Markets at Work

Dynamics of the Residential Real Estate Market in Hong Kong

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1 INTRODUCTION

The real estate sector forms a major part of any economy both by its sheer size and also by its extensive influence on the various sectors of the economy. With its various components, it has the unique characteristics of being simultaneously a major input in the productive capacity of the economy in the case of office, commercial and industrial real estate and a major input in the consumption choices of households in the case of residential real estate. It is also an important investment vehicle for both individual and institutional investors as an investment good, while also being the output of the development and construction industry and as such also a major consumer of manufacturers output. In many cases it forms the principal form of saving for many households. These factors ensure that the performance of the real estate sector in any well-functioning market economy remains a closely watched phenomenon — in Hong Kong perhaps more so than in many other economies.

Despite the importance of the real estate sector to economies generally, economists have been slow to develop useful tools to conduct analyses of the sector, and to some extent this reflects in the forms of analysis still widely used in many markets. Typically real estate markets are viewed as bounded by the limits of particular cities or larger urban concentrations (for example, the Hong Kong metropolitan area would be an appropriate unit of analysis if industrial real estate was the object of analysis); or on the other hand cities were broken down into smaller units of analysis — 'submarkets' (for example, within Hong Kong's retail sector Causeway Bay could be viewed as a distinct submarket). Such approaches generally suit the immediate information requirements and activities of real estate professionals active in the valuation, letting and selling of property, and allowed some market analyses based on data so aggregated. But typically such analyses also remain fragmented, and of course, the amount of information so put into the public domain remains dictated by the commercial interests of those conducting the analyses — it does not generally make much commercial sense for a real estate developer to disclose the results of an in-depth market analysis of a particular sector or a particular location. It may also not make sense for consultants who advise investors to make all their proprietary information public. These considerations contribute to making the business of real estate highly information-intensive and sensitive to detail at the level where actual transactions are conducted, and ensures to some extent that a substitute for in-depth local market knowledge is remote if not impossible.

There are further shortcomings in traditional approaches to the analysis of real estate markets. The institutions and structural characteristics that make particular markets function well or poorly (or perhaps not at all) are themselves very seldom the focus of analysis, despite the importance of these institutions and structures in the allocation of an extremely important resource in urban-based economics — the scarce resource land. The efficiency of the institutions and practices associated with the management of land is becoming an increasingly important matter with continuing urbanization in many countries worldwide. For these and other reasons that will become clear in this book, the institutions and practices put in place to manage land as a scarce economic resource in Hong Kong are of critical interest to policymakers everywhere, including those in the People's Republic of China and other Asian countries with high-density urban development.

The Demand for International Comparative Analysis from Market Participants and Policymakers

As much of the actual commerce of the real estate industry in all economies remains to be conducted at a local level, it can easily be considered the only level that matters critically when real estate markets are analysed — this characterization is naturally a mistake. Local market transactions may be dominated by local participants (either as agents or as principals), but at least two recent crucial international developments demand that detailed local information be supplemented by analyses of the structure and dynamics of real estate sectors beyond analyses of market demand and supply trends. As is often the case with such things, these two phenomena have not been entirely separable and have had individual and combined influence on the conduct of business in real estate markets everywhere. We mention and briefly describe these two phenomena hereunder, because they form an important underlying reason for the demand from real estate economists for analyses of the sort that form the subject of this book. To some extent, these demands have preceded demands for comparative analyses from policymakers.

What were these large-scale trends? They both have to do with the worldwide institutionalization of all investment activities, including investment in securitized real estate and also direct investment in particularly commercial real estate assets.

The first international development is now a largely historical fact, and can be described as the domination of financial institutions (i.e. pension funds, insurance companies, etc.) of investment activities in most advanced market economies in all forms of investment goods, including stocks, bonds, derivatives, etc.; and which also spawned the parallel growth and maturity of funds management as an industry over the last two to three decades. Hong Kong is indeed a centre from where fund management activities in all major world markets are transacted.

