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# THE DYNAMICS OF THE AUSTRALIAN OFFICE MARKET

**JINU KIM[1] and MICHAEL BRAND[2]**

**Faculty of Built Environment, UNSW**

**Abstract**

*This project investigates how the Australian office markets have performed from 1985 to 2014 in response to the economic, location, and property factors. Factors that have major effects upon values of the existing stock of properties are identified as the economic factors, the location factors, and the property factors. The economic factors refer to the economic conditions as a wide range of aspects at the national level, while the location factors refer to location aspects at the regional level. Finally, the property factors describe the characteristics of property itself such as the buildings and the land belonging to it.*

*The Australian office market is main sector of the Australian Real Estate Investment Trust (A-REIT). A-REIT is the second largest REIT market, by market capitalisation, in the world and an important component in the Australian equities market. This importance is expected to continue to grow as the superannuation industry (which currently manages over $1.6 trillion) responds to the higher dividend distribution demands of an aging population.*

*The IPD Data Australia Quarterly is used to assess the performances of Australian office markets. It is assumed that the total returns of Australian office markets may show the effects of economic, location, and property factors. A quantitative model would be developed to analyse the effect of economic, location, and property factors upon the total return of the office market. The results demonstrates the effect of economic, location, and property factors upon the total returns in the Australian office markets (Sydney, Melbourne, Brisbane, and Perth), which would be a valuable guideline for investment decision making and risk analysis in A-REIT.*

**Keywords**: Australian Office market, Economic factor, Location factor, Property factor, Total return

## INTRODUCTION

It is generally accepted that the factors affecting the values of properties are the economic, location, and property factors. This paper explores how the Australian office market has performed from 1985 to 2014 in response to the economic, location, and property factors. The IPD Australia Quarterly Digest was used to assess the performances of Australian property markets in terms of the economic, location, and property factors. It is assumed that the total returns of Australian property market may show the effects of economic factors. This paper investigates the effect of sector specific economic factors upon the total return of Australian office market, and the location and property factors in the Australian office markets (Sydney, Melbourne, and Brisbane).

## FACTORS THAT INFLUENCE THE VALUES OF PROPERTIES

[1] Construction Management and Property Program, The University of New South Wales, UNSW, SYDNEY 2052 Australia

[2] Construction Management and Property Program, The University of New South Wales,

Factors that have major effects upon values of the existing stock of properties are identified as the economic factors, the location factors, and the property factors. The economic factors refer to the economic conditions as a wide range of aspects at the national level, while the location factors refer to location aspects at the regional level. Finally, the property factors describe the characteristics of property itself such as the buildings and the land belonging to it.

As the Figure 1 shows, the economic factors embrace the location factors; and the location factors embrace the property factors. The classification of these factors is mainly based on the coverage of the areas. The economic conditions are concerned with macro-economic matters such as the state of the national economy, the state of the financial market, and the changes of taxation. The location aspects are concerned with micro-economic matters such as the local demand and supply, the planning and development policies of the region, and changes in charges and fees. The characteristics of property itself are the functional aspects of the property, the aesthetic aspects of the buildings, and the physical aspects of the land and buildings.

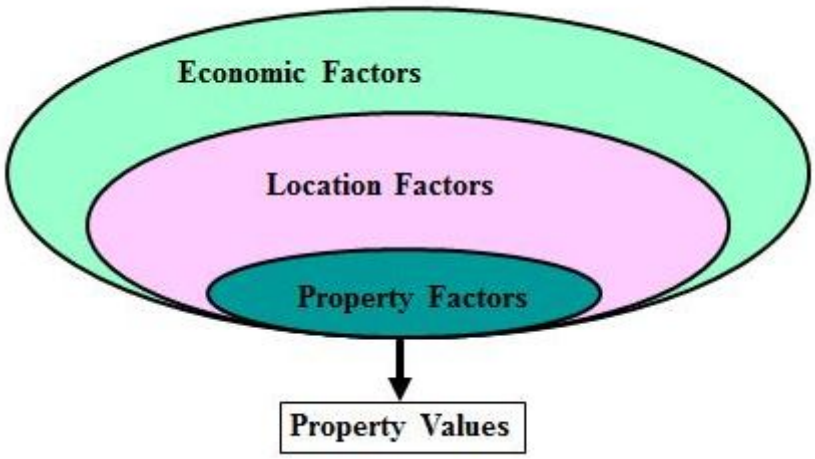


Figure 1: Conceptual Framework of Property Values

These three types of factors arise out of the basic nature of properties such as longevity, immobility, and heterogeneity. A property does not comprise only the brick, soil, columns, and physical features, but is defined as a bundle of privileges or benefits accruing to the owner for the period of the ownership. Because the stream of benefits produced from a property depends as much on factors external to the locus of the property itself, the value of a property depends to a considerable degree on the state of the economic base and the quality and type of location. Therefore, property investment appraisal should focus on the economic and location factors rather than the property factor. This paper only focuses on the economic and location factors.

