

# The availability and usefulness of real estate data in eastern Asia - a user's perspective

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## Executive summary

The challenges of sourcing useful real estate data in eastern Asia are rather similar to that in other parts of the world, ie, transparency of the data collection process, which includes consistency, reliability, adequacy and timeliness. Users of these data need to know its strengths and weaknesses. More often than not, users have to use appropriate proxies in line with relevant research questions to help them make a call on the market. The risks of using spurious data and thus spurious research findings can be mitigated by the proper sourcing and usage of relevant data. This paper aims to help users mitigate development and investment risks by identifying good sources of useful data in Singapore, Kuala Lumpur and Shanghai, as part of eastern Asia.

## 1. Eastern Asia

Eastern Asia is defined as East and Southeast Asia. According to the Asian Development Bank, this region comprises China (including Hong Kong and Taiwan), South Korea, and the Southeast Asian economies like Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam. This region houses about two billion people (one third of the world's population), occupies 14 million sq km (3% of world's land area), and produced about 20% of the world's GDP in 2000. Its GDP grows at an average of 6.4%, faster than the world's average of 4.8% in 2000. In addition, this region is likely to produce four of the seven world mega cities of the near future.

### Rising mega cities<sup>1</sup>

- Beijing (China)
- Delhi (India)
- Guangzhou (China)
- Mumbai (India)
- Santiago (Chile, Latin America)
- Shanghai (China)
- Shenzhen (China)

## 2. Real estate data

Real estate market analysis is used to provide potential developers and investors a certain level of comfort before embarking on the development or investment in a particular area within a given time frame. It provides the bigger picture perspective and thus would cover the economy of the area, the supply, demand, rental and yield of the real estate sector in question.

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<sup>1</sup> Sources: JLL; CapitaLand Research.

After the real estate market analysis, the developer or investor could drill down to the project-level analysis. This would comprise cash-flow and benchmark analysis of the particular project vis-à-vis competitors.

Real estate data is required in both real estate market analysis as well as project analysis. This paper will focus on the real estate market analysis perspective to highlight the challenges in the availability and usefulness of real estate data in three selected cities in eastern Asia ie, Singapore, Kuala Lumpur (Malaysia) and Shanghai (China).

Real estate market analysis requires the following types of variables. The list is not exhaustive but it helps to highlight the challenges of sourcing and usage of such data.

Table 1  
Types of data

No	Generic category	Variables
1	Economy	GDP, Inflation, Retail sales index, FDI, Unemployment rate, Interest rate, Exchange rate, Forecast of economic indicators, Sovereign credit risks
2	Politics	Political risks
3	Demography	Population size, Per capita income, Household size, Household income, Living space per capita, Demographic forecasts
4	Real estate information	Existing stock, Historical and forecast of supply, Demand, Vacancy, Rental, Yields and total returns, List of sales transactions and buyers' profile

### 3. Asking relevant research questions

Before we begin any collection of data, it is vital to ask relevant research questions. Relevant questions will ensure the following:

- (a) Discipline in data collection - types and amount of data;
- (b) Appropriateness of analytical methodologies and tools;
- (c) Focus on the agreed research roadmap; and
- (d) Efficiency and effectiveness in the research process.

Market researchers are tempted to collect as much information as possible just in case they are needed at a later stage. However, in practice, there is a constraint in resources like time and money. Hence, starting with the relevant question will help in the collection of the relevant types and amount of information. It is always important to formulate the research questions together with the clients to ensure there is understanding and acceptance. Otherwise, the entire research process might be a waste of resources.

Understanding the research question will also help the researcher to source data that could be used in appropriate analytical methodologies. Also, certain qualitative information, such as business sentiment, needs to be quantified before analysis.

### 4. Usefulness of data

*Secondary data sources:* Most real estate market analysis in eastern Asia use secondary data. Therefore, the users of such data need to test the usefulness based on their consistency, reliability, adequacy and timeliness. If data collected do not pass these tests, then the usefulness of such data would be limited. If the analysts ignore the impediments of the data, the research findings might be flawed or spurious.

*Consistency:* Consistency implies the same definition of data used throughout a particular time-series. If the definition is changed but ignored, the time-series will be flawed. Hence, it is important for analysts to understand the definitions and compare like with like.

*Reliability:* Reliability refers to reproducibility or replication of estimates. If the analyst uses two or more techniques to measure the same value (ie, population) and the estimates are close together, the estimates are judged to be reliable. Reliability also implies accuracy and validity. Both accuracy and validity of data should be checked for each group of data being studied. The data must reflect accurately what is taking place. Validation is the process of checking to make sure proper procedures were followed in collecting, organising, and analysing the data. Data that have been validated are considered more accurate because more is known about their origin and characteristics. Consequently, more confidence can be placed in the use of validated data.

*Adequacy:* Adequacy of data refers to the length of the time-series. If the time-series is too short, it is difficult to understand the historical market behaviour and thus difficult to make reasonable forecasts.

*Timeliness:* The data must reflect the time period that governs the analysis. If current demand is the issue, then 2000 take-up rate is not timely.

## **5. Challenges faced in eastern Asia**

The three cities chosen as examples are Singapore, Kuala Lumpur (Malaysia) and Shanghai (China). Singapore is the best so far as the availability and usefulness of public data is concerned.

