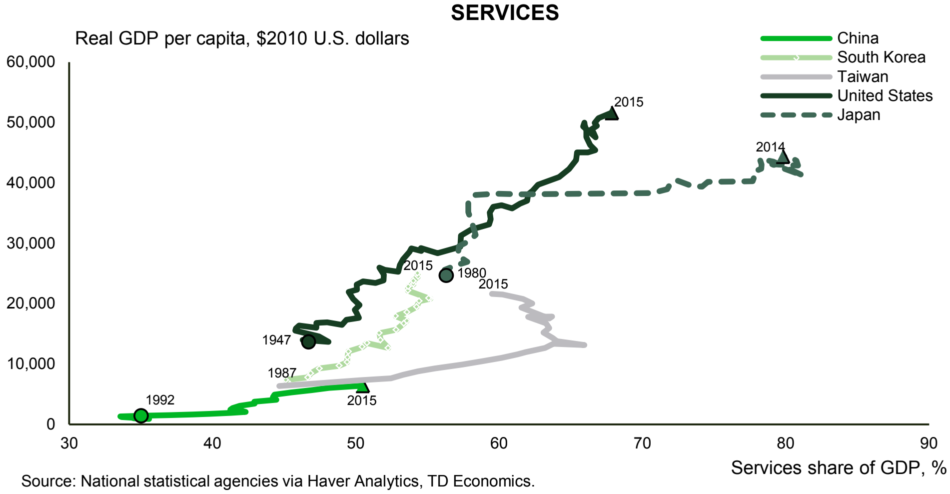
Despite its rising contribution to growth, the service industry has not been immune to the general slowdown affecting the broader economy in recent years. Fears about an economic hard landing reached a new high towards the end of last year. Capital outflows accelerated and stock markets plummeted. By the start of this year, the service sector expansion had eased, but still managed to hold up reasonably well. Stock market gyrations did not have a major impact on the consumer side, largely due to the relatively small direct exposure of Chinese households to financial markets.

Nonetheless, with primary and secondary industries under significant pressure, China's government was pressed into action. Infrastructure spending increased, boosting construction activity. A relaxation of mortgage lending originally intended to boost residential construction, but also helped drive up residential home prices. Furthermore, manufacturing and service industries benefited from incentives such as a reduction on the tax payable on certain motor vehicles. All of these measures worked to stabilize growth. In 16Q3, year-on-year growth in services held above 7.5%, bettering its secondary and primary counterparts. Real estate, transportation & telecommunications, and wholesale and retail trade helped drive the recovery from weakness at the start of the year.

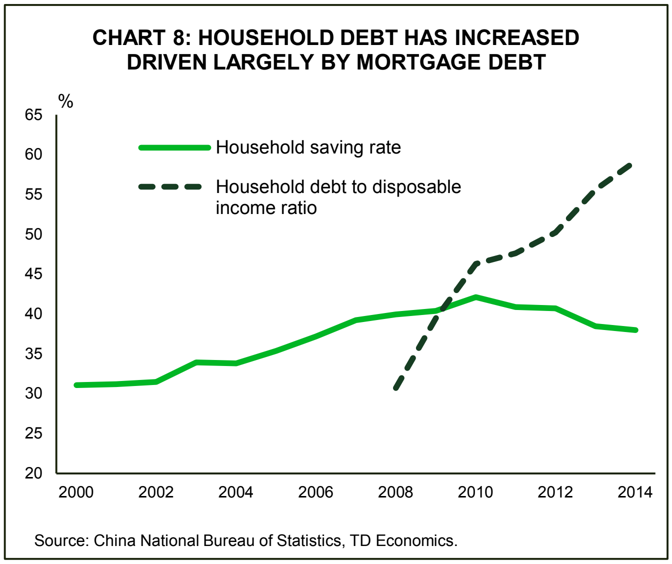
While these efforts helped bolster growth, they came at a cost. After years of debt-financed infrastructure spending, debt levels continue to break new records. The stimulus has only pushed up leverage rates higher in all major sectors: government, households, and business (Chart 9). Moreover, rising house prices signaled the potential that past housing excesses had resurfaced, forcing authorities to move last month to cool the market. Lastly, concerns continue to build on whether Chinese authorities will be able to stave off a domestic banking crisis.