## Economic Factors in the Property Market

The property market is directly influenced by the general economic activity and economic situation of the country as a whole (Boykin and Ring, 1993: 68). The important indices of the economic conditions include Gross Domestic Product (GDP), per capita income and real wage levels, unemployment, personal savings and investments, and building and construction activities. Barrett and Blair (1989: 41-46) divide the economic factors on basis of their impact (or origin) into the demand and supply sides of the economy. The demand side of the economy includes

population, total community income and distribution, and sources of employment. The supply side of the economy includes existing and planned supply of properties and competitive environment.

Barrett and Blair (1988: 243-244) describe the property market as being greatly affected by inflation. Property tends to increase in price because of the well-established re-sale market and the slow rates of depreciation compared to other assets. The prices of properties have generally increased more than the general price level (inflation). Expectation of future inflation is just as important as inflation, and many investors have been willing to accept fairly low rates of return in order to purchase a property with the expectation of future inflation with rental growth and capital appreciation.

The property market is one of the first markets to be affected by rising interest rates (Barrett and Blair, 1988). Property market activities such as occupation, investment, and development, are affected by changes in interest rate. Since a tight monetary policy - that is, high interest rates - normally slows down the economic growth and reduces demand, interest rates not only influence the demand for occupation, but also the supply of properties. Along with material and labour costs, high interest rates increase the costs of development because most developers borrow to build. Consequently, interest rates affect both the occupation and development property markets. The investment property market emphasises the capital values and the current yield rate as the key variables. The capital value of a property can be formulated with either yield rate or discount rate, which is closely related to interest rates. Interest rates then affect investment property market as well. Thus, interest rates affect the occupation, investment, and development markets in the property market.

Wofford (1983: 275) explains that property taxes have a tremendous impact on individuals and their decisions to own and improve property, and on the types and timing of development. If the property taxes have been substantially increased, the values of properties will probably fall. This adjustment will occur because the increased carrying costs associated with owning properties reduce the profits, which investors could expect from selling them in the future. When investors take the change in property taxes into account in deciding how much they can pay, they are said to capitalise those taxes into the values of properties. The changes in taxation therefore influence the values of properties. The economic factors therefore affect generally the performances of property markets.

## Location Factors in the Property Market

Because of characteristics of longevity and immobility in the nature of the property, the value of a property is linked closely to the economic situation of the region in which it is located. The capital value of a property is estimated as the present worth of the expected future stream of incomes received from ownership of the property. As the expected future growth of a region declines, the value of the property may fall even if there is no change in the current economic situation at the national level. Certainly the development activities for new properties in the region will be affected. Indeed, differences in development activities among urban areas are so critical that it is almost always inappropriate to rely solely upon national trends to analyse current and future property prospects for a specific city. Consequently a property market analysis must consider location aspects. (Barrett and Blair, 1988: 183)

Barrett and Blair (1988: 41-46) explain the location aspects as the indirect economic factors. The indirect economic factors include zoning, ground conditions and topography, utilities, transportation linkage and traffic, parking, environmental impact, impact on government services,

and prevailing attitudes. These indirect economic factors (location factors) are major constraints to be overcome in the development market. The location factors are therefore the critical factors in the development market and the essential factors in the investment and occupation markets.

### Property Factors in the Property Market

Vandell and Lane (1989) attempted to evaluate empirically the nature of the contribution of architectural qualities to the values of offices. An economic (hedonic) model is postulated that predicts equilibrium rent and vacancy behaviour as a function of both design (aesthetic) and non-design (functional) characteristics. Aesthetic aspect is seen to influence both rent and vacancy behaviour in the office market. In spite of data inadequacies and limitation in the analytical methodology, results confirm a strong influence of aesthetic aspect on rents; but the data showed a weak relationship between vacancy behaviour and aesthetic aspect of offices.

Building obsolescence and physical deterioration affect the fundamental qualities of a building such as external appearance, internal specification, and configuration (Baum, 1991). Baum (1991) finds the general hypothesis - building quality is a better explanation of depreciation than is age - to be true for both offices and industrial buildings. For offices, obsolescence was clearly much more important than physical deterioration as a cause of depreciation. Of the various qualities of a building, internal specification is the most important to both occupiers and investors, and hence as an explanation of depreciating capital value.