### **5.1 Singapore**

Singapore is a city-state. Hence, the country data is equivalent to the city-specific data. Economic, political and real estate data produced by the public agencies, such as the Department of Statistics (DOS) and the Urban Redevelopment Authority (URA) are consistent, adequate, reliable, and timely. A summary of the availability and usefulness of data is shown in Appendix 1. However, data pertaining to demography (eg, household size, household income, living space per capita) are produced during the census of population, which has a five-year interval. Nevertheless, such data are not highly volatile, and thus an analyst could still use the data with a reasonable level of comfort.

Even though data in the public domain are good, real estate data for specific market segment still have to be sourced from private research houses. Examples are supply, demand, rentals, capital values and yields of investment grade office, retail, residential and industrial space. The performance of specific market segments are tracked differently by different research houses. Hence, the analyst needs to be comfortable with the basket of goods used by the research house and the method by which data are collected before sourcing the data for analysis.

An example of the appropriate market segment is this. If the analyst were to focus on prime retail shopping space, he needs to know if the basket of goods used by the research house accurately reflects the prime shopping space in the Orchard Road belt and distinguish that from the prime retail suburban malls next to MRT stations in the suburb. If the research house only tracks the performance of the Orchard Road prime retail malls, the data might not be useful because it would have missed out an important market segment, ie, prime suburban, which attracts much investment interest in Singapore.

Therefore, analysts need to be careful when comparing different time series sourced from different research houses.

### **5.2 Kuala Lumpur (Malaysia)**

Kuala Lumpur (KL) is the capital city of Malaysia, and the only city in Malaysia worth noting so far as international real estate investors are concerned. However, there are no city-specific data available in the public domain. Hence, analysts must use country-wide or state-wide economic and demographic data to function as proxy to the KL city-specific performance trend. This is far from ideal.

To mitigate this problem, analysts could source KL city-specific real estate data from private research houses. Again, the analyst has to understand the definitions of such data and need to ascertain if they reflect the market segment accurately. A summary of the availability and usefulness of the data for the KL real estate market is shown in Appendix 2.

### **5.3 Shanghai (China)**

The Chinese government knows the challenges in data collation and it has taken steps to adopt better methodologies. But this could take a long time. Hence, analysts need to use proxies carefully.

Real estate market analysis of Shanghai needs to use Shanghai-specific data. This is available in the Shanghai Municipal Statistics Bureau Shanghai Statistical Yearbook. A summary of the availability and usefulness of data used for Shanghai real estate market analysis is shown in Appendix 3.

Like all the other cities, data on specific market segments can be sourced from private research houses. But the analyst has to know the basket of goods that reflect the market segment. This is particularly important in Chinese cities, like Shanghai. For example, the market segment for international grade 'A' office should not be confused with buildings that are merely local grade "A". A mixture of these will dilute the performance of the buildings defined as international grade "A". The analyst might even make a wrong judgment call when recommending to clients to buy or sell.

Furthermore, in such a big city like Shanghai, the analyst needs to know the locations of the buildings within the basket of goods reflecting the market segment. If the analyst focuses on the entire Shanghai city, and the basket of goods only reflects the buildings in Puxi and not in Pudong, the analyst must know that his research findings are based on the generalisation of the performance of buildings within Puxi and applied generally across Shanghai. He needs to highlight this caution to his clients.

### **5.4 Inter-city comparison**

The greater challenge comes when the analyst needs to compare real estate performances across cities in eastern Asia. For example, how do the performances of the office market in Shanghai compared with that in Hong Kong SAR and Singapore? Not only must the analyst ensure that he is using similar definitions of the market segment for comparison, he needs to ensure that the computations of the city-specific data are treated similarly. Otherwise, his research findings will be spurious.

So far, there is only one research house that meets the strict requirements of data comparability across cities in eastern Asia. This set of data is expensive and is produced by the Jones Lang LaSalle Real Estate Intelligence Service. The definitions of their data are shown in Appendix 4. For confidentiality, their data cannot be provided in this paper.

## **6. Conclusion - the world of second best**

There is pervasive information asymmetry in real estate, that is to say, analysts are bombarded with this challenge of incomplete information. Usually, practitioners deal with the issues and situations the best they can, and move on. Real estate is a unique, heterogeneous, long-lived asset involving cross-disciplinary fields. As fundamental real estate researchers are grafting well-established principles in information economics with the unique features in real estate so as to shed new light on extant issues, practitioners will try to source and use consistent, reliable, adequate and timely data to help them make a call on the market as best as they can. As for eastern Asia, there are reliable sources of useful real estate data. However, the analyst needs to do due diligence to ensure the data reflects the market segments he is dealing with.