In Hong Kong, institutional investors, either directly or through fund managers, have not been as active in real estate markets as elsewhere, in some measure as a consequence of the absence of securitized investment vehicles such as real estate investment trusts and other real estate investment vehicles that exist elsewhere (with the exception of a small number of mortgage-backed securities);[1] but it could also be argued that the high incidence of owner-occupation of real estate in Hong Kong and small asset size (and high prices) have mitigated against it. Elsewhere, the institutional influence has greatly increased the demands on real estate investment analysts — investment analysis techniques moved rapidly beyond discounted cash flow (a staple of the 1960s and early 1970s) as a fundamental technique for analysing any investment (including real estate), towards the formal tools of modern portfolio theory which demands a formal treatment of the combination of all investment goods (including real estate assets) within a risk/return asset allocation framework. Therefore, the first international trend started to break down the highly local nature of real estate investment analysis practices, and culminated in the demand by institutional portfolio investors and fund managers for more formal techniques of investment analysis to inform real estate investment decision-making. Direct and other forms of institutional investment activities will increase in Hong Kong real estate with inevitable legislative liberation of institutional investment activities and further development of the financial sector; and associated therewith the inevitable insistence on investment analyses aimed at supporting the construction of optimum investment portfolios are likely to become the standard as has happened elsewhere.

At the same time as separate market economies were standardizing investment analysis techniques as a consequence of the demand and influence of institutional portfolio investors, the second development was quietly gathering momentum: this is the globalization of the world economy generally, and more specifically for our purposes, the international mobility of capital. With the rapid globalization of financial markets, institutional investors extended not only their attempts to optimize the allocation of their investments generally, but also their investment in real estate in both domestic and international markets. Large corporations operating across countries also have to meet their real estate needs in global markets, as witnessed by the rapidly growing field of corporate real estate management. Together with the international mobility of direct investment capital and investment portfolio capital, and therewith the international activities of institutional investors, there were thus created further demands on real estate professionals functioning in local markets from institutions that were considering investment in direct and/or securitized real estate investment in those markets. Predictably, there arose a demand for reliable comparative analyses of real estate markets and institutions across countries, regions and even between sectors in local markets.

The demand for analytical information over the last two decades were, however, not limited to potential investors; the demand by policymakers and regulators has also been growing rapidly. Powerful interactions between real estate and macroeconomic management decisions during the 1985–1994 real estate cycle have demonstrated the need to understand better the impact of real estate asset inflation on monetary and exchange rate policies in Japan, the UK and the Nordic countries (Renaud, 1997). Bank failures are also too regularly associated with real estate cycles (witness the instability in the Hong Kong financial system during the period 1983–86, the US Savings and Loan crisis of 1989–93, and the present instability in the Japanese financial system). Furthermore, increasing competition between cities in a rapidly globalizing economy has highlighted the importance of land resources and their management to local enonomies, and the benefits to be gained from efficient use of scarce land resources. All too often this requirement is coupled with intense pressure from rapidly urbanizing populations, which create additional and severe pressure on the structure of demand for land use and allocation of the resource.

The demand for comparative analyses of real estate markets required at least some internationally accepted analytical framework for it to be viewed as reliable and useful. But unlike an existing and ready suite of analytical techniques in financial-economics that could be adopted and adapted for real estate investment, no formal economics frameworks existed or had been developed to allow for such international comparative analyses of real estate markets and institutions. The problem for comparative work of real estate markets, therefore, is that the real estate sector seems to be the last major economic sector of the economy for which international standards of evaluation are being developed. Trade, industry, agriculture, services, labour markets have generally agreed standards of evaluation — or at least much better ones than real estate.

The demand for an internationally acceptable, rigorous framework for comparative analyses of real estate markets and institutions has resulted in a sustained effort by economists to develop models to conduct and present the result of analyses of real estate markets in ways that are appropriate to those with global concerns. In a study of the private residential real estate market in Hong Kong, this book explores the use of such a model, one that could be described as the 'modern paradigm of the real estate economy' — an elegant integrated model of the real estate economy developed by Jeffrey Fisher and later completed by Denise DiPasquale and William

Wheaton (Fisher, 1992; DiPasquale and Wheaton, 1992). Use of the model forces analysts to consider a range of important structural and dynamic factors in their analysis of a particular real estate market, in order to compare such factors across markets usefully and reliably. Although the model has gained widespread acceptance in academic circles, a body of work is still required to test its usefulness in practice. We attempt such a test in this book — in essence we are attempting to answer a number of questions about the model: can it be used effectively to present the interactive features of the wider economy and of the endogenous characteristics of the real estate sector that explains its dynamics? Is it a good vehicle for reporting in a systematic way the key economic, institutional, financial and regulatory features that must be known to understand the dynamics of a given market for these to be of any use for international comparisons? Can we move away from international comparisons that are typically partial, fragmented, and too often anecdotal or frequently simplistic trend analyses by using this model? We therefore present this book as a test of the organizing powers of the FDW model for Hong Kong, and hope that it would provide a benchmark of sorts as the first test of its kind of a Hong Kong real estate market segment (and to our knowledge the first in Asia).

