March 2017

Rebalancing China

White Paper: Reality, outlook and opportunities in Real Estate

Content

Introduction

The great rebalancing
Much has been touted about China rebalancing into a consumer-based economy, and indeed, a quick search of the terms "China consumption" on the internet reveals more than 130 million results (as at February 22, 2017). Interestingly, the search terms "China rebalancing' comes up short, with only approximately half a million results. If this easy experiment tells us something worthwhile, it surely shows that the focus on China in recent times has been its consumption shift, and that the wider significance of rebalancing is less relevant and of less interest.

What exactly is China tilting away from and rebalancing towards? Let's pause for a moment and consider the origins of rebalancing in China's context. As early as March 2007, then-Premier Wen Jiabao publicly characterized the country's economic model as "uncoordinated, unsteady, imbalanced and unsustainable", and that planted the seeds for the current rebalancing rhetoric we pick up so frequently even almost 10 years on. What needed to be recalibrated then, and is still the case today, are the sources of economic growth, tilting away from investments, low-end manufacturing and cheap labor market advantage towards a model that is focused on innovation, services and a larger consumption component.

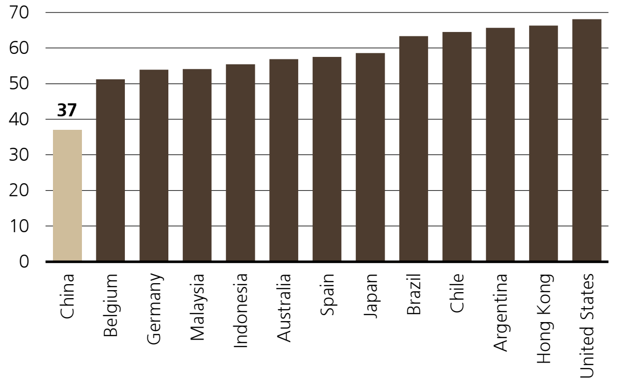
China's situation is always being compared to that of Japan's experience since the 1970s, but the difference is as uncanny as the similarities are. Japan dealt with the challenges of rebalancing from investment to consumption in the 1970s, wrestled with a credit and asset bubble in the 1980s, and has grappled with a rapidly aging population since the 1990s. China, meanwhile, has the undistinguished burden of contending with all three issues at the same time. No doubt it is always easy to extrapolate and assume that economic history may provide textbook answers as to how China should and would manage its problems, but more often than not, we neglect to see China's current conundrum in its entirety. Consumption is but one of China's key objectives, with reform goals often conflicting and interlocking in nature and consequently affecting action plans. The battle cannot be fought on all fronts but the war may still be won even if some progress is lost in the interim.

Heavy weight on consumers' shoulders
In part to assuage widespread concerns over China's ailing economic health, the leadership has played up the role of consumption in recent years, and repeatedly emphasized how pro-consumption policies are in place to support that. Many of us are distracted, to some degree, by the hype and conveniently assume that the attainment of a consumption-driven economy is the ultimate trophy that China should aspire towards.

In our view, growing consumption is but only one of the many rebalancing objectives for China. And the path to such a consumption-led model, while proven to be sustainable and enriching through the experiences of other major Asian economies, comes with its own transitional issues and is not intended to be the silver bullet for all of China's accumulated economic woes. The image of Chinese consumers spending their way to economic prosperity is a welcome but possibly risky mirage, given that there also remains a significant shortfall of capital investment that has to be directed into fulfilling both social and physical infrastructure requirements.

That said, there is sufficient reason to believe consumption has the potential to rise to the occasion and become a key economic pillar for China. For one, the proportion of household consumption to GDP remains significantly low by international standards, which implies comfortable headroom for expansion.

Chart 1: Household consumption as share of GDP
(%, as at 2015)



Source: World Bank (as at 2015), UBS Asset Management, Real Estate & Private Markets (REPM) estimates

Household disposable income growth has been robust in 2015, growing by 8.9% year on year. On the back of solid job creation (13 million new urban jobs were filled in 2015) despite the weakening broader economy, retail sales grew at 10.7% on an annual basis, notably outpacing GDP growth. The orientation of the economy towards the labor intensive services sector appears to be supporting consumption through wage growth and employment, although some frictional displacement arising from the mismatch of skillsets is inadvertent going forward. And more importantly, the government has committed to wide ranging reforms (such as urbanization, financial liberalization, hukou relaxation, among others) that are positive in the long-term for consumption growth in China. Over time, the upgrading of consumer markets across China is almost a certainty, as middle-class aspirations and higher wages provide a long-term impetus for domestic demand in services and goods.

Industrial upgrading is symbiotic with services growth

The often overlooked part of the rebalancing equation is industrial upgrading. It may be less glamorous trying to sell an industrial upgrading story to the world rather than it is to pitch consumption as the public face of China's rebalancing thrust. However, as much as industrial upgrading has remained in the background, it forms an integral and interlinked part of China's economic transition and goes hand in hand with consumption growth and services sector emergence. As most are aware, the end of cheap and surplus labor in China and the expiration of the demographic dividend due to an ageing population are very real issues that could trip up China and force it into the middle-income trap.

To avoid this scenario, China has to embark on industrial upgrading and diversification, and gradually steer itself out of traditional manufacturing where its comparative advantage has been gradually eroded. What this implies is that China is not simply de-industrializing; in fact, it is doubling down on the industrial sector in a targeted manner. As the IMF has alluded to in its latest working paper[1] dated September 2016, the speed and timing of de-industrialization is very important. Many developing countries moved into services prematurely and stagnated as labor productivity is typically higher in the industrial sectors, and re-engineering the economy towards services too soon may lead to a "more haste, less speed" outcome.

While the transition from industry to services is a natural process of economic development, it would typically drag down productivity growth, as labor is reallocated from the high-productivity industrial sector to the low-productivity service sector. It is not entirely correct to assume that services sector strength could substitute for the decline in manufacturing, and to perceive the service and manufacturing sectors to be zero sum in nature. The services sector growth in China has been deliberate and timely, making possible support for the employment of displaced workers from manufacturing industries as China moves up the value chain into advanced manufacturing, which is less labor intensive but of higher productivity. And that has cushioned the growth of consumption as income levels continued to be supported. The inter-linkages are not obvious, but no less critical.

China is not simply de-industrializing; in fact, it is doubling down on the industrial sector in a targeted manner.

Delicate rebalancing act

We tend to overlook that as much as China's growth has been remarkable over the last two decades, it is still an emerging economy with marked uneven development across its regions. For every prosperous Guangdong (province) or Shanghai (city), there are many more provinces or cities that have not yet caught up economically.

To that end, consumption is unlikely to be the lynchpin of China's economy in the immediate future. Much more needs to be done in order to unleash the consumption potential of the Chinese, and at the same time continue to direct investments into productive industrial sectors and ensure quality growth and sustained job creation. Ideally, the new normal will be reflected in slower growth, albeit on a greater base, but driven primarily by consumption, services sector and the new industrial economy. The role of investments should remain significant as key reforms such as urbanization still call for substantial resources to be put to productive investment activities.

It is indeed a delicate rebalancing act.

[1] WP/16/183 (Rebalancing in China - Progress and Prospects)

Consumption

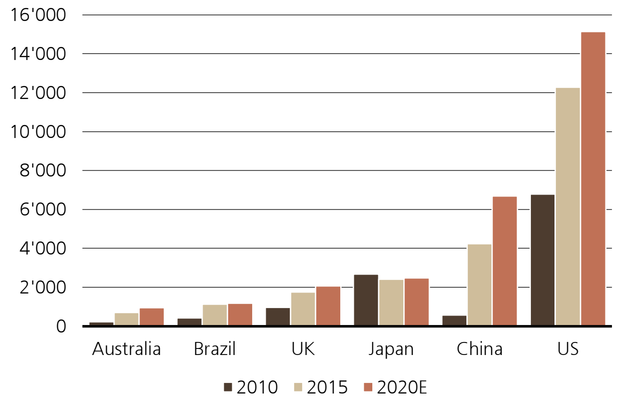
The state of China's consumption

There is no debating the depth of the Chinese consumer market, or how much it has developed over the last decade. In terms of the domestic consumer market size (proxy used is nominal private consumption), China ranked just behind the United States (US) in 2015, at USD 4.2 trillion. Notably, this is merely one-third the size of the US consumer market (USD 12.3 trillion) in 2015.

But what is remarkable is the sheer speed with which China's domestic consumption has grown since its opening up. Between 2000 and 2015, private consumption in China rose by almost seven fold, at a Compound Annual Growth Rate (CAGR) of approximately 14%. Only large emerging economies such as India and Indonesia came close to matching China's exponential growth in private consumption. And it is worth mentioning that China has a population of almost 1.3 billion (US: 320 million) of which only half are currently urban dwellers. The potential is clear to see, and China has ironically underperformed in consumption given its rich inherent demographic and economic qualities.

Chart 2: Size of consumer market

(USD billion)

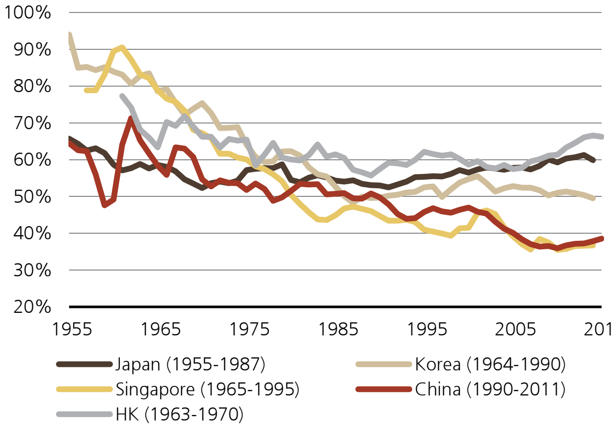


Source: Oxford Economics (as at December 19, 2016)

As much as household consumption has multiplied on an absolute basis over the last two decades, making China one of the largest consumer markets in the world, its share of China's GDP has been very low. Consumption growth has also lagged behind that of investment, given that the shift from an agrarian economy to an industrial and export powerhouse would not have been possible without a corresponding and significant boom in investments.

If we compare China with the experiences of other major Asian economies, it is fair to say that its development pattern is consistent; countries going through a rapid phase of industrialization also tend to experience a decreasing share of consumption as a percentage of total economic output. However, the swift fall in consumption share eventually bottoms out and stabilizes, with some economies even seeing a rise in consumption's share of GDP.

Chart 3: Consumption as percentage of GDP during industrialization phase



Source: CEIC (as at December 19, 2016)
Note: Years in brackets show the period of the industrialization phase of that country

This phenomenon can be explained by standard economic consumption theory. At low levels of income, or when countries begin to embark on large scale industrialization, a huge proportion of consumption is deemed basic for subsistence. Essentially, households have little left over for domestic savings and investments, with non-discretionary spending on necessities making up the bulk of private expenditure. Consequently, almost all output is for consumption, which leads to high consumption-GDP ratios. For instance, at the onset of Japan's modern industrialization movement in 1955, household consumption made up 66% of GDP, and that declined to 54% in 1987. Korea and Singapore behaved similarly, with the same ratio falling from almost 80% in 1965 to less than 50% by 1990 when the first phase of industrialization was completed. Once a steady condition is achieved in terms of infrastructure accumulation, moving up the value chain will mean better paying jobs for more people, leading to greater demand for discretionary goods and services.

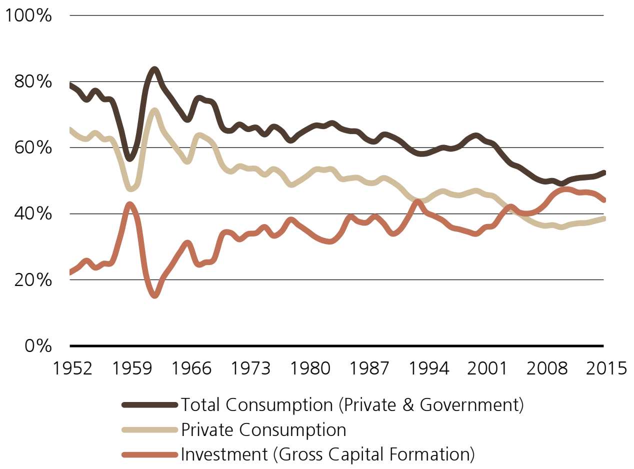
Is China different?