## Appendix 1(a): Singapore

Variables	Main source of information	Usefulness			
		C	A	R	T
<b><i>Economic</i></b>					
GDP	Department of Statistics, Singapore (Official website)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inflation		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Retail sales index		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Foreign direct investment	Economist Corporate Network (Regional Strategic Quarterly Forecast)	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
Unemployment rate	Ministry of Manpower, Singapore (Official website)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interest rate	Monetary Authority of Singapore (Official website)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Exchange rate		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Forecast of economic indicators	Economist Corporate Network (Regional Strategic Quarterly Forecast & Asia-Pacific Executive Brief)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sovereign credit risk indicators eg foreign debt/GDP, reserves/imports and Moody/ S&P ratings	UBS Warburg (Asian Economic Indicators)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b><i>Political</i></b>					
Political risks	Economist Corporate Network (Regional Strategic Quarterly Updates, Asia-Pacific Economic Brief & Country Monitor)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b><i>Demographic</i></b>					
Population size	Department of Statistics, Singapore (Official website)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Per capita income	Department of Statistics, Singapore (Yearbook of Statistics)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Household size	Department of Statistics, Singapore (Census of Population 2000)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Household income		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Living space per capita		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Forecast of demographic indicators	Asian Demographics (Weekly Demographic Insights)	<input type="checkbox"/>		<input type="checkbox"/>	

**Appendix 1(a):  
Singapore (cont)**

Variables	Main source of information	Usefulness			
		C	A	R	T
<b>Real estate market information</b>					
<b>All sectors (Residential, Office, Retail &amp; Industrial)</b>					
Existing stock	Urban Redevelopment Authority, Singapore (Real Estate Information System - Web-based)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Historical supply		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Historical demand		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Historical vacancy		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Historical rental		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Historical price/capital value		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Historical yields	CB Richard Ellis (Singapore Real Estate Quarterly Research Report)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Potential supply (except residential)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Office (Grade "A")</b>					
Historical and forecast of demand, supply, vacancy, rental, capital value, yields and total returns	Jones Lang LaSalle (Real Estate Intelligence Services)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Residential</b>					
Potential supply	Urban Redevelopment Authority, Singapore (Real Estate Information System - Web-based)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
List of sales transactions		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Buyers' profile - nationality		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Note: Criteria used to measure the usefulness of information sources are Consistency (C), Reliability (R), Adequacy (A) and Timeliness (T).					

## Appendix 1(b): Sources for information on Singapore

Economic indicators	<p><i>Websites</i></p> <ul style="list-style-type: none"> <li>– Department of Statistics, Singapore (<a href="http://www.singstat.gov.sg">www.singstat.gov.sg</a>)</li> <li>– Ministry of Manpower, Singapore (<a href="http://www.mom.gov.sg">www.mom.gov.sg</a>)</li> <li>– Ministry of Trade &amp; Industry, Singapore (<a href="http://www.mti.gov.sg">www.mti.gov.sg</a>)</li> <li>– Ministry of Finance, Singapore (<a href="http://www.mof.gov.sg">www.mof.gov.sg</a>)</li> <li>– Monetary Authority of Singapore (<a href="http://www.mas.gov.sg">www.mas.gov.sg</a>)</li> <li>– Singapore Tourism Board (<a href="http://www.stb.gov.sg">www.stb.gov.sg</a>)</li> <li>– Asian Development Bank (<a href="http://www.adb.org">www.adb.org</a>)</li> <li>– The World Bank Group (<a href="http://www.worldbank.org">www.worldbank.org</a>)</li> <li>– International Monetary Fund (<a href="http://www.imf.org">www.imf.org</a>)</li> <li>– United Nations Conference on Trade and Development (<a href="http://www.unctad.org">www.unctad.org</a>)</li> </ul> <p><i>Publications</i></p> <ul style="list-style-type: none"> <li>– Ministry of Trade &amp; Industry (Economic Survey of Singapore, Quarterly)</li> <li>– Monetary Authority of Singapore (Macroeconomic Review, Biannually)</li> <li>– Economist Corporate Network (Regional Strategic Quarterly Forecast &amp; Asia Pacific Executive Brief)</li> <li>– UBS Warburg (Asian Economic Indicators)</li> </ul> <p><i>Other information providers (Subscription basis)</i></p> <ul style="list-style-type: none"> <li>– Bloomberg LP</li> <li>– Thomson ONE Analytics (contains analyst reports on Singapore economy)</li> <li>– Factiva (contains information from newspaper, magazines and reports)</li> </ul>
Politics	<p><i>Websites</i></p> <ul style="list-style-type: none"> <li>– Institute of Policy Studies (<a href="http://www.ips.org.sg">www.ips.org.sg</a>)</li> </ul> <p><i>Publications</i></p> <ul style="list-style-type: none"> <li>– Economist Corporate Network (Regional Strategic Quarterly Updates, Asia-Pacific Economic Brief &amp; Country Monitor)</li> </ul>
Demographic indicators	<p><i>Websites</i></p> <ul style="list-style-type: none"> <li>– Department of Statistics, Singapore (<a href="http://www.singstat.gov.sg">www.singstat.gov.sg</a>)</li> <li>– Asian Development Banks (<a href="http://www.adb.org">www.adb.org</a>)</li> </ul> <p><i>Publications</i></p> <ul style="list-style-type: none"> <li>– Department of Statistics, Singapore (Yearbook of Statistics &amp; Census of Population 2000)</li> <li>– Asian Demographics (Weekly Demographic Insights)</li> <li>– Economist Corporate Network (Regional Strategic Quarterly Forecast)</li> </ul>
Real estate market information	<p><i>Websites</i></p> <ul style="list-style-type: none"> <li>– Urban Redevelopment Authority of Singapore (<a href="http://www.ura.gov.sg">www.ura.gov.sg</a>)</li> <li>– Housing &amp; Development Board, Singapore (<a href="http://www.hdb.gov.sg">www.hdb.gov.sg</a>)</li> <li>– Central Provident Fund Board, Singapore (<a href="http://www.cpf.gov.sg">www.cpf.gov.sg</a>)</li> <li>– Real Estate Developers' Association of Singapore (<a href="http://www.redas.com">www.redas.com</a>)</li> <li>– CB Richard Ellis (<a href="http://www.cbre.com.sg">www.cbre.com.sg</a>)</li> <li>– Chesterton International (<a href="http://www.chesterton.com.sg">www.chesterton.com.sg</a>)</li> <li>– Colliers International (<a href="http://www.colliers.com/singapore">www.colliers.com/singapore</a>)</li> <li>– Cushman &amp; Wakefield (<a href="http://www.cushwakeasia.com">www.cushwakeasia.com</a>)</li> <li>– DTZ Debenham Tie Leung (<a href="http://www.dtz.com.sg">www.dtz.com.sg</a>)</li> </ul>