Why Hong Kong?

We offer two main reasons for choosing the Hong Kong real estate economy to test the FDW model as an expository framework and analytical tool, although intuitively there are certainly many more. First, Hong Kong has one of the most dynamic and sophisticated real estate economies in the world. Perhaps more importantly, at a time of rapid globalization of the world economy, Hong Kong is possibly the best model that exists anywhere of the behaviour of an advanced real estate industry operating in an open economy. There is, therefore, widespread international interest in identifying and presenting introductory analyses of the specific institutions and regulatory features that have made Hong Kong's real estate economy so flexible and responsive to changing domestic and international conditions.

The analyses presented in the rest of this book indeed identifies regulatory and structural features that have served this community exceptionally well in the allocation of scarce land resources. We think of the highly flexible people of Hong Kong which have dramatically restructured their economy within two decades — flexibility that has never been witnessed elsewhere (Chapter 2). We think of rapidly and efficiently changing real estate rental and asset prices, mostly unrestricted by arbitrary controls and political interference but subject to independent financial regulatory discipline within an open economy (Chapters 3 and 4). We further think of the extremely efficient delivery mechanisms of the major real estate developers in Hong Kong, and the extreme constraints that restrictions on the supply of developable land places on the community (Chapter 5); a constraint that is clearly placing limitations on preferred patterns of consumption of real estate services in the city (Chapter 6).

Our second reason for presenting this analysis is the hope that identification of those factors that have contributed to the spectacular performance of the real estate sector in Hong Kong will urge caution upon policymakers in future when considering policy towards the sector. It is a fact that inappropriate interventions are a permanent threat to well functioning real estate markets everywhere, because real estate assets are the longest lived investments in the economy along with investment in physical infrastructure. We therefore hope hereby to emphasize the importance of factors and institutions which contributed to success, and possibly contribute insights into factors that have proven to be constraints on the residential real estate market in Hong Kong.

The Modern Real Estate Paradigm and the Fisher-DiPasquale-Wheaton Model

In order to introduce the nature of the relationships represented by the Fisher-DiPasquale-Wheaton (FDW) model and how these help to provide insights into the functioning of real estate economies, we ask the reader to indulge first in the statement of a limited number of simple but fundamental economic concepts that apply to most capital goods (or producer goods including real estate) in an economy. We divide these concepts into four, which in turn we choose to label the four 'building blocks' of the FDW model. The concept of economic depreciation is introduced first because it perhaps requires the most detailed explanation and concepts to explain the remaining three.

At a fundamental level, most capital goods in an economy, such as machine tools, are used in the various intermediate stages of producing a product or service for which there has to be a final end-user demand — a 'derived demand' (a frequently encountered concept in real estate economics textbooks). Useful examples of capital goods applicable to the analyses that follow are freight ships, container ships or bulk cargo carriers, freight aircraft, trucks and other motor vehicles (including vehicles such as passenger cars that may be used either as a capital good in a production process, or as privately owned transportation). This categorization includes real estate assets. Central to the understanding of the economics of all such capital goods is that there is an aggregate demand in the economy for the function provided by the capital good. For example, there is at any time an aggregate demand for air freight services in an economy, measured perhaps as an annual, monthly, weekly, or even daily tonnage that customers require to have moved on a particular route.

Typically, this aggregate demand is satisfied by a stock of capital goods that exist in the economy, and this total stock (or aggregate supply) will produce the required amount of output of services per period — the 'flow' of products or services demanded and thus supplied. If we continue the air freight example, this flow of demand will determine the overall aggregate supply capacity of the stock of capital goods producing the flow of goods. In the air freight example, this will be the total number of aircraft required to service the flow of demand, and will be influenced by factors such as asset cost, travel time on the route, aircraft turnaround time, and other constraints particular to that industry. As long as there is no change in the flow of demand (i.e. no expansion or contraction), or as long as there is no change in the capacity of the stock to produce the required service, there will be no reason to increase the number of assets in the total stock. We have thus an equilibrium position.

