

# **The Process of Understanding the Housing Market**

*The Role of Decision-Making Models in Hong Kong Housing Market*

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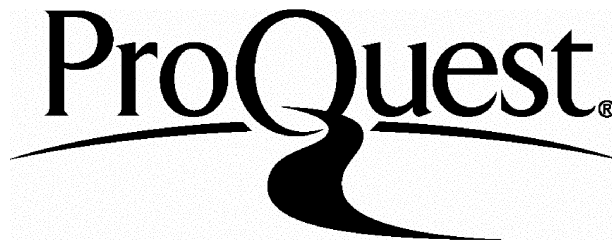
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## **Abstract**

This dissertation investigates the investment strategies of major private property firms in Hong Kong in relation to reducing risk and understanding the housing market factors. However, due to time constraints, this report only analyses the period from 1997 to 2001.

Firstly, the literature review sets out a framework and context on which this report is based. The literature on the subject of residual valuation, sensitivity analysis and diversification is reviewed.

Secondly, an analysis is carried out on some of the biggest property firms in Hong Kong. The analysis looks into the elements that influence these property firms' decision-making model, including government policies, the economic conditions and diversification strategy.

In addition, among these analyses a government housing survey will be given out to show the demand structure of Hong Kong housing market. Based on this survey, certain housing projects will be examined to explore how to match the market demand. This report will analyse three different kinds of buyers, high-income house buyer; sandwich class house buyer; inadequately-housed households.

Finally, it is concluded that the investment strategy of property developers is to reduce the risk and uncertainty by all the possible techniques. The important skill for a successful developer is to form his own judgment of all the variables and strip away what is unnecessary using data and experience. Only based on the factors of local housing market, decision-maker could invest a profitable housing project and meet the market demand.

**Keywords: Housing Market, Hong Kong Property Firms, Investment Strategies, Risk and Uncertainty, Decision-making Model**

Word count: 10,000 words

# Content

Acknowledgement

Abstract

List of Tables and Figures

## **Chapter 1 Introduction..... 2**

1.1 Problem Statement ..... 2

1.2 Objective ..... 5

1.3 Scope..... 5

1.4 Methodology ..... 6

## **Chapter 2 The Introduction of Housing Market in Hong Kong .... 8**

2.1 The Influence of Government’s Policies to Housing Market ..... 8

2.2 Economic Conditions After the Asian Financial Crisis..... 12

## **Chapter 3 Matching the Demand ..... 17**

3.1 Market Research ..... 17

3.2 Private Housing Projects for Sandwich Class ..... 19

3.3 Projects for Inadequately-housed households ..... 21

3.4 Projects for High Income Class ..... 22

3.5 Conclusion ..... 24

## **Chapter 4 Diversification ..... 26**

4.1 Vertical Integration..... 26

4.2 Horizontal Diversification ..... 28

4.3 Diversification in Land Bank..... 32

## **Chapter 5 Conclusion and Recommendation..... 36**

5.1 Conclusion ..... 36

5.2 Recommendations..... 39

Bibliography

Appendix

## **List of Tables**

Table 1.1: Variables in a Housing Project

Table 2.1: Classification of buyer-seller relationships

Table 3.1: Acceptable flat size analysed by type of housing project

Table 4.1: Sun Hung Kai Properties' Housing Projects in Mainland China

Table 4.2: Diversification in IT Industry

Table 5.1: Strategies in Housing Market

## List of Figures

Figure 2.1 Hong Kong's GDP Growth

Figure 2.2 Price Index of Selected Private Domestic Property

Figure 2.3 Property Firms' Net Profit in 1997 and 1998

Figure 3.1 Map of Hong Kong

Figure 3.2 Three Different Types of Units in *The Belcher's*

Figure 3.3 Market Factors and Decision-Making Models

Figure 4.1 External Horizontal Governance Options for the Supply Chain

Figure 4.2 Diversification eliminates unique risk

Figure 4.3 The Composition of Land Banks

Figure 4.4 The Status of Land Bank

## **Chapter 1 Introduction**

This dissertation investigates the investment strategies of major private property firms in Hong Kong in relation to reducing risk and understanding the housing market factors. Risk is taken to be the measurement of a potential loss, identified as a possible outcome of the decision (Byrne and Cadman, 1984). Risk lies at the root of property development which would rank as one of the most speculative activities, involving relatively large amounts of capital into a product that is fixed both in time and space. Some methods have already been invented to estimate and tackle the risk for the property developers, such as residual valuation, sensitivity analysis, and diversification. However, all these methods require variables which are based on the decision-maker's assumptions. Thus, it is crucial for developers to form their own judgment about the variable factors and risks, based on the local housing market content, so that they are able to give more accurate assumptions to make these methods work.

### **1.1 Problem Statement**

In the existing literature it is not difficult to find several methods to analyse and reduce the risk so as to make the investment decision. Residual valuation, cash-flow method, and discounted cash-flow method are all very popular techniques to evaluate housing projects. The principle of these techniques is comparatively straightforward, total development costs are deducted from the estimated value of the completed development to establish whether the project produces an adequate rate of return, either in terms of a trading profit or in terms of an investment yield (Cadman and Topping, 1995). For example, Appendix I is a simplified form of residual valuation based on an office refurbishment project. If the property firm is satisfied with the estimated 7.9 million pounds residual value then it will go with it, vice versa.

Based on the advanced computer technology, particular software can even automatically do the calculation. The only thing for the decision-maker to do is to input some variables then the computer will generate the result in seconds and state the investment decision. It seems that via these approaches plus computer software, project appraisal and risk analysis is not so complicated and very objective.



Nevertheless, the software is working upon a number of assumptions and functions, so the objectivity is only as good as the reality of the assumptions, the extent to which these vary and that the functional relationships hold true over time.

The skill here is, no matter how the developers calculate the residual value by hand or via computer technology, they are the one to decide the variables. For example, in a typical housing project at different periods developers have to judge a whole range of variables and bear all sorts of risk (see the table below).

<b>The Process</b>	<b>The Variables</b>	<b>The Risk</b>
Investment Appraisal and Evaluation	Professional fees relating to the project evaluation	Risk in obtaining financial sources
Acquisition	Land cost, Ancillary costs of acquisition, Short-term Interest Rate	Risk in the site's prospect
Design	Professional fees relating to the design	Risk in design and uncertainty in cost estimation
Permission	Government's Policy and Regulation	Government approval risk
Construction	Building cost, Professional fees relating to construction	Cost & Time overrun Risk; Quality uncertainty Technical Risk
Let / Sell	Agent's fees, Advertising costs, Rental/sales income, Investor's yield	Market risk and whole life – cost uncertainty

Table 1.1 Variables in a Housing Project

These estimates of the variables are based on single figure or can be called 'point estimates', each figure with the appraisal, for example land cost or investor's yield, is presented as a fixed and certain factor. However, the reality is that the fixed single figure factors underestimate the true uncertainty that lies behind the developers' estimate. Even one of the whole bunch estimated variables has a slightly difference with the one in the real, the final answer of the investment decision could be totally wrong.

For instance, the purchase price of the land is the first main financial commitment, however, some other developers may have different assumptions, hence they will pay more for the land even using the same residual valuation method. Taking another look at the office refurbishment project in Appendix I, if the land is sold by auction, the possible purchase price could be lifted up by other firms, say 30 million pounds. Then, the residual valuation would be changed totally, from 7.9 million dramatically turning to be a loss of 2.1 million pounds! Ultimately, this initially profitable project could be cancelled because of the uncertainty in the land cost. In brief, there are five main variable factors, which will most affect the profitability of a development project, listed as below:

- a) Land Cost
- b) Short-term Interest Rate
- c) Building Cost
- d) Rental/Sales Income
- e) Investment Yield

According to these difficulties, Brealey and Myers (2000) divide all the main variables into two parts – market risk and unique risk. The risk that you cannot avoid is generally known as market risk, such as interest rate. While the risk potentially can be eliminated is called unique risk.

There are two categories of techniques have been employed to tackle these two types of risk respectively. Diversification is a specified method to avoid unique risk. Some developers reduce the uncertainty by spreading risks or reducing the proportion of high risk into the ‘portfolio’ (the detail and empirical example of diversification would be examined in the coming chapter). On the other hand, sensitivity analysis is invented to estimate the market risk.

