

The Dynamics of Australian Property Market

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Abstract

This paper aims to analyse the dynamics of the Australian property market in terms of the economic and location factors between 1984 and 2002. The focus is to look at the cyclical patterns of Australian property construction and investment performance. A statistical analysis of the Australian national economic and construction activities was carried out in order to evaluate the dynamics of the Australian property market, and to test its links with the general economy. The paper also investigates the economic and location factors of Australian property market with investment performance index (total return).

Keywords: Australian property market, sector specific economic factor, location factor.

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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, retail, and industrial property markets have performed from 1984 to 2002 in response to the economic and location factors. The Investment Performance Index (IPI) by the Property Council of Australia (PCA) was used in order to assess the performances of Australian property markets in terms of the economic and location factors. It is assumed that the total returns of Australian property markets may show the effects of economic factors. This paper investigates the effect of sector specific economic factors upon the total return of Australian property market (office, retail, and industrial markets), and the location factors in the Australian office markets.

Factors that Influence the Values of Properties

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 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.

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. This forces investment appraisal of property investment to focus on the economic and location factors rather than the property factors. 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.

Correlations between the Economic Factors and the Australian Property Market

This section analyses correlations between the investment performance of the Australian composite property, office, retail, and industrial property markets and the economic factors in the Australian property market. The economic factors include the following variables; the inflation (CPI), the demand side of the economy (GDP, new capital expenditure on plant and equipment, the short-term interest rate), and the supply side of the economy (the Australian composite property, office, retail, and industrial building approvals and commencements). These variables (between 1984 and 2002, half yearly) are abbreviated as follows:

CPI:	Consumer Price Index in the weighted average of 8 capitals cities in Australia (source; ABS)
GDP:	Gross Domestic Product in Australia for half year (seasonally adjusted) (source; ABS)
PNE:	New capital expenditure on plant and equipment in Australia for half year (source; RBA)
INT:	Short-term interest rate as the yield of 90 day bank bills (an average for half year) (source; RBA)
APV:	Values of the total (Australian composite property) and the specific sector (composite, office, retail, industrial) building approvals in Australia for half year respectively (source; ABS)
CMC:	Values of the total (Australian composite property) and the specific (office, retail, industrial) building commencements in Australia for half year respectively (source; ABS)

Table 1: Correlations between Investment Performance of Australian Industrial Property and Economic Variables: 1984-2002

Variable	CPI	GDP	PNE	INT	APV	CMC
Aus Composite Property	0.93*	0.97*	0.89*	-0.68*	0.68*	0.58*
Aus Office	0.88*	0.89*	0.82*	-0.54*	0.13	0.07
Aus Retail	0.94*	0.99*	0.90*	-0.79*	0.73*	0.69*
Aus Industrial Property	0.87*	0.98*	0.91*	-0.67*	0.52*	0.43*

* significant at the 0.05 level

Table 1 shows correlation coefficients between variables in the economic factors and the total return indices¹ of Australian composite, office, retail, and industrial property markets. The investment performances of the Australian property markets (Aus Composite, Office, Retail, and Industrial Property) have significant positive correlations with the inflation (CPI), the demand side of the economy (GDP and PNE), while they have negative correlations with the interest rates (INT). The investment performances of the Australian composite and retail property markets have noticeable correlations with the supply side of the market (APV and CMC). However, the investment performance of the Australian office market does not have significant correlations with the supply side of the market (APV and CMC of the Australian office market). It is concluded that the total return of the Australian property market is associated with the changes of the economic factors in the market.

Effects of Economic Factors in Australian Property Markets

This section analyses the relative effects of economic and location factors on the total return of Australian property markets. From the previous sections, the total returns of Australian property market show the effects of economic factors. Figure 1 shows the total returns of Australian composite property, office, retail, and industrial property markets from 1984 to 2002. The Australian property markets have achieved positive total returns during the study period except between 1990 and 1993. It means that the Australian property markets are affected by positive economic factors during the study period except between 1990 and 1993.

