



APREA RESEARCH PROJECT

ASIAN COMMERCIAL REAL ESTATE AS INFLATION HEDGE: A MULTI COUNTRY MULTI ASSET CLASS ANALYSIS

EXECUTIVE SUMMARY

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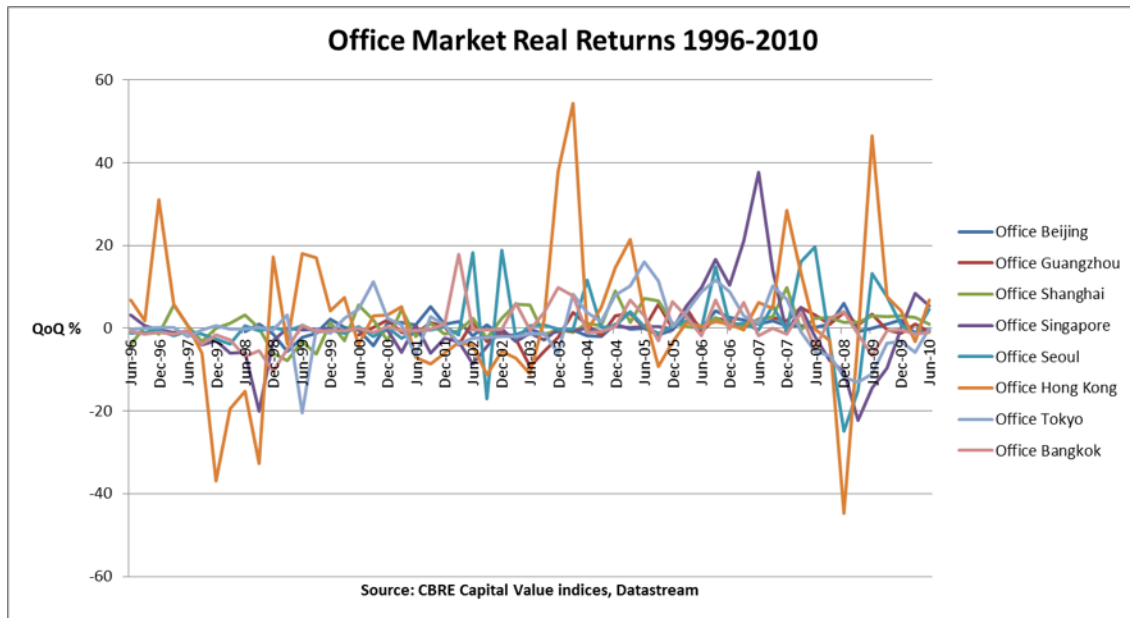
- While Asian property delivers positive real returns on average, the short run hedging effectiveness of real estate investments both in securitized and unsecuritized Asian real estate markets is neither strong nor consistent in the eight countries/cities under study (i.e. China: Beijing, Shanghai, Guangzhou, Hong Kong; Japan, Korea, Singapore, Thailand).
- This might be due to the fact that real estate assets are only remotely linked to inflation in the short run (e.g., no CPI based rental indexation in the countries under study, except Korea) and the role played by market authorities in controlling real estate markets in Asia.
- However, our findings show that inflation rates and real estate returns are co-integrated, or correlated in the long run, indicating that Asian real estate assets do hedge inflation over long periods of time (i.e. over 10 years).
- Securitized markets in Hong Kong, Japan and Singapore have the largest co-integration with expected inflation rates while industrial and retail direct properties in Hong Kong are the least co-integrated.
- Rental indices (e.g. Beijing and Shanghai retail markets) do exhibit co-integration with inflation rates in the long run, albeit with a lag, as opposed to Capital Value indices which tend to be immediately responsive.
- Correlations between real estate returns and real GDP growth are relatively strong whereas correlations between real estate returns and real domestic stock market returns are consistently weak (with the exception of Hong Kong Office market and the Japanese securitized market), suggesting that Asian commercial real estate markets (both securitized and unsecuritized) are distinct asset classes from the public equity capital.
- Real estate returns in Asian direct real estate markets show no mean reversion effect contrary to securitized markets which exhibit consistent mean reversion across the board. This is in sharp contrast to most Western markets (e.g. major European cities) where direct markets are consistently mean reverting.
- Further research on the office market indicates that in the absence of official inflation targeting in most Asian countries (with the exception of Korea and Thailand), real estate markets are influenced by expansionary monetary policies epitomized by strong monetary growth and low interest rates. This is particularly the case in the Beijing's and Shanghai's office markets where real estate tends to act as a vector between money supply and inflation.

