

# **A comparative framework for commercial and residential markets**

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## **Abstract**

In the analysis of property markets, most research focuses on either the commercial or the housing sector. Each body of literature has developed its own ‘stylized facts’ about ‘normal’ values of property such as income yields and price elasticities of supply, around which cyclical models have been built. However, what is treated as normal in one sector may appear as unusual and requiring special explanation when viewed from the perspectives of another. This paper reviews the recent literature on property cycles to compare the status of research in residential and commercial sectors; and provides an organized framework for comparison. The output of this research is a new comparative framework for systematic analysis of regulatory challenges and business decision making for housing and commercial markets. This will encourage greater reflection and comparative analysis of the changing property economic environment. Finally, this paper aims to contribute to the literature by seeking to develop a better understanding of property markets.

**Keywords: comparative research, commercial property market, residential property market**

## **1. Introduction**

Research about differences and commonalities between commercial and residential markets is underway. Thus, property investors need structured guidance for property investment. This paper aims to provide a framework for comparative analysis of types of properties within different levels (e.g. international, national, regional, sub-regional and firm level).

Ball (2006) has observed that the property research may classify by the types of building use (i.e. residential and commercial markets). This paper is based on a review of the property literature that was conducted in order to develop a new comparative framework for commercial and residential markets. Comparative economic analysis of the commercial and residential markets rise questions and research and provides the impetus for research that would contribute to better understanding of the unstable nature of property markets.

In the analysis of property markets, most research focuses on either the commercial or the housing market. Each body of literature has developed its own 'stylised facts' about 'normal' values. However, what is treated as normal in one sector may appear as unusual and requiring special explanation when viewed from another.

This paper proceeds by first presenting a literature review of comparative research in general property markets, followed by the same in the residential and commercial markets. The proposed comparative research framework is presented in Section 3. This paper discusses the motivations for the research framework questions and suggests themes for future research in Section 4 and concludes by highlighting the comparative analysis concerns in Section 5.

## **2. Literature Review**

The residential and commercial property research contemplate, *inter alia*, asset investment (return and risk), asset price/valuation models, real estate cycle and bubble estimates (fundamental value, affordability ratios, herd behaviour and information asymmetries theory, financial crisis impacts and relationship with other cycles, etc.) and developers' investment strategy and performance. However, within this literature, only a few works compare the differences between the housing and the commercial markets. Therefore, this literature review aims to contribute to the comparative methods framework for commercial and residential markets.

- **Comparative Property Market Literature Review**

Firstly, this paper focuses on the comparative research already conducted. Gyourko (2009) tested the differences and commonalities in the US commercial and residential markets for the period from 1978 to 2008. For these two markets, he observed: the differences in supply conditions, business cycles effects, and leverages. Essentially, his findings suggested that supply conditions are very elastic or inelastic in different cities and sectors. For the period from 1978 to 2008, there was greater price volatility in commercial markets, which were more prone to sharp recessionary price drops than residential markets. Leverage ratio for commercial markets (75%) was higher than that for the owner-occupied housing markets (55%). However, the demand drivers seemed to move these markets in the same direction over time, because property cycles in both sectors were long and their income and capital growth rates were positively correlated.

Ball et al. (2010) recommended comparing market information at international, national, local and firm levels. For the business cycle analysis on an international level, Kraay and Ventura (2001) concluded that business cycles in rich countries are more volatile and synchronized than in poor ones. Hott and Monnin (2006) employed interest rate, risk of owning a house, physical depreciation of the house, expected capital gain, and income variables to build a supply-demand theoretical fundamental real estate price model. They applied the model to estimate house prices in the US, UK, Japan, Switzerland, and Netherlands. Their findings indicated that the gap between actual and estimated house prices decreased very slowly and thus, the possible link between actual and fundamental prices appeared only in the long run. In their view, a model that incorporated homebuyers' expectations, internationally, would be a better predictor of house prices.

On the regional level, Reed and Wu (2010) demonstrated that the characteristics of suburban residential market cycles are unknown. They also called for future research and analysis of local property markets. Nneji et al. (2012) applied a regime-switching model to analyze the bubble problem observed in the US regional housing market between 1991 and 2010. They concluded that speculative bubbles in coastal regions are the most contagious.