However, capital goods wear out (*economic depreciation*) and have to be replaced. (For example, an aircraft eventually becomes dangerous or too costly to maintain and has to be replaced; office buildings have to be renovated or redeveloped.) Alternatively, technological advances and innovation introduce improvements which render older stock uncompetitive despite long economic lives. (For example, a new aircraft produces the same service as an old one at a substantially reduced operating cost.) Under both these conditions and despite static demand, there will thus be a demand for the replacement of depreciated or uneconomical capital goods, including also real estate assets as a class of capital good. This 'replacement demand' for depreciated assets is a fundamental factor in all sectors of the economy that produce capital goods as a business activity, including real estate developers and construction companies. This concept forms an important building block of the FDW model and will be returned to in the rest of the book.

We commenced the discussion by assuming that the aggregate demand for the services produced by the stock of capital goods is static — leading to the conclusion that demand for new assets is thereby restricted to the *replacement demand* for depreciated assets. If aggregate demand expands, however, there will be a demand for additional units of the capital good — and the aggregate stock will expand to meet the higher aggregate demand. In turn, with an increased stock this should cause an increase in the absolute replacement demand from economic depreciation, even though the *rate of depreciation* of the capital good may not change. So the industries that produce or build the capital good changes capacity first in line with demand to expand the stock, and thereafter changes capacity again to service an increased replacement demand from depreciation. Of course, when aggregate demand reduces, the process is reversed.

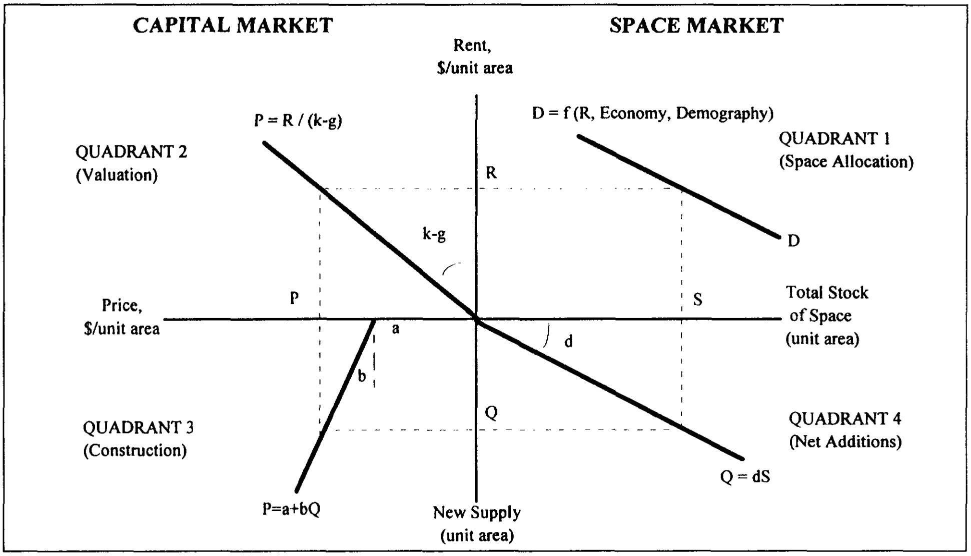
We can now rapidly introduce the remaining three building blocks of the FDW model. There will not be a demand for new capital assets if their function was not valued — i.e. if the price for their output of goods or services was not economical, or the benefit gained from owning them did not exceed the cost. We are then further concerned with three concepts that have to do with prices surrounding the capital good, and these three concepts underlie the remaining building blocks of the FDW model. The next building block is the price that a user of the capital good will pay to secure the right to use the asset, i.e. the *market price* for use of the asset given the *aggregate demand and stock of capital goods.* To the owner of the aircraft, from our earlier example, this is represented by the unit price that can be earned for carrying air freight on the route in question, or for the owner of a commercial property this is the market rent paid by a tenant to use the property. In the case of some capital goods this is not always an absolutely clearly identifiable cash consideration, as could be the case for example with capital goods that produce a stream of services in private household consumption use such as privately-owned cars or privately-owned residential properties. The price for the good or service generated by the capital asset is then the second building block of the FDW model.