Khalid (1994) finds that the financial impact caused by the attributes of building obsolescence can be estimated and analysed using a hedonic price model. The difference between the rental price of an office and the highest rental price of the offices in the market was measured as the financial impact of obsolescence. The impact is mainly due to appearance, flexibility, and quality of building engineering service; and the impact is significant only within the first 15 years after completion of the building.

## FACTORS THAT INFLUENCE THE VALUES OF AUSTRALIAN OFFICE MARKETS

Since the values of office buildings are affected by the economic, location, and property factors in the office market, the total return of a specific grade office market in a city is thus a function of the economic, location, and property factors.

$$TROja = f\,(EFO, LFj, PFja) \qquad (1)$$

Where
- $TROja$ = total return of *a* grade office market in area *j*
- $EFO$ = economic factors of office market
- $LFj$ = location factors in area *j*
- $PFja$ = property factors of *a* grade office in area *j*

### Effect of the Economic Factors in Australian Office Markets

This section analyses the relative effects of economic factors on Australian office markets. First, this section analyses correlations between the total returns of the Australian commercial property markets, office markets and the economic factors in the Australian commercial property market. The economic factors include the following variables; the inflation (Consumer Price Index - CPI),

the demand side of the economy (Gross Domestic Products-GDP, Final Consumption Expenditure-FCE, the short-term interest rate), and the supply side of the economy (the Australian non-residential building approvals and activity). These variables (between 1984 and 2014, quarterly) are abbreviated in the Table 1 as below.

Table 2 shows correlation coefficients between variables in the economic factors and the total return indices[3] of Australian all property and office markets. The total return indices of the Australian property markets (Aus All Property and Aus CBD Office) have significant positive correlations with the inflation (CPI), the demand side of the economy (GDP and FCE), and the supply side of the economy (BAP and BAC), while they have negative correlations with the interest rates (INT). The Australian CBD office market is closely associated with the economic variables during the study period. It is concluded that the values of the Australian CBD office market are associated with the changes of the economic factors in the market.

Table 1: Description of Economic Variables

| Variable | Description |
|---|---|
| CPI | Consumer Price Index in the weighted average of 8 capitals cities in Australia (source; ABS) |
| GDP | Gross Domestic Product in Australia: current prices (seasonally adjusted) (source; ABS) |
| FCE | All Sector Final Consumption Expenditure (seasonally adjusted) (source; ABS) |
| INT | Short-term interest rate as 90 days bank accepted bills (source; RBA) |
| BAP | Values of the total non-residential building approvals in Australia (seasonally adjusted) (source; ABS) |
| BAC | Values of the total non-residential building activity in Australia (seasonally adjusted) (source; ABS) |

Table 2: Correlations between Total Return Index of Australian All Property, CBD Office and Economic Variables: 1984-2014

| Variable | CPI | GDP | FCE | INT | BAP | BAC |
|---|---|---|---|---|---|---|
| **Aus All Property** | 0.945* | 0.988* | 0.986* | -0.60* | 0.903* | 0.835* |
| **Aus CBD Office** | 0.936* | 0.981* | 0.978* | -0.57* | 0.904* | 0.849* |

* Correlation is significant at the 1% level

The values of Australian property market are affected by the economic factors of the Australian property market. Figure 2 shows the total returns of Australian All property and CBD office markets from 1985 to 2014. The Australian All property and CBD office markets have achieved positive total returns during the study period except from 1990 to 1993 and from 2008 to 2010. It means that the Australian CBD office markets are affected by positive economic factors during the study period except from 1990 to 1993 and from 2008 to 2010. The values of Australian CBD office market are affected by the economic factors of the office market.

[3] Source: Australia Quarterly Digest by the IPD.