The idea of sensitivity analysis is to examine the effects of change in variables on the residual value and the basic method involves changing one variable at a time, recalculating the value and analyzing the result. The percentage change in the variable is compared with the percentage change in the residual amount. If a small percentage change in the variables produces a large percentage change in the residual amount then this variable is very sensitive (Butler and Richmond, 1990). Sensitivity analysis

has been developed as a means of identifying the independent variable which causes the greatest change in the dependent variable (Baum and Crosby, 1995). By this method, it is really helpful for the decision-maker to understand the circumstances leading to certain consequences in investment. But the problem remains unchanged, sensitivity analysis does not give a simple decision rule but a range of results. Developers retain the decision responsibility.

Thus, a developer must avoid the danger of using the evaluation process to justify a development project which on the face of it looks good – often referred to as a ‘gut’ feeling. Although the evaluation must be thorough and based on the best possible information it should be approached from the point of view of what can go wrong.

## 1.2 Objective

The focus of the report is generated from the above point of view. The emphasis of decision making here is not the mathematical methods which have already been well covered in existing literature, but how does the developer understand the housing market. The importance for the decision makers is the skill to pay attention and work on the assumptions to enhance their realism by stripping away as much of the uncertainty using data and experience. So that the rationality of the mathematical methods is formed by assumptions that are subjective yet tempered by careful analysis, evaluation and, most important, the experience of understanding the market factors. It is about changing challenge in the housing market into investment opportunity, even in the toughest economic conditions together with fierce competition.

## 1.3 Scope

Furthermore, different types of markets have different risk profiles, even the same type of market at different physical locations will display huge different characteristics. It is necessary to narrow down the scope of the market so as to be able to analyse the risk profile. In this report, Hong Kong will become an empirical example to illustrate all the principles. There are several reasons for doing this: Hong Kong housing market is a comprehensive model in terms of financial conditions and political context. Financially, Asian Financial Crisis makes all the property firms’

behavior totally different from several years ago.

Since 1997, China has re-governed Hong Kong, political changes greatly influence the Hong Kong housing market as well. In addition, with the up-rising main land Chinese economy, many cities in China are developing very fast. Hong Kong as a leader city in terms of the well developed housing sector will definitely become the model for other major cities to follow. Due to the word limitation, this report will only focus on the time period from 1997 to 2001 (pre- and post-Asian Financial Crisis periods). It is hoped that this report will give a better understanding of the Hong Kong housing market. Business analysts and property firms might find this useful in attempt to analyse the industry. This report could also be useful to future researchers in this area.

#### 1.4 Methodology

Firstly, the literature review sets out the framework and context in which this report is based upon. The literature on the subject of residual valuation, sensitivity analysis and diversification is reviewed.

Secondly, an analysis is carried out on some of the biggest property firms in Hong Kong. They are currently active and the price leaders in the industry. All of these firms have been in the industry for a long time. The analysis looks into the influence of government's policies, the economic conditions before and after Asian Financial Crisis, and the diversification strategies. So that we can see how these firms make more accurate assumptions based on the factors.

Moreover, among these analyses a government housing survey will be given out to show the whole picture of Hong Kong housing market structure. Based on this survey, certain housing projects will be examined to explore how these successful property developers seek the investment opportunities to match the market demand. This dissertation will analyse three different kind of market demand:

- a. High-income house buyer
- b. Middle-income house buyer i.e. Sandwich Class house buyer
- c. Low-income house buyer i.e. Inadequately-housed households

The major source of information is these companies' annual reports and accounts. It gives information on how the firms operate, what their strategies are and what their current perspectives and outlook of the future are. Furthermore, Hong Kong Special Administrative Region Government and its subsidiary departments provide the data, such as price index and growth in GDP, regarding the housing market as a whole in the economy. This gives an overall picture of Hong Kong housing market and its structure. Meanwhile, a structured interview is carried out with one of the directors in Sun Hung Kai Group. The aim of the interview is to further clarify the analysis and deeply look into firm's investment strategy.

## **Chapter 2 The Introduction of Housing Market in Hong Kong**

There is no doubt that one of the most important parts in property industry is housing market. The aim of this market is to produce habitable shelters for people. It is important not only because housing is related to people's essential need for shelters, but also because there has been increasing awareness at the international level that the performance of the housing market is inextricably linked to the broader economy. This is particularly true in the case of Hong Kong's housing market.

Hong Kong Housing Department (Hong Kong Special Administrative Region Government, 1998) indicates that housing market in Hong Kong has had rapid development over the past two decades. This huge achievement is due to the rapid growth of the economy together with the efforts from HKSAR Government. The experience in the past suggests that the housing market largely depends on the policy decisions as well as the economic conditions, which may greatly influence the market needs. Thus, review of the Hong Kong SAR Government's policies will be carried out, and then the impact of these government's decisions on the housing sector analysed. After that, the local economic conditions will be examined in detail, in order to give the whole picture of Hong Kong economy, which is the basis of local housing market.

### **2.1 The Influence of Government's Policies to Housing Market**

Government regulations and policies always have a big impact on economic activities. This is particularly true in the case of housing market. Government has a clear goal of every member of the population being housed in self-contained accommodation of an appropriate standard and in a sound social environment (Hong Kong Housing Authority, 1986). In order to realize the objective, the government has introduced a series of policies. A White Paper on Long Term Housing Strategy in Hong Kong was published in February 1998 providing a blue print for housing policy in the years ahead and setting out the government's housing targets. The most important of these targets are:

1. To provide no less than 85,000 new flats per year in the next 10 years, including 50,000 flats from the public sector and 35,000 flats from the private sector.
2. Provide sufficient land with supporting infrastructure, shorten development procedure and relieve constraints on the construction industry.
3. To achieve the objective of having a home ownership rate of 70% by 2007.
4. Create conditions to enable the private sector to make the fullest possible contribution towards meeting the demand for housing, while at the same time monitoring the private property market and, if necessary, taking measures to discourage property speculation.

From the list above, some of the government's policies have an obvious positive impact on the attractiveness of the industry. Firstly, with a total land area of only 1062 square kilometers and a population of more than 6.5 million, space for housing is very limited in Hong Kong, especially in the urban areas. Land supply is always an essential issue to the whole housing market. For the period from April 2001 to March 2006, the government will secure a steady and sufficient supply of land. For example, during this period, develop new Strategic Growth Areas including West Kowloon, Kai Tak-Kowloon Bay, Tseung Kwan O and Tung Cheung-Tai To, and increase the development density of Housing Authority (HA) estates by improving supporting infrastructure and exercising flexibility in the application of planning guidelines. Especially for the private sector, the government will implement its land disposal program flexibility, take into consideration the state of the private property market.

Secondly, a land bank will be in place so that additional land can be put into the market when demand so justifies. Only with the government positive land supply policy, can it be guaranteed that private sector has the possibility of obtaining suitable land for its long-term housing development. Moreover, the government has encouraged private sector involvement in public housing programs in general and by inviting private developers to build subsidized home ownership flats as part of 'mixed development'. This policy will not only improve the variety of design and standard of management of the public housing program, more important, but also enlarge the private sector's potential market.

Thirdly, the government is encouraging home ownership. The Chief Executive has announced a target of 70% home ownership by providing loans to families who are buying a home for the first time. This represents a major improvement on the existing rate of 52%, which will again facilitate the housing market in both the private and public sectors. Therefore, the government is removing some of the market risk factors from the equation. On the supply side, land is made available and demand is facilitated through policies too.