The next concept surrounding prices and the capital good is the *price of the capital asset* itself, which must clearly be related to the market price of its services at a time, but it is also related to how long it can generate a flow of services, so the rate at which the asset depreciates is relevant. The asset has an economic life and the revenue to the owner generated by the sale of services flowing from the asset over its economic life is therefore viewed as the principal determinant of the asset's value; but it is also possible that future revenue is uncertain — expected changes in future revenue (growth, or even decline) are important. expectation therefore play an important role in considerations of what an asset's value is, and different expectation are to be expected. Alternatively, if the prospective buyer intends to hold the asset for a shorter period than its economic life, it introduces the market for second-hand assets into the analysis (the secondary market).

The accepted methodology to estimate a value from an expected future revenue stream over a holding period is the discounted cash flow method. However, the riskiness of the revenue stream generated by the asset is also important, because there may be other investment opportunities which may generate the same revenue with less risk and would thus be preferable. If we separate for the purposes of explanation investments in capital goods from the rights to their use and revenue from their use, we see that investors in capital goods for their economic returns have a wide choice of investments — direct investment in the capital good itself (a machine tool; a car; an aircraft; a commercial, industrial or residential property), or a range of indirect forms of investment (such as through securities markets). Investors choose which capital assets to purchase based on competing returns, so competition from alternative capital assets affects the relative demand for all forms of capital investment. Competing returns is the principle underlying the economic concept of opportunity cost. The third building block of the FDW model thus encompasses the processes whereby asset prices are determined and incorporates the principles of comparable returns and risk from investment opportunities in alternative capital assets.

The fourth building block is perhaps the least complex, and draws on the outcome of asset pricing principles discussed above. It also requires further reference to the rate at which particular capital assets depreciate. Recall that we stated that when aggregate demand for products and services generated by the stock of capital assets was static, the demand for new assets would be a function of the rate at which the existing stock of assets depreciates. The *supply of new assets*, however, is constrained by the cost of producing new assets (and therefore also by the cost of the inputs required to make or build the new assets). Furthermore, if new assets cannot be produced at a lower cost than the price investors are willing to pay for them, then they will clearly not be supplied irrespective of the rate of depreciation. Supply of new assets at a profit is therefore a requirement to satisfy demand for new assets, and forms the fourth building block of the FDW model.

We have so far introduced the economic principles underlying the FDW model as these apply to capital goods in general. The formalized FDW model integrates all these concepts into one multi-directional framework that shows the relationships between common variables in different processes. In the following chapters, relevant aspects of the model and the dynamics surrounding the relationships embodied in the model will be elaborated upon. The FDW model views the real estate economy as a system in equilibrium, summarized by four quadrants divided vertically into the space market on the right and the investment or capital market on the left (as shown in Figure 1.1).


CAPITAL MARKET
SPACE MARKET
Rent,
$/unit area
P = R / (k-g)
D = f (R, Economy, Demography)
QUADRANT 2
(Valuation)
QUADRANT 1
(Space Allocation)
R
k-g
D
Price,
$/unit area
P
S
Total Stock
of Space
(unit area)
a
d
b
QUADRANT 3
(Construction)
Q
QUADRANT 4
(Net Additions)
Q = dS
P=a+bQ
New Supply
(unit area)

Source: Following DiPasquale and Wheaton, 1996.