What is somewhat worrying and throws up suspicion that "it's different this time" for China, is that in the whole industrialization cycle of China since the early 1990s, its share of consumption to GDP has always been generally lower than that encountered by other major Asian economies, which already had been through this same stage.

Even from 1978, when China began to open up and embark on serious economic reforms, the consumption to GDP ratio has been at less than 50%, and that continued throughout the 1990s and 2000s, before declining considerably to less than 40% as at 2015. At this stage of China's development, especially in parallel with the growth in income, it would however be reasonable to see some stabilization in the contribution of consumption to growth, which unfortunately has not been the case. This then leads to the question that if the conundrum of weak consumption in China is in fact a structural problem and whether China can ultimately rely on boosting consumption as its alternative pillar of growth.

Beijing's PR machine has been upbeat on China's rebalancing progress in recent years, and in particular drumming up the positive conditions and rosy outlook for consumption. In 2015, it reported that 38.5% of GDP came from private consumer spending, up from 35.9% in 2010. Depending on whether one views the glass as half full or half empty, we could contend both ways.

Chart 4: Share of China's GDP



Source: CEIC (as at December 19, 2016)

On one hand, consumption has indeed stepped up and contributed more to China's growth (by expenditure accounting), but it is also a consequence of the leadership deliberately weaning the economy off unproductive investments, and the mirror effect has been a corresponding decline in the share of investment to GDP, from 47.2% in 2010 to 44.1% in 2015. Arguably, what has been picking up the slack from the decline in investments has also been the uptick in government consumption (such as infrastructure, R&D, education, and social services, to name a few), and not just private household consumption.

We need to see through this glass of water, regardless if it is half empty or half full; private consumption in China, for all its hype, has not yet measured up to its potential. The issue then is, will Chinese consumers ever live up to their promise, and fast enough?

We believe the answer is yes.

Why are Chinese consumers not digging deep enough into their purses?

It may be considered blasphemy if the area of consumption in China omits a reference to the anti-corruption campaign initiated by the new leadership in early 2013 and described as the death knell of retail in China, in particular luxury retail. We do not wish to make light of the impact of this ongoing anti-corruption and austerity drive, but, in our view this is a less of a structural concern as it mainly reflects a normalization of retail consumption back to levels that are not distorted by the excess spending on luxury retail.-Obviously there is an impact on retail sales, and major retailers have held back on expansion plans, inadvertently affecting the growth and prospects of physical retail real estate across China.

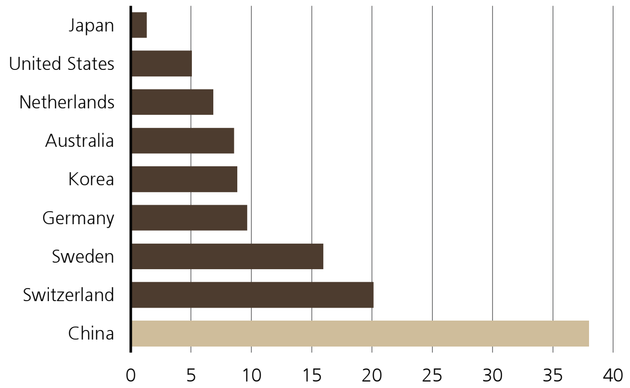
Extraordinarily high level of savings

The key culprit in the case of the unwilling Chinese consumer, as most will easily point to, is the extraordinarily high level of savings in China. The concept is straightforward: if you don't save, you spend.

To a certain extent, the concept of savings in Asia is one that is deep seated in social values, where virtue is often associated with thrift. Asian societies, including Japan, South Korea and Singapore, are inherently disposed towards frugality and prudence, and the Chinese definitely embody this Confucian trait.

Chart 5: Household savings rate

(% of net disposable income, 2015)



Source: OECD (as at June 2016)

With the opening up of the economy in recent decades, and the subsequent emergence of a new generation growing up in times of prosperity, there is undoubtedly a dichotomy in terms of how both new age and older Chinese consumers approach consumerism. In fact, in a report published by the Boston Consulting Group in early 2016, there was a noteworthy mention of a two-speed consumer economy taking shape in China, with a clear divergence between the younger and older generations. While consumption has blazed full steam ahead for the generation born in the 1980s, the reverse has been visibly observed in the older generation. And this discrepancy, in our view, can be easily traced to the innate motivation of older Chinese to save a higher proportion of their financial resources. More often than not, it comes back to the notion of virtue in frugality. This is however likely to evolve as the winds of change sweep across China in the years to come, and the inevitable dilution of such cultural mindsets is bound to occur.

….it is not convincing to accept that the Chinese are not consuming more simply because money is stashed at home under billions of beds ….

Clearly, it is not correct to suggest that the sole reason Chinese are not spending more is because money is – metaphorically speaking – stashed under billions of beds at home. Besides culturally-motivated savings, precautionary savings is another area where the Chinese have also displayed a clear inclination over discretionary spending. It is also at this point where the analysis starts to become multifaceted and less than forthright.

Why should the Chinese put aside significant savings for precautionary reasons when the world is, in recent years, in awe of China's wealth and financial prowess? The rational explanation is that China's social safety net is generally less than secure despite the exponential economic growth and wealth creation that we have witnessed. This ultimately also pertains to a few areas such as regional disparity, income equality, limited access to healthcare and insurance, financial repression, one-child policy and a restricted household registration system. These factors, in one form of another, lead to a general penchant for the Chinese to restrict their propensities to consume and bolster their precautionary buffer against old-age, illnesses and rainy days.

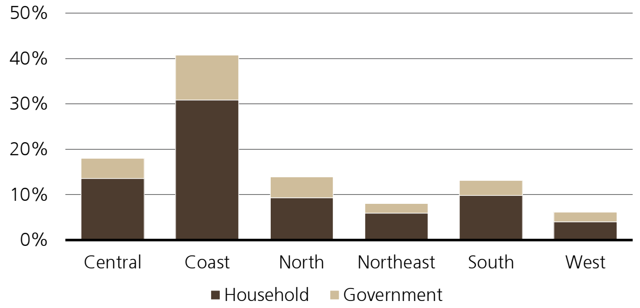
We will discuss a few of these structural issues here.

Regional[2] disparity is self-reinforcing in nature

The pertinent issue is, which China is consuming? China is neither one market nor one single economy – Across the various provinces, consumption intensity differs widely, and is primarily led by the coastal region, making up approximately 41% of China's total consumption in 2014, followed by the central region at 18%. It is useful to note that the central region is among the most densely populated regions in China, and that largely explains why total consumption in the region was ranked highly on an absolute basis.

Chart 6: Percentage of total consumption by region

(as at 2014)



Source: CEIC (as at December 19, 2016)

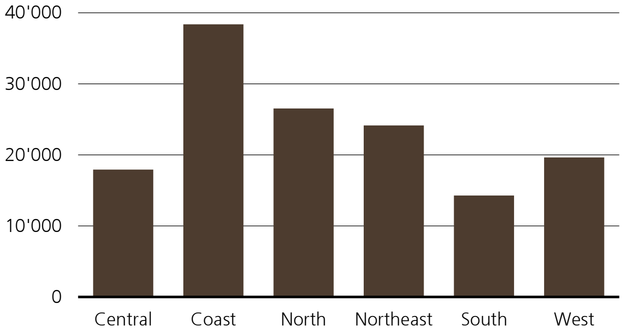
Here, we also look at consumption per capita, which we believe shows a clearer and more objective picture of the real consumption depth of each region in China. Unsurprisingly, the affluent coastal region again comes out on top, followed by the northern region, which is very much in line with the economic geography of China's growth and development over the last three decades. While the domestic economy continues to be strong along the coast and in the northern part of China, it is probably reaching a bottle neck in terms of both commercial expansion and population growth. The government's renewed focus on inland development will hopefully allow other regions to gradually play catch up.

What are the implications of this regional disparity in consumption? To be sure, the vibrant consumer landscapes we see in Shanghai and Guangzhou are hardly replicated in most other cities or regions. Clearly, relying on a few prosperous regions to support national consumption is probably too high an expectation and can only widen the disparity among multi-speed consumer markets in China. Without a strong consumer base, many of the poorer regions are unable to transit successfully into services-led economies (the converse holds true), and that in itself creates a vicious circle, which worsens the existing consumption gap between affluent and less well-off regions.

[2] Central: Anhui, Henan, Hubei, Hunan, Jiangxi; Coast: Fujian, Guangdong, Hainan, Jiangsu, Shandong, Shanghai, Zhejiang; North: Beijing, Hebei, Inner Mongolia, Shanxi, Tianjin; Northeast: Heilongjiang, Jilin, Liaoning; South: Chongqing, Guangxi, Guizhou, Sichuan, Yunnan; West: Gansu, Ningxia, Qinghai, Shaanxi,Tibet, Xinjiang

Chart 7: Consumption per capita by region

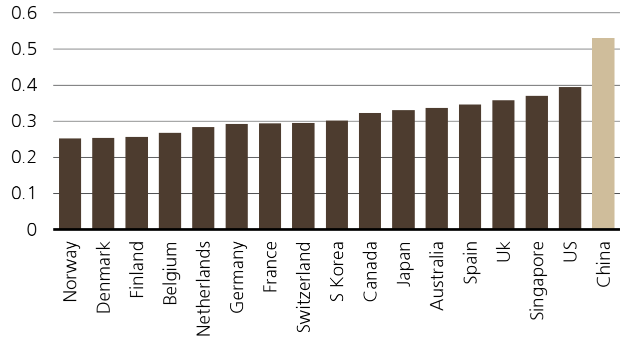
(RMB, as at 2014)



Source: CEIC (as at December 19, 2016)

Chart 8: Gini coefficient

(Net, latest available year)



Source: OECD, IMF, Singapore Ministry of Finance

Note: Data as at 2014 for Finland, Netherlands, South Korea, Australia, Singapore and the US; Data available as at 2012 for Japan; Data available as at 2013 for all others

Companies and service providers will logically veer towards the already prosperous cities, and that in turn generates employment and reinforces overall income levels. This unfair advantage began right from the start many years ago, when uneven economic and infrastructure development was biased towards the coastal areas.

We believe headline numbers might support the government's efforts to install consumption as China's growth stabilizer and driver, but the make-up of the pockets of actual underlying consumption leaves much to be desired, for now. And this huge gap continues to be a major drag on the unrealized consumption potential of China as a whole.

Wealth and income inequality

And arising from the earlier point on uneven economic development, a related issue is the significant income inequality that is being observed in China. There are two key sub-points here. One, the rich-poor *wealth* divide on a national level; and two, the *income* disparity on a regional basis.

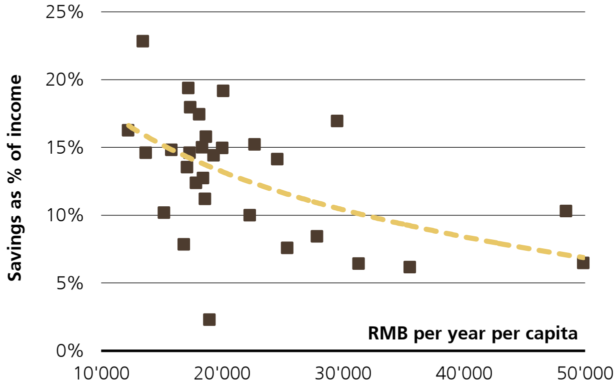
According to a January 2016 report by the Peking University's Institute of Social Science, the top 1% of China's rich owns one-third of total wealth in the country, while the bottom 25% collectively owns just under 1%. As jarring as the figures may be, this is the stark reality of a country that has undergone rapid economic growth in the last three decades, and although millions have been pulled out of poverty, financial assets and resources are disproportionately concentrated in the hands of a few. On a relative basis, and this may come as a revelation to the casual reader, the US's wealth inequality is actually much more apparent than China's: the top 1% of households hold nearly half the national wealth in the US. Strangely enough, why does consumption still make up more than 70% of the US's GDP?

