# Research & Strategy

April 2019

# The Case for China Logistics

## EXECUTIVE SUMMARY

China's logistics sector is anchored by the country's large population and economic base, and its domestic long-term fundamental growth drivers, despite the rise of global trade protectionism. China's economy is expected to grow at a slower pace going forward. This reflects the expected trend of slower growth rates as a country's economy matures, and is the most likely scenario, despite the threat of the U.S.-China trade war. Even if China's GDP only grows at 5-6% per annum, it would still be one of the fastest growing large economies in the world[1]. China is the largest economy in Asia Pacific and the second largest economy in the world[2]. Based on LaSalle's estimate, the incremental GDP value that China is projected to create from the end of 2018 to 2019 is equivalent to the overall GDP of Australia, if the Chinese economy grows by 6% in 2019; and twice of Sweden's GDP if the Chinese economy grows by 5% in 2019. In other words, China will be adding the equivalent of one Australia or two Swedens from the end of 2018 to 2019, if the economy grows by 5-6% in 2019[3].

Domestic consumption is the dominant driver of economic growth, and this trend is expected to continue in the medium and long term. LaSalle believes that the solid domestic fundamentals and structural changes that are underway in China provide a favorable risk-adjusted return profile to invest in and develop modern warehouse facilities. Key themes for modern warehouse investment opportunities in China include the following:

1. Domestic long-term growth drivers;
2. Supportive government policy;
3. Limited modern warehouse facilities; and
4. Attractive risk-adjusted return profile and improving capital market liquidity
5. Market selection

**CONTACT**

**Elton Li**

Associate, Greater China
Research & Strategy
elton.li@lasalle.com

**Elysia Tse**

Head of Asia Pacific
Research & Strategy
elysia.tse@lasalle.com

**Jacques Gordon**

Global Strategist
jacques.gordon@lasalle.com

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[1] Source: Oxford Economics, as of December 2018

[2] Source: Oxford Economics, as of December 2018

[3] Based on the estimate of LaSalle, please refer to Figure 3 in the Market Opportunity section for more details.

## DOMESTIC LONG-TERM GROWTH DRIVERS, DESPITE EXTERNAL CHALLENGES

China's logistics sector is anchored by the country's large population and economic base, and its domestic long-term fundamental growth drivers, despite the rise of global trade protectionism. These domestic growth drivers include rapid urbanization, the rising middle class, the growth of the service sector boosting income and consumption power, and the exceptional growth of e-commerce over the long term.

### Near-term domestic growth drivers supported by stimuli

The U.S.-China trade war is still unfolding. Regardless of the outcome of the U.S.-China trade war, China's economy is expected to grow at a slower pace going forward. This reflects the expected trend of slower growth rates as a country's economy matures. Even if China's GDP only grows at 5-6% per annum, it would still be one of the fastest growing economies in the world[4]. Investors can expect an environment of slower but stable long-term economic growth with occasional short-term volatility as the trade situation evolves.

Historically, more Chinese exports were directed to the U.S. than U.S. exports were directed to China. Thus, under the scenario of an all-out trade war between the U.S. and China (a low probability but high impact event in LaSalle's view), China's economic growth could be more negatively impacted than that of the U.S. in the near term. If China's economic growth is impacted more severely than anticipated in the near term, the government is expected to introduce further monetary, fiscal, and regulatory stimuli (Figure 1). With 76% of GDP growth contributed by consumption in 2018[5], domestic consumption is the dominant driver of economic growth, and this trend is expected to continue in the medium and long term. Regulatory and geopolitical measures, which are far more impactful and powerful, could also be used to counter the negative impact of a trade war between the U.S. and China. Moreover, the near-term negative impact of the U.S.-China trade war is expected to continue to be tempered by China's ability to expand and strengthen its trade relationships with the rest of the world, particularly within Asia Pacific. Over the long term, LaSalle believes that China's export growth is expected to fare better than the U.S. should the trade war escalate, as China has more options to deploy than the U.S. For example, the "One Belt One Road" initiative is expected to open up new trade between Middle East and North Africa (MENA), Europe and China. Chinese investment in Latin American and African ports will also enable China's trade with emerging markets[6].
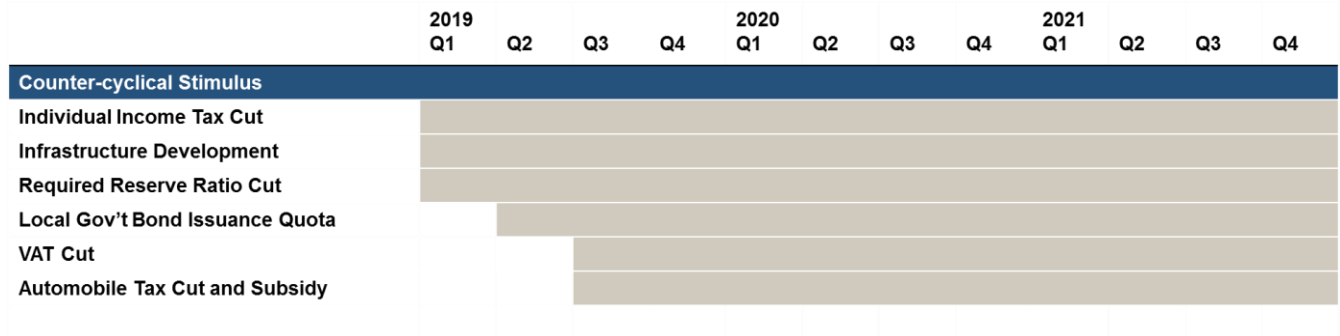
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[4] Source: Oxford Economics, as of December 2018

[5] Source: The National Bureau of Statistics in China (NBS), as of December 2018

[6] Please refer to the section Supportive Government Policy for more details

**Figure 1: Timeline of counter-cyclical stimuli in China[7]**

| Counter-cyclical Stimulus | 2019 Q1 | Q2 | Q3 | Q4 | 2020 Q1 | Q2 | Q3 | Q4 | 2021 Q1 | Q2 | Q3 | Q4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Individual Income Tax Cut | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Infrastructure Development | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Required Reserve Ratio Cut | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Local Gov't Bond Issuance Quota | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| VAT Cut | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Automobile Tax Cut and Subsidy | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |

Source: The State Council of China and National Development and Reform Commission, LaSalle Investment Management, as of December, 2018

## Large economic base

Despite the deceleration from the double-digit GDP growth rate in the past decade (Figure 2), China's economy is growing from a much larger base than the past decade. Based on LaSalle's estimate, the incremental GDP value that China is projected to create from the end of 2018 to 2019 is equivalent to the overall GDP of Australia, if the Chinese economy grows by 6% in 2019; and twice of Sweden's GDP if the Chinese economy grows by 5% in 2019. In other words, China will be adding one Australia or twice of Sweden from the end of 2018 to 2019, if the Chinese economy grows by 5-6% in 2019 (Figure 3)[8] .

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[7]Note on counter-cyclical measures:
- Individual income tax cut – lowering the threshold for individual income tax and expanding expense items eligible for tax exemptions such as home mortgage and healthcare
- Required Reserve Ratio (RRR) - The percentage of deposits a commercial bank is required to put aside with the People's Bank of China ("PBOC") when making new loans. Lowering the RRR primarily is to release liquidity to banks for them to repay medium term loans to the PBOC and support the debt-for-equity program in order to deleverage the financial system in China. Borrowing costs of corporates may not be reduced as an immediate result of RRR cuts.
- Local government bond issuance – quota for off balance sheet bond for local government is expected to increase
- VAT cut – Value-added tax rate for selective sectors to be reduced
- Automobile tax cut and subsidy -  purchase tax for smaller and electronic vehicles to be reduced

Source: The State Council of China and National Development and Reform Commission, LaSalle Investment Management, as of December, 2018

[8] Based on the estimate of LaSalle, please refer to Figure 3 for more details.