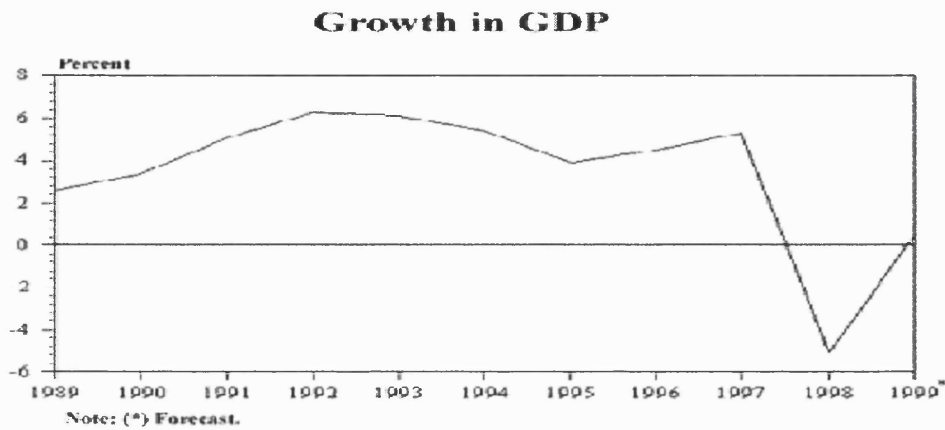
However, some other policies may have negative effects on the profitability of business in the private sector. According to the long term flat production programme, the government's announced target is to provide no less than 85,000 new flats annually. But among the total 85,000 new flats, public sector will present more than 50,000 flats. Only the rest of 35,000 new flats will be built by private sector, so that private developers actually can occupy no more than 42% of the market shares.

The government is also planning to sell a large number of public rental housing units at heavily discount prices to existing tenants which is called Home Ownership Plan. Due to this strategy, the government will offer at least 250,000 flats for sale over the next ten years. The sale of a first batch of about 27,000 has already taken place since early 1998. The prices of such units are only a fraction of similar private housing units. Obviously, this is a significant threat to the profitability of developers in the private sector especially in the new housing market. Fortunately, the government has already realised the overlap between this Home Ownership Plan and that of the mass private sector housing market. In September 2001, the government announced a moratorium on this policy. Sales after the moratorium will not exceed 9,000 units a year up to 2005-2006. Meanwhile, the government will address three long-term issues to minimise the influence on the new housing market, including the ratio between home ownership plan flats and loans, the eligibility criteria for Home Ownership Plan. For example restrictions in the subsequent resale, and the system for allocating the home ownership plan flats.



Overall the government's policy is to foster healthy and stable development of the property market. It doesn't directly interfere in the commercial decision of developers and consumers to buy or sell land of flats. However, it is obvious that these policies always have a significant impact on the housing market. The risk profile of private developers is changing together with the changes of the government's policy.

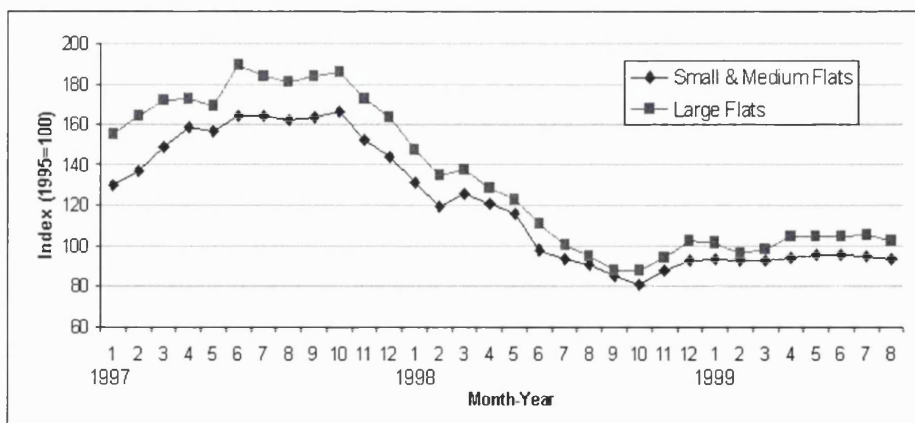
## 2.2 Economic Conditions After the Asian Financial Crisis



Source: Hong Kong SAR Government, Onward with New Strengths, the 1999-2000 Financial Budget, 1999

Figure 2.1. Hong Kong's GDP Growth

The figure above indicates Hong Kong's GDP growth for the past 10 years. Clearly, in 1997 Hong Kong economy was heavily hit by the Asian financial crisis, and continued its downward adjustment in 1998. The harsh external environment, coupled with speculative attacks on the Hong Kong dollar and stock market, put the Hong Kong economy to its toughest test in recent years (Tsang, 1999). As a result, average property prices dropped by as much as 50% in September 1998, compared with October 1997 when the market reached its peak. Figure 2.2 shows price index of selected private domestic development. (Rating & Valuation Department, 1999)



Source: Rating and Valuation Department, 1999

Figure 2.2. Price Index of Selected Private Domestic

Housing demand has changed completely since the beginning of Asian financial crisis. Before the crisis, investment demand in housing market was extremely strong, reflecting the expectation that rapid inflation would continue and nominal interest rates would be on a decline. Buying a house was increasingly viewed as a favorable investment for hedging against inflation. Demand for flats can be affected strongly by speculative activity. For instance, many large units were purchased for investment purposes. The inflationary early 1990s in Hong Kong was a period of rising speculative activities. Many of the flats bought remained vacant for a long time. For example, as a percentage of the supply of new flats, the year-end vacancy position was 51% in 1992 and 56% in 1993. The number of agreements for the sale and purchase of building units reached its peak in the 2<sup>nd</sup> quarter of 1997. However, at the end of 1997, Asian financial crisis happened. All of a sudden, the number of building units transaction dropped sharply in the 1<sup>st</sup> quarter of 1998, and remained at the level for the rest of 1998. The quarterly transaction value for the same period also dropped from over HK\$ 260 billion to around HK\$ 100 billion (Land registry, 1998).

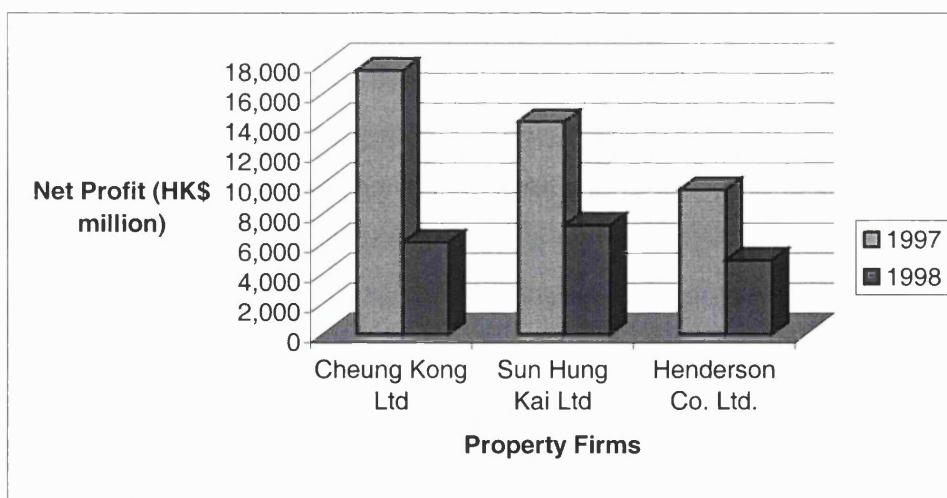


Figure 2.3 Three Biggest Property Firms' Net Profit in 1997 and 1998

As a result of decreasing demand in housing market, developers suffered a huge profit plunge in 1998, and many of them had their earning cut by over 50% (see figure 2.3). The declining profit margin even influenced the property firms' market behavior. Before the Asian financial crisis, developers broadly recognized capturing the

industry's growth as their first target. They would even help each other to build a profitable housing market. Flats in different developments were generally released for public sale at different times, even though the products varied in terms of location, type of development and range of unit size (Consume Council, 1996).

In some extent, the housing market could be described as an oligopoly market during pre-crisis period. As Gruneberg and Ive (2000) argue, property firms are obliged to enter into a variety of non-price competition, such as advertising and corporate image. Price is rarely used as a weapon to win market share. Price competition could only be destructive. If one property firm undercut the price of its rivals, they could retaliate with price reduction of their own. Such price wars would only lead to lower prices without necessarily increasing firm's share of the market and the threat of this outcome is sufficient to deter firms for lowering their prices to increase their market share.

However, the same thing didn't happen again. After the outbreak of Asian financial crisis, developers began to compete head-on, and the competition lay in kicking the opponents out of the housing market. For instance, during 1998 different property firms sold their new developments at the same time and the price per unit was reduced by 20% or more. In order to attract more buyers, several firms also adopted all kinds of promotion from providing free furniture and kitchen equipment to paying the taxes and transaction costs on behalf of clients.