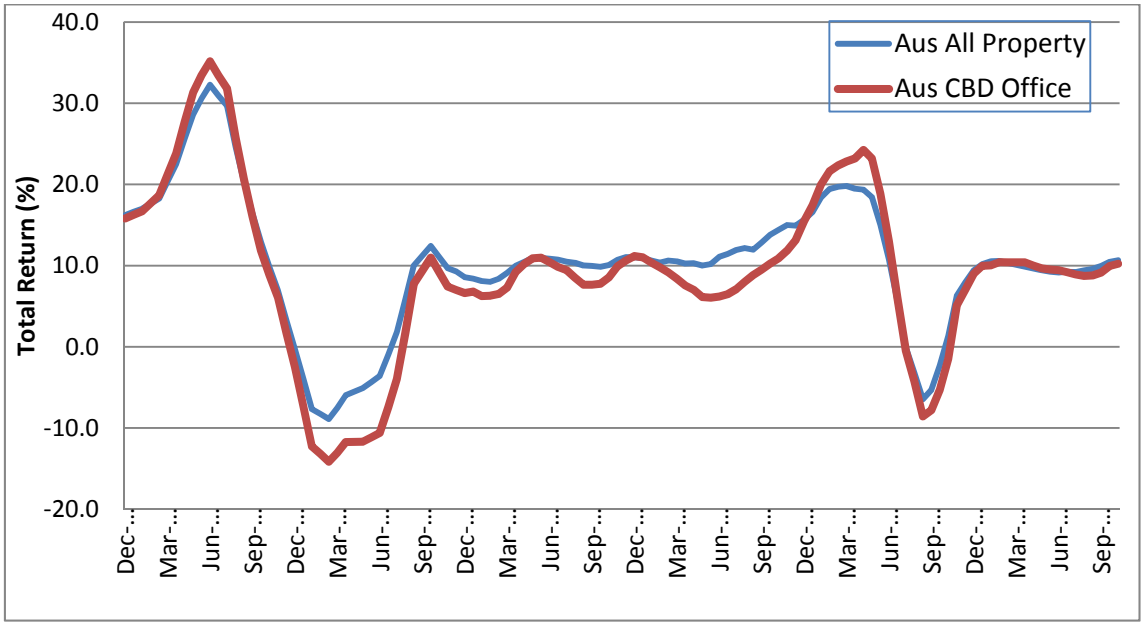


Figure 2: Total Returns (%) of Australian All Property and Australian Office; 1985 – 2014 (Source: IPD)

## Effect of the Location Factors in Australian Office Markets

The total returns of the office markets in Australian cities are a function of economic and location factors. This can be illustrated as follows:

$$TROj = TRAO + LFj \qquad (2)$$

where $TROj$ = total return of office market in area $j$
$TRAO$ = total return of Australian office market
$LFj$ = location factors in area $j$

The effect of location factors upon the total return of office market can be calculated. From the above equation (2), the equation for the location factors can be rearranged as follows:

$$LFj = TROj - TRAO \qquad (3)$$

Using this equation (3), the location factors in Sydney, Melbourne, and Brisbane office markets are analysed in the following sections. The difference between the total return of the office market in a particular capital city and the total return of Australian office market is due to location factors.

Figure 3 shows the capital returns of Australian CBD Office, Sydney CBD, Melbourne CBD, and Brisbane CBD office markets from 1985 to 2014. The total return of the Australian CBD Office market shows the effect of the economic factors in the Australian CBD office market.

The Figure 4 shows the effects of economic factor of the Australian office market and the location factors of Sydney CBD, Melbourne CBD, and Brisbane CBD office markets from 1985 to 2014. The total return of the Australia CBD office market is used for the effect of economic factor. The effect of the location factor of each capital city is calculated using the equation (3).