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**Figure 2: Historical comparison of GDP size and growth (USD trillion, %)**
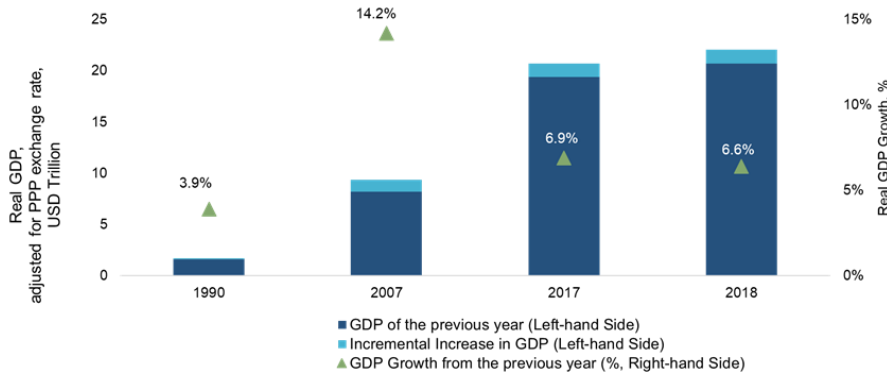


Source: the National Bureau of Statistics in China (NBS), LaSalle Investment Management, as of Q4 2018

**Figure 3: China's GDP growth is slowing, but GDP remains substantial in absolute terms**



Note: The above GDP comparison is based on the 2018 real GDP in Purchasing Power Parity (PPP) exchange rate.
Source: Oxford Economics, LaSalle Investment Management, as of Q4 2018

### Solid long-term domestic growth drivers

As the Chinese economy continues to anchor its growth to domestic consumption, LaSalle believes that modern warehouse demand is positioned to benefit. Despite the projected deceleration, China's economic growth is high by global standards partly due to the fact that China is still in a different development stage from its global peers. China, being the largest economy in Asia Pacific, is about two decades behind developed economies such as the U.S. and UK, when gauged by service sector's share of the economy, income and consumption power, size of middle class population, and urbanization rate[9]. In addition to these structural changes, the rapid growth of the e-commerce sector is expected to provide solid growth support to the logistics sector, evidenced by the strong modern warehouse space take-up momentum among online retailing giants in China.

**1)   Domestic consumption is the dominant growth driver, not exports**

Domestic consumption expenditure contributed to 76% of China's overall economic growth in 2018, and it increased substantially from 47% five years ago (Figure 4). The service sector has been a major growth contributor to consumption expenditure, and the trend is expected to continue in the medium to long term. The share of the service sector accounted

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[9] Source: Oxford Economics, as of December 2018

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for 52.2% of China's GDP in 2018, up from 44.0% in 2010 (Figure 5). As the transition to a domestic and consumption-led economy continues, domestic consumption is expected to offset the slowdown in manufacturing and exports.

**Figure 4: China GDP growth contribution (%, annual)**
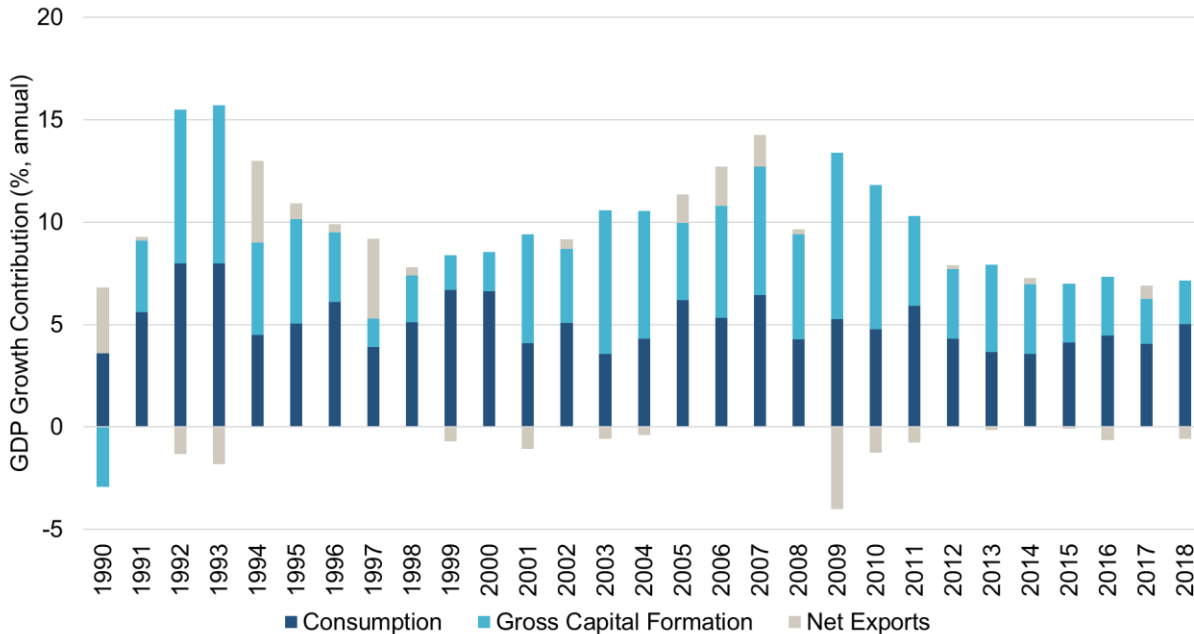


Source: the National Bureau of Statistics in China (NBS), LaSalle Investment Management, as of Q4 2018

**Figure 5: The service sector share of China GDP**
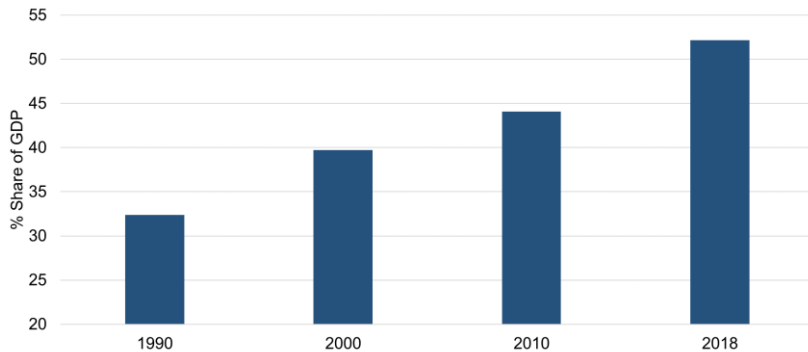


Source: the National Bureau of Statistics in China (NBS), LaSalle Investment Management, as of Q4 2018

**2) Rising income and consumption power**

Over the past decade, retail sales have been growing at a much faster pace than the overall economy[10]. The solid retail sales growth is supported by increasing income and rising

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[10] The historical annual average growth rate of real retail sales in China was 10.3% from 2009 to 2018, as compared to the historical annual average growth rate of real GDP of 7.9% during the same period. Data is sourced from Oxford Economics, as of December 2018.

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propensity to spend, as a result of the burgeoning middle class population. Oxford Economics projected that the number of households with a total income level of USD10,000 or more will increase from 29 million in 2005 to 425 million by 2025, which is an increase from 7.7% of households in 2005 to 82.6% by 2025 (Figure 6). In only twenty years, China is well on the way to having the largest middle class population of any country by a wide margin.