Why did the fierce competition happen in Hong Kong housing market during the post-crisis period? The reason lies in the root of the problem - the change of buyer-seller relationship. Before the Asian financial crisis, housing demand was high enough for both buyers and sellers to adopt co-operative strategies. However, after the break of Asian financial crisis, the housing demand dropped dramatically because of the downturn in the local economy. Clients began to adopt command strategies, whereas sellers had to accept competitive strategies. As the table below shows the classification of buyer-seller relationships has swapped from *Independent Domesticated Market* to *Independent Buyer's Market*. Because the assumptions about behaviors in the market place have changed, the risk profile changes and the decision-making models need to be re-run. One director in Sun Hung Kai Properties illustrated

(interview with a director of Sun Hung Kai Properties, 2002), that before the Asian financial crisis a property firm would withdraw a housing project unless it would produce a profit margin no less than 20%. Nevertheless, nowadays, the property firms would be happy to bear the risk of investing in a housing project as long as it could have 10% profit, even lower under some circumstances.

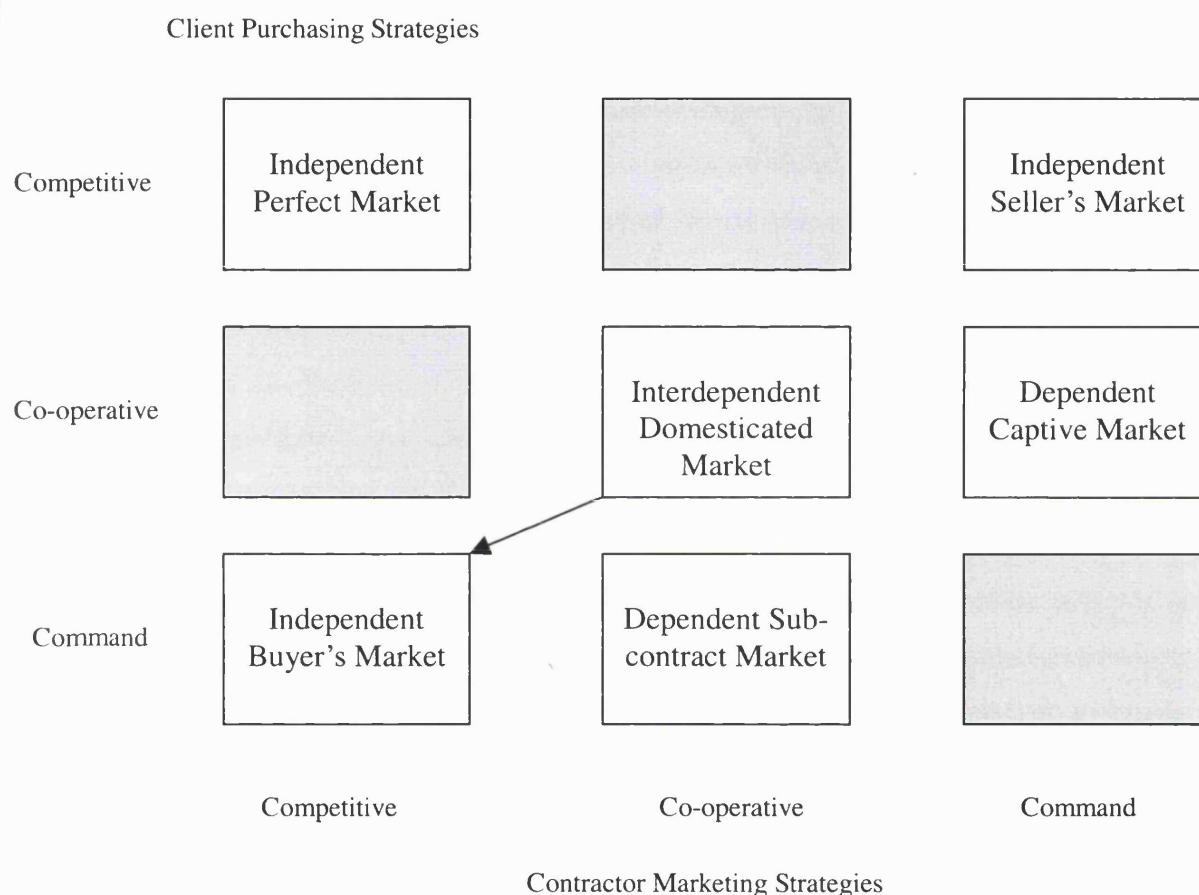


Table 2.1 Classification of buyer-seller relationships

The tough economic conditions not only reduced the profit in housing market but also wiped out many small and medium sized property firms. After the Asian financial crisis, Hong Kong's housing market has been extremely concentrated. According to Business Week (2000), there were altogether 10 property firms in the world listed in the 'Global 1000' in the year 2000. Three of them were from Hong Kong: Cheung Kong Holdings, Sun Hung Kai Properties and Henderson Land Development. They ranked 1<sup>st</sup>, 3<sup>rd</sup> and 5<sup>th</sup> respectively in the real estate industry group, or 251<sup>st</sup>, 364<sup>th</sup> and 727<sup>th</sup> respectively in the overall list. Their combined market value is US\$ 42.364

billion at 31 May 2000, or 44% of all the ten property firms.

Consumer Council (1996) indicates top seven property firms in Hong Kong have produced around 70% of the total number of private housing units between 1991-1994. As a result of highly concentrated housing market in Hong Kong, buyers' trust have been heavily built upon the brand identities. One of the unique features in the housing market, unlike any other market, is that new flats can be sold before being completed. It is impossible for the buyers go into the site to scrutinise the quality of uncompleted new flats. Thus brand identities become very essential, buyers have to make the buying decision based on the blue print. Only flats from big property firms give them confidence. Brand identities remove some of the risk factors for the big property firms. On the other hand, the risk profile is relatively high when a housing project is developed by small or medium sized property firm with little brand identities.

## Chapter 3 Matching the Demand

### 3.1 Market Research

In 1999, Hong Kong Special Administrative Region Government held a survey of housing market. The objectives of the survey were to collect statistical data for updating the parameters used in the projection of housing demand and to provide a general description of living conditions of households in Hong Kong and their housing aspirations, affordability and preferences. In the meantime, the information collected was used as reference for all the property firms to make the investment decision. The following presents some key survey findings:

#### 1) Household Size

70.3% were households with two to four persons. 10.8% had one person and 18.9% had five persons or more. The average household size was 3.3 persons.

#### 2) Type of accommodation

96.3% occupied the entire living quarter while 3.7% shared their accommodation with other households.

#### 3) Mortgage repayment and rent

48.9% were owner-occupiers. 51.8% of them had an outstanding mortgage on their accommodation. The corresponding median mortgage-to-income ratio was 33.0%. 46.5% were tenants. The corresponding median rent-to-income ratio was 14.0%

#### 4) Characteristics and living conditions of inadequately-housed households

7.1% of households were inadequately-housed. Their characteristics and living conditions are described below:

52.5% shared their accommodation with other households. 41.4% lived in non-self-contained flats and 28.5% in structures built of temporary materials. The most common reason for sharing accommodation with other households was 'unaffordability' (71.3%). 36.8% were single-person households, 22.3% two-person households and 30.4% three or four person households. The average household size

was 2.5 persons. A comparatively larger proportion of these households were found in Yau Tsim Mong (15.6%), Yuen Long (12.8%) and Sham Shui Po (10.6%). 62.8% were tenants and 21.5% were living in accommodation that was rent free and 12.8% owner-occupiers. The remaining were living in accommodation that was provided by employers (2.9%).

#### 5) Preferred location

A relatively larger proportion of households preferred living in Shatin (10.4%), Eastern (9.3%), Wong Tai Sin (8.1%) and Kwun Tong (7.9%). The corresponding proportion for the other districts ranged from 1.2% to 5.8% (See Figure 3.1).

The main reasons for their locational preferences were 'having got used to living in the district' (56.6%), 'convenient transportation' (41.9%) and 'better living environment' (26.8%). Their preferences for type of housing were attributed to 'better quality' (39.0%), 'desire for property ownership' (33.6%) and 'cheaper rent' (24.7%).