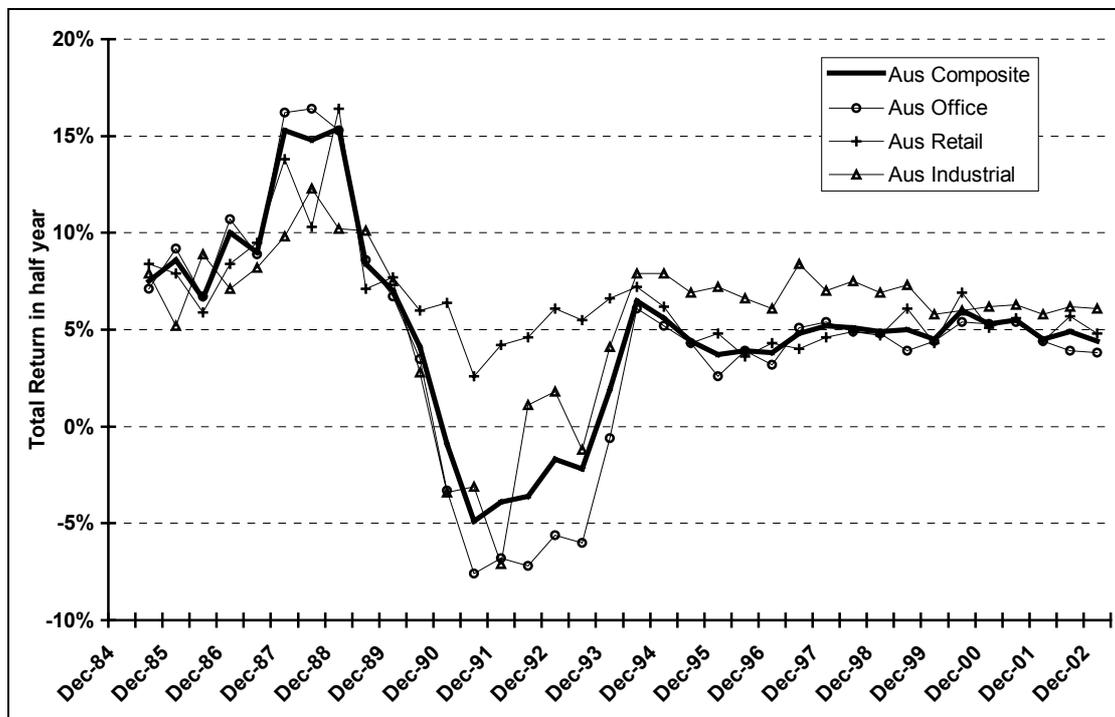


Figure 1: Total Returns (half year) of Australian Composite Property and Australian Office, Retail, and Industrial Property; 1984 – 2002 (Source: IPI by PCA)

¹ Source: Investment Performance Index (IPI) by the Property Council of Australia (PCA).

In order to assess the effect of sector specific economic factors upon the total return of Australian office, retail, or industrial property market, the total return of each Australian property market was compared with the total return of Australian composite property market. The total return of Australian office, retail, or industrial property market is affected by the sector specific economic factors of the office, retail, or industrial property market respectively. This can be illustrated as follows:

$$TRAS_t = TRAC_t * (1 + EFS) \quad (1)$$

where $TRAS_t$ = total return of Australian specific (office, retail, or industrial) property market at time t
 $TRAC_t$ = total return of Australian composite property market at time t
 EFS = specific economic factors of the specific property market
 (Subscript t will be dropped in further equations.)

From the above equation (1), the equation for the sector specific economic factors of the industrial property market can be rearranged as follows:

$$EFS = \frac{TRAS}{TRAC} - 1$$

$$= \frac{(TRAS - TRAC)}{|TRAC|} \quad (2)$$

Figure 2 shows the sector specific economic factors of Australian office market from 1984 to 2002 according to the equation (2). As illustrated by the sector specific economic factors (EFS) of Australian office market in Figure 2, the Australian office market shows strong negative sector specific economic factors between 1990 and 1993. However, it shows that the Australian office market does not have any sector specific economic factors during the study period except between 1990 and 1993.