**Figure 6: Household Income by range in China (USD)**
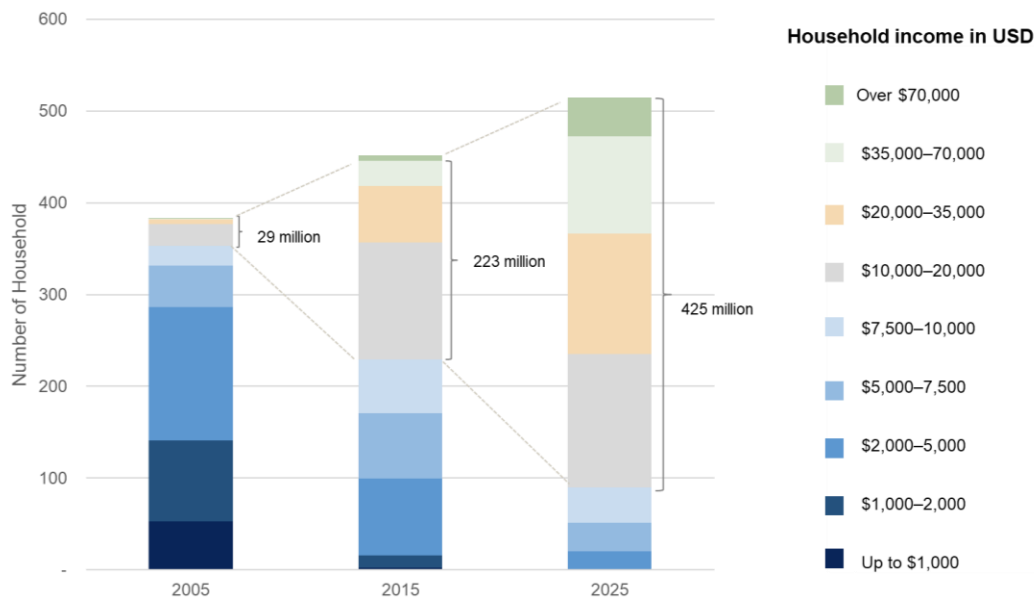


Source: Oxford Economics, as of December 2018

### 3)   Urbanization and the rising of middle class

The rising of middle class population contributes to the large share of consumer spending and the trend is expected to continue, supported by the government's ongoing urbanization initiatives. According to the *Thirteenth Five-Year Plan*[11], the Chinese government aims to increase the urbanization rate from 43% in 2018 to 45% by 2020[12]. Due to China's large population base, the targeted 200 basis point increase in the urbanization rate is expected to represent an additional 40.1 million of urban population (an additional 7% of 2018 urban population[13]). Beyond 2020, the National Development and Reform Commission (NDRC) targets to increase the registered urban population by 100 million (or an additional 17% of 2018 urban population)[14]. The fast pace of urbanization and an increasing urban population

[11] Source: China's master plan of social and economic development initiatives in 2016-20

[12] The urbanization rate is calculated based on registered urban population. Registered urban population refers to population with registered status within the city of residence. Under the household registration system, permanent residents with registered status (also known as Hukou) can access to social benefits such as retirement pension, education and health care.

[13] Source: the National Bureau of Statistics in China (NBS), as of December 2018

[14] Source: "To Promote The Settlement of 100 Million Urban Registered Population", the National Development and Reform Commission (NDRC), as of October 2018

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are expected to boost the country's total consumption through rising purchase power, ultimately benefitting the logistics demand.

**4) Rapid growth of e-commerce**

The growth of online retailing is another key driver of the logistics sector. Online retail sales in China have been undergoing impressive growth in recent years, as a result of the rapid development of e-commerce platforms, the rising internet penetration rate particularly through mobile devices, and the increasing acceptance to purchase online. China is currently the largest e-commerce market globally (Figure 7). Despite the fact that the country's internet penetration rate via fixed broadband was just 54.7%[15] at the end of 2018, in comparison to above 90% in many developed countries (Figure 8), mobile devices have become the primary channel to access the internet in China over the past few years. According to the Ministry of Industry and Information Technology, there were 1.2 billion internet users in China at the end of 2018[16], equivalent to 87.4% of the total population[17]. Among these internet users, only 690 million (58% of internet users) were online shoppers[18]. Even taking mobile device users into consideration, China's internet penetration rate is much lower than that of developed countries. Online retailing in China, which is easily accessible through mobile devices, has the potential to grow further going forward, as the internet penetration rate catches up to the norms in developed countries.

**Figure 7: Online retail sales**
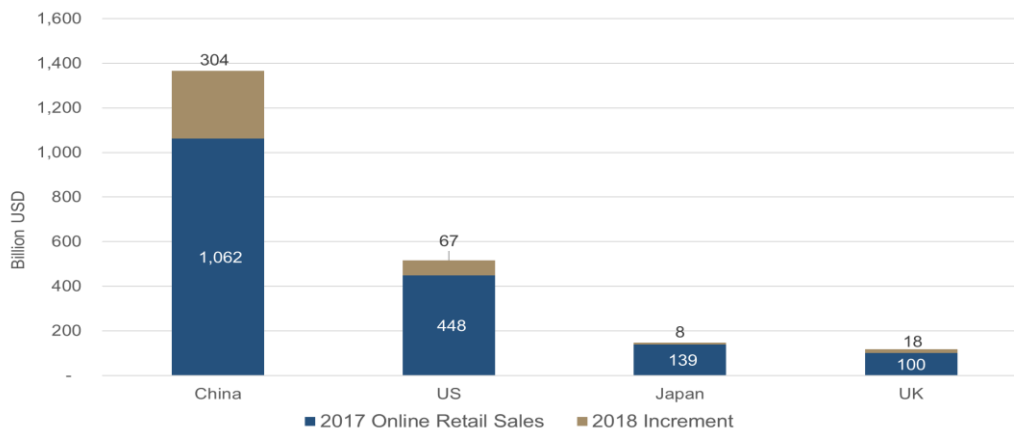


Source: Oxford Economics, eMarketer, The National Bureau of Statistics (NBS) in China, Japan Statistics Bureau, U.S. Census, UK Office for National Statistics, as of Q4 2018
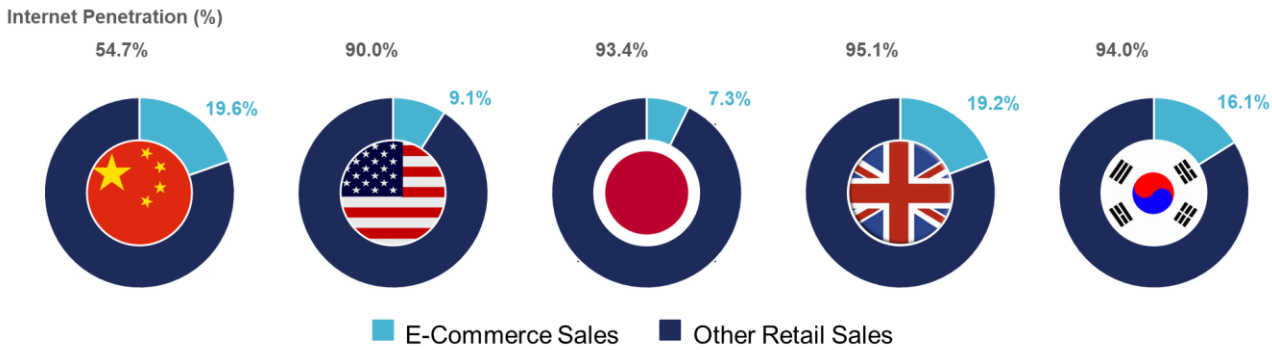
[15] Refers to fixed broadband internet users, as of year-end 2018

[16] News Bulletin of Ministry of Industry and Information Technology in January 2019

[17] The National Bureau of Statistics in China (NBS), as of December 2018

[18] eMarketer, as of December 2018

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**Figure 8: E-commerce sales as a percentage of total retail sales and internet penetration rate (2018)**

Internet Penetration (%)

54.7%            90.0%            93.4%            95.1%            94.0%

19.6%            9.1%            7.3%            19.2%            16.1%



■ E-Commerce Sales   ■ Other Retail Sales

Note: Internet penetration refers to fixed broadband internet subscribers as a percentage of total population.