Figure 1.1 Two-Sector, Four-Quadrant Model of the Real Estate Economy

The model is read counter-clockwise from the upper-right quadrant. The fundamental principle underlying the model is that the dynamics of the real estate market starts with the determination of the level of net rental income **R** at a particular time (the price for the service produced by the asset) represented here in *Quadrant 1*. In a given period, the rental income that a real estate asset commands per unit area depends on the demand for and the availability of existing space. When demand is stable and the market clears the rent level will be **R**. Curve **D** illustrates a typical demand curve for the use of space offered by real estate assets. With an ability to pay higher rents, perhaps through increased corporate earnings, the curve **D** would tend to shift upwards and with static supply this would result in higher rents. Similarly, if there was an aggregate increase in demand, curve **D** would shift to the right; also with resultant higher rents should supply remain static. The level of rent earned by real estate assets directly effects their attractiveness as investment goods and therefore the process of asset price formation in the market for real estate investment. We know that the level of rents is determined in the space market, but also that rental income is a prime consideration in asset pricing. Investors purchase a current and future rental income stream, and the observed prices reflect the current valuation of the expected rental income stream (DiPasquale and Wheaton, 1992). expectation of risk adjusted returns on alternative investments in the capital markets determine the relative attraction of real estate assets over other capital assets (*Quadrant 2*). For a given level of interest rate and required rate of return, **k**, the rent level **R** leads to a present value (or market price) **P** per unit area derived from the rental income stream generated by the asset, while also considering the expected growth, **g**, in rental income. A comparable process determines **P** for owner-occupation of real estate assets. This valuation level **P** in turn triggers decisions to develop new real estate assets by the development and construction industry.

The supply process forms the second half of the real estate investment process (*Quadrant 3*). New development projects result from entrepreneurial decisions about possible net margins to be earned on developing new real estate for sale, given the current market price of new assets, the costs of all inputs and then also the organization, structure and performance of the industry. Quadrant 3 therefore presents a standard supply schedule for the development industry, i.e. the basic environment where decisions are made to supply new real estate. Such new construction represents only gross additions to the stock. Based on the rate at which real estate assets depreciate and become obsolete, part of the existing supply will be removed from the market. *Quadrant 4* represents the process of adjustment in the total stock of real estate assets, i.e. the replacement of fully depreciated and/or functionally obsolete assets over time. This completes the second part of the space market and so closes the model. Under stable demand for real estate services with a stable rent level **R** and no price changes, the amount of new stock developed would only replace the stock withdrawn because of economic obsolescence or physical depreciation from use over time. The net adjustment to the total stock would be zero as long as there are no expansions or contractions in demand. Then there will also be no adjustments in net rental levels.

The FDW model of the modern real estate paradigm is therefore an efficient and elegant way of representing on a single page all the complex factors that shape real estate cycles. An important point to emphasize at this stage is that the FDW model is an equilibrium model — it presents a static view of the concepts discussed above and does not attempt to identify the process whereby adjustment takes place from one equilibrium position to the next. This adjustment process is dynamic and will vary in different markets, across different land uses and in different economies. The model can represent every segment of the real estate market: residential, commercial or retail, offices and industrial real estate. It forms a framework to identify and discuss the dynamics of the relationships within all sectors prior to in-depth empirical analysis of such dynamics. Once completed for the particular real estate sector under analysis, the model can be used for initial qualitative evaluation of various questions such as new policies towards the real estate sector or anticipated structural or cyclical changes in the wider economy; thus perhaps leading to the identification of critical factors that may otherwise be overlooked.

Is Private Residential Real Estate Representative of the Overall Hong Kong Real Estate Industry Dynamics?

We chose the private residential real estate sector in Hong Kong as subject of analysis for the book, with immediate appreciation of the fact that different sectors of the markets (commercial, industrial) do have different dynamic characteristics. However, we also believe that all sectors of the real estate industry in Hong Kong have important characteristics in common, which in our opinion makes the private residential sector a reasonable proxy for the behaviour of other sectors and the market as a whole. Common characteristics of all sectors include the following:

- All sectors exhibit an extremely fragmented asset ownership pattern facilitated by very well-developed and accepted strata-title legislation. There also exists high rates of owner-occupation in all sectors including the office, retail, industrial and industrial/office sectors.
- Short term leases, high rates of mobility and very efficient and rapid rental price adjustments characterize all sectors.
- Price sensitivity of tenants is high and frequent relocation is not uncommon.
- Barriers to entry for developers into all sectors are high and are increasingly so. All sectors face similar factor constraints, namely individual access to land, capital

requirements, and higher redevelopment costs than in greenfield projects of yesteryears; while delivery methods for all sectors use similar high rise building technology and are subject to the same project scale economies.
- Significant lead times between decisions to invest and unit deliveries apply in all sectors. However, it has to be pointed out that Hong Kong lead times are possibly short when compared to development activities of comparable scale and complexity in other economies.
- Rapid real estate asset price adjustments occur in all sectors.
- Close links exist between capital market conditions and sector pricing behaviour.