This brings us to the second point on income inequality, which is less pronounced than wealth inequality in the US than it is in China. A familiar metric used globally to benchmark income inequality is the Gini index, which measures the degree of inequality in the distribution of family income in a country; the more unequal a country's income distribution, the higher its Gini index. According to the IMF, China's GINI coefficient as at 2013, was 0.53, which is significantly higher than that of the US (0.39, as at 2014) and Singapore (0.37, as at 2014), all net of taxes and transfers.

Consumption is partially a derived function of both wealth and income, no matter which country or culture. Singapore and the US have larger service sectors, and overall disposable incomes are generally higher, with urbanization rates at 100% and approximately 80% respectively. In contrast, the huge variance in income across the spectrum in China, particularly between rural and urban residents, promotes precautionary savings and inhibits discretionary spending by the Chinese.

Chart 9: Annual disposable income and proportion of savings

(As at 2014)

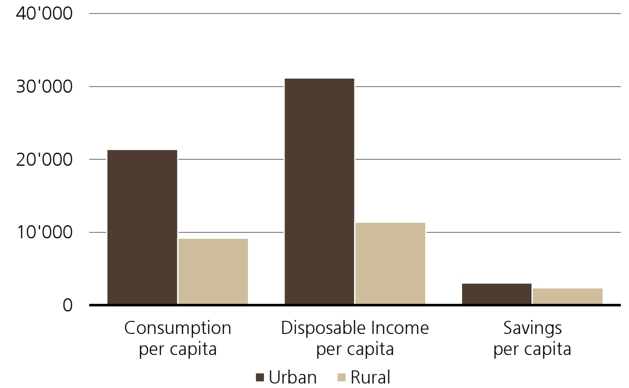


Source: CEIC (as at December 19, 2016)

In Chart 9, we present a simple scatter graph of annual disposable income per capita vs. the percentage of official saving deposits per capita on a provincial level. It is evident that at higher income levels, the percentage of savings as a proportion of income declines. And note that by just using bank saving deposits as the proxy for savings, we are in fact underestimating total savings, as some savings might be kept in the form of cash or similar financial assets. The issue of regional disparity comes up again, as provinces (and municipalities) along the coast and north generally record higher disposable income per capita, as a result of the legacy of uneven economic development. Consequently, consumers living in less well-off regions tend to save more of their income and are less compelled to spend.

Chart 10: Urban-rural divide

(RMB, as at 2015)



Source: CEIC (as at December 19, 2016)

Given that almost half of Chinese consumers are rural residents, we also examine the rural-urban divide in terms of consumption, income and savings. Again, the data reinforces our view that rural Chinese consumers are holding back China's consumption momentum. This can be observed in the fact that rural residents earn and consume less, expectedly, but yet save up to 21% of their annual disposable income, almost double that of urbanites.

Unreliable social safety net

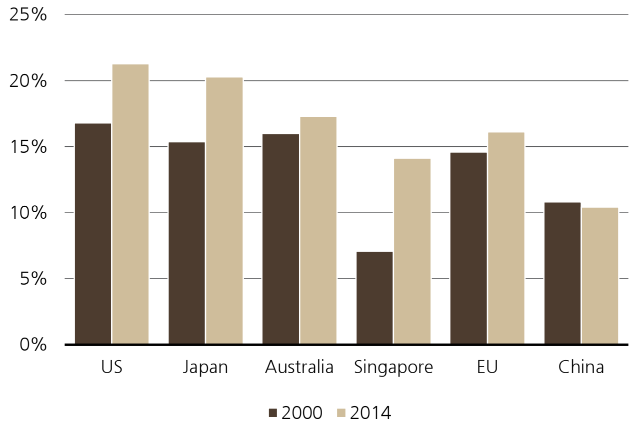
We have referred extensively to the Chinese substituting consumption in favor of savings, but what makes the Chinese social security framework so different from other economies, such that there is a conscious need to do so?

Since its establishment in 1949 and until the end of 1978, China maintained a centrally planned, or command, economy. Resources were completely allocated by the central government and social welfare such as education, healthcare, insurance, housing and even pension plans were basically cost-free to citizens. Since the transition to a market economy, education, medical costs and housing have definitely become more costly over the years.

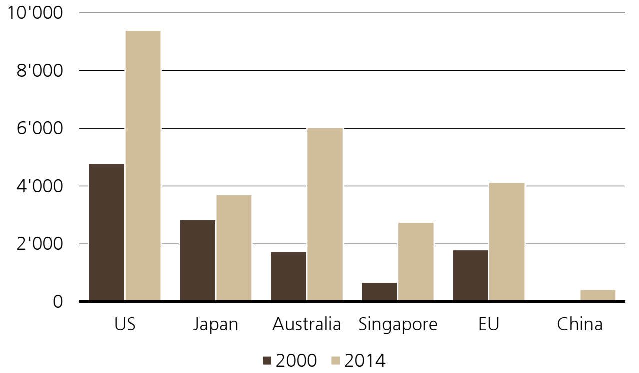
To add to that, the availability and access to basic social welfare are not universal and equitable. According to the World Bank, China's central government allocated just 10.4% of total government expenditure in 2014 into public healthcare, which is significantly lower than that of the US (21.3%), EU (16.1%) or Japan (20.3%). Per capita healthcare expenditure in 2014 amounted to just USD 420 for China, a stark contrast to USD 9,403 in the US, USD 4,135 in the EU, and USD 3,703 in Japan. While healthcare costs and the population have increased significantly over the years, we observe that China's allocation to public health spending has in fact stagnated. In all other major economies, public health expenditure has increased in tandem. Clearly, healthcare costs vary among countries, but given the inadequacy in medical insurance coverage in China, households still need to set aside considerable amount of savings for medical and health related outlays.

And healthcare is just one of many costs that the modern Chinese household has to grapple with. Official figures from the Ministry of Human Resources and Social Security show that out of the approximately 790 million economically active persons in 2015, only one-third or 262 million workers were enrolled in basic pension plans, and merely approximately 289 million workers had any form of medical insurance coverage.

Chart 11: Public health expenditure as % of total government expenditure



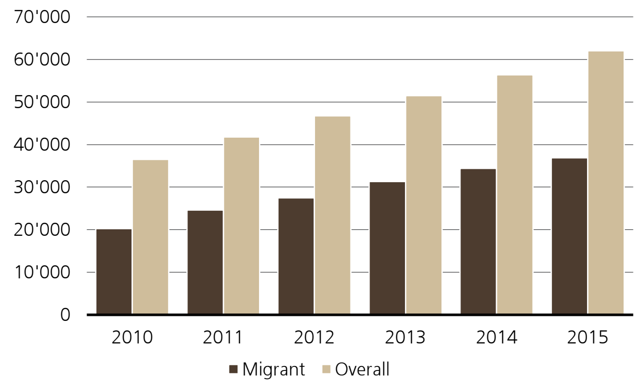
Source: CEIC (as at 19 December 2016)

Chart 12: Public health expenditure per capita
(USD, as at 2014)


Source: CEIC (as at 19 December 2016)

No analysis on China is complete without a brief discussion on migrant workers. We shall not dwell too much on the intricacy of China's legacy household registration system (known as hukou) but will remind the reader that, at the minimum, the hukou system artificially restricts domestic migration and curtails the rights of migrants to enjoy rights to social security and public services. As at 2015, there were a total of 277 million migrants, making up almost a third of China's workforce, and only 52 million (18.7%) had basic medical insurance coverage.

To begin with, migrant workers typically enjoy lower wages due to a frictional mismatch of their skillsets with higher paying jobs in cities. The average annual wage of an urban worker in 2015 was RMB 62,029, which is more than 68% higher than the average wage of a migrant at RMB 36,864.

Chart 13: Average annual wages
(RMB)


Source: CEIC (as at December 19, 2016)

Without the social security benefits stapled to a hukou permit in the city, migrant workers often are unable to enjoy equitable access to healthcare and public services such as schooling and social housing. Migrants with children left behind are spending less on themselves in cities because they need to send remittances to their dependents back home. Already subsisting on a low income, migrants are inclined to save up a higher portion of earnings in place of the basic social services they are partially being deprived of.

According to an academic report[3] by researchers at the Australia National University, single migrants in China saved almost 38.3% of their income, and migrants with children left behind saved a staggering 44.5% of their income in 2014. At close to 280 million migrants, we are talking about this huge group of potential emerging consumers who could have and should have played an important role in promoting China's consumption cause, but are being held back by the vestiges of the legacy hukou policy.

A quick estimate reveals that had migrants allocated another 10% of their earnings towards discretionary spending, they would have generated an incremental consumption amount in excess of RMB 1 trillion in 2015, adding another 1.5% towards nominal GDP.

Financial repression
There is no single definition of financial repression and it generally refers to a revolving set of policies that regulates domestic interest rates and sets high reserve requirements on banks, among others, in order to direct low-cost funding into preferred sectors of the economy.

Essentially, financial repression is an implicit tax on savers, and it was arguably critical to China's exponential growth by directing the country's high rate of savings (cheap funding, in other words) into capital accumulation. Savings, or capital accumulation through investments, is the most important direct factor in wealth creation. Without a doubt, it was the accelerator of China's industrialization story, but on hindsight, has come at the expense of limiting consumption and accumulating debt.

China's financial repression had only been possible because of a closed capital account and tight government control over the banking sector, which had allowed interest rates to be regulated (only recently deregulating lending rates and removing caps for deposit rates) and permitted state-owned banks to act as price setters.

What it really means for our discussion is that relatively low returns on savings and a lack of investment channels have resulted, ironically, in the strong growth of bank deposits (and

[3] The ANU (China's New Sources of Economic Growth: Vol. 1)

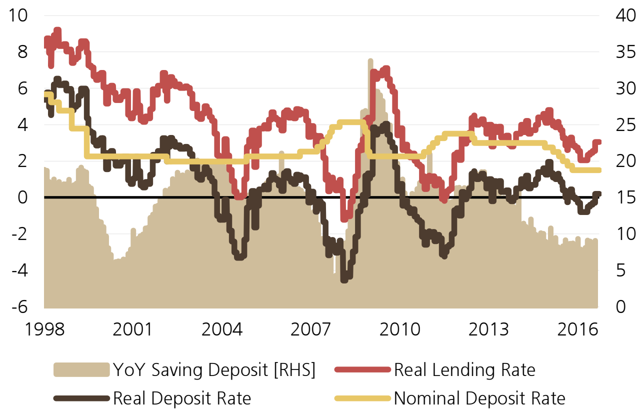
thus lowering consumption) as households were mostly barred from transferring funds out of the country. It didn't help that domestic investment alternatives and products were limited until fairly recently; the Shanghai Stock Exchange was not re-established until 1990 and private property ownership can be considered non-existent before 1998.

In recent years, the prevalence of wealth management products, mostly backed by unreliable underlying assets and implicit government guarantees, have threatened to spin out of control, and this is due to the ongoing lack of alternative investment products for retail investors.

Examining data on deposits and interest rates since 1998, we note that there is generally a negative relationship between nominal deposit rates and the year-on-year growth in savings deposit. In periods when nominal deposit rates saw gradual increases (such as between 2010 and 2012), the growth of savings deposits went the other direction; and in periods where nominal deposit rates were lower (between 2008 and 2010), growth of savings deposits increased instead. Real deposit rates have always been lower than real interest rates by more than 200 basis points, even with periods of negative returns; a clear indication of the subsidized credit system in China.