Source: Internet penetration rates are sourced from Oxford Economics, as of December 2018; The e-commerce sales data is sourced from Oxford Economics, eMarketer, the National Bureau of Statistics in China (NBS), Japan Statistics Bureau, U.S. Census, UK Office for National Statistics, LaSalle Investment Management, as of Q4 2018

China's strong e-commerce growth is evidenced in the strong demand of modern warehouse space among e-commerce players. Approximately 30-40% of modern warehouse net take-up[19] in China was contributed by e-commerce players in 2017[20]. In particular, JD.com, one of the largest e-commerce players in China, expanded its modern warehouse take-up by more than 6.0 million square meters (sqm) across China between 2016 to 2018[21]. Alibaba, another online retailing giant, has a total of approximately 10.0 million sqm of warehouse space in operation as of Q3 2018, four times the size of the space it held in 2016[22]. Modern warehouse demand from e-commerce players is expected to remain strong going forward, led by large domestic e-commerce players including JD.com and Alibaba. Both companies identified the lack of large-scale leasable warehouse spaces in China as one of the key challenges in their businesses.

Logistics facilities play an important role in efficiently moving goods for e-commerce players across China. LaSalle believes that with the large population and economic base, coupled with the rapid urbanization, the rising middle class, and the rapid growth of online retail sales will underpin strong demand growth for modern warehouses going forward.

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[19] Net take-up refers to the change in occupied stock from 2017 to 2016, i.e. tenant demand.

[20] Source: Jones Lang LaSalle, as of 2017

[21] Source: JD.com's Q4 2018 Financial and Operational Highlights, as of Q4 2018

[22] Source: Alibaba's 2018 Investor Day, as of September 2018

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## SUPPORTIVE GOVERNMENT POLICY

The Chinese central government's commitment to transition China from an investment-led to a consumption-led economy has created a favorable policy environment for growth of the logistics sector. Since the *Twelfth Five Year Plan*[23] (2011-2015) was announced, the initiatives in boosting domestic consumption have played an important role in the promotion of e-commerce[24].

Provincial governments and local municipalities often fine-tuned or tailored the central government's policies to suit their respective local economies. Infrastructure development, regional economic integration and intra-regional trade promotion are the main areas of provincial- and municipality-level policy formulation and fine-tuning, which has benefited the logistics sector since the *Twelfth Five Year Plan*. Figure 9 highlights several local policy examples in Greater Shanghai, Greater Beijing and Pearl River Delta Bay Area, with new infrastructure masterplans, establishment of trade zones and regional economic integration policies. These policies, if effectively implemented, are expected to enhance China's regional connectivity and trade activities, ultimately enhance the demand of modern warehouse.

**Figure 9: Examples of policies favoring logistics sector**

| Geography | Infrastructure Development | Trade Policy | Regional Economic Integration |
|---|---|---|---|
| Greater Shanghai | In Jiaxing and Kunshan, the expansion of road and railway networks, connecting the Eastern China region with a total investment budget of RMB 9.6bn | Develop cross-border e-commerce hub | Incorporate the development of the Yangtze River Economic Zone into the Shanghai city master plan (2016-2035) |
| Pearl River Delta Bay Area | Increase infrastructure developments in the Greater Bay Area (including high speed rail, Hong Kong-Zhuhai-Macau bridge and additional industrial parks of up to 148,000 sqm in Hong Kong) | Establish Nansha Free Trade Zone | Establish the Greater Bay Area |
| Greater Beijing | Increase road and railway linkage to connect Beijing and Tianjin to the Xiong'an New Area[25] | Simplify administration procedures to facilitate international trades in Beijing and Tianjin | Establish the Xiong'an New Area |

Source: Local government websites, LaSalle Investment Management, as of December 2018

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[23] China's master plan of social and economic development initiatives for 2011-15

[24] For example, the enactment of policies supporting cross-border e-commerce

[25] Xiong'an New Area is designed to serve as a development hub for the Beijing-Tianjin-Hebei economic triangle, which could have preferential policies granted directly by the State Council. Unlike other "New Areas" in China, Xiong'an's development takes place under the direct oversight of the Central Committee of the Communist Party of China and the State Council

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In addition, the Chinese central government announced the One Belt One Road initiative ("OBOR") in 2013. The objective of OBOR is to expand China's infrastructure network, strengthen China's influence in Asia, MENA and Europe and ultimately better integrate the economy with the rest of the world. OBOR allows China to expedite the process of diversifying and enhancing trade partners, partially offsetting the negative impact of the U.S.-China trade war in the long run. Local governments within the OBOR network such as Guangzhou and Xi'an announced additional policies to promote the logistics industry in 2013[26]. Online retailers and third party logistics (3PL) operators have since expanded their presence along the OBOR network. For example, JD.com and Alibaba have both set up their Western China logistics headquarter in Xi'an in 2017 to capitalize on the growth of cross-border e-commerce with countries along OBOR. In the mid to long term, the increasing need for cross-provincial and cross-border goods transportation is expected to boost logistics demand, particularly in the central and western parts of China. LaSalle believes that central and local government policies will continue to provide incentives to 3PL and e-commerce players, leading to a sustainable growth in the logistics sector. LaSalle's China Logistics Target Market Analysis takes into consideration government policy at the national-, provincial- and municipality-level in market selection. Please refer to the Market Selection section in the later part of this paper for more details.


## LIMITED MODERN WAREHOUSE FACILITIES

China, despite being the largest e-commerce market in the world, lags its global peers on the total modern warehouse stock. The logistic sector is struggling to keep up with the country's large and expanding consumer base, despite the fact that supply has increased substantially in the past few years. China's modern warehouse stock per USD 1 million retail sales is less than one-fifth of the U.S. The gap is even more pronounced in terms of modern warehouse stock per USD 1 million of online retail sales (Figures 10 and 11).

The lack of modern warehouse stock has contributed to tight vacancies particularly in Tier 1[27] cities such as Beijing and Shanghai and well-located submarkets in recent years. This phenomenon is expected to persist in the medium term and demand is projected to spill over to satellite cities of Tier 1 cities.

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[26] Local government website, 2013-2018

[27] Tier 1 cities refer to Shanghai, Beijing, Guangzhou and Shenzhen. Tier 1 satellite cities include Shanghai satellite cities (Hangzhou, Jiaxing, Suzhou, Taicang, Changshu and Kunshan) and Pearl River Delta Bay Area satellite city (Dongguan).

**Figure 10: Modern warehouse stock per USD 1 million retail sales**
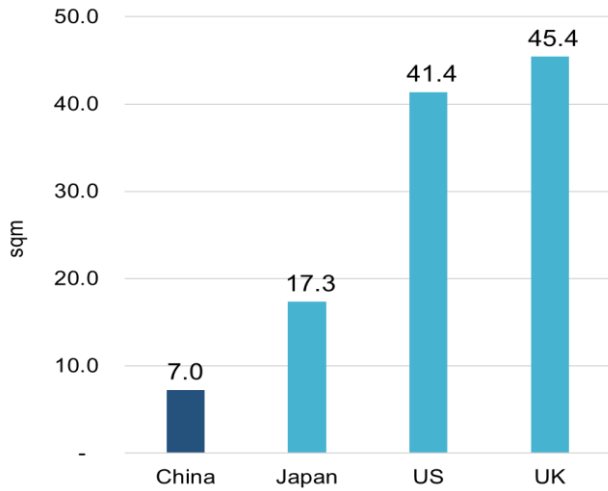


Sources: JLL, Oxford Economics, CBRE, LaSalle Investment Management, as of Q4 2018