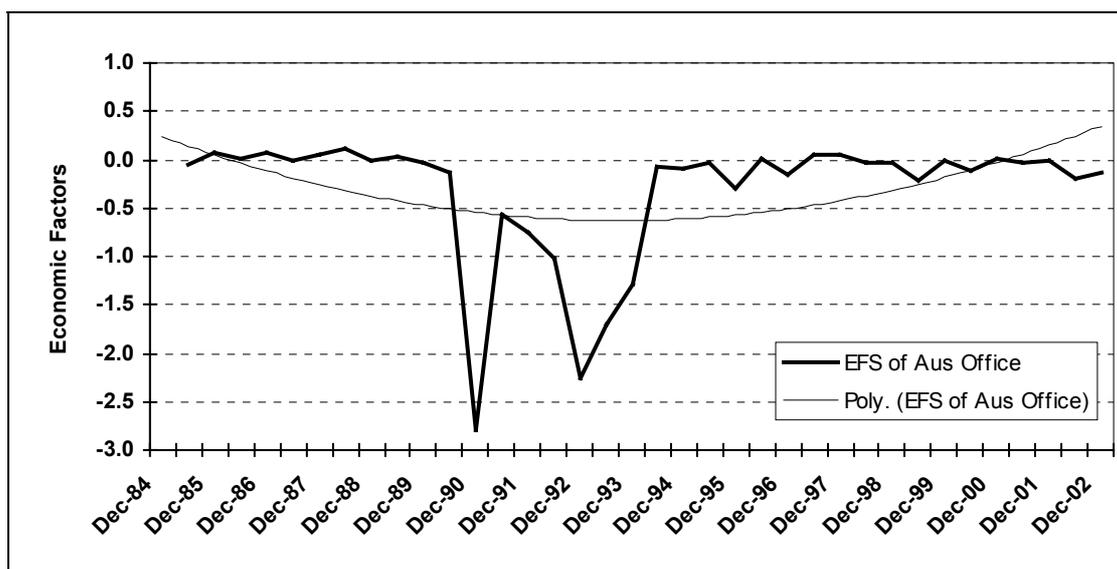


Figure 2: Sector Specific Economic Factors (with a curve-linear trendline; Poly) of Australian Office Property Market: 1984 - 2002

Figure 3 shows the sector specific economic factors of Australian retail property market from 1984 to 2002. As illustrated by the sector specific economic factors (EFS) of Australian retail property market in Figure 3, the Australian retail property market shows strong positive sector specific economic factors between 1990 and 1993. However, it shows that the Australian retail property market does not have any sector specific economic factors during the study period except between 1990 and 1993. The EFS of Australian retail property shows a mirror image of the EFS of Australian office market. It shows that Australian office and retail property markets are dominant sectors of the Australian property market.

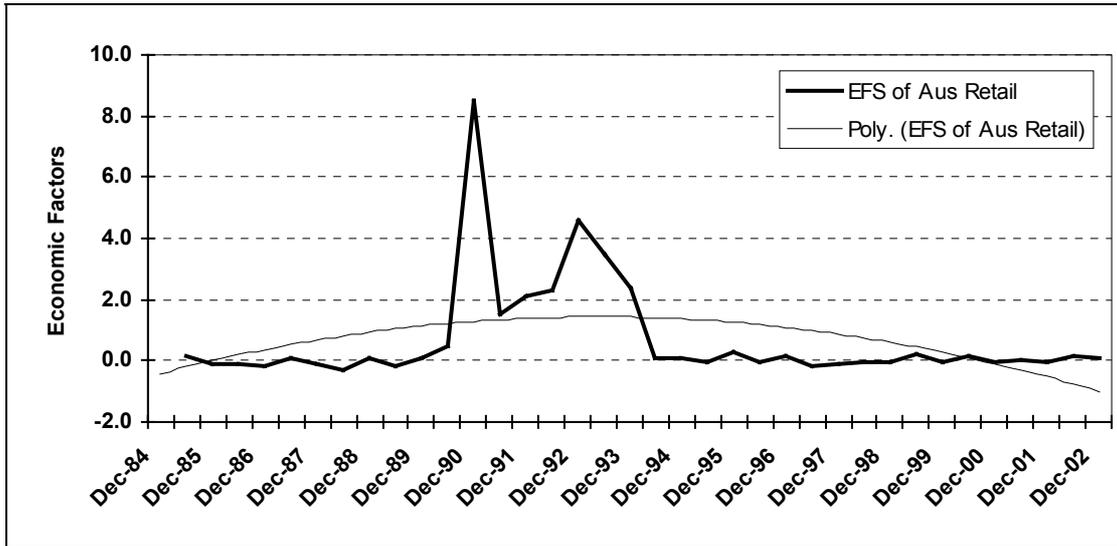


Figure 3: Sector Specific Economic Factors (with a curve-linear trendline; Poly) of Australian Retail Property Market: 1984 - 2002