Table 1.1 presents some descriptive statistics of the total stock of residential real estate in Hong Kong.

From these statistics we see that in 1995 approximately 49.1% of the housing stock is public housing (853 000 units). Approximately 50.9% (885 700 units) of housing units are privately owned with approximately 75% owner-occupied. The private stock is classified into five categories by size, namely *Class A* (smaller than 40 m^2), *Class B* (40–70 m^2), *Class C* (70–100 m^2), *Class D* (100–160 m^2) and *Class E* (larger than 160 m^2). We categorize Class A, B and C collectively as small units, and Class D and E as large (or luxury) units. As small- and medium-sized units form the bulk (92.6%) of the overall private housing stock and is of greatest interest to market participants in Hong Kong, we generally concentrate our analysis on this combined category.

A glaring feature of the statistics in Table 1.1 is the very large proportion (49.1% in 1995) of public housing in the total stock. We immediately agree that it would be incorrect to proceed without recognizing that this is a serious anomaly in Hong Kong's housing sector brought about by the large proportion of public housing, but in our view it adds to this test of the internal consistency of the FDW model. It must also be pointed out that this is a conspicuous exception to the Hong Kong principle that the public sector provides the regulatory environment and the private market takes care of supply based on market factors only. Housing is the single sector of the Hong Kong economy where the government has intervened massively, initially by historical accident rather than by design following the great Shek Kip Mei fire of Christmas Day 1953. This role which started fortuitously in 1953 has steadily expanded over time and presently it can be argued that the public sector may indeed be crowding the private sector out, with resultant thinner markets and greater price volatility. The massive public housing supply is excluded from our analysis because it is not guided by market mechanisms. We see that there is a strong public-private duality in the housing sector today:

- In number of units the public and the private housing stocks are roughly equal with 853 000 public units and 886 000 private ones.

- In terms of gross floor area (GFA) the private stock is almost twice as large as the public one with approximately 45.5 million m^2 against 24.9 million m^2. The average private unit has about 55 m^2 and the public one only 29 m^2 of gross floor area.
- With the commencement of the privatization policy in 1976, the share of the public stock under privatization at subsidized prices (mostly through land prices below market) has grown to about 23% of the public units.
- About 51% of the total population owns or rents a privately supplied housing unit to which should be added around 11% acceding to ownership via public programs.
- The average rent to income ratio (RIR) (including rates, rent, management, water and power) diverges sharply between the public sector with 8.4% and the private sector where it is four times larger with 32.7% (see Chapter 3).

We are not claiming that such large-scale government intervention has not had the potential to distort the private market. The FDW model can help report the nature, direction and impact of these distortions but it is beyond the scope of this book to identify the nature and extent of such distortions. To establish the nature and extent of such possible distortions for Hong Kong would require fundamental and empirical research beyond the present scope of this study.

Organization of the Book

The preparation of this book was guided by three principal objectives. Firstly, it was to apply the Fisher-DiPasquale-Wheaton (1992) two-sector, four-quadrant model of a real estate economy in order to identify the *key factors* which shape the *dynamics* of the private residential real estate market in Hong Kong; secondly, to do brief experiments to test the model's ability to assess the potential impact of public policy towards the industry. In conducting the experiments we aim to test the internal consistency of the model, and as such do not expect readers to agree with our view of the adjustment mechanism as we perceive it — our main purpose is to test the organizing power of the framework, but if our analyses generate debate it would achieve an additional but unintended aim. As the third objective, we attempted to identify and describe relationships and institutions with a minimum of technical analysis, in order to provide accessibility to as wide an audience as possible, including professionals active in the real estate markets of Hong Kong, investment research analysts in the financial sector in Hong Kong and other world financial sectors, corporate executives in the real estate sector in Hong Kong and other economies, policymakers in Hong Kong and other jurisdictions, and also members of the general public with a personal or household interest in this important economic sector of Hong Kong.