**Appendix 1(b):  
Sources for information on Singapore (cont)**

Real estate market information (cont)	<p><i>Websites (cont)</i></p> <ul style="list-style-type: none"><li>– Jones Lang LaSalle (<a href="http://www.joneslanglasalle.com.sg">www.joneslanglasalle.com.sg</a>)</li><li>– Jones Lang LaSalle Hotels (<a href="http://www.joneslanglasallehotels.com">www.joneslanglasallehotels.com</a>)</li></ul> <p><i>Publications</i></p> <ul style="list-style-type: none"><li>– Urban Redevelopment Authority of Singapore (Property Market Information)</li><li>– CB Richard Ellis (Singapore Real Estate Research Report, Quarterly)</li><li>– Jones Lang LaSalle (Singapore Quarterly Property Market Review, Singapore Property Market Monitor, Asia Pacific Property Digest &amp; Asia Pacific Property Investment Guide)</li></ul> <p><i>Other information providers (Subscription basis)</i></p> <ul style="list-style-type: none"><li>– Jones Lang LaSalle (Real Estate Intelligence Services)</li><li>– Thomson ONE Analytics (contains analysts' reports on property sector)</li></ul>
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**Appendix 2(a):  
Malaysia (Kuala Lumpur)**

Variables	Main source of information	Usefulness			
		C	A	R	T
<b><i>Economic</i></b>					
GDP	Asian Development Bank (Key Indicators 2003)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inflation		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unemployment rate		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
External trade		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Exchange rate		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interest rate	Bank Negara Malaysia (Official website)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Foreign direct investment	Economist Corporate Network (Regional Strategic Quarterly Forecast)	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
Forecast of economic indicators	Economist Corporate Network (Regional Strategic Quarterly Forecast & Asia-Pacific Executive Brief)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Non-performing loan	Ernst & Young (Non-Performing Loan Report: Asia 2002) - Ad hoc report			<input type="checkbox"/>	<input type="checkbox"/>
Sovereign credit risk indicators eg foreign debt/GDP, reserves/imports and Moody/S&P ratings	UBS Warburg (Asian Economic Indicators)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b><i>Political</i></b>					
Political risks	Economist Corporate Network (Regional Strategic Quarterly Updates, Asia-Pacific Executive Brief & Country Monitor)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b><i>Demographic</i></b>					
Population size	Department of Statistics, Malaysia (Official website)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Demographic characteristics (Age distribution, etc)	Department of Statistics, Malaysia (Population & Housing Census 2000)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Forecast of demographic indicators	Asian Demographics (Weekly Demographic Insights)	<input type="checkbox"/>		<input type="checkbox"/>	

**Appendix 2(a):  
Malaysia (Kuala Lumpur) (cont)**

Variables	Main source of information	Usefulness			
		C	A	R	T
<b><i>Real estate market information</i></b>					
<b><i>Investment grade office &amp; luxury residential</i></b>					
Historical and forecast of demand, supply, vacancy, rental, capital value, yields and total returns	Jones Lang LaSalle (Real Estate Intelligence Services)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b><i>Luxury residential</i></b>					
Affordability index	Straits-GK Goh Research Sdn Bhd (Analysts' reports on Malaysian residential market)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Note: Criteria used to measure the usefulness of information sources are Consistency (C), Reliability (R), Adequacy (A) and Timeliness (T).					