This has renewed worries about growth and financial stability heading into 2017. Much will depend on services to continue to act as a pillar of stability. There's a strong probability that service industry momentum continues to

CHART 7: CHINA IS FOLLOWING THE EVOLUTION OF OTHERS INTO SERVICES



Source: National statistical agencies via Haver Analytics, TD Economics.



hold up even as other areas (notably manufacturing and construction) weakens. Part of this story is the response from government becoming increasingly more determined to balance short-term growth objectives with long-term sustainability. Given the desire to boost consumer spending, there is a broad scope for government intervention to lean away from investment driven growth and toward programs that should work to spur service industry growth, with the intent of mitigating the downside financial stability risks.

Tracking the rebalancing toward services

Both the rising share of service activity in China and the country's growing importance to the health of the overall world economy are increasing the need for analysts and policymakers alike to closely monitor the performance of the tertiary industry. China is still commonly viewed as a manufacturing and export powerhouse, with old economy indicators such as electricity consumption in the manufacturing industry and freight traffic still relied upon by many to help track the quarterly evolution of economic growth output. However, remaining focused on these old economy indicators risks ignoring more than 50% of GDP. In response to this need to remain in the know, we have developed a new measure that uses timely data from a number of sources to track quarterly services growth.

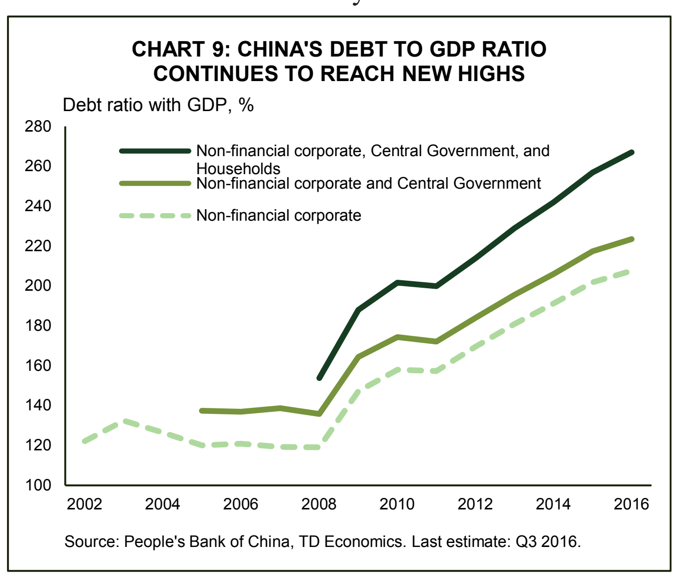
The development of this indicator was a more challenging exercise than initially anticipated, as the reliability and accuracy of Chinese data is best described as notoriously troublesome. Chinese data is still at a fairly premature stage, and although Chinese statistical agencies have made tremendous strides in recent years to develop reliable, timely economic data there are still many issues that have yet to be addressed. Often dismissed as "manufactured", with constant allegations that authorities have been massaging data to suit their political ends, the lack of timely and high quality indicator data makes monitoring the Chinese economy in real-time a difficult task.

Despite the data limitations, by using some of the more high-frequency data (data available often on a daily or monthly frequency) we've managed to identify some of the most important drivers of the Chinese service (tertiary) industry. The drivers identified include the bilateral exchange rate with the U.S. dollar, electricity production, passenger traffic, total postal volume, retail sales, and the value of buildings sold. In fact, our TD China Services Tracker tracks the evolution of the Chinese tertiary industry quite well within a quarter (see Appendix 1 for a discussion of the methodology). Chart 10 shows how closely the tracker moves relative to quarterly services growth.