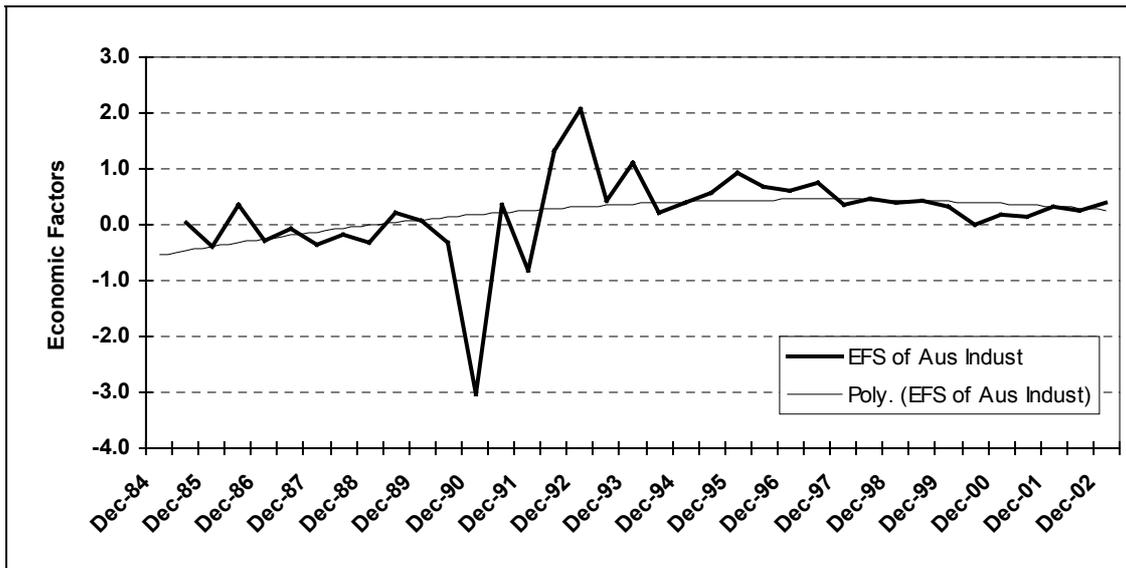


Figure 4: Sector Specific Economic Factors (with a curve-linear trendline; Poly) of Australian Industrial Property Market: 1984 - 2002

Figure 4 shows the sector specific economic factors of Australian industrial property market from 1984 to 2002. As illustrated by the curve-linear trend line (Poly.)² in Figure 4, the Australian industrial property market shows positive sector specific economic factors from 1991 to 2002. However, it shows that the sector specific economic factors of the Australian industrial property market started to decline after more than 10 years positive growth.

Effects of Location Factors in Australian Office Markets

Since the values of office buildings are affected by the economic and location factors in the office market, the total return of an office market is thus a function of the economic and location factors. This can be illustrated as follows:

$$\begin{aligned} TROa &= TRAC * (1 + EFO) * (1 + LFa) \\ &= TRAO * (1 + LFa) \end{aligned} \quad (3)$$

where $TROa$ = total return of office market in area a
 $TRAC$ = total return of Australian composite property market
 $TRAO$ = total return of Australian office market
 EFO = specific economic factors of the office market
 LFa = location factors in area a

The effect of location factors upon the total return of industrial properties can be calculated. From the above equation (3), the equation for the location factors can be rearranged as follows:

$$\begin{aligned} LFa &= TROa / TRAO - 1 \\ &= (TROa - TRAO) / |TRAO| \end{aligned} \quad (4)$$

Using this equation (4), the location factors in Sydney, Melbourne, Brisbane, Adelaide, and Perth 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 5 shows the total returns of Australian, Sydney, Melbourne, Brisbane, Adelaide, and Perth office markets from 1994 to 2002. Figures 6, 7, 8, 9, and 10 show the location factors of Sydney, Melbourne, Brisbane, Adelaide, and Perth office markets from 1994 to 2002 according to the equation (4) respectively.