#### 6) Preferred flat size

The average acceptable flat size and comfortable flat size were 50 to 60 square meters saleable floor area respectively.

	<u>Overall</u> %	<u>Type of housing of present accommodation</u>		
		<u>Public rental housing</u> %	<u>Subsidized sale flats</u> %	<u>Private permanent housing</u> %
<u>Acceptable flat size (saleable floor area)</u>				
Less than 20 m <sup>2</sup>	6.5	11.5	1.1	4.1
20 m <sup>2</sup> to less than 30 m <sup>2</sup>	10.3	17.2	2.4	7.3
30 m <sup>2</sup> to less than 40 m <sup>2</sup>	19.6	28.7	14.4	14.9
40 m <sup>2</sup> to less than 50 m <sup>2</sup>	22.5	22.4	26.3	21.7
50 m <sup>2</sup> to less than 80 m <sup>2</sup>	33.5	18.5	50.4	39.6
80 m <sup>2</sup> or more	7.3	1.1	5.1	12.1
No opinion	0.4	0.6	0.2	0.3
Total	100.0	100.0	100.0	100.0
Mean	50 m <sup>2</sup>	40 m <sup>2</sup>	54 m <sup>2</sup>	56m <sup>2</sup>
Base: Households that had no intention to emigrate				

Table 3.1 Acceptable flat size analyzed by type of housing of present accommodation  
Source, HK SAR Government Survey of Housing (1999)





Figure 3.1 Map of Hong Kong

### 3.2 Private Housing Projects for Sandwich Class

Apart from the key survey findings above, the Government also recognises the existence of a large 'sandwich class', broadly defined as families who do not belong to low income class but who lack the financial resources to purchase high price accommodation in the private sector. They include numerous young managerial and professional couples. The major housing problem faced by many of these families is denied opportunity either to enroll in the Government's low cost housing programme which is obviously low quality and bad location, or to afford expensive private house. Such families have a very strong potential purchasing power and mortgage repayment ability, they are waiting for appropriate accommodation to their circumstances.

Not a long time after the Government's survey of housing market, many projects were available in the housing market to meet the demand from 'Sandwich Class'. One of the most successful projects is 'Prima Villa'. It is located in one of the most residential areas, Shatin. This is reflected by the survey mentioned above. Moreover, most of 'sandwich class' people are working in Kowloon and Hong Kong Island, Shatin is the nearest residential area to these commercial area. Transportation in Shatin is comprehensive. The development is near the Tate's Cairn Tunnel and next to the City One Shatin Station on the Ma On Shan Railway. It is just a five-minute drive from the development to New Town Plaza (a famous commercial building). Access to any place in Kowloon and Hong Kong Island is very convenient.

The development has a gross floor area of over 510,000 square feet, containing 1,024 two-bedroom units. The dining room and living room are rectangular, and there is over 9 feet between floors with an 80% efficiency rate. The size of the units is around 500 – 600 square feet, which is exactly designed for new couples, so that 'Sandwich Class' could possibly afford it without a very heavy mortgage.

Because most of the residents are very well educated, not only the unit's conditions, but also the additional facilities are very important to them. In the 'Prima Villa', there is a 60,000 square-foot podium garden and club house, including a kids club to help children develop and a baby care. Other facilities include an outdoor swimming pool, gym, aerobics room, tennis court, billiard room and multi-purpose hall, sauna and

steam rooms. Moreover, 'Prima Villa' is managed by 'Intelline T' property management system to run the estate by Internet. Residents will be able to use smart cards to access the estate, club house and car park. The cards will also function as credit card and store Visa Cash, as well as allowing residents to pay management fees and get discounts in the relative shopping malls. Residents will also be able to get the latest property-related information such as coming events, book club house facilities, get news, send and receive email and find out about dining, travel and shopping in the community with 'SuperHome.net'.

As well as the additional facilities, the developer provides two new management services. These services are essentially designed for young managerial and professional couples. One is called 'Easy Material Sourcing'. Because owners may need extra fitting and finishes if they decorate or change the unit design, and since most of the materials are imported from overseas, with the new service, the property firm helps these new occupiers to buy original fittings and finishes like ceramic, marble and granite tiles and hardware. This service not only helps young couples to minimise the time wasted in decorating, it also offers a unique answer to owners' need. Another new service is 'Online Maintenance'. If any maintenance job of the flat is needed, the owners can report it to the developers' in-house facility management company via email. The management company will computerise the items and post them on the Internet. The repair team will then update the progress of work on a daily basis, allowing owners to check maintenance records on the website anytime. This boosts owners' confidence in the progress of work.

Given its prime location, appropriate unit sizes, along with advanced facilities, the 'Prima Villa' at an average price of HK\$2,982 per square foot received 2,324 registrations. The developer almost sold out completely on the first day, bringing about HK\$2 billion revenue in return.

### 3.3 Projects for Inadequately-housed households

One of the successful residential projects for inadequately-housed households by private property firms is located in Yuen Long. Several explanations have been advanced in the Yuen Long project.

Firstly, the Government's survey of housing market pointed out that a comparatively larger proportion of inadequately-housed households was found in Yuen Long (12.8%), and the main reason for buyer's locational preferences were 'having got used to living in the district' (56.6%). Thus, the development in Yuen Long could definitely attract a large amount of local inadequately-housed households buyers.

Secondly, due to the inadequately-housed households' financial ability, these buyers are concerned more about the price of the unit rather than the location. Yuen Long is located in the northwest of New Territories, outside of central Hong Kong. The land cost in Yuen Long is much lower than in central Hong Kong, which makes the unit price is affordable to these buyers.

Thirdly, the Government has accelerated the provision of infrastructure from Yuen Long to central Hong Kong. For instance, Yuen Long West Rail Station will be completed in the early of 2003. From then on, traveling from Yuen Long to urban Kowloon will only take 20 minutes. Moreover, Route 3 (motor way) has already been broadly recognised as a fastest urban-New Territories link. Driving Route 3 from Yuen Long to central Hong Kong takes less than 25 minutes. Not only does the expressway reduce driving time, it also makes Yuen Long more accessible to Kowloon and Hong Kong Island.

Finally, because the social structure of the inadequately-housed households is very complicated, variety of sizes and layout is another feature of the projects in Yuen Long. The flats' sizes are available from 500 to 1,500 square feet, ranging from one-bedroom unit to four-bedroom unit. Due to the Chinese tradition, it is not unusual to find three generations living together. Under this circumstance, four-bedroom flat could be suitable for them. Meanwhile, one-bedroom flat is the ideal choice for the newly independent young person. So that variety of sizes makes the project attractive

to a large range of potential buyers. The market response was very enthusiastic. The development's show flats attracted over 50,000 visitors on the opening day and averaged several thousand visits daily after that.

### 3.4 Projects for High Income Class

Luxury residence is a special housing market for private sector. It is almost the only part without threat from the public sector, especially from the Government's low price Home Ownership Plan. However, the competition is still very tight between property firms. Unlike the inadequately-housed households or medium income housing market, luxury residence doesn't have a large number of buyers. In order to catch the attention of the limited high income customers, the development has to offer highest building quality together with prime location and prestige auxiliary facilities. A development called The Belcher's is a typical model for others to follow.

The Belcher's is located in the Western Mid-Level of Hong Kong Island, one of the most expensive areas in Hong Kong. In addition, the Government recently announced a redevelopment plan for Western Mid-Level that will be the most comprehensive on Hong Kong Island. The plan will rejuvenate Western as a model modern city and this will further lift up the value of The Belcher's.

The Belcher's has 2,213 units in all. Standard units will range from over 800 to over 1,800 square feet, with the largest penthouse covering about 3,400 square feet. All the units are decorated in three different styles. Type A is oriental decoration with exquisite works of art. Type B is a modern decor fitting the 21<sup>st</sup> century. Type C is sumptuous elegance to meet western taste. Units will have two to four bedrooms, some with the ensuite bath, and more than 80% efficiency.