**Figure 11: Modern warehouse stock per USD 1 million online sales**
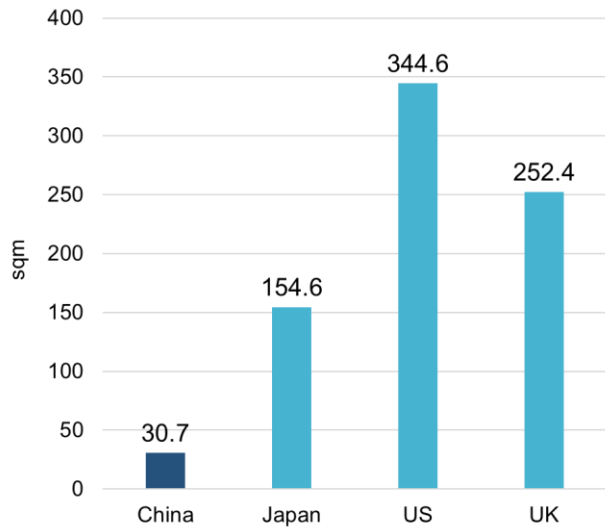


Sources: JLL, CBRE, Oxford Economics, eMarketer, The National Bureau of Statistics in China (NBS), Japan Statistics Bureau, U.S. Census, the Office of UK National Statistics, LaSalle Investment Management as of Q4 2018

On the supply side, the government continues to reinforce the importance of optimizing industrial land and improving the efficiency of under-utilized land parcels. In other words, industrial land usage is generally perceived as low value creation or under-utilization from the perspective of local governments. Therefore, local governments are planning to rigorously manage land sales quotas in *new districts, new cities* and *development zones*. Industrial land supply in China, especially in Tier 1 cites, has decreased steadily since 2010 (Figure 12). Despite industrial land supply rebounded in non-Tier 1 cities in the past two

years, partly due to city-specific one-off land auction processes[28] (Figure 12), land quota is expected to continue to tighten across the nation over the long term.

In summary, local governments are expected to continue to restrict the supply of logistics land in China, while demand remains strong as addressed in the earlier sections of this paper. All of these are expected to support the fundamental performance of the logistics sector going forward. The significant demand-supply imbalance represents an attractive opportunity for developing new logistics facilities.

**Figure 12: Industrial land supply in Tier 1 and major non-Tier 1 cities[29]**



Source: DBS, as of December 2018

## ATTRACTIVE RISK-ADJUSTED RETURN PROFILE AND IMPROVING CAPITAL MARKET LIQUIDITY

The institutionalization of China's logistics sector is still in its early stage as compared to office or retail sectors which started two to three decades ago. Modern warehouses were only developed in the past decade or so. Market transactions are still low in comparison to those of office properties[30]. Although market transparency has improved across the country,

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[28] The increase in industrial land supply in 2018 for non-Tier 1 cities is primarily due to Chongqing's land supply in support of its newly established Free Trade Zone

[29] Tier 1 cities include Beijing, Shanghai, Shenzhen and Guangzhou; major non-Tier 1 cities include Qingdao, Shenyang, Tianjin, Dalian, Nanjing, Hangzhou, Ningbo, Chengdu, Chongqing and Wuhan

[30] The total transaction volume for office properties in China from 2009 to 2018 was about USD$144 billion, compared to the total transaction volume for modern warehouses of USD$25 billion during the same period. The above data is based on independent reports sourced from Real Capital Analytics (RCA). The transaction volumes include income-generating office and modern warehouse properties (including flexible-purposed industrial properties), while exclude development site transactions. All data is as of December, 2018.

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it is still low in selective Tier 2[31] and lower Tier cities. Stabilized modern warehouses currently offer compelling yields with an average premium of 150-200 basis points above those of office assets[32], compensating for the liquidity and transparency risks.

Modern warehouse yields are also attractive in the global context. Office yields in China's Tier 1 cities are on par with those of other global gateway cities, while modern warehouse yields in China's Tier 1 cities are still higher than those of other global gateway cities such as London and New York (Figure 13). Modern warehouse yields in China's Tier 2 cities are even higher than those of Tier 1 cities[33]. Over the past five years, modern warehouse yields have compressed, but not to the extent seen in office and retail yields. As the logistics sector matures and transparency improves over time, LaSalle believes that the risk premium of China's modern warehouse assets will narrow, leading to further yield compression in the medium term.

**Figure 13: Modern Warehouse vs. Office yields in global gateway cities**
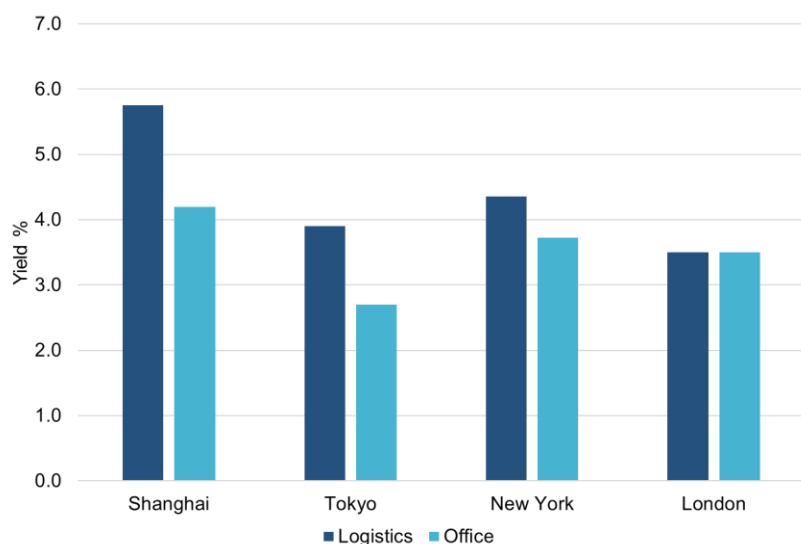


Note: Property yields are LaSalle's estimates of NOI yields[34]
Source: LaSalle Investment Management, as of Q4 2018

Modern warehouse developments are usually smaller in size with shorter construction periods than other property sectors in China. These characteristics allow investors to construct a geographically diversified portfolio in a relatively short period. Modern

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[31] Tier 2 cities include Chengdu, Chongqing, Nanjing, Shenyang, Tianjin, Wuhan, Xi'an, Changsha, Dalian, Jinan, Ningbo, Qingdao, Wuxi, Xiamen and Zhengzhou. Sourced from JLL, as of Q4 2018

[32] The yield premium of modern warehouses over those of office assets refers to the difference in property yields of modern warehouses and office properties in select global gateway cities, based on LaSalle's estimates, as of Q4 2018.

[33] Based on LaSalle's estimates, modern warehouse yields in Tier 2 cities were about 50bps higher than those of Tier 1 cities, as of Q4 2018.

[34] Property yields refer to net operating income excluding all operation expenses, property taxes and incentives, and including profits on common area management fees assuming 100% occupancies on the property level, LaSalle Investment Management, as of Q4 2018.

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warehouse development in Tier 1 and Tier 2 cities generate around 7.0 - 8.25% yield-on-cost, offering 180-230 basis point of spread above those of stabilized properties (Figure 14). In comparison, Japan is a mature logistics market. China modern warehouse development yields and stabilized property yields offer favorable spreads above those of Japan.

Moreover, liquidity and transparency of China's industrial market has improved substantially over time, as transaction volumes in the sector increased. China's industrial transaction volumes grew at an annual average rate of 34% from 2013 to 2018, representing a cumulative growth rate of 333% over the same period. Domestic investors are dominant buyers of industrial properties in recent years (Figure 15). Looking forward, this trend is expected to continue, as Chinese insurance companies and other institutional investors continue to increase their allocation to the sector partly due to the growth potential and the attractive yields addressed above. Additionally, new and growing pools of capital globally are expected to increase their target allocation to China modern warehouses as the sector matures.