Ownership is another recurring theme. This has been studied by Laposa and Charlton (2001). They compared the corporate property ownership by 2,182 European and 1,573 US firms in 1999. These researchers found that property, plant and equipment, as percentage of long-term debt, to be significantly higher for the European firms than for the US firms compared.

Tvede's (2006) motivation for assembling these variables and ratios proposed for market analysis in the residential and commercial sectors. (See Table 1.) From his study, it is clear that the drivers of each property cycle in residential, office, retail, and industrial markets have something different and something similar. This significant result is helpful for the comparative property markets analysis.

**Table 1. Variables and Ratios for Property Market Analysis**  
(Extracted from Tvede (2006))

Variable and ratio	Market	Housing	Industrial	Office	Retail
<b>Variable</b>					
Money supply		•	•	•	•
Interest rate		•	•	•	•
GDP		•	•	•	•
Housing starts (for residential)		•			
Number of days on the market		•			
Number of unsold homes in a city		•			
Number of homes on the market over 120 days		•			
Number of mortgage applications		•			
Population growth		•			
Household formations		•			
Cost of renting housing		•			
Industrial production			•		
Manufacturing employment			•		
Transportation employment			•		
Airfreight volume			•		
Rail and truck volume			•		
Retail sales			•		•
New office construction (for office)				•	
White collar employment				•	
Inflation expectation					•
Car registrations					•
Retail sector expenditure					•
Aggregate household wealth					•

Variable and ratio	Market	Housing	Industrial	Office	Retail
<b>Ratio</b>					
Affordability (Household income to price)		●			
House price to employee compensation		●			
Asking price to transaction price		●			
% of properties bought for investment		●			
Industrial capacity utilization			●		
Vacancy rates			●	●	●
Cap rates to interest rates			●	●	●
Rental costs to mortgage costs			●	●	●

- **Residential Property Literature Review**

In researching Canadian real estate cycles, Clayton (1997) utilized current asset value, rental income, expected return to housing investment, annual property tax rate, and sum of depreciation and maintenance costs. Cho and Ma (2006) collected monthly data for the twelve year period from 1991 to 2003 in Korean housing market to examine the dynamic relationship between housing value and interest rate. They specified a long-term negative equilibrium relationship between housing value growth rate and interest rate. Moreover, they confirmed a one-way causal relationship – from interest rates to housing value growth rates, for short-term horizons. This finding illustrates the effect of interest rate adjustment policy on housing value. Evidence presented by Edelstein and Tsang (2007) support the view that the local fundamental variables (employment growth and unexpected employment growth) have a stronger impact on residential housing markets than regional/national fundamental variables, state income growth, and national changes in construction costs. Hargreaves (2007) conducted a study of the New Zealand housing market and showed that rent is a useful 6-month leading indicator for forecasting house price changes.

In the housing regional economic analysis research, Miller and Peng (2006) utilized quarterly housing price index panel data from 1990.Q3 to 2002.Q2. in a Vector Autoregression Model (VAR) and a Generalized Autoregressive Conditional Heteroskedasticity Model (GARCH) to specify the relationship between housing prices, per graduated payment mortgage (GMP), home appreciation rate, and income indexes at the level of metropolitan statistical areas (MSAs). Their results support the view that there is strong evidence of heterogeneity in the housing market as well as the urban economy among MSAs.

Despite the extensive literature on housing demand, far less has been written about housing supply. The supply elasticity of housing illustrates how quickly house prices respond to economic shocks and this has many real economic consequences. In this light, Blackley (1999) tested the long-term elasticity of new housing supply from 1950 to 1994 in the US residential market. His findings suggested that long-term elasticities in new housing supply are price elastic. The significant variables identified were real interest, expected inflation rates, and construction wage rate. Levin and Pryce (2009) found that the long-term interest rate is a key determinant of price elasticity in UK housing supply for the period from 1996 to 2007. Ball et al. (2010) used standardized models to prove that the responsiveness of housing supply to market conditions is lower in Britain than in the US or Australia. Ball et al. (2010) also explained, contrary to the past literature, that there are insights to be obtained from examining local and corporate level data. Local estimation across the Thames Gateway shows the importance of planning constraints on supply elasticities; and historical patterns of land use and geography are important. Firm level data indicate that supply elasticities are greater for large companies than for small ones.