RANKING OF LONG RUN INFLATION HEDGING EFFECTIVENESS BY PROPERTY MARKET/ SUB-MARKET

This ranking is based on the Engle Granger co-integration test. Co-integration tests pioneered by Nobel Laureates Engle and Granger are designed to test whether two or more time series (e.g. real estate returns and inflation rates) share common long term fluctuations although they might not move together in the short run.

| MARKET/ SUB-MARKET | ASSET CLASS | INDEX | PERIOD |
|---|-----------------|----------------------------------|---------------|
| 1 Thailand- Bangkok Office | Non-securitized | CBRE- Capital Value | 1998Q2-2010Q2 |
| 2 Hong Kong | Securitized | FTSE EPRA NAREIT HK Index | 1990Q1-2010Q2 |
| 3 Japan | Securitized | FTSE EPRA NAREIT Japan Index | 1990Q1-2010Q2 |
| 4 Singapore | Securitized | FTSE EPRA NAREIT Singapore Index | 1990Q1-2010Q2 |
| 5 China- Shanghai industrial | Non securitized | CBRE- Capital Value | 2000Q2-2010Q2 |
| 6 Korea- Seoul Office | Non-securitized | CBRE- Capital Value | 2002Q2-2010Q2 |
| 7 China- Shanghai Retail | Non securitized | CBRE- Rental Index | 1998Q2-2010Q2 |
| 8 China- Shanghai Office | Non securitized | CBRE- Capital Value | 1996Q2-2010Q2 |
| 9 Hong Kong Central Office | Non-securitized | CBRE- Capital Value | 1993Q2-2010Q2 |
| 10 Singapore Shopping Centres | Non-securitized | CBRE- Capital Value | 1998Q2-2010Q2 |
| 11 China- Beijing Office | Non securitized | CBRE- Capital Value | 1998Q2-2010Q2 |
| 12 China- Guangzhou Retail | Non securitized | CBRE- Rental Index | 2003Q2-2010Q2 |
| 13 Singapore- Warehouses | Non-securitized | CBRE- Capital Value | 1997Q1-2010Q2 |
| 14 China-Beijing Retail | Non securitized | CBRE- Rental Index | 2003Q2-2010Q2 |
| 15 Singapore Office | Non-securitized | CBRE- Capital Value | 1993Q2-2010Q2 |
| 16 China- Guangzhou Office | Non securitized | CBRE- Capital Value | 2000Q2-2010Q2 |
| 17 China | Securitized | FTSE Xinhua 600 Real Estate | 2001Q3-2010Q2 |
| 18 China-Beijing Industrial | Non securitized | CBRE- Capital Value | 2003Q1-2010Q2 |
| 19 Japan- Tokyo central five wards Office | Non-securitized | CBRE- Capital Value | 1998Q2-2010Q2 |
| 20 Hong Kong Warehouses | Non-securitized | CBRE- Capital Value | 2000Q2-2010Q2 |
| 21 Hong Kong Street Shop Retail | Non-securitized | CBRE- Capital Value | 2003Q1-2010Q2 |
| 22 China- Guangzhou Industrial | Non securitized | CBRE- Capital Value | 2000Q2-2010Q2 |

GRAPH: COMPARISON OF OFFICE MARKET REAL RETURNS IN THE EIGHT ASIAN CITIES UNDER INVESTIGATION



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