**Figure 14: Development yields vs. market yields for stabilized properties[35]**
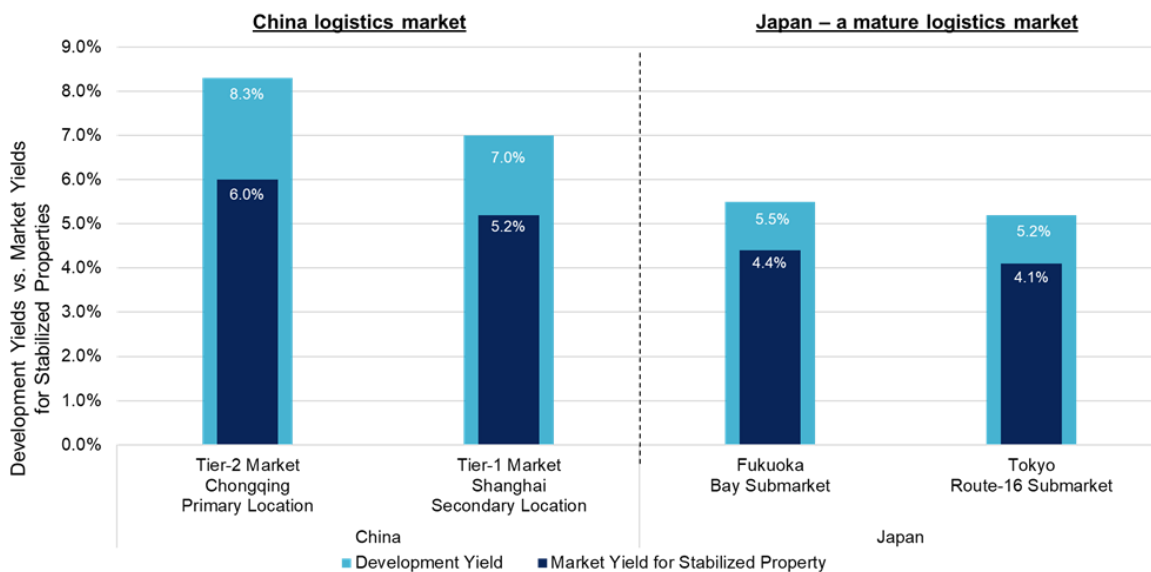


Source: Jones Lang LaSalle, LaSalle Investment Management, as of Q4 2018

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[35] Development yield refers to stabilized yield on total development cost. Total development cost includes land, construction and soft costs. Yields in China are calculated based on net operating income excluding all operation expenses, property taxes and incentives in China. Yields in Japan are calculated based on net operating income excluding all operation expenses, property taxes and incentives, and including profit on common area management fees assuming a 100% occupancy. Development yields are estimated by LaSalle Investment Management as of Q4 2018.

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**Figure 15: China industrial transaction volume[36]**
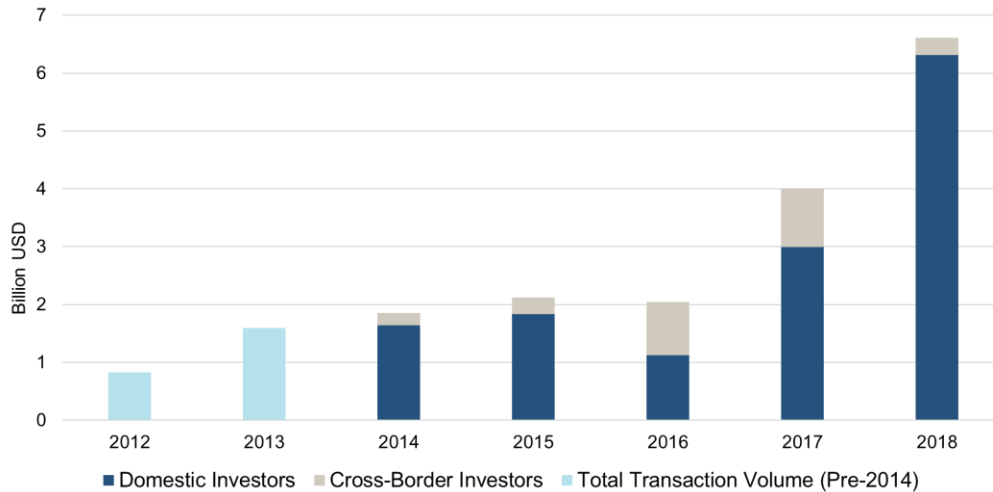


Source: Real Capital Analytics (RCA), as of December 2018

## MARKET SELECTION

Market and submarket selection is extremely important, since China is a diverse country with cities at different development stages. The market environment for logistics developments in Tier 1 cities is more mature than that of lower tier cities, evidenced in the share of the service sector of their respective metro GDP and disposable income per capita (Figures 16 and 17). However, selected lower tier cities are expected to benefit more from the faster pace of urbanization, higher income growth, and the rapid growth of e-commerce than Tier 1 cities. LaSalle believes that there is a host of opportunities in different geographic locations within this vast and diverse country. The sector remains structurally undersupplied in China, when compared to the mature logistics markets in the U.S. or Japan. However, supply is increasing in select markets/submarkets (please see the China Logistics TMA Back-testing section below for more details), which requires close monitoring at the local level and experienced local leasing expertise. Therefore, market and submarket selection is increasingly important.

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[36] The above data is based on Real Capital Analytics' (RCA) independent reports on transaction volumes of all income generating industrial properties, including warehouse and flexible-purposed industrial properties. Transactions of development sites are excluded, As of December 2018.

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**Figure 16: Service sector share of the total GDP**
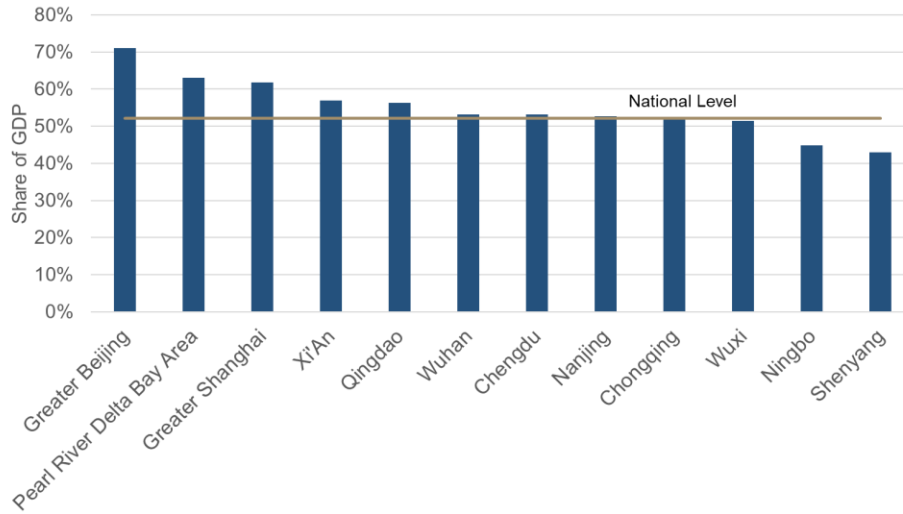


**Figure 17: Disposable income per capita**
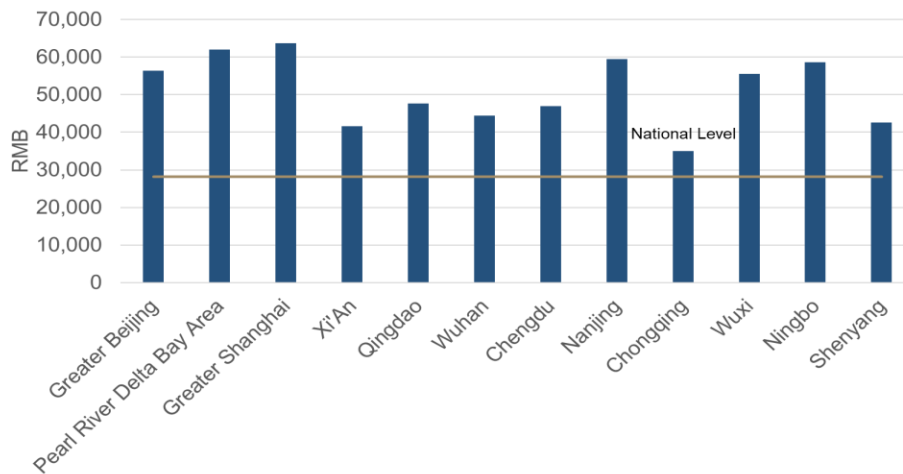


Note: Greater Shanghai refers to Shanghai, Hangzhou, Jiaxing, Suzhou, Taicang, Changshu and Kunshan; Greater Beijing refers to Beijing and Tianjin; Pearl River Delta Bay Area refers to Shenzhen, Guangzhou and Dongguan
Source: The National Bureau of Statistics in China (NBS), as of December 2018