² The curve-linear trendline was created by using the polynomial equation ($y = b + c_1x + c_2x^2$).

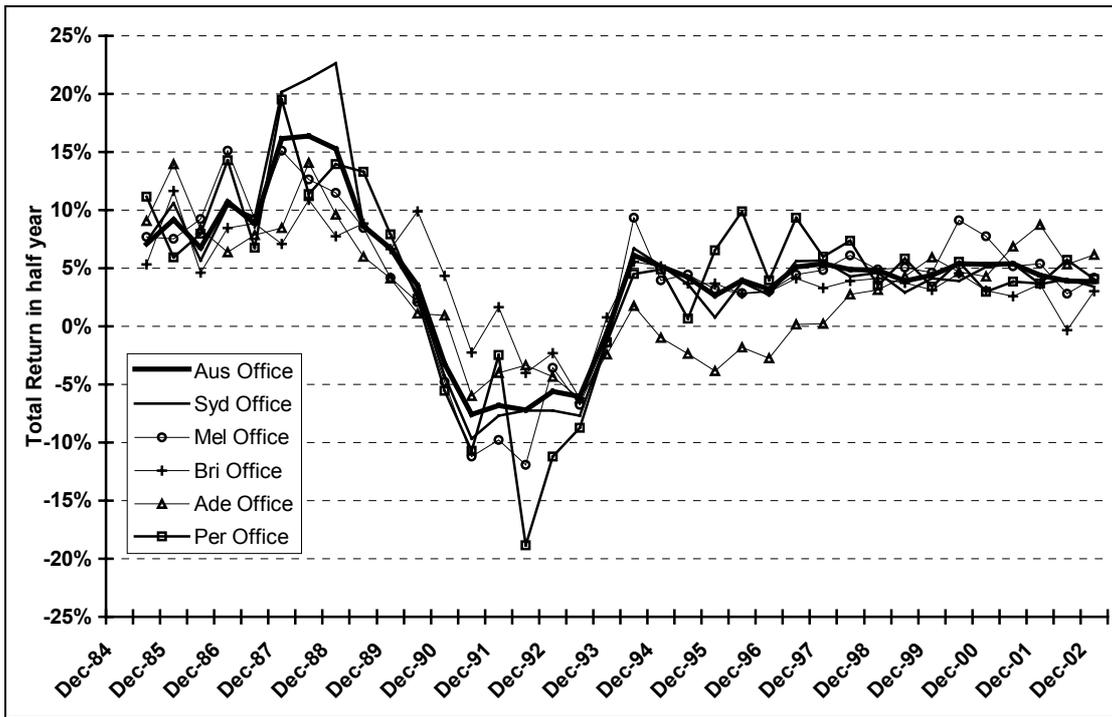


Figure 5: Total Returns (half year) of Australian Office Markets; 1984 – 2002
 (Source: IPI by PCA)