Chart 14: Deposit rate, lending rate and saving deposit

(%, YoY %)



Source: CEIC (as at December 19, 2016)

The positives

Consumption on the cusp of a golden age

The previous section focused on the structural drags holding back China's consumption potential, which is relevant to the reader as we attempt to offer our diagnosis but also search for potential cures. A lot of these issues discussed are by-products of legacy policies, and are in our view impedimental but not terminal in nature.

Just getting started here

As is always the case with China, no cause is lost. China is about to crank up its consumption engine, and there are numerous drivers that will provide the much needed tailwinds. In fact, some of these solutions are already in action and the impact is slowly, but surely, being felt. These have taken time to gain traction over the last two decades, and it is only in the recent years that momentum has picked up. And it comes as no surprise that these consumption drivers or policies are simply counteractive to the structural drags discussed earlier, which are to (i) increase household income; (ii) lower savings rates, and (iii) improve the consumption environment and channels.

China's reform agenda is a complicated one. We believe urbanization is the strongest tailwind that will give it an edge in harnessing its consumption potential. It is hard to categorize urbanization as a goal in itself, or a means to the goal of China's economic transformation. Nonetheless, urbanization should be the overarching theme that marries and rationalizes consumption drivers.

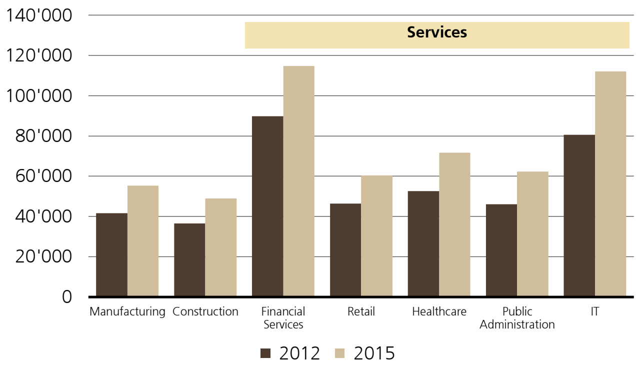
While we tend to think of urbanization mainly as the movement of people into cities, that is only partially true. The biggest domestic migration in human history calls for a radical shift from quantity to the quality of urbanization. It is no longer enough, or even constructive, for the Chinese government to evaluate the outcome based on just the urbanization rate. Rather, the questions should be, are the urbanized gainfully employed and drawing sufficient incomes?; will these new urbanites be entitled to equal social security rights as city incumbents?; and can Chinese cities realize the upgrade in lifestyle aspirations? Importantly, do rural residents even want to be urbanized, and can local governments manage the social and infrastructure costs associated with this massive urbanization drive?

….an increase in income is the fundamental building block of consumption growth, and we remain confident that wage growth will continue to be positive…..

Increase in income is already happening
In the 13th Five Year Plan (2016-2020) issued in late 2015, the Chinese government reaffirmed its goal of doubling household disposable income from 2010 levels by the year 2020. This was a target set in 2012 and the political resonance remains high, as the achievement of such will be considered a key highlight of the 100th anniversary of the Chinese Communist Party in 2021.

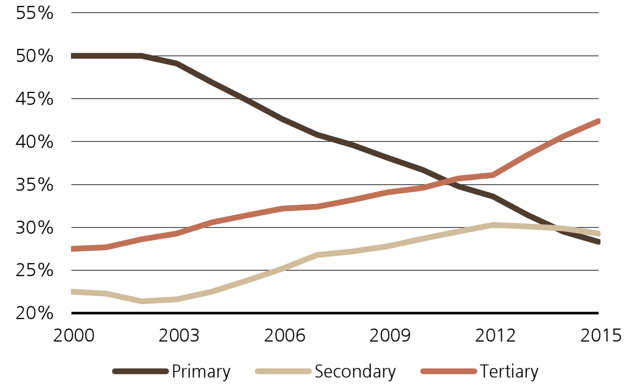
Our estimates show that in 2015, average annual wages in the service sector (excluding the financial sector) were at least 38% higher than average annual wages in manufacturing, and this gap has risen steadily over the past few years. With the Chinese government encouraging private sector investor and liberalizing the service industries, the growth of the tertiary sector brings with it employment opportunities, as we have seen in the divergence between the proportion of secondary and tertiary employment. Put together, this effectively means an increase in aggregate income as China shifts from traditional manufacturing towards the services sector.
All things being equal, an increase in income is the fundamental building block of consumption growth, and we remain confident that wage growth will continue to be positive even as the marginal increase slows down due to base effects.

Chart 15: Average urban wage (services vs. others)
(RMB, annual)



Source: CEIC (as at December 19, 2016)

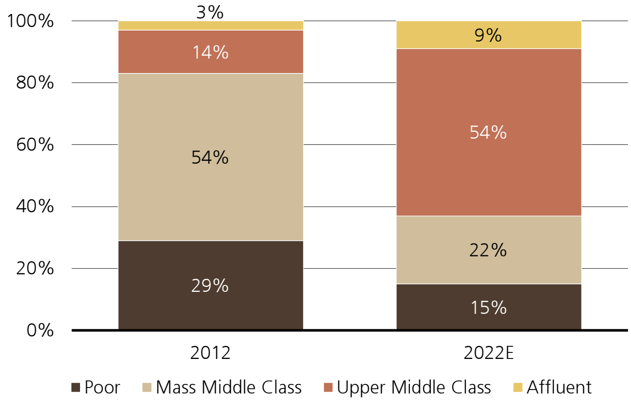
Chart 16: Share of employees by economic sector
(annual)



Source: CEIC (as at December 19, 2016)

Assuming that China's urbanization rate hits 60% and average income (in 2010) doubles, both by 2020, we estimate that China could have a 630 million strong middle class[4] consumer group by 2022, accounting for 76% of urban households, up from just 4% in 2000, and 68% in 2012. More households will have greater purchasing power to divert spending on higher end good and services and lead to a sustained consumption upgrade.

Chart 17: China's emerging middle class



Source: United Nations (World Urbanization Prospects 2014), McKinsey & Company, UBS Asset Management, Real Estate & Private Markets (REPM) estimates

Lower savings rate
As major reforms continue, the propensity to save is expected to weaken. The new form of urbanization going forward calls for greater sustainability in integrating new urban residents and ensuring that physical movement of people is supported by socioeconomic security.

[4] Mass middle class defined as annual disposable income per urban household between USD 9,000 to USD 16,000; upper middle class defined as annual disposable income per urban household between USD 16,000 to USD 34,000; household size is assumed at 2.32, based on total urban households of 357 million in 2022E

As former US Federal Reserve Chairman Ben Bernanke noted recently in March 2016, China's fiscal policy going forward should aim to support emerging social safety nets, covering the costs of health care, education, and retirement. In his view, increasing income security in China would promote consumer confidence and consumer spending.

Without going into too much details, some of the related reforms that will encourage consumption are:

Healthcare reform
China implemented a RMB 850 billion healthcare reform plan in April 2009, which aimed to provide affordable medical care for the country's entire population by 2020. The State Council issued the Implementation Plan for the Recent Priorities of the Health Care System Reform (2009-2011) and identified five priority areas of focus in a bid to deliver universal healthcare by 2020. In December 2010, the State Council announced that it would encourage the privatization of hospitals and abolish the 70% foreign ownership cap to liberalize and allow full foreign ownership of hospitals in China. In addition, the State Council refreshed its health care reform objectives in a May 2015 circular, including the objective to eliminate drug prices markups and make medical services of public hospitals more affordable, while improving the quality of healthcare staff. To encourage the use of private health insurance, the government also announced a plan to provide tax breaks to private health insurance policy holders, who are now able to deduct from assessable income approximately RMB 2,000 per year for health insurance premiums.

….new form of urbanization calls for greater sustainability in integrating new urban residents and ensuring that physical movement of people is supported by socioeconomic security….

A recent report published in July 2016, which included a two-year study conducted by the World Bank Group, the World Health Organization, and the Ministry of Human Resources and Social Security of China, made an urgent case for China to reform and continue establishing a people-centric integrated healthcare system.

According to the study, if reforms are not carried out, healthcare expenditure is expected to increase to RMB 15.8 trillion by 2035, up from RMB 3.5 trillion in 2014, an increase of 8.4% per year. Spending on healthcare will account for over 9% of GDP in 2035, up from 5.6% of GDP in 2014. The report estimates that it will take China circa 10 years to fully implement the proposed reforms. But all in, we are confident that these policies will increase the supply of public services and release more spending power from consumers across China over time, as precautionary savings become less important.

Hukou reform
In a 2012 report co-written by the World Bank and the Development Research Center of the State Council, it was acknowledged that rural migrants without urban hukous were indeed denied equal access to social entitlements such as education for dependents and healthcare, thus holding back their propensity to consume. Funding and opposition by incumbent hukou holders are the key issues dragging the progress of hukou reforms for the longest time.

The good news is, we are starting to see this reform progress beyond the symbolical stage. In 2014, the State Council offered its reform guidance to eliminate the differences between rural and urban hukou. Beijing abandoned this distinction in June 2016 and now has only one type of residential hukou. Last year, the State Council announced that it would grant urban residence permits to 100 million people by 2020. Local governments will set differentiated household registration policies based on their ability to absorb migrants and relax hukou controls in small and medium sized cities alongside the expansion of public services. Admittedly, this is only about 7% of the total Chinese population, but it covers more than 35% of migrants as at 2015. We estimate that should each of these 100 million migrants increase consumption by 10% of earnings as a result of lowered savings, this will translate into almost 0.5% of incremental GDP.

Financial reform
Some tangible progress has been made in this area, although the Chinese government is treading very carefully in view of global economic imbalances and mounting capital outflow pressures. A relatively closed capital account effectively creates a face-off between consumption and investment, as low lending rates come at the expense of an implicit tax on household savings in the form of deposits. China is aware that this has been a key impediment for consumption growth. To that end, the People's Bank of China scrapped the deposit interest rate ceiling in October 2015, two years after having scrapped the lending interest rate floor. In essence, the deposit interest rate ceiling was removed to allow banks to compete more easily for deposits and consequently provide a market-driven return to depositors. In all likelihood, removing the cap on deposit rates would support household income and consumption as well as efficient resource allocation (by raising the cost of capital).

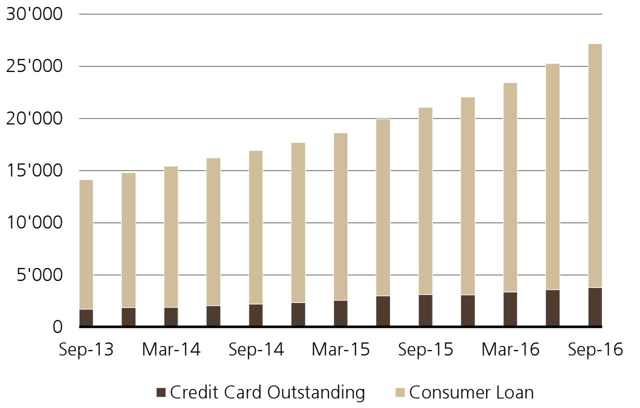
Improving consumption environment

Consumer credit – and the personal loan industry in particular – is very much under-developed in China, with consumer loans accounting for only circa 22.5% of total bank loans by September 2016. Out of all consumer loans, only 16.2% were credit card loans; i.e. outstanding amounts, and highlighting that less than 31% of the Chinese population has been issued with a credit card. What this implies is that Chinese households have plenty of room to boost consumption by taking out consumer loans, or using credit facilities to enhance their consumption capacity.

This is illustrated by the formal banking channel. Under a state-approved pilot scheme, Sesame Credit (the financial wing of Alibaba), is analysing the online activity of its 400 million users to compile credit ratings that may potentially assist Chinese consumers in increasing their credit facility and therefore their spending power.