In conducting our analyses, we have followed closely the organization of the FDW model itself, and present our findings in eight chapters. In Chapter 2, we present some stylized facts of Hong Kong and its residential real estate sector primarily to serve as background to readers that are not familiar with Hong Kong. Following that, Chapter 3 focuses on the real estate market and identifies key factors which shape the demand for residential real estate space in Hong Kong as well as the allocation and pricing of available space. Chapter 4 covers the links between the real estate economy and the Hong Kong financial markets, and valuation and investment decisions. Chapter 5 focuses on the production process and the physical, regulatory and economic factors that shape the structure and organization of the Hong Kong real estate industry and its output. Finally, closing this four-part decomposition of the real estate economy, Chapter 6 highlights the key features of the stock adjustment process in Hong Kong and the factors which explain the rapidly changing composition of its real estate stock over time. Chapter 7 suggests how the model can be used in the evaluation of public policy, and precedes a short conclusion (Chapter 8).

Throughout the analysis we have attempted to concentrate on the identification of critical relationships, institutions and structural phenomena that cause participants in the industry to behave in particular ways. In the end, our conclusion is that if the FDW model performs well in the organization of relationships in the residential sector, and the lessons learnt should prove invaluable to the analysis of all sectors of Hong Kong's real estate economy.

Note

1 Fund management and investment trust legislation in Hong Kong at present does not allow direct investment in real estate assets. It is our understanding that this is presently under review. However, trust legislation allows a limited proportion of investment in unlisted real estate securities, of which there exists a few current real estate lease — or mortgage-backed securities issues in Hong Kong.

8

LOOKING AHEAD

The true test of the modern presentation of a real estate economy with the two-sector model is whether it succeeds in going beyond the presentation of the key features of the industry and strengthens our ability to analyse proposed public policy actions. We believe that the robustness of the two-sector model displayed in use allowed this admirably for Hong Kong, while it also allowed us to analyse the essential dynamism of the industry and assess the impact of policy initiatives and structural changes on the sector. We believe that it will be similarly useful in analysing the outcomes of cyclical changes and particular events. The model further allowed us to identify a number of important phenomena that demand further research.

Critical Features of the Residential Real Estate Sector in Hong Kong

This study highlights the remarkable performance of the residential real estate sector in this most open of economies. The flexibility and creativity of Hong Kong's people reflects very well in the response of the real estate development industry's responses to the factors that constrain the delivery mechanisms available to the industry. The biggest factor constraint in real estate development in Hong Kong, namely the supply of new developable land and frictions associated with the redevelopment of well-located but obsolete structures and land uses in attractively located urban areas, has been overcome in the past by substituting capital for land in high-rise, project-scale-intensive developments. The constraints of land supply and more intensive planning regulations in recent years have limited to some extent such technical solutions. Land supply constraints are then demonstrated as being an important cause of rapid housing price increases, with large proportions of existing housing stock functionally and possibly locationally unattractive to many potential purchasers. Policy announcements in early 1997 suggest previous interventions in the market by policymakers that did not consider the distortions caused by land supply are in the process of being corrected, but the lead times will be substantial before the effect of increased supply is experienced in the market.

Credit risk concentration and associated problems with the supply of loanable funds to the real estate sector, possibly the second most serious constraint in the residential real estate market in Hong Kong, could certainly be addressed positively by the creation of a secondary market for mortgages, but the limit to which a Mortgage Corporation could reduce pressures in the financial system is debatable. The resolve of the Hong Kong Monetary Authority in its mission to ensure safe and sound banking in Hong Kong is so important to the future of the Hong Kong economy that it cannot be assumed at all the HKMA will allow the real estate sector to endanger the financial system. It can be expected that there will be continued pressure on the banking sector by the HKMA to moderate lending to real estate.

Conclusion

Substantively, the key features of the Hong Kong real estate industry are remarkably well adapted to its open economy. These institutional, regulatory and financial features should not be dealt with casually if the industry's remarkable flexibility and high efficiency is to be maintained, and Hong Kong is to continue as an important model to study for other societies wishing to learn from it. The Hong Kong real estate industry's organization, structure and performance is a major point of reference given the worldwide trend towards increasing interaction between local real estate markets and global financial markets.

The volume of analysis that had to be marshalled have made this test difficult to keep within accessible space limits and limits to technical analysis. We also acknowledge that variations of the analyses presented here will be needed to deal with Hong Kong's office, commercial, and industrial real estate cycles, but the core model required to understand the industry's dynamics is in place. Using a software metaphor, the FDW model has allowed us to organize an efficient summary page of the Hong Kong real estate economy from which we can later pursue items of further interest through clearly marked hypertext links.

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