## Appendix 2(b): Sources for information on Malaysia (Kuala Lumpur)

Economic indicators	<p><i>Websites</i></p> <ul style="list-style-type: none"> <li>– Department of Statistics, Malaysia (<a href="http://www.statistics.gov.my">www.statistics.gov.my</a>)</li> <li>– Ministry of Domestic Trade &amp; Consumer Affairs (<a href="http://www.kpdnhq.gov.my">www.kpdnhq.gov.my</a>)</li> <li>– Malaysian Industrial Development Authority (MIDA) (<a href="http://www.mida.gov.my">www.mida.gov.my</a>)</li> <li>– Bank Negara Malaysia (<a href="http://www.bnm.gov.sg">www.bnm.gov.sg</a>)</li> <li>– Asian Development Bank (<a href="http://www.adb.org">www.adb.org</a>)</li> <li>– The World Bank Group (<a href="http://www.worldbank.org">www.worldbank.org</a>)</li> <li>– International Monetary Fund (<a href="http://www.imf.org">www.imf.org</a>)</li> <li>– United Nations Conference on Trade and Development (<a href="http://www.unctad.org">www.unctad.org</a>)</li> </ul> <p><i>Publications</i></p> <ul style="list-style-type: none"> <li>– Department of Statistics, Malaysia (Monthly Statistical Bulletin, Yearbook of Statistics &amp; Business Expectation Survey of Limited Companies)</li> <li>– Bank Negara Malaysia (Monthly Statistical Bulletin, Quarterly Bulletin &amp; BNM Annual Report)</li> <li>– Economist Corporate Network (Regional Strategic Quarterly Forecast &amp; Asia Pacific Executive Brief)</li> <li>– UBS Warburg (Asian Economic Indicators)</li> <li>– Ernst &amp; Young (Non-Performing Loan Report: Asia 2002)</li> </ul> <p><i>Other information providers (Subscription basis)</i></p> <ul style="list-style-type: none"> <li>– Bloomberg LP</li> <li>– Thomson ONE Analytics (contains analyst reports on Malaysia economy)</li> <li>– Factiva (contains information from newspaper, magazines and reports)</li> </ul>
Politics	<p><i>Publications</i></p> <ul style="list-style-type: none"> <li>– Economist Corporate Network (Regional Strategic Quarterly Updates, Asia-Pacific Economic Brief &amp; Country Monitor)</li> </ul>
Demographic indicators	<p><i>Websites</i></p> <ul style="list-style-type: none"> <li>– Department of Statistics, Malaysia (<a href="http://www.statistics.gov.my">www.statistics.gov.my</a>)</li> <li>– Asian Development Banks (<a href="http://www.adb.org">www.adb.org</a>)</li> </ul> <p><i>Publications</i></p> <ul style="list-style-type: none"> <li>– Department of Statistics, Malaysia (Yearbook of Statistics, Malaysia &amp; Population &amp; Housing Census 2000)</li> <li>– Asian Demographics (Weekly Demographic Insights)</li> <li>– Economist Corporate Network (Regional Strategic Quarterly Forecast)</li> </ul>
Real estate market information (Kuala Lumpur)	<p><i>Websites</i></p> <ul style="list-style-type: none"> <li>– CH Williams Talhar &amp; Wong (<a href="http://www.wtw.com.my">www.wtw.com.my</a>)</li> <li>– Cushman &amp; Wakefield (<a href="http://www.cushwakeasia.com">www.cushwakeasia.com</a>)</li> <li>– DTZ Debenham Tie Leung (<a href="http://www.dtzresearch.com">www.dtzresearch.com</a>)</li> <li>– Jones Lang LaSalle Hotels (<a href="http://www.joneslanglasallehotels.com">www.joneslanglasallehotels.com</a>)</li> </ul> <p><i>Publications</i></p> <ul style="list-style-type: none"> <li>– National Property Information Centre (Property Market Report &amp; Property Overhang Quarterly Report)</li> <li>– CH Williams Talhar &amp; Wong (WTW Market Report)</li> <li>– Cushman &amp; Wakefield (Kuala Lumpur Office Snapshot)</li> <li>– DTZ Debenham Tie Leung (Property Times)</li> <li>– Jones Lang LaSalle (Asia Pacific Property Digest &amp; Asia Pacific Property Investment Guide)</li> </ul>

**Appendix 2(b):  
Sources for information on Malaysia (Kuala Lumpur) (cont)**

Real estate market information (Kuala Lumpur) (cont)	<i>Other information providers (Subscription basis)</i> <ul style="list-style-type: none"><li>– Jones Lang LaSalle (Real Estate Intelligence Services)</li><li>– Bloomberg LP</li><li>– Thomson ONE Analytics (contains analysts' reports on property sector) Factiva</li></ul>
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### Appendix 3(a): Shanghai

Variables	Main source of information	Usefulness			
		C	A	R	T
<b><i>Economic</i></b>					
GDP	Shanghai Municipal Statistics Bureau (Shanghai Statistical Yearbook)	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Inflation		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unemployment rate		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
External trade		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Retail sales		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Foreign direct investment		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Forecast of economic indicators	Economist Corporate Network (Regional Strategic Quarterly Forecast & Asia-Pacific Executive Brief)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Business Confidence Index	Shanghai Municipal Statistics Bureau (Official website)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Non-performing loan	Ernst & Young (Non-Performing Loan Report: Asia 2002) - Ad hoc			<input type="checkbox"/>	<input type="checkbox"/>
Interest rate	UBS Warburg (Asian Economic Indicators)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Exchange rate		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sovereign credit risk indicators eg foreign debt/GDP, reserves/imports and Moody/S&P ratings		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b><i>Political</i></b>					
Political risks	Economist Corporate Network (Regional Strategic Quarterly Updates, Asia-Pacific Executive Brief & Country Monitor)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b><i>Demographic</i></b>					
Population size	Shanghai Municipal Statistics Bureau (Shanghai Statistical Yearbook)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Demographic characteristics (age distribution, etc)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Income per capita		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Living space per capita		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Household formation		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Appendix 3(a): Shanghai (cont)