Chart 18: Consumer loan in China

(RMB, billion)



Source: CEIC (as at December 19, 2016)

A related factor in the improvement of the consumption environment in China is the growth of the e-commerce market. While it is probably true that e-commerce partially redistributes spending that could have been expended in physical retail plainly onto another platform, possibly with little multiplier effects, it does make it easier for inconspicuous purchases that will enlarge the overall consumption pie.

....China's internet penetration rate is relatively low...and e-commerce presents itself as a mobile and convenient platform for consumption to take place....

There are two points here. One, China's internet penetration rate is China is relatively low compared to many other economies. The main reason is that rural areas continue to suffer from a lack of internet connectivity, although this is set to change as internet access expands over the next few years. Secondly, e-commerce presents itself as a mobile and convenient platform for consumer spending.

Chart 19: Internet penetration rates

(as at November 2015)

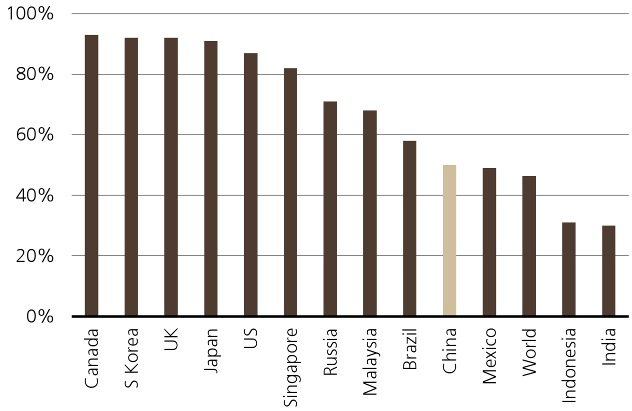
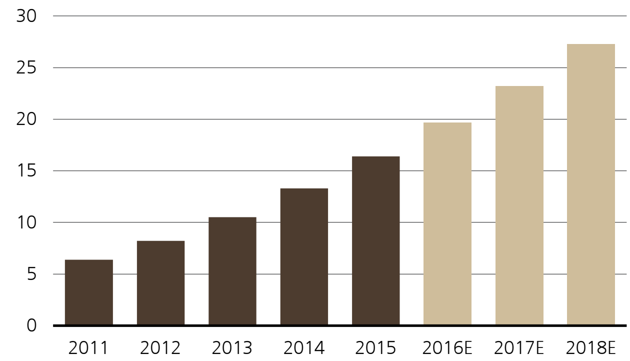


Chart 20: E-commerce transaction value

(RMB, trillion)



Source: Blue Book of China's Commercial Sector (2016-2017)

Estimates show that by 2018, e-commerce transaction values are expected to reach RMB 27.3 trillion, up by more than 320% from RMB 6.4 trillion recorded in 2011. And as major e-commerce players establish their distribution and service centers in rural regions, that will surely be a boost to overall consumption growth.

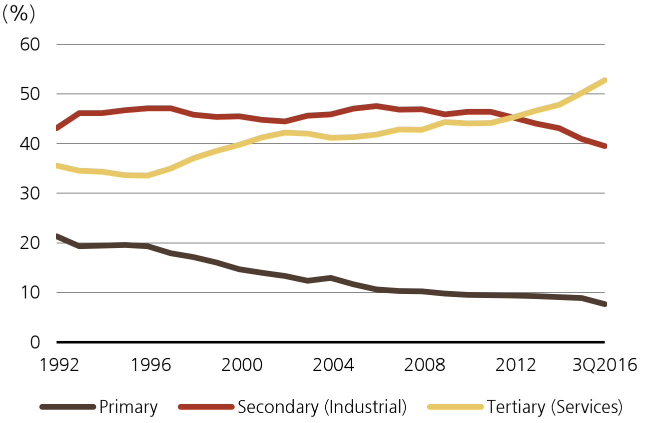
On industrial upgrading

China is, and wants to continue to be a manufacturing powerhouse. What is different is that, instead of continuing its association with sweatshops, China now strives to be the world's workshop. It wants to transform from a large manufacturing country into a strong manufacturing country. That is no mean feat, as major developed economies such as Germany, the US and Japan are the incumbent dynamos in global manufacturing, particularly for high end products. As the digital and physical worlds converge within manufacturing, the Chinese government is not pursuing a strategy of industrial downsizing as most would assume, but rather moving vertically towards industrial upgrading.

This is a critical step within the rebalancing process that is often discounted and the inherent opportunities consequently overlooked by investors.

Industrial sector is here to stay
Typically, after the process of industrialization is achieved, an economy will start to lean towards the services sector, in conjunction with investments giving way to greater consumption. As we can see in Chart 21, the share of GDP contributed by the secondary and tertiary sectors have been diverging in the last few years. It is true that China's shift towards the services sector has seen significant progress, with the corresponding result a reduction in the value-added by the industrial sector.

Chart 21: Sector share of GDP



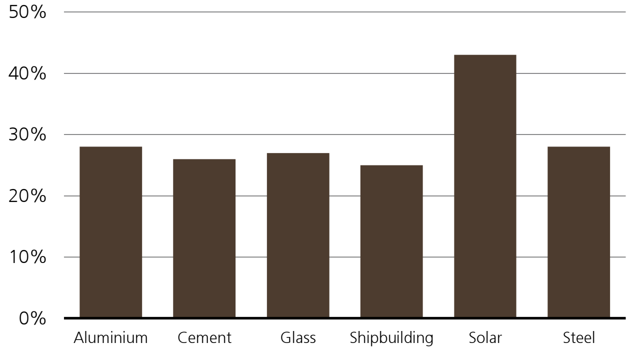
Source: CEIC (as at December 19, 2016)

Obviously the deleveraging efforts since 2013 have had a significant impact on the industrial sector which has always been dominated by large state-owned enterprises (SOE). Industrial profits continue to diminish as global demand remains lethargic, and with credit getting harder to come by, many SOEs are effectively on life support now, barely able to service existing debt with their earnings. This is more so for industries in mining or traditional manufacturing where companies are large but not strong, and output is concentrated at the medium and low end of the value chain. The erosion of China's low cost labor advantage to other emerging markets have further piled on the misery faced by traditional manufacturing.

….the shift to a services and consumption driven economy needs to be a gradual one, and is co-dependent with the industrial sector….

We firmly believe that the industrial sector will continue to be a mainstay of China economy. At almost 40% of the economy, the industrial sector remains significant. With a large existing rural labour force, facets of the industrial base will need to continue as some mismatch of skillsets with the service sector is unavoidable. To that end, the shift to a services and consumption-driven economy needs to be a gradual one.

Chart 22: Excess capacity of selected industrial sectors
(as at 2012)

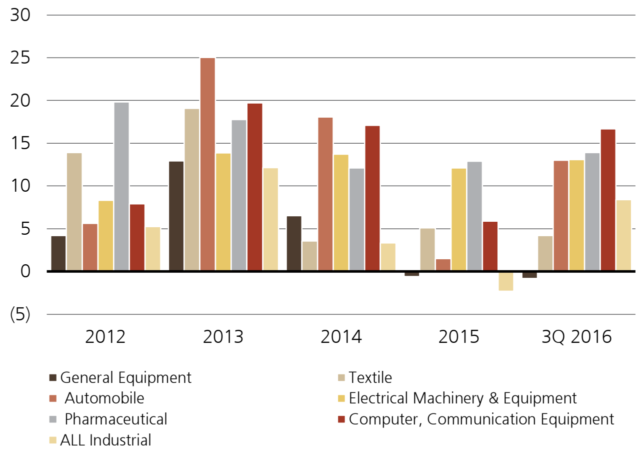


Source: Development Research Center of the State Council of China, CEIC
(as at 3Q16)

In Deloitte's 2016 Global Manufacturing Competitiveness Index, China topped the global manufacturing competitiveness list, not only due to its low-cost value proposition, but also its focus on innovation and advanced technologies in manufacturing.

The fact is, not all of the industrial sector is in the doldrums; some sub-sectors are doing better. The well-known problem of over-capacity is focused in a handful of industries, such as cement and photovoltaics. Despite concerns over the softness of the industrial sector, sectors engaged in higher-value added manufacturing continue to outperform industry average in profit growth, and these are the new industrial segments that will not be subject to downsizing but upgrading.

Chart 23: Total profit growth of industrial sectors
(YoY %)



Source: CEIC (as at December 19, 2016)

….the industrial sector will continue to be a mainstay of China economy. At almost 40% of the economy, industry remains significant….not the entire industrial sector is in the doldrums; some sub-sectors are thriving…

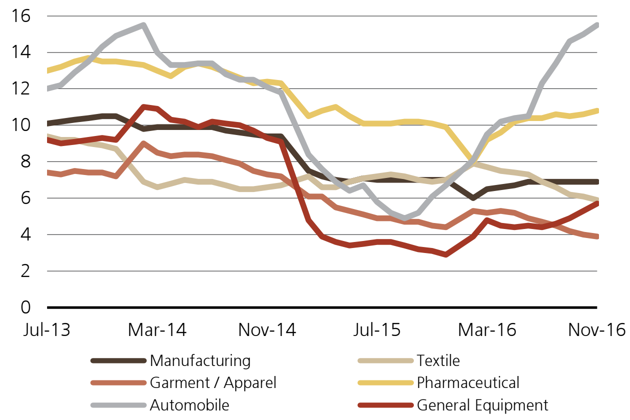
Industrial upgrading to avoid falling into the middle income trap

According to the World Bank, out of approximately 101 middle-income economies in the 1960s, only 13 including Japan and other East Asian economies; e.g. South Korea and Taiwan, successfully achieved developed status by 2008.

The reason many developing economies fell into the middle-income trap is due to the inability of domestic manufacturing to move up the value chain and compete in global markets once domestic wages rise beyond a certain level. As costs rise and traditional industries become less competitive, countries need to innovate, invest in new strategic industries, and encourage technological upgrading to maintain or grow the productivity of both labor and capital, and in turn sustain economic and income growth.

China is aware that advanced manufacturing enjoys higher value-added growth compared to traditional manufacturing and while it has been boosting consumption and growing the service sector, it has also been leading industrial upgrading efforts.

Chart 24: Value-added of manufacturing sub-sectors
(YoY %, year to date)



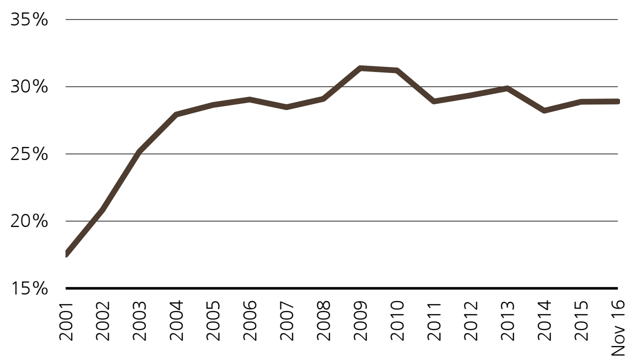
Source: CEIC (as at December 19, 2016)

Policy support is strong

Industrial upgrading is not new to China, which has learned from the development history of Japan, the US and other developed economies where industry remains a key component today, and where policies have been in place to prevent the hollowing out of productive industries in the name of rebalancing.

As early as in 2006, China released a Medium to Long-Term National Plan for Science and Technology Development (2006-2020) that focused on the upgrading of the industrial base, and which was repeated in the 11th Five-Year Plan (2006-2010), the 12th Five-Year Plan (2011-2015) and the most recent 13th Five-Year Plan (2016-2020), all of which have consistently emphasized the need to develop strategic emerging industries and move towards medium-to-high end manufacturing. As we can see, the high-tech industries have achieved significant growth since WTO accession in 2001 and accounted almost 30% of China's total export value in 2015 and year-to-date November 2016.