The Belcher's has been meticulously planned. The residential blocks have been carefully placed to maximize the views, and the entrance lobby has a 15-foot ceiling. It is decorated with granite columns and features and a curved glass wall to create a feeling of spaciousness. Most units come with large floor-to-ceiling windows, allowing residents to look out upon the panoramic scene. Built for modern living, a

smart card system is used throughout, and all units in The Belcher's have a room that can be used as a family information centre, with telephone, fax, interactive TV and Internet connections (See Figure 3.2).

At a cost of HK\$200 million, The Belcher's Club is the largest club house in Mid-Levels. It opened to coincide with the handover of The Belcher's. The club and landscaped garden cover 190,000 square feet and have a grand, artistic design. The club house also has a private art gallery with works by famous artists to appeal to residents' discerning taste. In addition, the club house has a broad range of all-weather facilities including sunbathing areas, indoor and outdoor swimming pools, an indoor multi-purpose sports area and over 16,000 square feet dedicated to a multi-intelligence play area, all of which rival the facilities in top private clubs.

Furthermore, the developers took great care planning each part of the handover, with 100 handover ambassadors specially trained to provide one-stop service. They explain procedures and complete handover documents for owners, as well as accompany owners to check their units and follow up on repair requests.

The units in The Belcher's start from HK\$ 4,228 per square foot for cash payment, and the average price of units available is about HK\$ 5,400 per square foot. In order to promote the sales, the developer offers special financial plan to buyers. Customers will be eligible for a second mortgage with no interest and no payment for the first four years, equal to as much as 25% of the unit price, and they can take advantage of special mortgage packages from Standard Chartered Bank. With the Mortgage Rate swap package, buyers can switch between interest rates options, and Mortgage One allows buyers to set their own monthly installments. Because of all the great efforts the developer has made, in the past few weeks, over 170 luxury units have been sold which has brought the property firm over HK\$ 1.1 billion sales revenue.





The Lobby of The Belcher's



Figure 3.2 Three Different Types of Units in The Belcher's

### 3.5 Conclusion

How can developers give more accurate assumptions to make decision-making models work? According to the analysis mentioned before, we may conclude some important market factors:

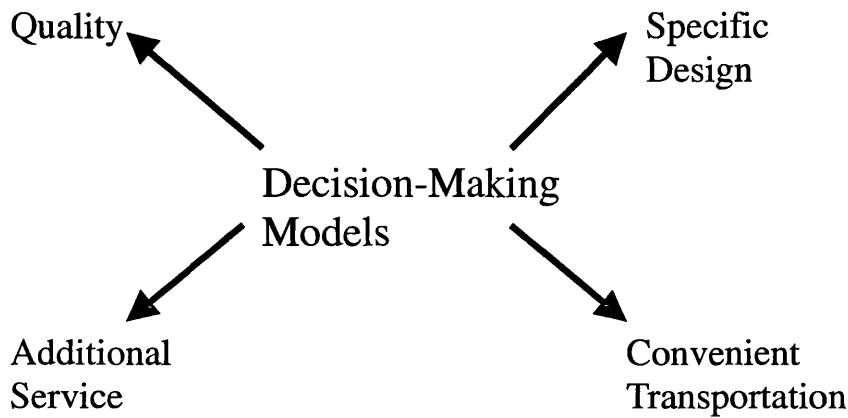


Figure 3.3 Market Factors and Decision-Making Models

Quality is one of the most important elements. According to the Government’s survey of housing market, households’ preferences for type of housing were attributed to ‘better quality’ (39.0%). Buyers’ tastes may change over time, however one thing that remains constant is the desire for high quality. By concentrating on creating customer’s dream home when choosing a location, doing the planning and design, ensuring construction quality, and on to after sales services and property management, all the elements are the very best so quality is guaranteed. Hence, housing projects will only be favored by buyers based on superb quality.

“Different Horses for Different Courses”. Specifically designed housing project is aiming specially buyers. For sandwich class, projects have careful unit layouts, and specially designed flat size fits new couples perfectly; for low-income buyers, price is most important determinant. Every factor of the project must be practical; for high-income class, price is no longer a big issue. Taste is beyond every thing. Expensive decorating and luxury club house become standard requirement.



Additional service is a more and more concern in the decision-making equation. With the popularity of high technology, residents now want intelligent homes and an on-line community. For instance, a high-speed fibre optic system and an information centre in units plus many energy-saving and environmental facilities will definitely attract more buyers than the properties without advanced IT system.

Convenient transportation is always a big issue to successful properties. Most of the projects launched recently by property firms are located along rail lines or tube stations. In fact, convenient transportation potentially increases the value of the project. When people are buying a flat, transportation condition will always be considered carefully. Thus, a project with convenient transportation has a relatively low risk profile compare with another project without this advantage.

## Chapter 4 Diversification

Cannon and Hillebrandt (1989) define 'diversification' as the process by which firms extend the range of their business operations outside those in which they are currently engaged. This broad definition includes two types of diversification. (a) Vertical Integration – that is, the acquisition or development of businesses whose products are inputs or outputs to the firm's own main operation. (b) Horizontal Diversification – that is, a movement into other markets not involving the firm in any vertical ownership. Because of the fierce competition and decreasing profitability in the Hong Kong housing sector, especially at the post financial crisis period, several large property firms have adopted diversification strategies. Besides, most of these property firms deploy both vertical integration and horizontal diversification. In the next two sections, the current situations and consequences will be explored in turn.

### 4.1 Vertical Integration

In this section, some factors of vertical integration in Hong Kong housing market will be examined. Major property firms in Hong Kong, such as Henderson Ltd., have their in-house or 'inner-circle' contractors. They tend to construct projects for themselves rather than outsource in order to reduce the uncertainty. This closely knitted network of business is characteristic of traditional Chinese management. Based upon nepotism or long term *guan-xi*, personal trust is far more treasured than open competitive bidding (Redding, 1990).

Furthermore, apart from backward diversification to integrate contractor, forward integration is employed as well. Many property management companies have already been merged or taken over by large developers. So that the property firms not only initiate the developing process, but also take the responsibility of maintaining the housing projects for the whole life cycle. On the one hand, by integration, property firms could guarantee work load for their property management subsidiaries, and minimise transaction cost. On the other hand, via high quality service and standard management skills, these property management subsidiaries lift up the performance of a development, and attract more potential buyers indirectly. Thus, the integration creates a win-win situation. For example, Kai Shing and Hong Yip are two property management firms belonging to Sun Hung Kai Group which is one of the biggest

property firms in Hong Kong. These two subsidiaries' service go beyond the usual security, cleaning and maintenance. They provide catering service, householder's comprehensive insurance, home security, home cleaning, Dial and Deliver service, car cleaning and maintenance, computer maintenance and Delicacy Express meal delivery service. In addition, both of them have been award ISO 9002 certification for quality management. All the housing projects in Sun Hung Kai Group, as long as under these two subsidiaries' service, always have a very positive market response, reflecting that buyers do appreciate this strategy.

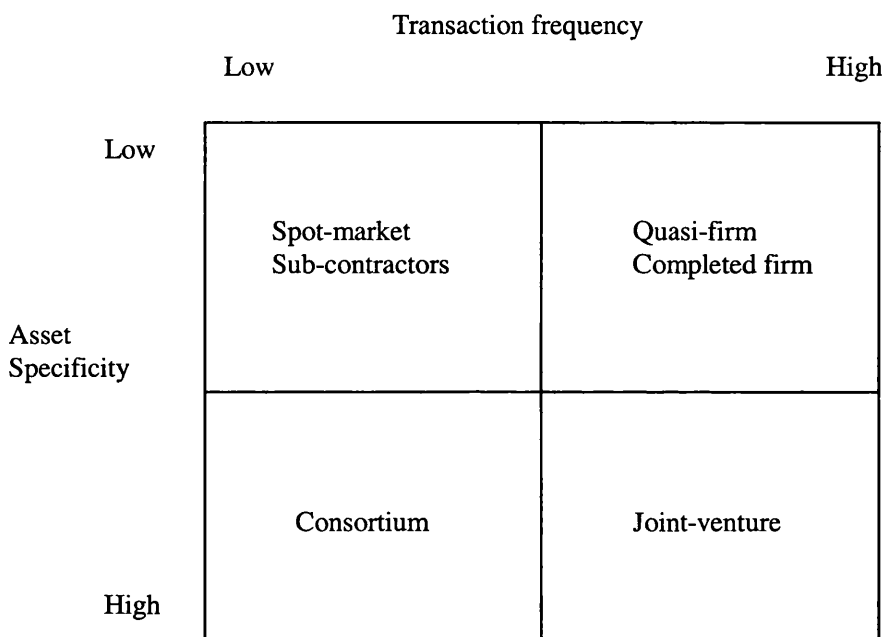


Figure 4.1 External Horizontal Governance Options for the Supply Chain  
 Source: Winch (2001) figure 4

Based on the factors above, we could possibly conclude what is the impact of vertical integration upon risk and uncertainty in housing market. As Mintzberg (1981) argues, the main intention for property firms' vertical integration is to minimise and internalise the uncertainty and transaction cost.