Variables	Main source of information	Usefulness			
		C	A	R	T
<b>Demographic (cont)</b>					
Household characteristics (size, income distribution, etc)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Forecast of demographic indicators	Asian Demographics (Weekly Demographic Insights)	<input type="checkbox"/>		<input type="checkbox"/>	
<b>Real estate market information</b>					
<b>Overall property sector</b>					
Construction statistics	Shanghai Real Estate Trading Centre (Official website)	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
New completions		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
Registered area for sales		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
Registered area sold		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
Mortgage amount		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
Resettlement statistics		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
Buyers' profile (income bracket, floor area requirement, nationality)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Investment grade office &amp; luxury residential</b>					
Historical and forecast of demand, supply, vacancy, rental, capital value, yields and total returns	Jones Lang LaSalle (Real Estate Intelligence Services)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Luxury residential</b>					
Affordability Index	Bank of China (Ad hoc report on Shanghai residential market)		<input type="checkbox"/>	<input type="checkbox"/>	
Note: Criteria used to measure the usefulness of information sources are Consistency (C), Reliability (R), Adequacy (A) and Timeliness (T).					

## Appendix 3(b): Sources for information on Shanghai

Economic indicators	<p><i>Websites</i></p> <ul style="list-style-type: none"> <li>– Shanghai Municipal Statistic Bureau (<a href="http://www.stats-sh.gov.cn">www.stats-sh.gov.cn</a>)</li> <li>– The Peoples' Bank of China (<a href="http://www.pbc.gov.cn">www.pbc.gov.cn</a>)</li> <li>– Soufun (<a href="http://www.soufun.com">www.soufun.com</a>)</li> </ul> <p><i>Publications</i></p> <ul style="list-style-type: none"> <li>– Shanghai Municipal Statistic Bureau (Shanghai Statistical Yearbook)</li> <li>– Economist Corporate Network (Regional Strategic Quarterly Forecast &amp; Asia Pacific Executive Brief) - <i>China statistics</i></li> <li>– UBS Warburg (Asian Economic Indicators) - <i>China statistics</i></li> <li>– Ernst &amp; Young (Non-Performing Loan Report: Asia 2002)</li> </ul> <p><i>Other information providers (Subscription basis)</i></p> <ul style="list-style-type: none"> <li>– Thomson ONE Analytics (contains analyst reports on Shanghai economy)</li> <li>– Factiva (contains information from newspaper, magazines and reports)</li> </ul>
Politics	<p><i>Websites</i></p> <ul style="list-style-type: none"> <li>– Shanghai Municipal Government (<a href="http://www.sh.gov.cn">www.sh.gov.cn</a>)</li> </ul> <p><i>Publications</i></p> <ul style="list-style-type: none"> <li>– Economist Corporate Network (Regional Strategic Quarterly Updates, Asia-Pacific Economic Brief &amp; Country Monitor) - <i>China information</i></li> </ul>
Demographic indicators	<p><i>Websites</i></p> <ul style="list-style-type: none"> <li>– Shanghai Municipal Statistic Bureau (<a href="http://www.stats-sh.gov.cn">www.stats-sh.gov.cn</a>)</li> </ul> <p><i>Publications</i></p> <ul style="list-style-type: none"> <li>– Shanghai Municipal Statistic Bureau (Yearbook of Statistics &amp; Shanghai Fifth Population Census 2000)</li> <li>– Asian Demographics (Weekly Demographic Insights) Economist Corporate Network (Regional Strategic Quarterly Forecast) - <i>China information</i></li> </ul>
Real estate market information	<p><i>Websites</i></p> <ul style="list-style-type: none"> <li>– Shanghai Real Estate Exchange Centre (<a href="http://www.shfdz.gov.cn">www.shfdz.gov.cn</a>)</li> <li>– SouFun (<a href="http://www.soufun.com">www.soufun.com</a>)</li> <li>– CB Richard Ellis (<a href="http://www.cbre.com.cn">www.cbre.com.cn</a>)</li> <li>– Colliers International (<a href="http://www.colliers.com/china">www.colliers.com/china</a>)</li> <li>– Cushman &amp; Wakefield (<a href="http://www.cushwakeasia.com">www.cushwakeasia.com</a>)</li> <li>– DTZ Debenham Tie Leung (<a href="http://www.dtzresearch.com">www.dtzresearch.com</a>)</li> <li>– Jones Lang LaSalle (<a href="http://www.joneslanglasalle.com.cn">www.joneslanglasalle.com.cn</a>)</li> <li>– Jones Lang LaSalle Hotels (<a href="http://www.joneslanglasallehotels.com">www.joneslanglasallehotels.com</a>)</li> </ul> <p><i>Publications</i></p> <ul style="list-style-type: none"> <li>– Shanghai Municipal Housing, Land and Resources Administration Bureau &amp; Shanghai Municipal Statistical Bureau (Shanghai Real Estate Market)</li> <li>– Shanghai Real Estate Exchange Centre (Shanghai Real Estate, Shanghai Land, Shanghai Housing, Shanghai Property Market &amp; Shanghai Quarterly Property Market Analysis)</li> <li>– SouFun (Shanghai Quarterly Property Market Report)</li> <li>– Jones Lang LaSalle (China Property Market Monitor, Greater China Property Index, Asia Pacific Property Digest &amp; Asia Pacific Property Investment Guide)</li> <li>– CB Richard Ellis (PRC Market Index Brief)</li> <li>– DTZ Debenham Tie Leung (Property Times &amp; Property Market Review)</li> </ul>