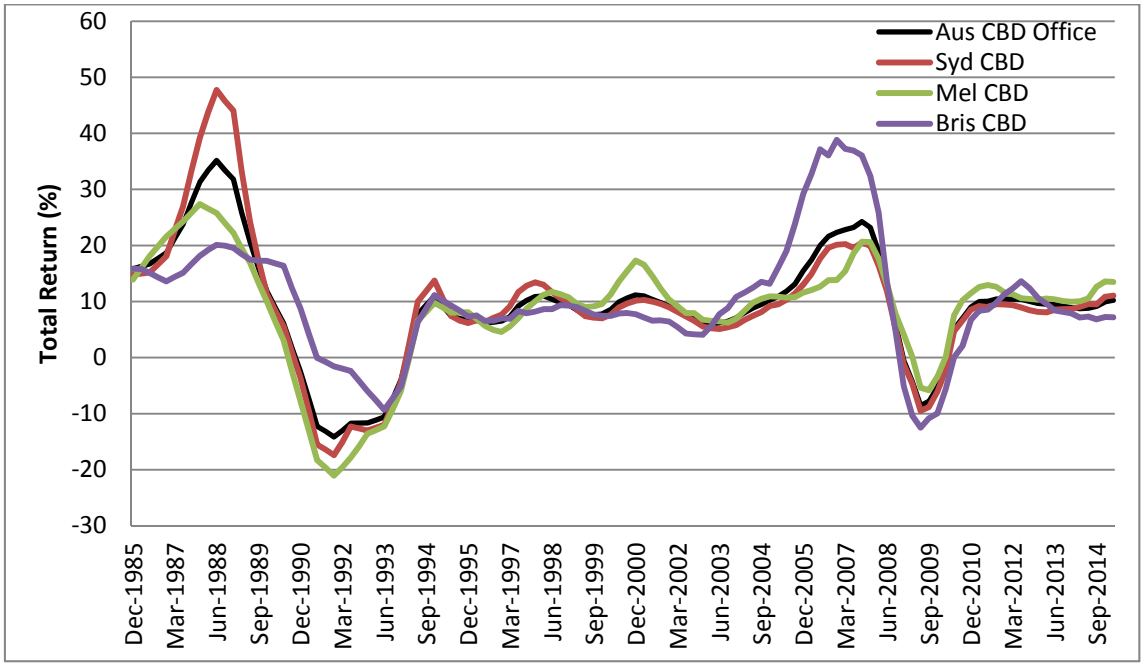

Figure 3: Total Returns (quarterly) of Australian Office Markets; 1985 – 2014 (Source: IPD)

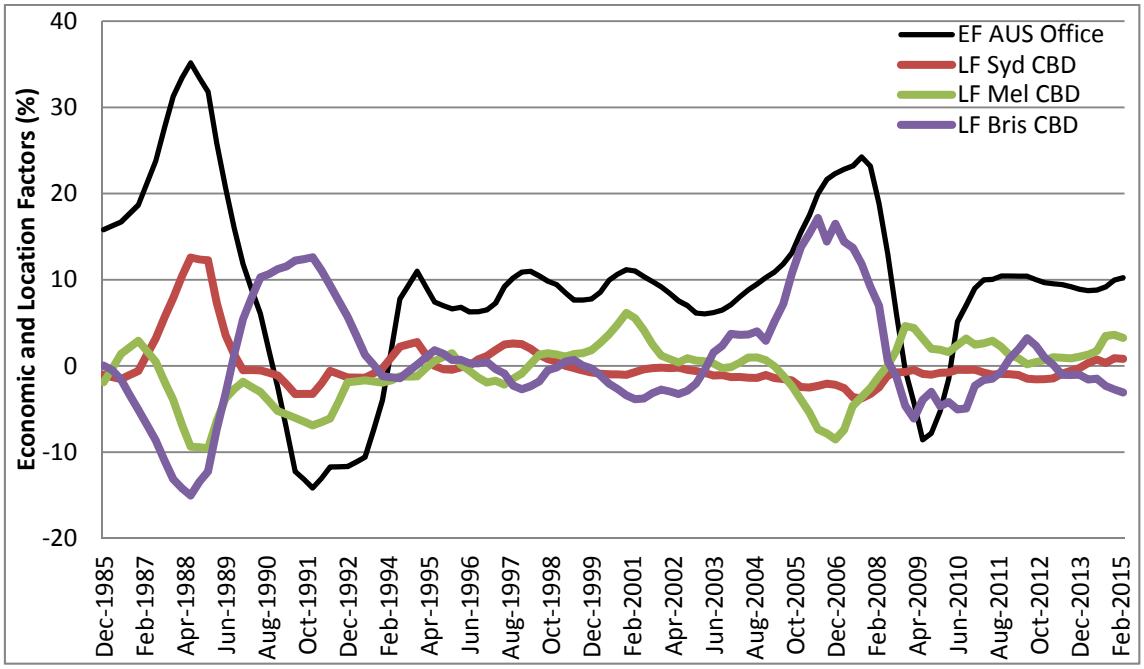

Figure 4: Effect of Economic Factor (EF) and Location Factors (LF) in Sydney CBD, Melbourne CBD, and Brisbane CBD Office Markets

It shows that the economic factor of the Australia office market provides more impact than the location factors of Sydney CBD, Melbourne CBD, and Brisbane CBD office markets. The Sydney CBD office market shows a strong positive location factor from 1987 to 1989. Since 1994, the Sydney CBD office market is dominated by the economic factor of the Australia office market. The Melbourne CBD office market shows more fluctuation of the location factor than the Sydney

market. The Brisbane CBD office market shows most fluctuation of the location factors among the three capital city CBD office markets. The Brisbane CBD office market shows a strong positive location factors from 1990 to 1993 and from 2004 to 2007, while it show a negative location factor from 1986 to 1990.

## Effect of the Property Factors in Australian Office Markets

The total returns of the office markets in Premium and A grade offices are a function of economic and property factors. This can be illustrated as follows:

$$TROja = TRAOj + PFja \qquad (4)$$

where $TROja$ = total return of *a* grade office market in area *j*
$TROj$ = total return of office market in area *j*
$PFja$ = property factors of *a* grade office market in area *j*

The effect of property factors upon the total return of office market can be calculated. From the above equation (4), the equation for the property factors can be rearranged as follows:

$$PFja = TROja - TROj \qquad (5)$$

Using this equation (5), the property factors of Premium, A, B, C, D grade office markets in Sydney CBD office markets are analysed in the following sections. The difference between the total return of *a* grade office market and the total return of Sydney CBD office market is due to property factors.