For the reasons above, LaSalle has developed a proprietary tool, China Logistics Target Market Analysis (TMA) to evaluate the attractiveness of 60 major cities on a risk-adjusted basis. The TMA was conducted in two stages, incorporating a total of 33 historical and forward-looking indicators. Since it is challenging to forecast market demand (i.e. absorption) and there is no reliable market demand forecast readily available, Stage I of LaSalle's China Logistics TMA filtered the top 36 out of 60 markets for large demand base, favorable growth, transportation connectivity and government policy support. Stage II of the analysis filtered the top 12 out of 36 markets for relatively stronger logistics occupier and capital market fundamentals. Please refer to Figure 18 for more details on LaSalle's China Logistics TMA model framework.

**Figure 18: LaSalle China Logistics TMA model framework**
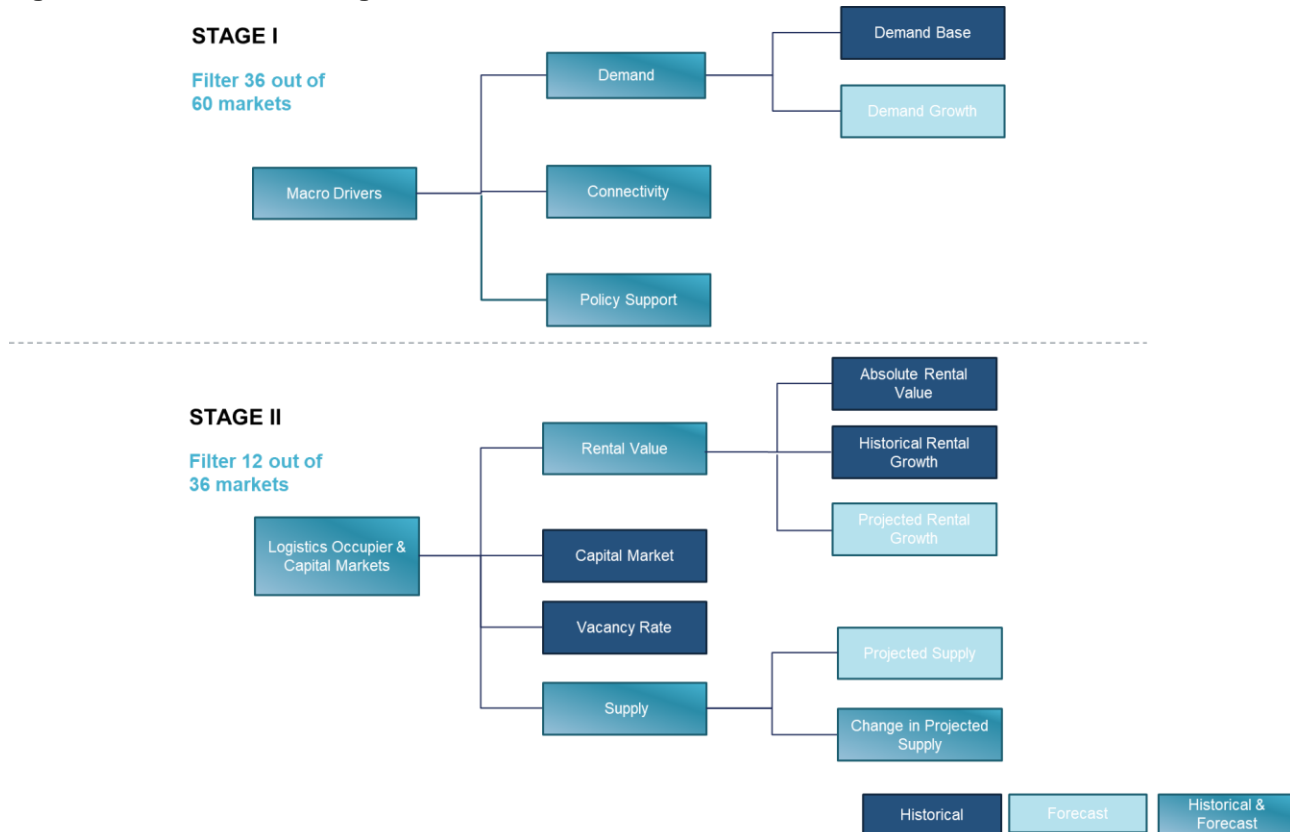


Source: LaSalle Investment Management, as of Q1 2019

The top 12 LaSalle China Logistics TMA markets include Tier 1 cities and Tier 1 satellites, and selective Tier 2 cities. Please refer to Figure 19 for the list of LaSalle China Logistics TMA markets. It is imperative for logistics facilities to be accessible to large population base and strong consumption power. The top 12 LaSalle China Logistics TMA markets alone account for 16% of China's total population and generate more than 30% of China's total GDP. The Top 3 market clusters in LaSalle China Logistics TMA (Greater Shanghai, Greater Beijing and Pearl River Delta Bay Area) account for 61% of the total modern warehouse stock in China.

Tier 1 cities together with their major satellite cities are regional economic and transportation centers, with deep consumer base and mature industrial clusters. Selective Tier 2 cities that rank high in LaSalle China Logistics TMA fare well in at least half of the following indicators: demand base and growth, infrastructure/transportation connectivity, policy support, historical and projected rental growth, capital market appreciation, institutional developer and investor presence, existing vacancy risk, and the projected supply risk. All of these demonstrate the necessary macro drivers, healthy logistics occupier, and capital market fundamentals to establish convictions in acquiring or developing logistics assets (Figure 20). In summary, China is a highly diverse country with cities of different levels of maturity and real estate markets of various fundamentals. LaSalle believes that top-down market analysis should be combined with bottom-up asset due diligence and execution to ensure prudent investment selections on a risk-adjusted return basis.

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**Figure 19: LaSalle China Logistics Target Market Analysis (TMA) ranking**
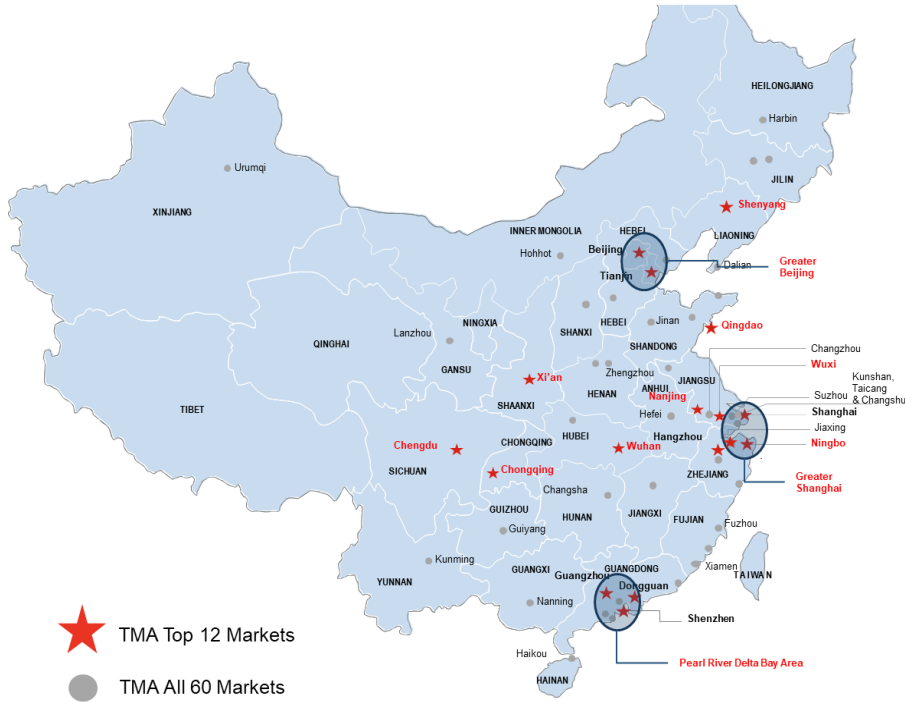