**Appendix 3(b):  
Sources for information on Shanghai (cont)**

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Real estate market information (cont)	<p><i>Publications (cont)</i></p> <ul style="list-style-type: none"><li>– Cushman &amp; Wakefield (Shanghai Office Snapshot)</li><li>– Bank of China (Ad-hoc report on Shanghai residential market)</li></ul> <p><i>Other information providers (Subscription basis)</i></p> <ul style="list-style-type: none"><li>– Jones Lang LaSalle (Real Estate Intelligence Services)</li><li>– Thomson ONE Analytics (contains analysts' reports on property sector)</li><li>– Factiva</li></ul>
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## **Appendix 4(a): Definitions of property submarkets**

### **(A) Investment grade offices**

The office stock tallied in this report is defined by two elements: quality of the property and its geographical location.

#### ***Quality of the property***

Investment grade offices are defined according to their structural/physical qualities. The following aspects of a premise are examined for the purpose of classifying investment grade office premises:

- Overall internal and external finishes
- External façade, lobby, and circulation areas
- Layout of floor plate
- Air-conditioning
- Lift services for passengers and goods deliveries
- Building management
- Parking facilities
- Accessibility

The above classification criteria are applied in assessing office buildings in all the markets that are examined in this report. As such, any building included in our calculation of office stock would meet the above criteria and therefore would be of comparable quality from market to market.

#### ***Geographical location***

Investment grade offices are geographically defined by the developed and developing business districts in each city. Generally, the districts can be categorised into Central Business Districts (CBD) and decentralised districts.

### **(B) Central Business District (CBD) offices**

Investment Grade Office space in the main or traditional business centre(s) of a metropolitan area.

#### ***Beijing CBD***

The Beijing CBD includes the following districts:

- Chaoyang: Along East Third Ring Road
- Dongcheng: Along East Changan Street and Jianguomenwai Street
- Xicheng: Fuxingmennei Street and Finance Street

#### ***Shanghai CBD***

Shanghai CBD is sub-categorised into two centres east (Pudong) and west (Puxi) of Huangpu River:

- (1) **Puxi:** The Puxi CBD includes four districts:
  - Huangpu: Along Nanjing Road East and Yanan Road East
  - Jingan: Along Nanjing Road West and Yangan Road Central

- Luwan: Along Huai Hai Road Central
- Hongqiao: Along Yanan Road West

(2) **Pudong:** The Pudong CBD comprises the Lujiazui Finance and Trade Zone.

### ***Hong Kong SAR CBD***

The Hong Kong SAR CBD is sub-categorised into four districts:

- Central: Along Queen's Road Central and Des Voeux Road Central, including the fringe area of Admiralty in the east and Connaught Road Central in the west
- Wanchai/Causeway Bay: Eastward of Central along Hennessy Road and Gloucester Road
- Tsimshatsui: The tip of Kowloon Peninsula south of Austin Road
- Hong Kong SAR East: Bounded to the west by Hing Fat Street, including North Point & Quarry Bay

### ***Manila CBD***

The Manila CBD comprises the Makati CBD: bounded by Sen. Gil Puyat Avenue, EDSA and Amorsolo, encompassing Ayala Triangle, Salcedo and Legaspi Villages.

### ***Bangkok CBD***

The Bangkok CBD includes:

- CBD South: Sophraya / Surawongse / Silom / Sathorn / Charoenkrung / Rama IV Areas
- CBD North: Wireless / Lang Suan / Rajdamri / Phayathai / Rama IV / Sarasin / Ploenchit / Rama I Areas

### ***Kuala Lumpur CBD***

There are two major business districts in the CBD: Golden Triangle (GT) and the CBD in Kuala Lumpur CityCentre:

- GT: Stretches along Jalan Ampang, Jalan Sultan Ismail, Jalan Bukit Bintang and the Kuala Lumpur City Centre (KLCC) site
- CBD: The older commercial area at the heart of the city (known as the Central Planning Area as defined in the Federal Territory Kuala Lumpur Comprehensive Development Plan no 1040 & 1041)
- Decentralised: Fringe of offices at Damansara Centre & Bangsar Pantai

### ***Singapore CBD***

The Singapore CBD is sub-categorised into three districts:

- Core CBD (Raffles Place): Including Raffles Place and China Square, bounded broadly by Boat Quay, South Bridge Road, Cross Street, Cecil Street and Collyer Quay
- Core CBD (Shenton Way): Bounded by Maxwell Road, Cecil Street, Shenton Way, Raffles Quay and Collyer Quay
- Marina Bay: Bounded by Nicoll Highway, Raffles Avenue and Republic Boulevard

### ***Jakarta CBD***

The Jakarta CBD is comprised of the **Golden Triangle**, which stretches along the triangular area formed by Jalan H R Rasuna Said, Jalan Jenderal Sudirman (up to the southern tip of Jalan M H Thamrin) and Jalan Jenderal Gatot Subroto.

### **(C) Luxury residential properties**

Luxury residential properties refer to high-end luxury residential premises such as apartments, condominiums, detached or semi-detached housing that are located in traditional prime areas.