The tertiary industry was a main driver of the rebound in quarterly economic growth in the second quarter, and its strength continued to generally hold through the third quarter. Our current tracking of a 4% quarterly rate of expansion suggests that services are once again expected to contribute strongly to economic growth in the fourth quarter. Past gains in postal volume and real estate sales should all continue to support growth at least into the first half of the fourth quarter. Moreover, an expected reversal of recent weakness in retail sales and consumer confidence should also work to support growth in the services industry in the fourth quarter.

Long-term risks overshadow rosy near term outlook

Although continued near term strength in services will help to mitigate downside growth pressures and credit risks, many of the economy's key longer-term challenges will remain unaddressed. There is very little historical evidence of



an economy able to maintain strong growth while resolving domestic credit imbalances. Therefore, maintaining growth above 6.0% will prove particularly challenging if Chinese authorities decide to get serious about quelling concerns about insolvent banks, restructuring government finances, and resolving overindebted and overcapacity state owned enterprises. In fact, we expect that Chinese policymakers will decide sooner than later to tackle financial stability risks, because a delay in doing so in order to continue to achieve arbitrary growth targets will only act to exacerbate imbalances, resulting in a potentially larger economic cost of adjustment when authorities do indeed act to resolve risks from past excesses.

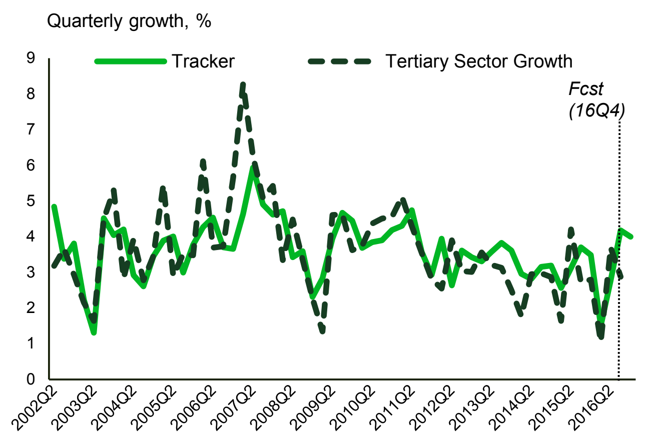
Slowing growth will be one consequence from the move by Chinese authorities to back-off of the debt-fueled, infrastructure investment fiscal stimulus pedal, and instead shifting toward policies which support income growth. Economic growth in such a scenario is likely to slow to 6.0%, with the underlying composition tilting away from secondary industry (construction and manufacturing) in favour of more service industry growth (financial services, retail and wholesale trade). Chart 11 lays out our baseline outlook on how the composition of economic growth is likely to evolve under this policy stance.

Bottom line

To conclude, the Chinese economy is undergoing a massive transformation, one that sees China rapidly transforming from manufacturing and export driven growth to an economy driven by the service industry. This transition is well underway, with the services industry already comprising more than 50% of economic activity.

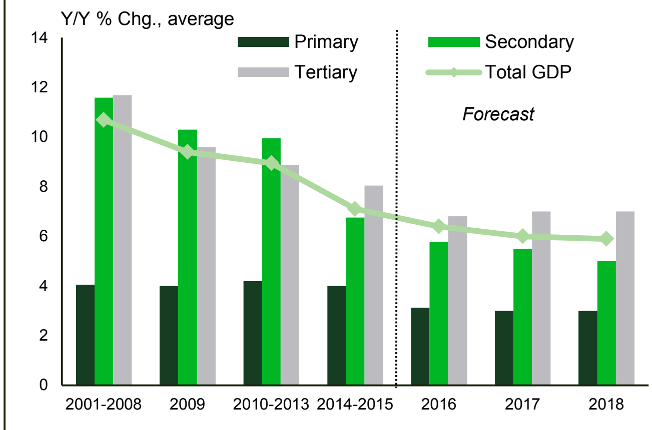
Much is riding on the success of this transition towards services-driven economy. The historical over-reliance on investment to stimulate economic growth has resulted in increased financial stability risks that will begin to be addressed by Chinese authorities sooner rather than later. In order to reduce the reliance on investment for economic growth, household consumption will have to rise from its current share of GDP – a factor that will have to be supported by more of China's wealth accruing to households. Tracking this rotation has become more important as the services industry contributes more to China's quarterly economic growth.