Chart 25: Hi-tech exports as percentage of total exports



Source: CEIC (as at December 19, 2016)

Chart 26: South Korea's industrial upgrading in 1990s

(Percentage, annual)

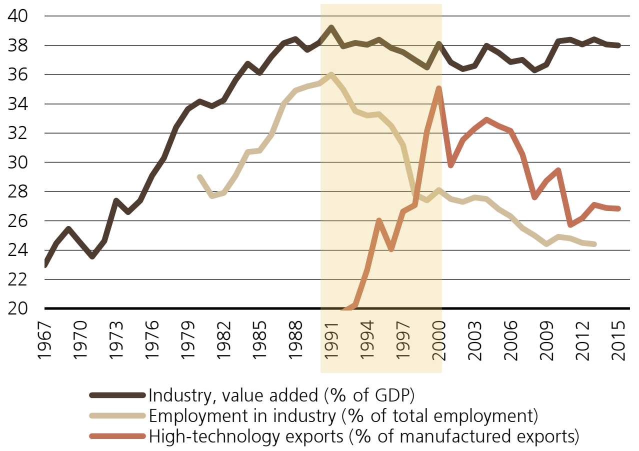


Chart 27: Singapore's industrial upgrading in 1990s

(Percentage, annual)

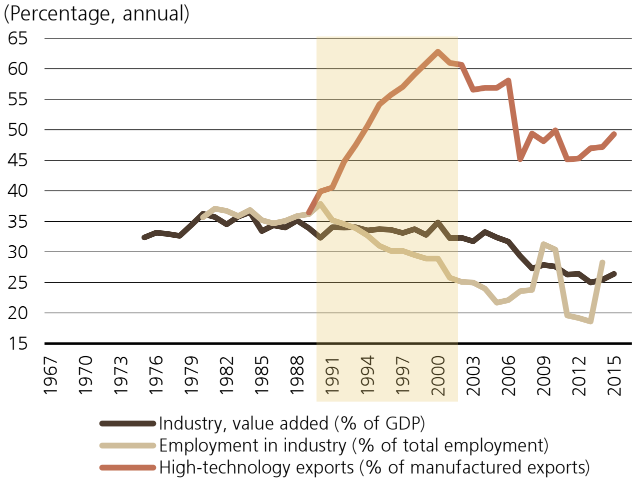
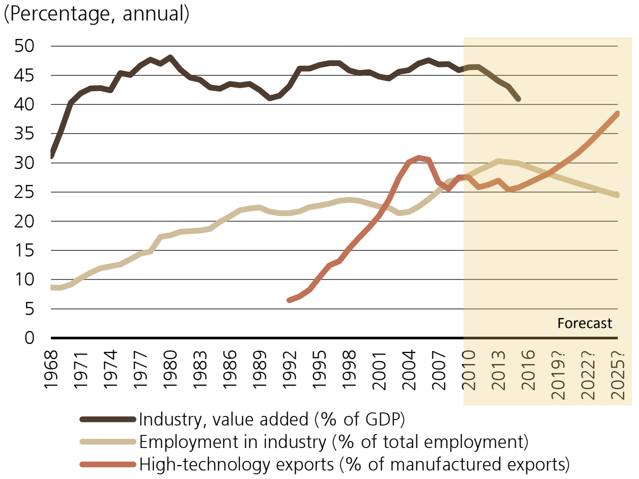


Chart 28: China industrial upgrading since early 2010s

(Percentage, annual)



Source: World Bank (as at 20 February 2017), UBS Asset Management, Real Estate & Private Markets (REPM) estimates

On May 19, 2015, China's State Council published a new blueprint for the manufacturing industry termed "Made in China 2025', which set the goal of joining the league of manufacturing superpowers by 2025, moving up the rankings by 2035, and consolidating China's positon as a manufacturing giant by 2049. Ten industries[5] have been identified as new strategic industrial sectors that will drive China's industry in the coming years.

Developed markets trailed the path transitioning from low-end to high-end manufacturing

The experiences of other developed regional economies in Asia may offer some guidance on how China's industrial upgrading efforts may progress.

While there is no clear proxy for the definition of a successful industrial upgrading exercise, we have observed that the process of industrial upgrading often includes a decline in the proportion of workers in manufacturing (or industry), and a matching increase in the proportion of high-technology / high-end exports.

In the case of South Korea and Singapore, these were very obvious in the 1990s when there was a concerted effort to steer the economies toward higher value-added manufacturing. The value-added of the industrial sector as a percentage of GDP remained consistent despite a smaller workforce in the same sector.

[5] Aviation, Agriculture, Electrical power, New energy automotive, High-end robotics, Next gen IT, New materials, Rail transportation, Maritime engineering, Biomedicals

The subsequent stage of the industrial evolution in South Korea and Singapore was a transition towards a production controller role in global manufacturing networks in the early 2000s, where strong intellectual property and technological know-how allowed for what used to be domestic manufacturing to be outsourced to other lower cost markets.

China is now attempting the same.

We believe industrial upgrading has to happen together with the shift towards services and that in itself brings about many market gaps waiting to be exploited.

….the reason many developing economies fell into the middle-income trap is due to the inability of domestic manufacturing to move up the value chain and compete in global markets once domestic wages rise beyond a certain level….

Where are the new opportunities in real estate?

We attempt here to offer some views on where the real estate market may present pockets of opportunities that align with the top-down topics discussed earlier in this report. These are not prescriptive, and investors will need to understand that the bottom-up aspect of any real estate opportunity deserves scrutiny on its own merit.

We take a long-term view towards China's market size and the upside potential of 1.3 billion real estate users. Businesses and property investors who either wish to diversify their global exposure or build on a solid domestic presence in China will do well to adopt a similar long term perspective. At this part of China's real estate cycle, however, any new investment should not be a speculative play.

In general, we advocate that new capital analyses any underrated market gaps. Traditional real estate sectors in China such as retail, office and residential continue to find liquidity and appeal among investors, given that access and exit are clear and the institutional framework is better developed. These sectors will not go away and it is still possible to extract significant returns. However, there are niche areas which we believe enjoy the best top-down and bottom-up narratives, and in this section, we focus on several of these.

Physical retail

A tricky but potentially rewarding play

The transition towards a consumption-based economy has driven exponential growth in some real estate segments such as retail, as the rise of the Chinese consumers created demand for physical retail spaces. Starting with the first iteration of roadside retail shops, progressing to humble departmental stores and finally moving into the era of sophisticated shopping malls with an ever-growing plethora of international brands, China's retail sector has seen considerable progress in the last two decades.

On the retail front, a mass of decentralized retail space is expected to be completed across major cities in China. We believe robust income growth and high propensity to consume (rising middle class and material aspirations) will cushion the resilient leasing demand for retail space despite the surge in decentralized retail space and the recent austerity drive by the government.
The near-term fundamentals of the retail sector point to an interim period of adjustment as the outlook for rents and performance remains uncertain. While consumption growth has been resilient, there have been very obvious leakages in retail spending via e-commerce that have bypassed traditional

physical retail channels. The growth of online retailing is the biggest threat to the existence and survival of retailers in China at the moment, with major international retailers increasingly looking to just Beijing and Shanghai, among others, as gateways for expansion.

We still believe in the long-term appeal of the retail story for China real estate, as the upgrading of consumer markets is almost a certainty, while middle class aspirations and higher wages provide a long-term impetus for spending growth. However, this also means the operational ability of retail landlords to transit smoothly into omni-channel modes of retailing and a greater focus on experiential shopping will define the winners and losers. It is clear that there will be more losers than winners, and the winners will no longer be taking home a bigger pot of gold. In advanced cities such as Beijing and Shanghai, there continues to be a dearth of retail space in prime and well-established locations as reflected in the strong showing in prime rental growth.

We estimate that in China, there are currently less than twenty developer-operators with a lifetime track record of building and managing more than ten malls. Especially in lower-tier cities, a significant proportion of retail malls are poorly designed; e.g. gross floor areas in excess of 100,000 sqm, with lackluster management.

- At the right entry price point, the repositioning of ageing but well-located retail assets in Shanghai and Beijing is looking to be a reasonable strategy for investors with retail know-how to gain access to the retail sector in the near term; and
- In addition, there has been strong interest by capital seeking exposure to the niche retail sector of outlet malls, in particular the international designer brand segment, where the structural themes of rising middle class aspirations and brand consciousness continue to drive the pent up demand for such real estate. The current offerings scattered across China are often sub-par and that creates a gap where landlords or investors with strong retail tenant networks will be able to benefit from these structural trends.

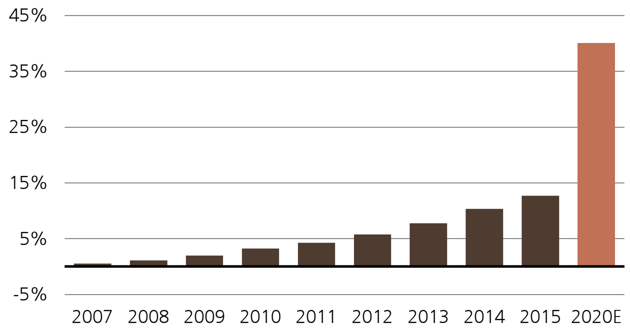
Logistics

Go niche, go specialized
At this juncture, we want to be clear on the distinction between logistics and industrial, especially in the context of this paper. While we speak of logistics, we refer mainly to warehousing, storage and distribution facilities, while industrial real estate will refer to space with production elements, such as factories and workshops, to name a few.

The logistics sector is an unobvious second-order manifestation of China's progress in rebalancing its economy. As an alternative proxy for the consumption theme in China, we believe that the demand for warehousing facilities will intensify amid a structural shortage.

There is a common misconception that the growth of e-commerce will drive the demand of logistics property exponentially. It is probably partially true if we assume that e-commerce as a platform will increase overall spending and thus logistics space requirements. The reality: a single dollar spent on a mall is probably going to have the same warehousing footprint as a single dollar spent via an online commerce shop. There is just a transfer in terms of removing the retail middleman along the retail chain, but overall sales are likely to remain at similar levels. The only difference is, there is now clearly a greater emphasis on efficiency in supply chains and third-party logistics operators, a trend which is driving demand for modern logistics developments and distribution networks across China.

Chart 29: Online sales as percentage of total retail sales

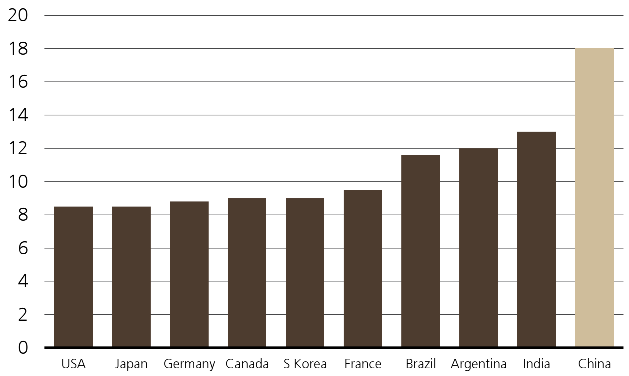


Source: CEIC (as at December 19, 2016), Blue Book of China's Commercial Sector 2016-2017, UBS Asset Management, Real Estate & Private Markets (REPM) estimates

The logistics sector is an unobvious second-order manifestation of China's progress in rebalancing its economy….

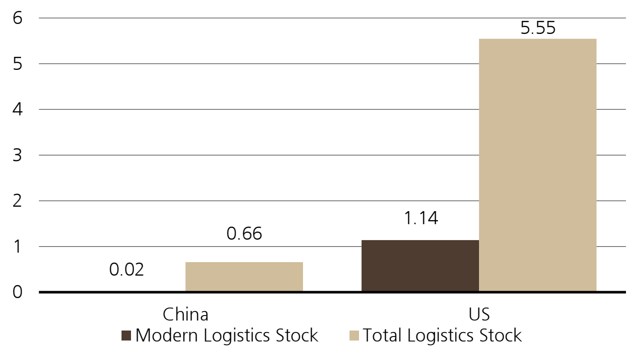
Opportunity in the provision of modern logistics
As such, the evident opportunity here is in the provision of modern logistics facilities that can reduce the distribution time lag. While speculative developments have surged in the logistics segment in some cities, limited new supply in the high quality segment and obsolescence of existing logistics facilities have led to an overall shortfall in modern logistics stock per capita. As at 2015, the modern logistics space per capita in China, at 0.02 sqm per capita, was easily 50 times smaller than that of the US. The headroom for expansion in warehousing is substantial in the next few years. And as at 2012, logistics cost in China was almost 18% of GDP, which is double that of the US (at approximately 8.5%), and one third of that can be accrued to storage alone.