#### ***Geographical location***

Beijing:	Dongcheng, Chaoyang and Shunyi
Shanghai:	Puxi (Changning, Xuhui, Jingan, Luwan, Huangpu, Zabei and Hongkou)
Hong Kong SAR:	Hong Kong SAR Island (Peak/Mid-levels/Island South)
Manila:	Makati CBD
Bangkok:	<i>CBD:</i> Saphraya / Surawongse / Silom / Sathorn / Charoenkrung / Rama IV Areas / Wireless / Lang Suan / Rajdamri / Phayathai / Rama IV / Sarasin / Ploenchit / Rama I Areas. <i>Sukhumvit:</i> Sukhumvit Soi 1 to Soi 63 / Rama IV / Petchburi Areas
Kuala Lumpur:	Ampang Hilir, Taman Tun Dr. Ismail, Damansara, Bangsar, and Bukit Tunku.
Singapore:	Districts 9, 10, and 11
Jakarta:	CBD

### **(D) Residential property type**

Condominiums:	Refers to strata-titled residential units available for sale or for sale and lease.
Apartments:	Refers to residential units for lease only, which are typically apartment buildings under single ownership.  The apartment market is relatively well defined and developed in Bangkok and Jakarta. As such, they are presented separately from the condominium market.
Detached houses:	Refers to landed properties either standalone (single family homes) or semi-detached (townhouses).

In Beijing, since a relatively well-defined market for detached housing properties (Villas) has emerged with both rental and sales activities, the Villa market in Beijing is presented as a separate market from the condominium market.

### **(E) Prime retail centres**

Prime retail centres refer to retail shopping centres/complexes built either exclusively for retail purpose or as part of a mixed-use project.

#### ***Quality of the property***

Prime retail centres are defined according to their structural/physical qualities. The following aspects are examined for the purpose of classifying prime retail centres:

- Overall internal and external finishes
- External façade and internal arcade area
- Availability of dining and entertainment facilities
- Service area for merchandise and goods deliveries
- Management of the centre
- Parking facilities
- Accessibility

### **Geographical location**

Prime retail centres are generally dispersed around the metropolitan area of a city. Prime retail centres are considered to be major shopping complexes built to international standards. Geographically we define prime retail centres by:

- Beijing: City-wide, predominantly on (but not limited to) the East Third Ring Road, East Second Ring Road, Jianguomenwai Street, Wangfujing Street and in the Finance Street area to the west of the city.
- Shanghai: City-wide, predominately on (but not limited to) Nanjing Road, Huaihai Road, Xijiahui, Hongqiao and Lujiazui
- Hong Kong SAR: *Prime retail malls:* Centres located in Central, Causeway Bay & Tsimshatsui.  
*Decentralised malls:* Centres located along the KCRC/MTRC lines.  
*High street shops:* Street front units along the main shopping thoroughfare in Causeway Bay & Tsimshatsui.
- Manila: The entire Metro Manila Area with centres generally focused in Makati CBD, Ortigas Center, Manila Bay area and Alabang.
- Bangkok: City-wide, including city centre schemes in Silom Road, Ploenchit Road and Sukhumvit Road as well as suburban area schemes.
- Kuala Lumpur: *City-centre:* Includes schemes in and close to the Bukit Bintang Precinct, in the Central Business District and Golden Triangle.  
*Suburban:* Schemes located in Bangsar, Damansara, Petaling Jaya, and elsewhere in the Klang Valley including Shah Alam.
- Singapore: *City-centre:* Quality schemes along Orchard Road corridor.  
*Suburban:* New generation shopping malls, typically located at or close to MRT stations, or elsewhere held in single ownership.  
*Marina centre:* Malls include those in the Marina Bay vicinity, as well as those in Bugis Junction and Raffles City.
- Jakarta: *City-wide:* Including schemes in the Golden Triangle CBD, and in suburban areas.

## **Appendix 4(b): Stock absorption index**

The SA Index is defined as a measure of the intensity of the absorption or take up of all of the available property stock in a market at any point in time. The total available stock is defined as the sum of vacant stocks (in the previous period) with the new stocks (in the current period).

The SA Index measures net absorption on a scale of 0-100, using the formula below:

$$\text{The SA Index} = \frac{A_t}{V_{t-1} + N_t} \times 100$$

$A_t$  = Net absorption in current period  $t$

$V_{t-1}$  = Vacant Stock in period  $t - 1$  (ie, previous period)

$N_t$  = New Stock that were completed in period  $t$

As the SA Index is a relative measure, it can be interpreted as an interval scale. Hence, not only can we use the SA Index to rank the strength of absorption across different markets, it also measures the difference in the strength of absorption between those markets.

The SA Index does not measure negative absorption because by its definition, it measures positive net absorption. Therefore, whenever absorption turns negative, the SA Index is arbitrarily set at zero. To compare cities with zero SA Index values, we suggest that vacancy rates be used in conjunction with the SA Index.

The SA Index is intended to provide an alternative way of examining the demand in the market by analysing the net absorption of space. We recognise that neither SA Index nor the Net Absorption indicators are complete by themselves when used to assess the scale of demand in any particular market. Taken together, we believe that they give a deeper understanding of the markets when comparing across different cities in the region.