In fact, no matter whether property firms seek backward diversification to integrate contractors or forward diversification to integrate management companies, what they are essentially managing the supply chain. As Winch (2000) argues, when transaction frequencies are high, it becomes possible to enter into repeat relationships with

supplier. This allows the developments of a quasi-firm. In the case of Hong Kong private housing sector, it also develops into a complete firm, because the transaction frequency is so high that in-house contractors and property management subsidiaries are offered repeat contracts by developers (See the figure 4.1).

Another big advantage of vertical diversification is that it enables the developers to cluster the supply chain especially when under uncertainty. By clustering the supply chain, the developer could gain the maximum of information processing within the clusters, so as to seek efficiencies in production cost, minimising the amount of information processing required between clusters so as to seek transaction cost efficiencies (Winch, 2000).

## 4.2 Horizontal Diversification

Before going deep into the detail of horizontal diversification, it is necessary to clarify the term 'market'. In this report, market will be strictly differentiated by both geographical area and the content of the industry. In other words, the same industry may be considered as a different market because the industry takes place in a different geographic area. On the other hand, at the same geographic area, different industry operates in different market. Horizontal diversification means a business movement into other markets. Thus, two types of horizontal diversification can be noted in recent Hong Kong private housing sector. One is developers moving part of their investment into Mainland China market. Another is developers expanding their business into a totally different industry in Hong Kong.

Ever since the Asian financial crisis, Hong Kong economy continues its downward adjustment. On the contrary, with China's entry to the World Trade Organization, ongoing economic reforms and Beijing winning the 2008 Olympic Games, the Chinese economy will continue to prosper. Besides, the risk profile of housing market in Mainland China is relatively low compared with the market in Hong Kong. The average housing price in China is only a fraction of the price in Hong Kong. Some cities, such as Shanghai and Guangzhou, will soon become the same financial leaders as Hong Kong in terms of developed housing market. The potential Housing market in these cities is very big, plus a stable economic environment, it is very suitable for

Hong Kong property developers to invest housing projects in Mainland China, so as to reduce their risk profile by diversifying into a portfolio business.

Compared with Chinese local developers, Hong Kong property firms have their competitive advantages of experience in developing a variety of complicated housing projects together with their ability to access the international financial institutions. It is very likely that Hong Kong property firms could explore the right opportunity to invest in profitable housing projects in Mainland China.

In fact, some leading property firms have already had successful housing projects in China. For instance, table 4.1 is a summary of Sun Hung Kai Properties' housing projects in Mainland China. From that we could see, this firm has been involving many housing projects, primarily in major cities including Beijing, Shanghai, Guangzhou and Shenzhen. The total attributable gross floor area is more than 1 million square feet, and most of these housing projects are very profitable. For example, at the late 1999, Arcadia Shanghai is a project about 500,000 square feet of residential units and serviced apartments was completed by Sun Hung Kai Group. Arcadia Shanghai has a superior location in the central of Shanghai (Chinese biggest city) and advanced facilities led a good sales record as well. The property is held under a 70-year lease from local government that expires in 2064, and virtually fully sold. The detail of the second phase of the development is being planned. These housing developments in the Mainland China show good result, which encourages more property firms to seize the investment opportunities in the large potential China housing market.

	Under Development	Completed Projects
Shanghai	100	400
Guangzhou and Shenzhen	400	0
Beijing	0	200
Total	500	600

Table 4.1 Sun Hung Kai Properties' Housing Projects in Mainland China  
 Attributable gross floor area in thousand square feet  
 Source, Sun Hung Kai Properties Annual Report 2000/2001

Another kind of horizontal diversification is a movement into a market, which has no connection with the firm's existing business. Wise investors do not put all their eggs into just one basket (Brealey and Myers, 2000). Figure 4.2 shows that a well-diversified portfolio only market risk matters instead of unique risk. Hong Kong major property developers certainly do not stick on the housing market only. They have moved their business into other market, for example IT industry, in order to spread the risk.

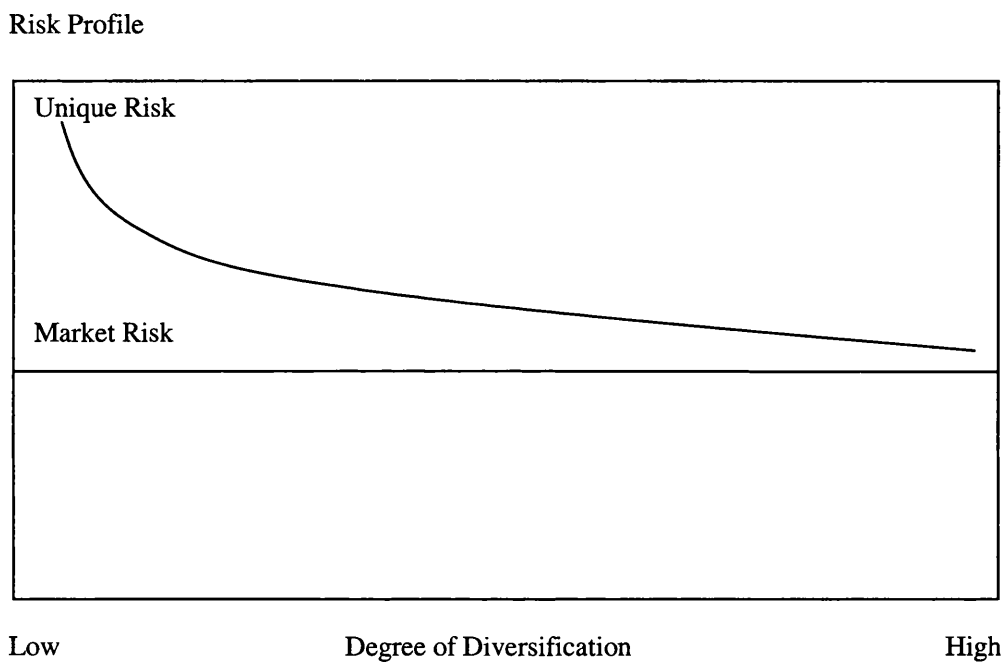


Figure 4.2 Diversification eliminates unique risk  
 Source, Brealey and Myers (2000)

However, because of the generally unfavorable global and local business climate, particularly in the technologies sector, it turns to be another way round. If you would like to scrutinise these IT subsidiaries' annual report, under beautiful and encouraging express, such as 'consolidated market position', 'striving for profitability' and so on, you could easily find that they are making loss instead of profit. According to the audited reports, Tom.com announced a loss of HK\$383 million in 2000 and HK\$230 million in 2001 respectively; Henderson Cyber made a loss of HK\$17 million in 2000 and SUNeVision almost had the same terrible annual report as the previous two.

Property Firms	IT Subsidiaries
Cheung Kong (Holdings) Ltd.	Tom .com
Sun Hung Kai Properties Ltd.	SUNeVision Holdings Ltd.
Henderson Land Development Co. Ltd.	Henderson Cyber

Table 4.2 Diversification in IT Industry

The detailed analysis of these IT companies is far beyond the scope of this report. Nevertheless, there are two issues related to developers worthwhile being highlighted:

1. These Internet based firms do not have a solid business platform. Most of the income is generated by advertisement, which is only a fraction of their administrative and operating expenses. How to enlarge and stabilize the incoming cash flow is always a problem to these firms, and if the situation remains the same in the future, the property firms will probably terminate the diversification into this technology field.
2. On the other hand, these IT companies do have some contributions to the developers. For example, Internet based property management systems, such as ‘Intelline T’ in Prima Villa project, are provided and maintained by these subsidiaries. These advanced telecommunication technologies enhance the living condition of the development and facilitate its sales.