Chart 30: Logistics cost as percentage of GDP
(%, as at 2012)



Source: China Logistics Yearbook 2015

Chart 31: Logistics stock per capita (China and US)
(sqm, as at 2Q15)



Source: CBRE report (Viewpoint - China Property Market 3Q15)

As it is, modern logistics facilities are generally clustered and concentrated along the eastern and northern regions of China. The legacy of uneven economic growth means that coastal regions in China gained an edge over inland cities in terms of wealth, corporate investments and infrastructure development. With the rail and road networks originally concentrated along the eastern and northern parts of China, modern warehouse stock and future supply have traditionally been distributed across these areas.

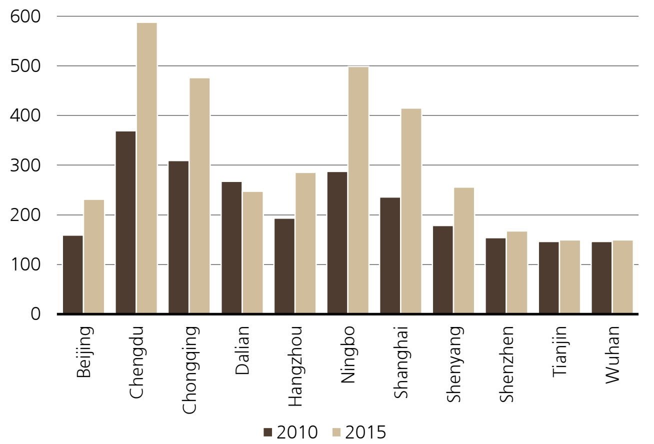
But as the infrastructure network expands inland in recent years, CBRE estimates that by end of 2016, coastal cities along the Pearl River Delta and Yangtze River Delta, as well as key gateway inland cities such as Chengdu and Chongqing, are likely to experience the highest growth in stock of high quality modern warehousing space. This is likely to be corroborated by similar levels of demand growth in line with strategic polices such as the Go West and the One Belt One Road initiatives.

Modern logistics is, however, a crowded space
The logistics property market in China has long been dominated by a few participants, with Singapore-based logistics giant GLP alone accounting for almost 60% of market share in terms of property portfolio. At this part of the cycle now, the Chinese logistics property space is not easy to gain access to at a competitive scale for most investors.

Apart from that, land supply and cost will continue to be a major bottleneck in the short term. Land prices have seen unabated growth since 2002, with Shanghai (415%), Ningbo (498%) in the Yangtze River delta, and Chengdu (588%) and Chongqing (476%) in inland China leading the way. Local governments are not motivated to turn over land for logistics use since the operation of warehousing generates less recurring tax revenue than residential, office or manufacturing property. So while the stars are aligned in terms of e-commerce emergence, supply shortage, and positive government policies, the actual execution of logistics transactions in the real estate context remains elusive for most new capital that are slow to the game.

Chart 32: Logistics land price index

(Year 2002 = 100)



Source: CBRE (as at 2Q16)

Chart 33: Expenditure per capita on perishable food

(RMB)

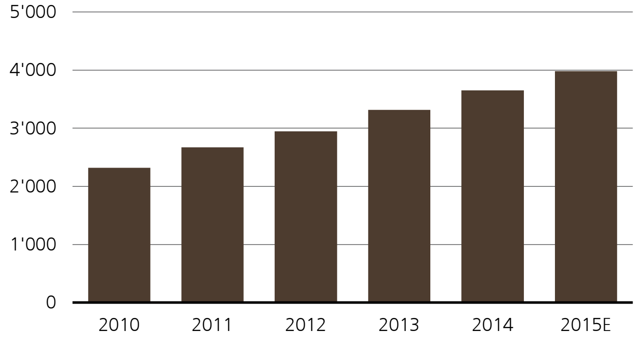
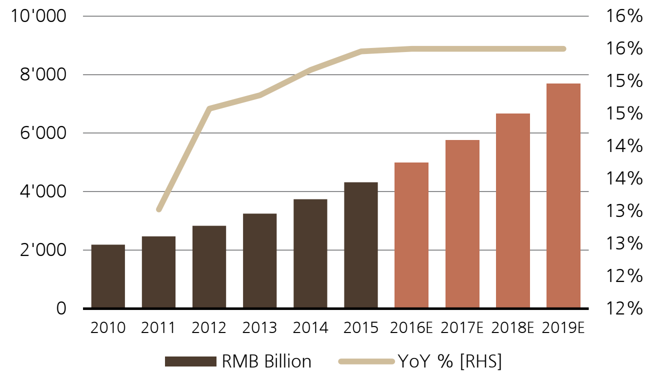


Chart 34: Estimated value of food requiring cold chain

(RMB billion)



Source: China Cold Chain Logistics Development Report 2014, UBS Asset Management, Real Estate & Private Markets (REPM) estimates

But cold chain logistics presents an emerging market gap

Looking within the logistics sector in China, we believe a key market gap has emerged in the more specialized area of cold chain logistics, especially with China's cold-chain infrastructure lagging behind underlying demand for cold storage supply chains.

Cold chain logistics involves a temperature-controlled process across the supply chain from production, storage, transportation and distribution, with cryogenics as the basis and refrigeration technology as the means. The types of commodities that will require temperature controlled supply chains are typically agricultural products, processed and frozen food, and increasingly, pharmaceutical products.

There are a few drivers, most of which we think are still at the nascent stage, and will create related opportunities in this space in the next five years.

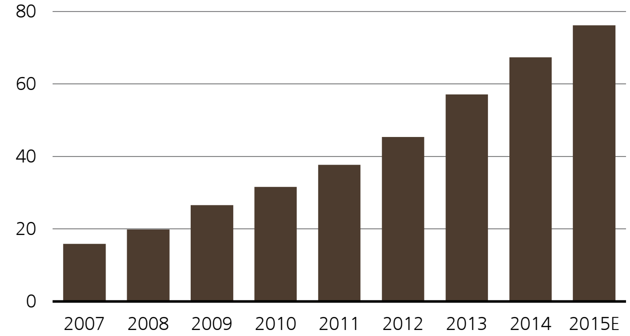
Over the past decade, alongside the rapid growth of China's economy, food consumption patterns have evolved, and the demand for food-related cold chain has increased exponentially. With greater awareness of food safety, the demand for perishable goods brings with it a real need for modern cold chain facilities. The market size of China's cold chain industry stands at an estimated RMB 184 billion as at 2016, and it is estimated to hit almost RMB 350 billion by 2020, a CAGR of nearly 17%.

An estimated 12 million tonnes of fruit and 130 million tonnes of vegetables are damaged every year due to an underdeveloped cold chain in China. As China's population grows, the shortage of arable land has driven the government to focus on food security and self-sufficiency, which calls for strong efforts to reduce food wastage. Since 2011, the central government has released and announced at least 14 policies and guidelines related to the cold chain industry, a clear sign of China's focus on fostering this logistics sub-segment.

Most biological drugs such as vaccines and some diagnostic reagents require special temperature controlled environments, and the recent emergence of China as one of the largest biopharmaceutical markets in the world has raised the domestic standard for management of distribution and delivery of biologic products. In 2009, a national policy was signed into law which required that the storage and delivery of all pharmaceutical products be handled by qualified professional firms that possess the required capabilities and cold chain equipment. In addition, the ongoing healthcare reform seeks to reduce costs associated with the supply chain in pharmaceutical product distribution and thus allows for the moderation of healthcare costs in China. In totality, these mean that the demand for cold chain in the pharmaceutical space will become more inelastic as the sector develops over time.

Chart 35: Value of pharmaceutical products requiring cold chain

(RMB billion)

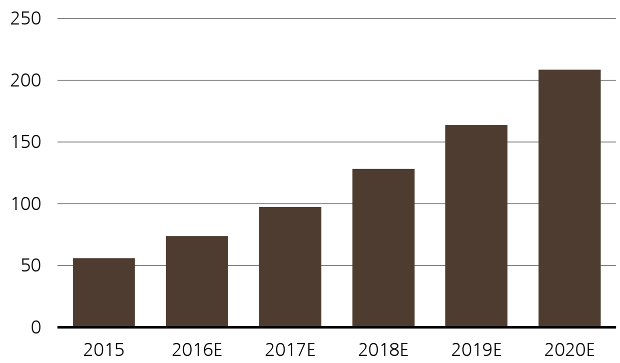


Source: China Cold Chain Logistics Development Report 2014, UBS Asset Management, Real Estate & Private Markets (REPM) estimates

The growth of B2C e-commerce in recent years, especially in the food segment, is a growing trend that looks to be unabated in the near future. According to a report from consultancy firm McKinsey & Company, 40% of Chinese consumers purchase food online, as compared to just 15% in the US. While the food currently offered online is mostly packaged or preserved food, fresh food options are fast becoming prevalent. Domestics companies such as Yiguo, Yummy77 and MissFresh are already delivering fresh meat, fruits, and vegetables to Chinese doorsteps within the same day, and this calls for significant cold storage and distribution capacity.

Chart 36: Value of fresh food transactions through e-commerce

(RMB billion)

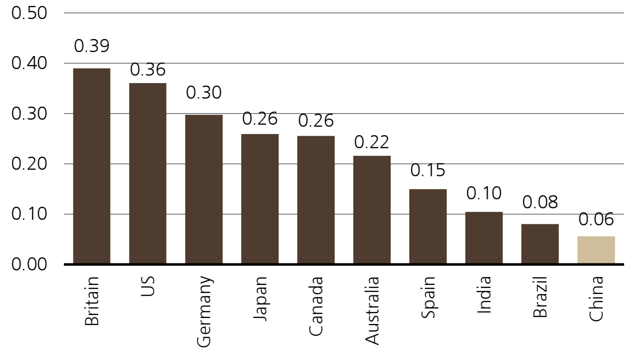


Source: China Cold Chain Logistics Development Report 2014, UBS Asset Management, Real Estate & Private Markets (REPM) estimates

We estimate that China's cold chain capacity is underdeveloped and aging, with more than half of existing cold chain facilities above the age of thirty years. According to the China Federation of Logistics and Purchasing, more than 85% of the refrigerated warehousing in China has not been built for logistics purposes, where distribution is as important as storage. Also, more than three quarters of the existing cold chain logistics space is concentrated along the coastal and eastern regions of China, where income is generally higher.

Chart 37: Cold chain capacity per capita

(cubic meter per capita)

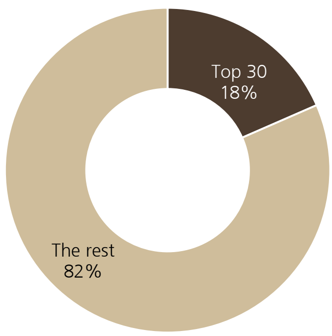


Source: China Cold Chain Logistics Development Report 2014

Importantly, the cold chain logistics segment is a fragmented one, which makes the entry barriers low with good potential for rich returns. The top 30 market participants in the cold storage logistics sector in China account for only 18% of the market by capacity. This is a stark contrast to the generic modern logistics sector, which is dominated by a few major players, as we alluded to earlier.