Figure 5 shows the effect of the location and the property factors in Sydney office market from 1985 to 2014.

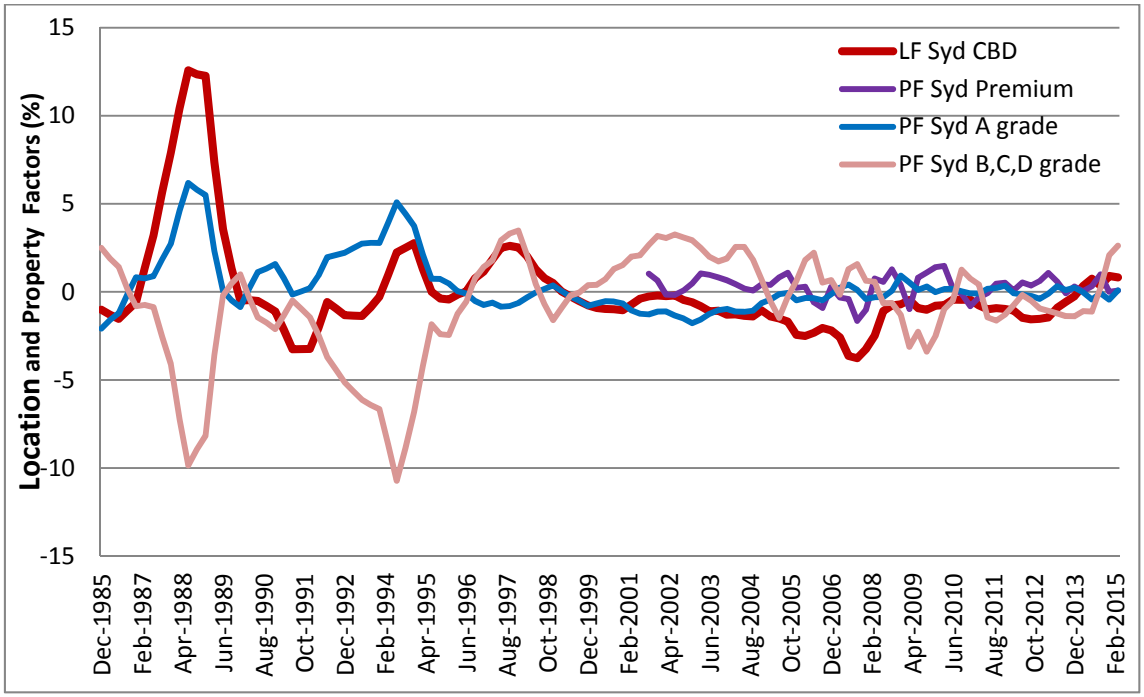


Figure 5: Effect of Location (LF) and Property Factors (PF) in Sydney office market; 1985 – 2014 (Source: IPD)

It shows that the Sydney CBD office market does not show any noticeable effects of property factors since 1997. The A grade office market shows a positive property factors during the early study period, while the B,C,D grade office market shows a negative property factors during the early study period in the Sydney CBD office market. The B,C,D grade office market shows most fluctuation of the property factors in the Sydney CBD office market during the study period..

## Effect of the Economic, Location, and Property Factors in Australian Office Markets

Using the equations (3) and (5), the economic, location, and property factors of CBD office markets in Sydney, Melbourne, and Brisbane are analysed in the following sections.

Figures 6, 7, and 8 shows the effect of the economic, location, and the property factors in Sydney, Melbourne, and Brisbane office market from 1985 to 2014 respectively.

It shows that the location factor provides more impact than the property factor of Premium and A grade office markets in Sydney CBD and Melbourne CBD office markets, while the property factor of Premium and A grade office market provides more impact than the location factor in Brisbane CBD office markets. The Sydney and Melbourne CBD office markets do not show any effects of noticeable property factors since 1997. The Brisbane CBD office market shows a positive effect of the property factors of Premium and A grade office market during the study period except from 1991 to 1993 and from 2009 and 2010. The Brisbane CBD office market shows a stronger effect of the property factors of Premium and A grade office markets from 2003 to 2008 than the economic factors.