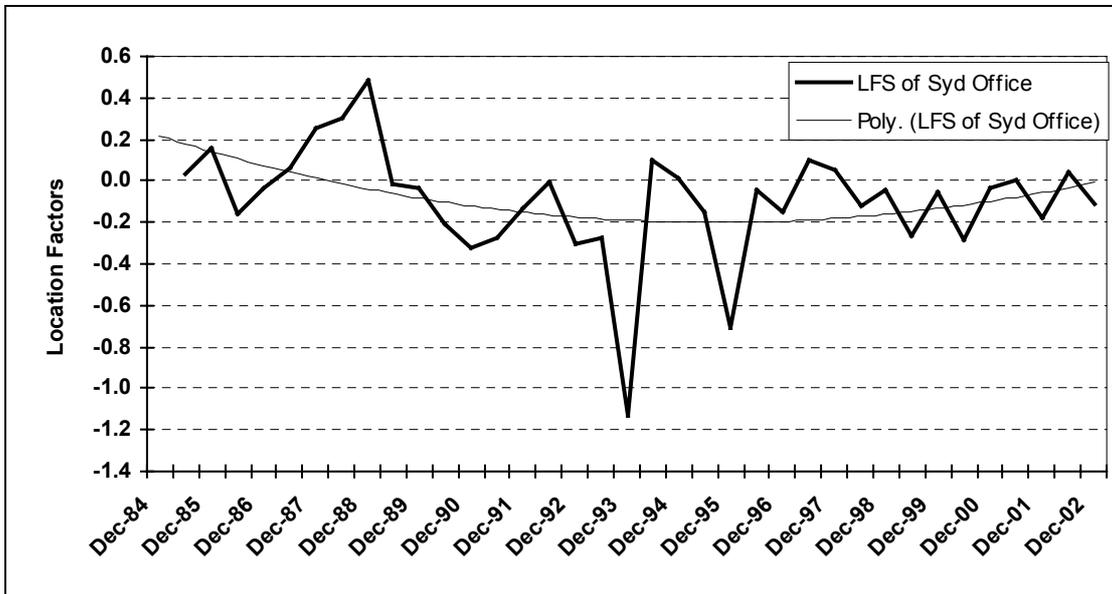


Figure 6: Location Factors (with a curve-linear trendline; Poly) of Sydney Office Market:
 1984 – 2002

As illustrated in Figure 6, the Sydney office market shows mainly negative location factors from 1989 to 2002. However, the location factors of the Sydney office market show improvement in the future by the curve linear trend line (Poly). As illustrated by the trend line in Figure 7, the Melbourne office market shows negative location factors since 1987 to 1997. However, it shows

that the location factors of the Melbourne office market started to grow and became positive location factors between 1998 and 2000. The location factors of the Melbourne office market became negative since 2001. As illustrated in Figure 8, the Brisbane office market shows a strong positive growth between 1989 and 1993. It shows that the location factors of the Brisbane office market became negative since 1995.

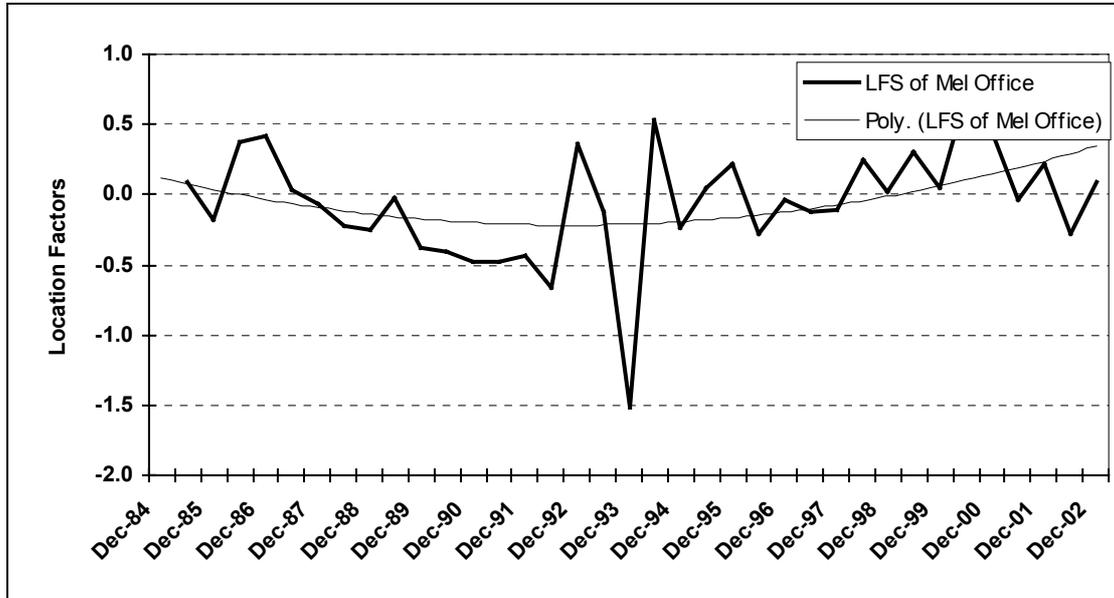


Figure 7: Location Factors (with a curve-linear trendline; Poly) of Melbourne Office Market: 1984 – 2002