- **Commercial Property Literature Review**

Pritchett (1984) and Gordon et al. (1996) defined business conditions in the real estate market in terms of variations in housing prices and construction costs; as well as rents and vacancy rate adjustments. Kaiser (1997) stated that the business conditions of the real estate industry can be best represented by movements in return on investment. Through a combination of the above definitions, we can understand the interrelationship of property prices, rents, returns and vacancy rates; and how these variables impact business conditions in the real estate industry. Barras (2009) tested the data from London office sector and concluded that construction lag and rent adjustment lag are the key drivers for commercial property cycles.

Historical data show that the office market is highly cyclical due to the over response of supply to office rent increases and the long time that it takes for supply to adjust to changes in demand. (Lizieri, 2009).

### **3. The proposed Comparative Framework for Commercial and Residential Markets**

The value of comparative study is in the finding of differences. Therefore, it is important to find the key issues of comparison when looking at markets. The differences and commonalities between commercial and residential markets are dictated by the respective method by which products and services have been produced, sold, owned and used. In broad form, the features of residential and commercial markets and firms are not different from those associated with any other product or



service in a modern economy. However, the details of the characteristics of property markets are somewhat different.

This paper aims to develop a comparative framework, which includes Property Location/Level and Physical Characteristics Data and Property Market Information for commercial and residential markets analysis.

Firstly, Location/Level is considered. Buildings are not easy to be built, moved and demolished because they are durable, costly and take much more time to be constructed than manufactured products take to be completed. As Local/Level considerations impact market behaviour, it would be instructive to analyze market behavioural differences at international, national, regional, sub-regional or even firm levels. At each level, differences may be analyzed according to Physical Characteristics Data and Property Market Information.

Next, Physical Characteristics Data are reviewed. The Physical Characteristics Data of properties are, *inter alia*, age, structure, layout, size, height, use, styles, and environment. Buyers and sellers generally go through a comparison process that considers these characteristics to negotiate the best exchange opportunities, which, in turn, minimize the cost and maximize the value. This comparison process is the fundamental reason for market change behaviour and the formation of price. For example, comparative appraisal method, hedonic price index and time series adjusted price index embody the concept of the differences between property physical characteristics compared. Also, statements about physical property characteristics are prevalent in the literature. To take building age as an example, UK government statistical reports generally describe housing structures as being, on average, much older than commercial buildings.

Finally, Property Market Data and Information are considered. The Property Market Data is normally much more difficult to collect and this data quality is generally poorer than that in other industries (for example manufacturing). On the other hand, due to economic influence and linkages, government and researchers conduct many market information analyses, thereby making Property Market Information more abundant and accessible than data about Location/Level and Property Physical Characteristics. Consequently, the knowledge in property market economics has been greatly augmented by the literature and information that can be found in the public domain. In order to systematically analyze the abundance of Property Market Information (generated from the multitude of market information analyses), this study categorized the property market information into 4 sectors: User-Occupier, Owner-Investor, Development-Land and Financial. (*See Figure 1.*)

#### **4. Discussion**

As mentioned above, the central premise of the comparative framework proposes some research questions for comparative research in residential and commercial markets.

Property cycles are relevant and will become more important as reference point and decision guide for investors and portfolio managers (Pyhrr et al., 1999). Especially, since the credit crunch in 2007, the average housing price drop - 33% in the US (S&P/Case-Shiller National Housing Index, 2007-11) and 20% in the UK (Halifax Housing Index, 2007-11 ), it has become necessary to better understand real estate cyclical behaviour in order to shape policy aimed at stabilizing financial markets and