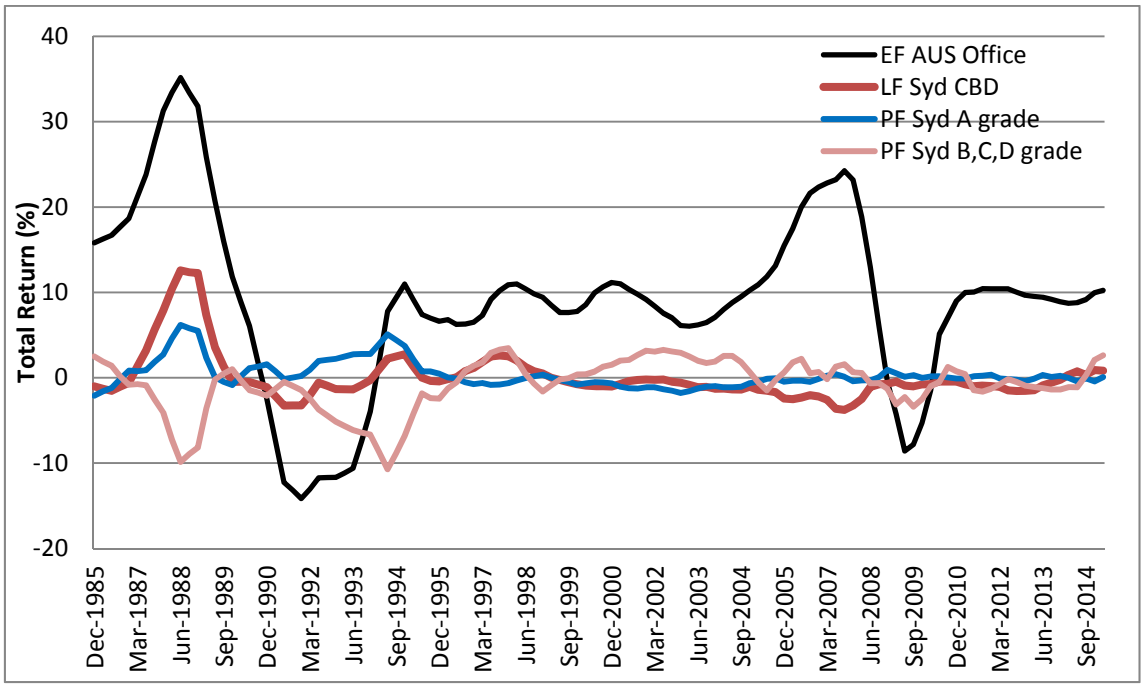


Figure 6: Effect of Economic (EF), Location (LF) and Property Factors (PF) in Sydney office market; 1985 – 2014 (Source: IPD)

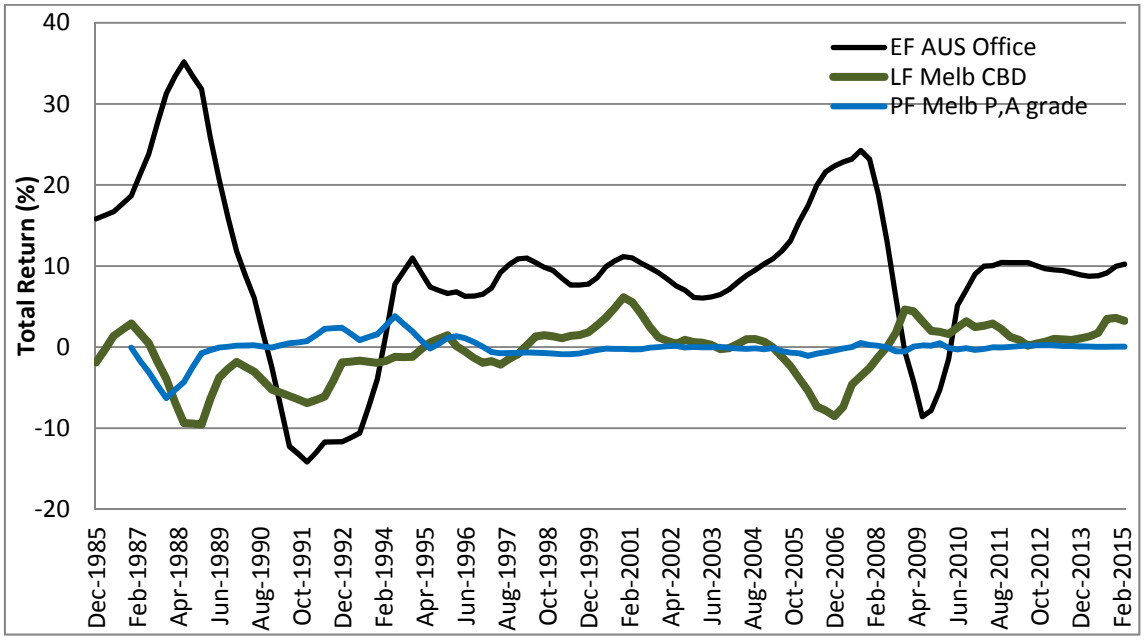

Figure 7: Effect of Economic (EF), Location (LF) and Property Factors (PF) in Melbourne office market; 1985 – 2014 (Source: IPD)