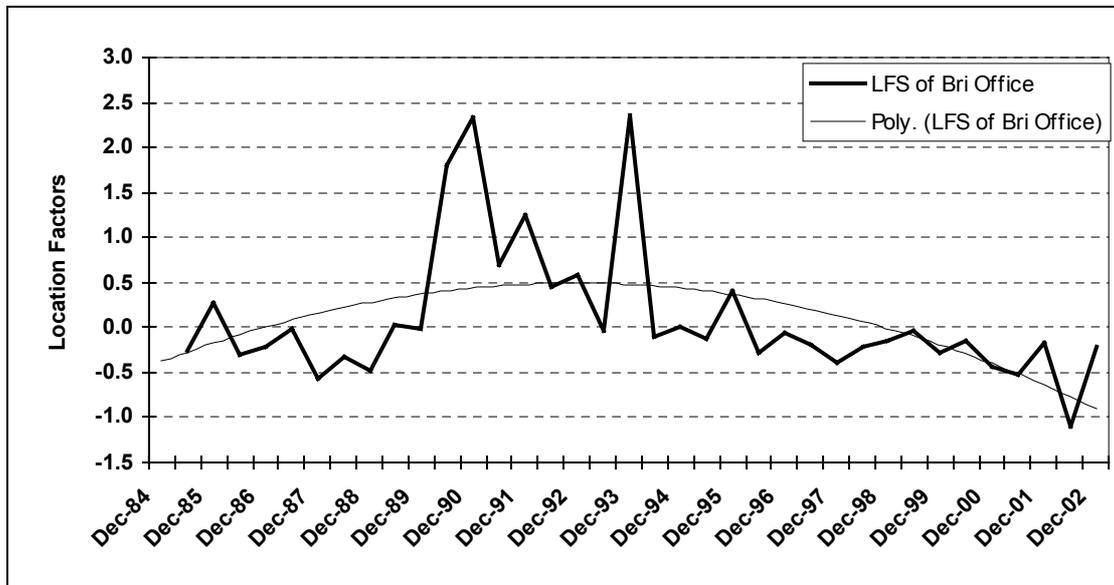


Figure 8: Location Factors (with a curve-linear trendline; Poly) of Brisbane Office Market: 1984 – 2002

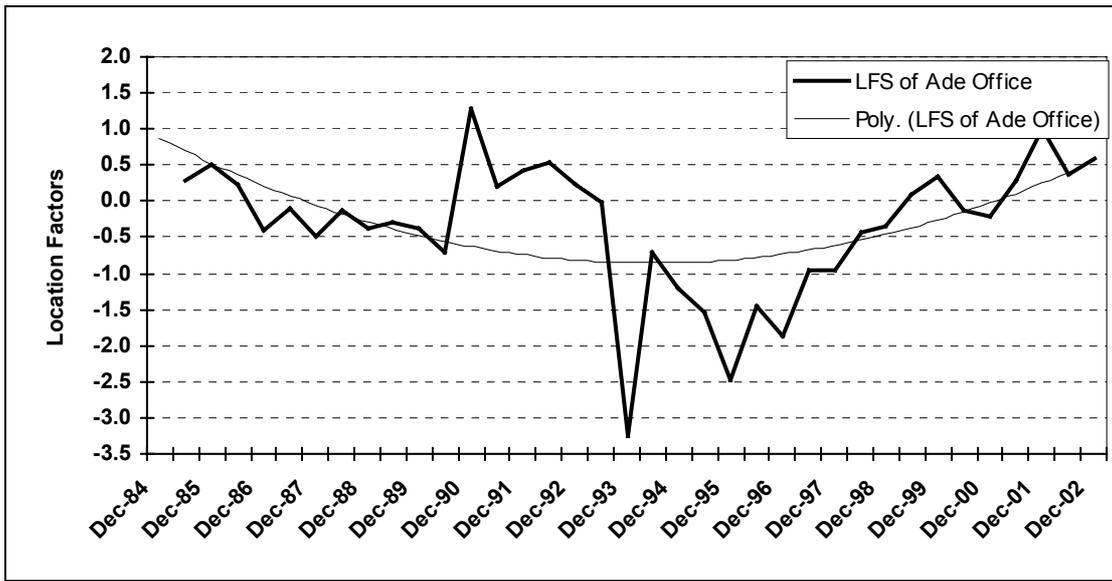


Figure 9: Location Factors (with a curve-linear trendline; Poly) of Adelaide Office Market: 1984 – 2002