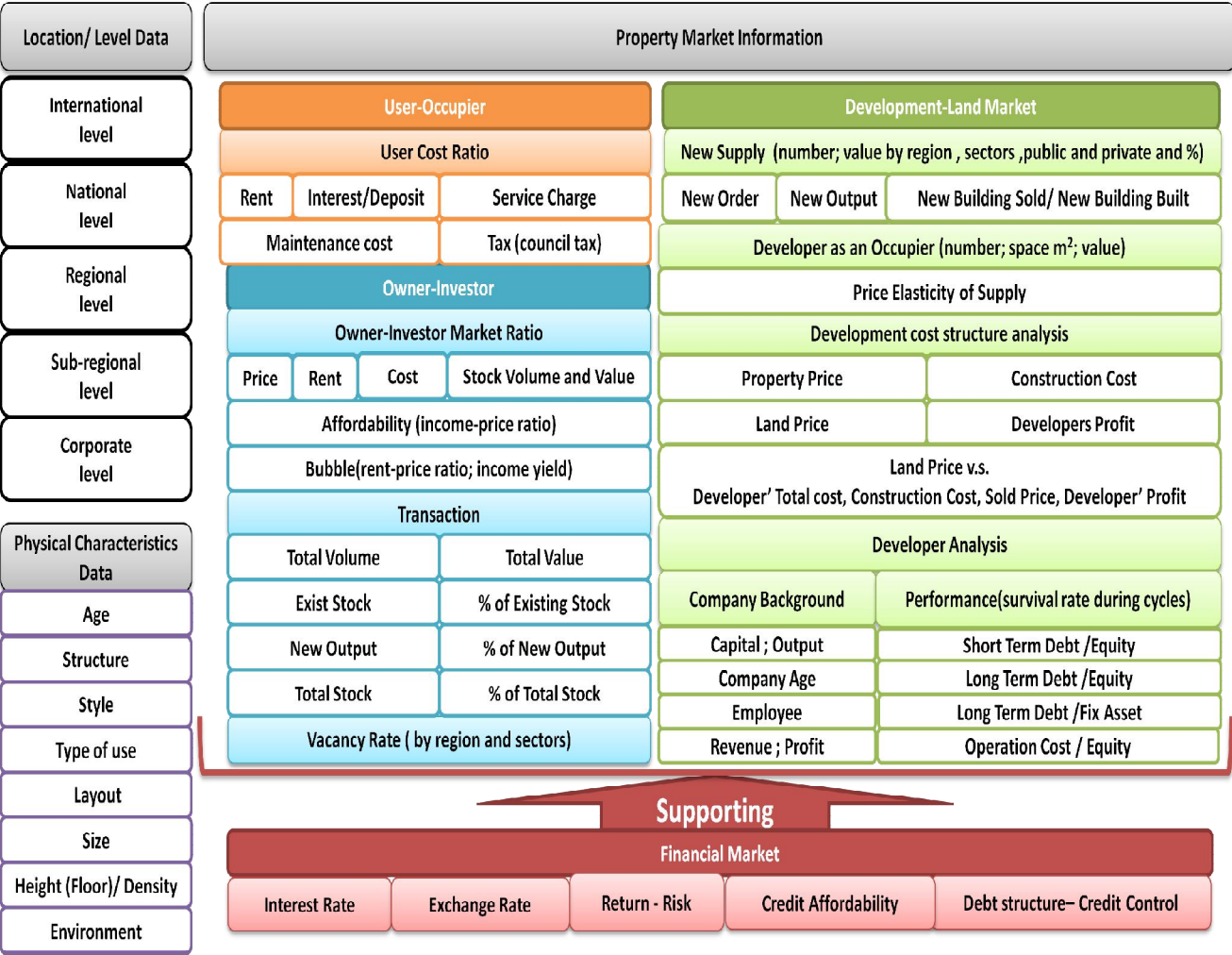
the economy. Therefore, this paper proposes two questions about property cycle comparison:

- (1) What are the similarities and differences in changes during cycles?
- (2) What are the reasons for these similarities and differences?

Interest rate, credit availability, unemployment rate, consumption, household income, and new investment/construction are variables which can be used to analyze the similarities and differences.

RICS (1994) defined the property market as being composed of three groups: Occupiers, developers, and investors and Healey (1991) concluded that developers play the role of key coordinator and catalyst during the development cycles. For this reason, the author wishes to draw attention to research about developers. Within the literature resulting from research about developers, Antwi and Henneberry (1995) argued that developers' behaviour may vary during the development cycle. In the author's view, when the markets seem profitable, new construction will be sanctioned. On the contrary, during downturns in market cycles, there would be less new construction activities. These considerations prompt some questions about developers' behaviour during cycles, such as: which type of developer - purely residential or purely commercial, has higher or lower risk/return during cycles and why?

# A Comparative Framework for Commercial and Residential Markets by Property Market Data and Information



**Figure1. A Comparative Framework for Commercial and Residential Markets**

## 5. Conclusion

This paper has proposed a new comparative framework for residential and commercial markets for systematic thinking about market cycle analysis. Comparative economic analysis of residential and commercial markets should generate more questions about the changing property economic environment. Providing a different perspective of market cycle analysis will contribute to the body of knowledge and improve understanding of the unstable nature of markets cycle.

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