CHART 10: TD'S CHINA SERVICES TRACKER MAPS WELL TO TERTIARY SECTOR GROWTH



Source: China National Bureau of Statistics, TD Economics.

CHART 11: TERTIARY(SERVICES) GROWTH TO REMAIN ROBUST WHILE SECONDARY INDUSTRY GROWTH SLOWS



Source: China National Bureau of Statistics, TD Economics.

In response, we've developed the TD China Services Tracker to aid us in our tracking of growth in the Chinese services industry. This tool is an important part of our suite of tools that help us monitor the international economy. Our tracker currently suggests that the service industry will once again contribute strongly to growth this quarter, and implies that the Chinese economy remains on track to come within the lower bound of the 6.5-7.0% growth target for 2016.

Looking further ahead, we see it very difficult for China to continue to achieve growth much stronger than 6.0% over the next couple of years, and believe that a commitment to mitigating financial stability concerns will ultimately result in less reliance on debt fueled stimulus to prop up growth. As a result, it will become ever more critical for Chinese authorities to successfully implement policies that support household consumption, ensuring that growth in the services sector will partially offset an anticipated slowdown in secondary industry growth.

Appendix 1 – TD China Services Tracker methodology

The TD China Services Tracker was developed in several steps. The first step involved using regression analysis to identify drivers of the different components of the Chinese tertiary sector. This was not an easy task, as there are many challenges when utilizing data from the China National Bureau of Statistics (CNBS). The main challenge was finding high-frequency indicators with enough history to find statistically significant relationships with the subsectors of the services sector. While bootstrapping was considered for some indicators with very short history to evaluate the robustness of coefficient estimates over small samples, ultimately high-frequency indicators with history going back to 2002 were found and selected. Another challenge was seasonally adjusting the high-frequency indicator data. Efforts were put in to ensure that the seasonal adjustment helped to help smooth through Chinese holidays, including Chinese New Year.

The second step involved selecting only those indicators that were available in a timely manner. The following six indicators were found to satisfy our criteria of explaining quarterly services growth and being available on a timely basis:

- Yuan/USD exchange rate
- Electricity production
- Value of buildings sold
- Passenger traffic
- Total postal volume
- Retail sales

After the indicators were selected, principal component analysis was used to help extract the common monthly growth movement. The first principal component was used to construct the weights for each monthly indicator.

Finally, in order to test the suitability of this monthly tracker for quarterly service sector growth, an out of sample forecast exercise was completed. This involved undertaking a simple out-of-sample forecast exercise testing the forecast performance of the tracker against a naïve model, in this case one that incorporate a constant and the first lag of the growth in quarterly growth rate. Estimation was undertaken between 2002Q1 through various endpoints after the great recession. In all instances, the tracker outperformed the naïve model as measured by minimizing the ratio of the root mean squared errors (RMSEs). Similar results were observed for the mean absolute errors (MAEs).

Despite the statistical performance of this tracker, there are some real world constraints that limit the usefulness of this tracker particularly at the start of the quarter. One such limitation is the staggered release schedule of each indicator. While one could generally use a simple AR(x) model to help forecast missing data, the reliability of the forecast from the tracker early on in the quarter is quite low. Another limitation is that the lack of information on price deflators makes it difficult to accurately forecast growth in volumes for the indicators. To get around this limitation, we forecast growth in the deflator for tertiary sector growth using a simple AR(1) model and remove this from our nominal growth forecast of the services sector for the quarter.

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