Chart 38: Market share

(by capacity, million cubic meters)

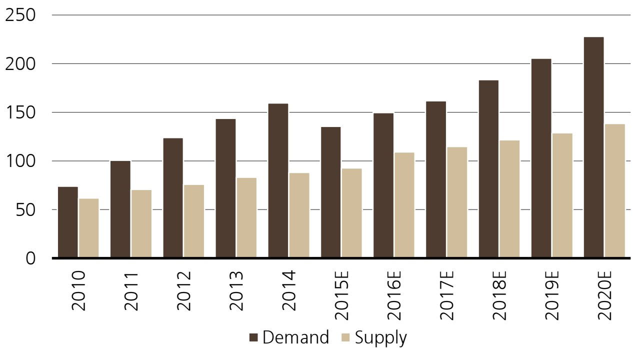


Source: China Association of Warehouses and Storage, ResearchInChina (China Cold Chain Logistics Industry Report 2016-2020), China Cold Chain Logistics Development Report 2014, China Logistics Yearbook 2015

Admittedly, and expectedly, this opportunity in cold chain logistics has not gone unnoticed by investors and operators. New supply of cold chain logistics have been increasing in parallel with the incremental increase in demand since 2010, and we expect this trend to persist, although that is expected to normalize as the existing stock accumulates.

Chart 39: Demand and supply of cold storage space in China

(million cubic meters)



Source: ResearchInChina (China Cold Chain Logistics Industry Report 2016-2020), UBS Asset Management, Real Estate & Private Markets (REPM) estimates

Between 2015 and 2020, demand for cold storage is expected to grow at a CAGR of 11%, while capacity is likely to lag behind at a CAGR of 8.3%, To date, a large proportion of cold storage capacity (circa 73%) is built and operated for private use, which means the owner-operators utilize these storage space for their own business needs. Dominant e-commerce companies such as Alibaba and JD.com are acquiring logistics land and building up their proprietary cold chain networks. The specific market gap then is in the 3PL and wholesale distribution space, which is gaining traction in China as businesses attempt to lower their logistics costs, and that is the segment in which meaningful supply continues to fall short of demand.

Industrial real estate

Most can't see the forest for the trees

In terms of investment interest, industrial real estate is low on the pecking order for most investors, relative to other sectors such as office, retail and logistics, and there are obviously good reasons why.

The negative hype surround China's industrial sector has portrayed the industrial sector as the black sheep in China's rebalancing story, as fears of overcapacity, stagnant investments, and a global slowdown in export growth cast a long shadow over the industrial sector.

Chart 40: Comparison of land supply and land price

(Sqm million, % change)

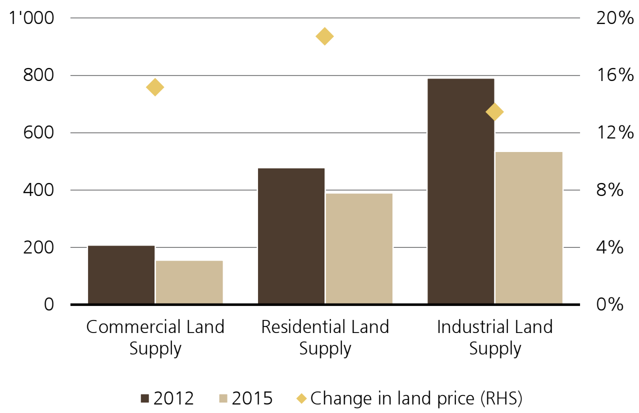
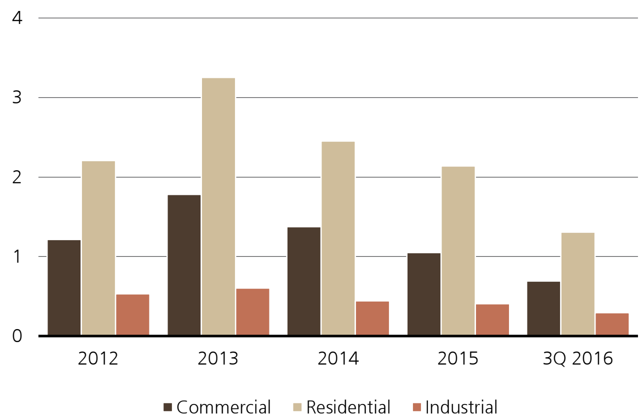


Chart 41: Revenue from land sales

(RMB trillion, YTD)



Source: CEIC (as at December 30, 2016)

…shift from low-end manufacturing and assembly towards high-end manufacturing has happened rather rapidly, but real estate provision has not been fluid enough to catch up….

On the administration front, local governments have not been as forthcoming in the provision of industrial land for the industrial sector given the low land revenue relative to residential and commercial sectors. Despite releasing more than two times land supply for industrial than for commercial usage in 2015, local government land revenue arising from industrial land sales was less than half of that received for commercial land sales. It is thus not surprising to observe that between 2013 and 2015, industrial land supply was down by 35%, more severe than the 25% and 18% declines for commercial and residential land supply in the same period. It is thus not easy for new capital to secure land in recent times.

It seems that the industrial sector is in the doldrums, and that is partly true. However, we think that there is a market gap here which has not been sufficiently addressed. The shift from low-end manufacturing and assembly towards high-end manufacturing has happened rather rapidly, but real estate provision has not been fluid enough to catch up with the obsolescence and changes in specifications required for this new industrial economy. In this regard, most investors hear the noise but can't see the forest for the trees.

Structural shortage of specialized high quality industrial space

For avoidance of doubt, we will focus on industrial workshop space here. Looking at the development trajectory of China's economy, the "Open Door Policy" in 1978 heralded the beginning of industrial clusters, starting from Special Economic Zones (SEZ) in Shenzhen, Zhuhai, Shantou and Xiamen. In 1984, China fashioned a variant of the SEZs, which they called Economic and Technological Development Zones (ETDZs), of which there are currently 219 across China. Informally, the ETDZs have come to be known as China’s national-level industrial parks. Various provincial and municipal governments have also sponsored industrial parks, all of which offer a wide array of tax and non-tax incentives to encourage foreign investment. At one point in the early 2000s, there were more almost seven thousand industrial parks in China, which has since been normalized to just under two thousand in recent times.

China's manufacturing industry and its industrial parks have already undergone three distinct phases. One, in the 1980s till early 2000s, China's focus was on export-oriented and labor-intensive manufacturing, which resulted in industrial parks and government-built industrial space that was primarily in the form of standardized workshops. The second phase began in the late 1990s with an overlap with the first phase, as technology-intensive types of manufacturing such as electronics became the focus, and industrial parks became supporting facilities where assembly was the prevalent activity. In the second phase, the industrial real estate space merely had a change of production use, and not much upgrading was done. In the third phase starting from the late 2000s, and which is the phase that we are in now, China's manufacturing has shifted partially towards high-end and capital-intensive industries such as robotics and advanced engineering. This tectonic shift is still in progress, but it has revealed a structural shortage of specialized industrial space built with high quality specifications to cater to the advanced industrial real estate end-users.

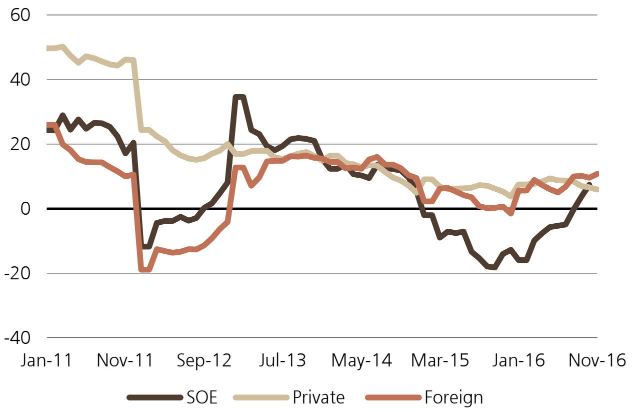
We estimate that more than 70% of existing industrial workshop space has been developed by state-owned developers and local governments before and during the 2000s, a high proportion of which do not meet the current institutional demand in terms of build specifications. For instance, approximately 60% of government built industrial space is multi-story in design, which is not necessary poorly constructed, but does not fulfil the floor loading needs of most high-end manufacturers which operate in the heavy industry space.

Yet, response has not been swift enough to convert or construct high quality space to cater to the new strategic industrial industries such as aviation, robotics, and advanced equipment. Anecdotally, we see a significant supply gap in the high end industrial workshop space, and with the government's push for industrial upgrading, we are at the early part of the cycle for this real estate segment where developers with land-banking capabilities and a strategic focus on tenants in high value added industries will be able to ride this wave.

Where are the opportunities in industrial real estate?

Foreign funded and private enterprises continue to do well and demand high quality industrial space. The profit growth of foreign and private industrial companies in China has outperformed that of state-owned enterprises since 2013. As the central government continues to push for greater private sector participation in the economy, coupled with the ongoing SOE reforms, we think that foreign and private industrial tenants will drive the growth of high quality industrial space in China.

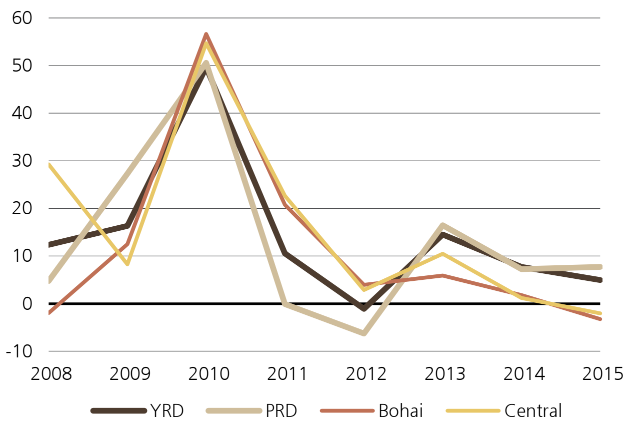
Chart 42: Profit growth by type of industrial firm
(YoY %, YTD)



Source: CEIC (as at December 30, 2016)

Manufacturing in the YRD (Yangtze River Delta) and PRD (Pearl River Delta) has generated positive profit growth consistently and is expected to continue so in the future, given the clustering of high-end manufacturing in these regions. While detractors may argue that labor costs are high and preferential policies are probably not as attractive at the coastal cities of China, these areas have the advantages of a mature market with experienced skilled workers, highly developed infrastructure, abundant research talent, which are just as more important to enterprises. Industrial upgrading is happening already in the developed industrial clusters in the PRD and YRD, and traditional manufacturing will move inland and out of China to other South East Asian countries where cost advantages continue to play a huge role.

Chart 43: Profit growth of industrial firms by region
(annual, YoY %)



Source: World Bank (as at 2015), UBS Asset Management, Real Estate & Private Markets (REPM) estimates

Sectors engaged in higher value added manufacturing will continue to outperform industry average in profit growth and expand, leading to greater demand for industrial space from such tenants. Industrial developers with strong development capability and track record of attracting high quality tenants will do better. We observe that such tenants typically prefer to lease over buy their own industrial space, particularly foreign companies, due to better flexibility and low upfront capital expenditure. Clearly, landlords which can provide facilities matching tenants' expansion and customization requirements will stand out from the competition.

To summarize, our conviction that China's industrial upgrading efforts will bear fruit underpins the seemingly unapparent opportunity in industrial real estate, and the following factors will be key for capital looking at investing into this sector:

– Tactical project selection and acquisition competence, focusing on the most desirable strongholds in Pearl River Delta and Yangtze River Delta where there is an established presence of higher value-add industrial sectors;
– Development capability and product differentiation, offering high quality and differentiated products built to high specifications, with appealing architectural features and optimal floor area provision;
– Solid track record in leasing and working with MNCs (Multinational Companies) and foreign companies;
– Access to industrial land bank and flexibility in the provision of built-to-suit (BTS) facilities matching tenants' expansion and customization requirements; and
– Strong local network and relationships, with the proven ability to facilitate tenant negotiations for preferential government incentives in terms of rental subsidies and tax rebates

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