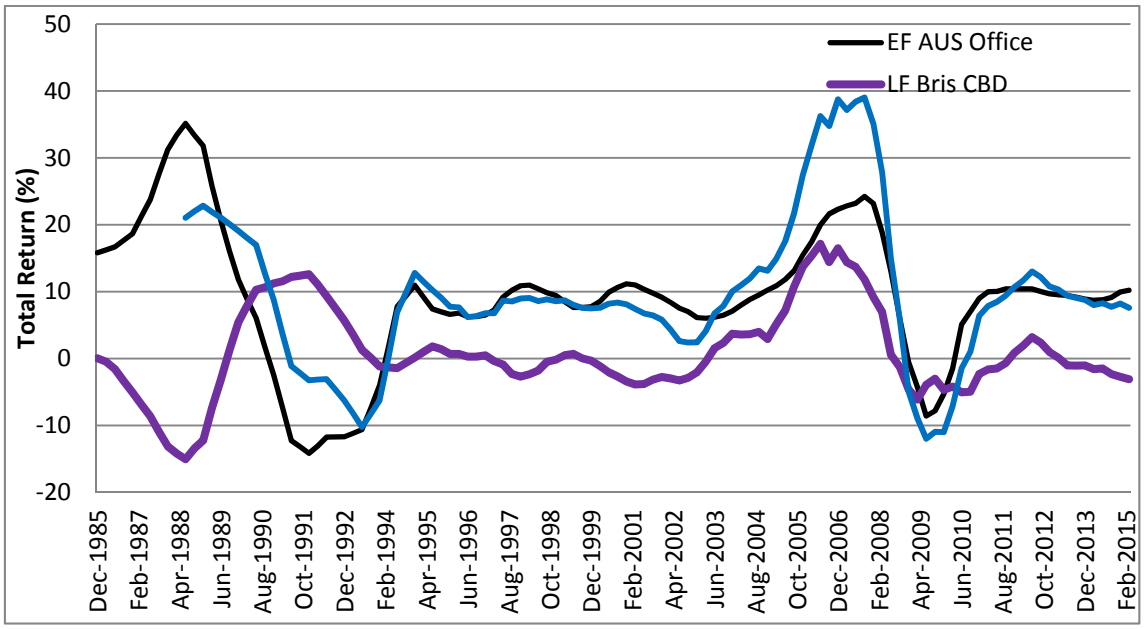

Figure 8: Effect of Economic (EF), Location (LF) and Property Factors (PF) in Brisbane office market; 1985 – 2014 (Source: IPD)

## CONCLUSION

The total returns of Australian all property market and Australian CBD office market have significant correlations with the economic variables (positive correlations with demand and supply variables except the interest rates). The values of Australian office markets are affected by the economic factors of the property market. The total returns of the Australian office market can be used to assess the effects of the economic factor in the property market. The Australian office

market was affected by negative economic factors from 1990 to 1993 and from 2008 to 2010, while the Australian office market was affected by strong positive economic factors from 1985 to 1988 and from 2005 to 2007.

The Sydney CBD office market shows a strong positive location factor from 1987 to 1989. The Melbourne CBD office market shows more fluctuation of the location factor than the Sydney market. The Brisbane CBD office market shows a strong positive location factors from 1990 to 1993 and from 2004 to 2007, while it show a negative location factor from 1986 to 1990. The Brisbane CBD office market shows more fluctuation of the location factors than the Sydney CBD and Melbourne CBD office markets. Since 1994, the Sydney CBD office market is dominated mainly by the economic factor of the Australia office market.
The location factor provides more impact than the property factor of Premium and A grade office markets in Sydney CBD and Melbourne CBD office markets. The Sydney and Melbourne CBD office markets do not show any effects of noticeable property factors since 1997. The property factor of Premium and A grade office market provides more impact than the location factor in Brisbane CBD office markets. The Brisbane CBD office market shows a positive effect of the property factors of Premium and A grade office market during the study period except from 1991 to 1993 and from 2009 and 2010. The Brisbane CBD office market shows a stronger effect of the property factors of Premium and A grade office markets from 2003 to 2008 than the economic factors.

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