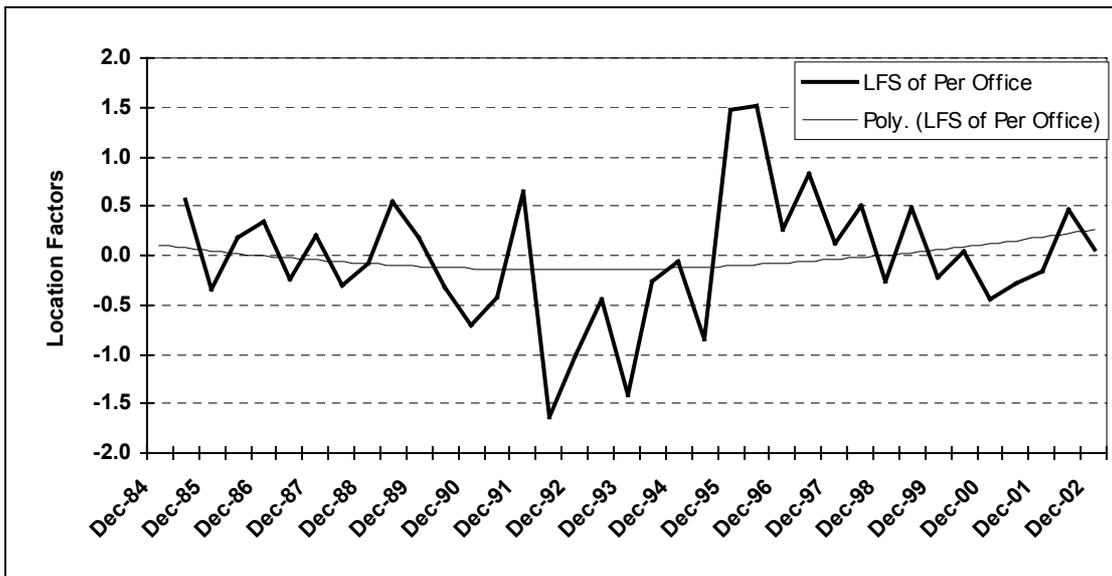


Figure 10: Location Factors (with a curve-linear trendline; Poly) of Perth Office Market: 1984 – 2002

As illustrated in Figure 9, the Adelaide office market shows a sharp decline of location factors from 1993. The curve linear trend line shows that the location factors of the Adelaide office market became positive since 2001. As illustrated Figure 10, the Perth office market shows a volatile location factors during the study period. However, it shows that the location factors of the Perth office market became positive between 1995 and 1997.

Conclusion

The investment performance (total returns) of Australian property market has significant correlations with the economic variables (positive correlations with CPI, GDP, and PNE; negative correlation with the interest rates). The Australian office and retail property markets are dominant sectors of the Australian property market. The Australian office market was affected by strong negative economic factors between 1990 and 1993, while the Australian retail property market shows strong positive economic factors between 1990 and 1993. The Australian industrial property market was under positive factors from 1991 to 2002. However, the sector specific economic factors of Australian industrial property market started to decline after more than 10 years positive growth.

The Sydney office market shows mainly negative location factors from 1989 to 2002. The Melbourne office market shows negative location factors since 1987 to 1997. However, the location factors of the Melbourne office market started to grow and became positive location factors between 1998 and 2000. The Brisbane office market shows a strong positive growth between 1989 and 1993. However, the location factors of the Brisbane office market became negative since 1995. The Adelaide office market shows a sharp decline of location factors from 1993. However, the location factors of the Adelaide office market became positive since 2001. The Perth office market shows a volatile location factors during the study period.

Note: This paper is an extended version of my previous paper: (2003) 'The Dynamics of the Australian Industrial Property Market'. Pacific Rim Property Research Journal, Vol 9, No 4

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