**China Logistics TMA Score**

| Rank | Markets |
|------|---------|
| 1 | Greater Shanghai |
| 2 | Greater Beijing |
| 3 | Pearl River Delta Bay Area |
| 4 | Nanjing |
| 5 | Chengdu |
| 6 | Wuhan |
| 7 | Ningbo |
| 8 | Xi'An |
| 9 | Qingdao |
| 10 | Shenyang |
| 11 | Chongqing |
| 12 | Wuxi |

Note: Greater Shanghai refers to Shanghai, Hangzhou, Jiaxing, Suzhou, Taicang, Changshu and Kunshan; Greater Beijing refers to Beijing and Tianjin; Pearl River Delta Bay Area refers to Shenzhen, Guangzhou and Dongguan
Source: LaSalle Investment Management as of Q1 2019

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**Figure 20: Favor large demand base with strong logistics market fundamentals**
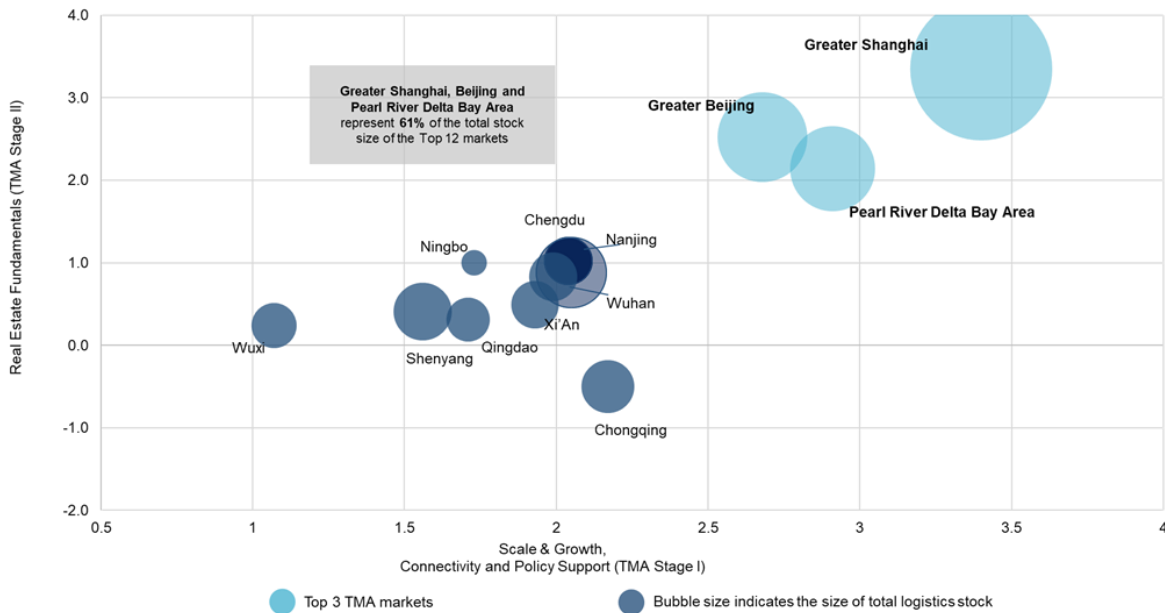


Note: Greater Shanghai refers to Shanghai, Hangzhou, Jiaxing, Suzhou, Taicang, Changshu and Kunshan; Greater Beijing refers to Beijing and Tianjin; Pearl River Delta Bay Area refers to Shenzhen, Guangzhou and Dongguan
Source: LaSalle Investment Management as of Q1 2019

## LASALLE CHINA LOGISTICS TMA BACK-TESTING

Since supply risk is a key area of concern in selective markets/submarkets, LaSalle carried out back-testing exercises on the supply projection of our data vendor (JLL), in order to improve the TMA result, aid market selection and find conviction in underwriting assumptions. The back-testing result indicates that JLL's supply forecast was overestimated for the following next year (see Figure 21), primarily due to development delays.

From the perspective of market selection, LaSalle believes that demand analysis is as important as supply analysis, as markets with strong demand are better positioned to capture the potential vacancy upside from the supply overestimation. Following the back-testing exercise, LaSalle has stronger conviction in our top 12 TMA markets where demand base and growth, connectivity, policy support and current logistics fundamentals are ranked high.

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**Figure 21: TMA markets actual vs. 1-year forecast supply**

■ 2018 Projected Supply (Forecast conducted in Q4 2017)  ■ 2018 Actual Supply
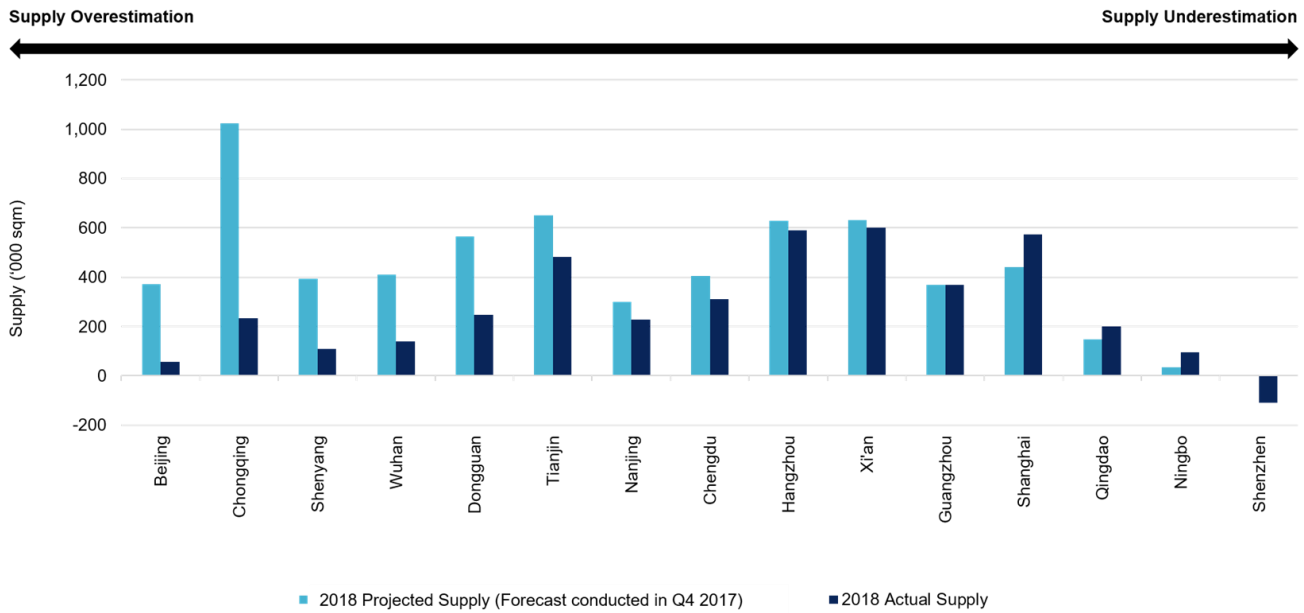
Source: JLL, LaSalle Investment Management, as of Q4 2018

**Figure 22: TMA markets actual vs. 1-Year forecast vacancy**



■ Q4 2018 Projected Vacancy (Forecast conducted in Q4 2017)  ■ Q4 2018 Vacancy Rate (Actual)

Source: JLL, LaSalle Investment Management, as of Q4 2018

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