In brief, the presumable motive for this type of diversification is to spread risk. However, the result proves that diversification into IT industry only increase the overall risk profile of a property firm. Thus, a possible compromised solution is the developers integrating these IT companies and turning them into an in-house telecommunication technology department after shrinking it’s size and reducing its operating cost. Of course, operating this IT department will need capital investment. Nevertheless, this IT department is able to enhance a housing project’s value by supporting advanced telecommunication service, so that more buyers would be attracted to buy this development. The operating cost could be covered by the increasing sales revenue.

### 4.3 Diversification in Land Bank

As a result of 1062 square kilometers land area and a population more than 6.5 millions, land price is an important determinant in Hong Kong's housing sector, which occupy a large proportion of the development cost. How to reduce the uncertainty in land price is always very important for developers. One of their major operations is acquisition of land in advance which is referred to as land banking. Land banks are not simply held for technical reasons associated with production, they are also a necessary part of acquiring and retaining large-scale development profits (Ball, 1983).

In the coming chapter, large property firms' land bank will be examined in terms of their location and usage, so that some ideas about how these developers compose an appropriate land bank by diversification to reduce the uncertainty is understood, which is essential for their future development.

#### 1. Location

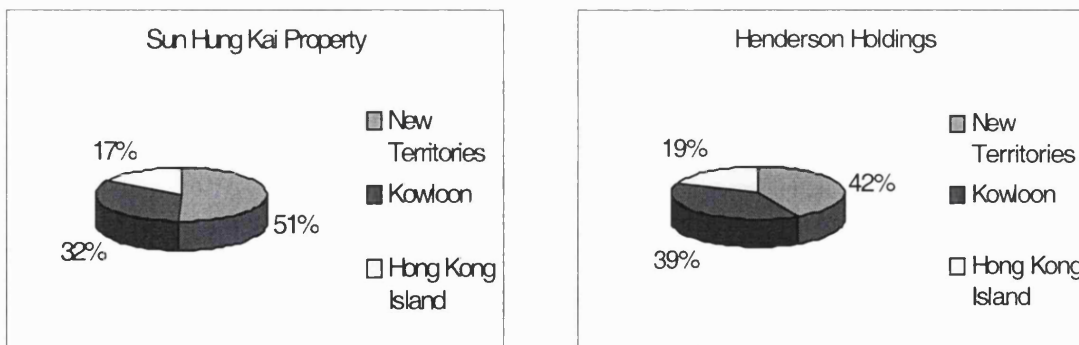


Figure 4.3 The composition of the land banks  
Source: Companies' Annual Reports in 2001

An interesting finding is that the geographic composition of major property firm's land bank is very well diversified. For example, according to Sun Hung Kai Property's 2001 annual report, 49 percent of the land is in Hong Kong Island and Kowloon. While the remaining 51 percent are widely spread throughout various new towns in the New Territories plus 22 million square feet of agricultural land primarily located along existing or planned railway lines. The land bank in Henderson Holdings



has exactly the same geographical distribution as the land bank in Sun Hung Kai Properties (See Figure 4.3).

The similarity in composition of land bank between these two major developers is definitely not a coincidence. The reason of doing so is that a very well diversified land bank can provide a substantial reduction in variability. The land price is determined by the location. Obviously, land in central Hong Kong is always expensive compared with the land in New Territories. However, apart from the price difference, different land has different response to the business cycle. If land in central Hong Kong goes into a downturn, it might take half a year to one year for New Territories to be affected. Thus, a property firm's project can still be good in New Territories, when the business in central Hong Kong goes wrong. So it is important for developers to build their land bank in different regions in order to spread the risk and profit geographically.

## 2. Land Bank for Maintainable Development

One of the main purposes of having land banks is to reduce the land price uncertainty in the future. Land is one of the factors of production and it is an essential element in the housing market. No housing project would be possible without land. Thus, land banks play a very important role in allowing continuous development being carried by developers. Continuity is vital to provide a steady flow of income and profits for firms and to keep the business going.

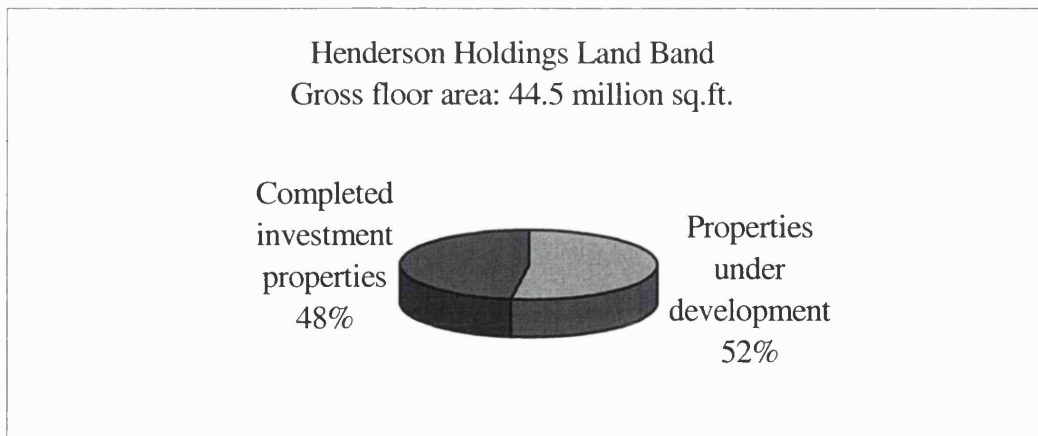
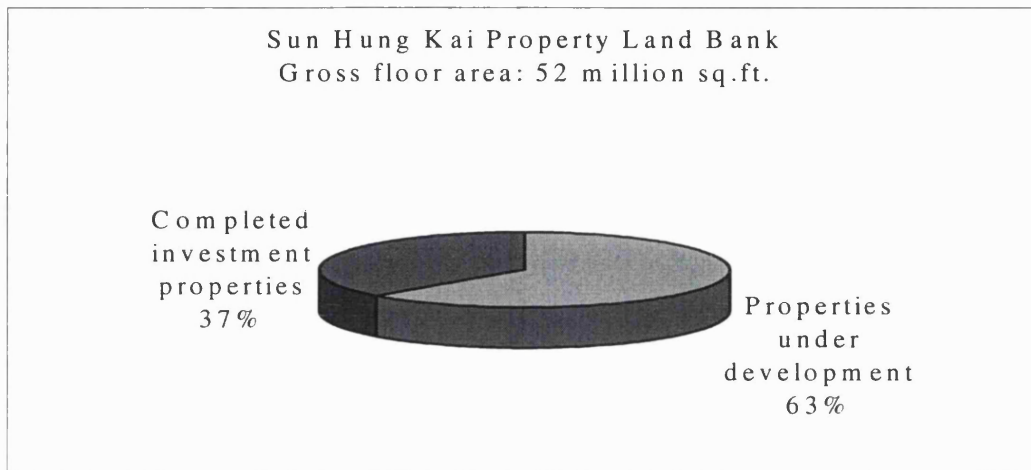


Figure 4.4 The Status of Land Bank  
Source: The Companies' Annual Report in 2001

As figure 4.4 shows both Sun Hung Kai Properties and Henderson Holdings have a big proportion of land under development or for future development. One of these developers' fundamental principles behind building up the land bank is to maintain a large amount of undeveloped land by continuing to purchase and make acquisitions of

development land and agriculture land. Sun Hung Kai Properties Group believes that (Interview with a director of Sun Hung Kai Properties, 2002) by the existing methods of replenishing the land bank, the firm's land bank will be sufficient for development needs over the next five years. Moreover, because of the tough economic condition, land price in Hong Kong has dramatically plunged during the post Asian Financial Crisis period. Several large property firms are taking advantage of the current downturn to replenish their land bank as appropriated.

In brief, when a developer procures land and plans to develop it several years after, the price of that land in future is uncertainty, even residual valuation method can hardly evaluate it. Thus, developers use land banks as a way to spread risk and hedge the land price uncertainty. Bramley et al (1995) pointed out that the practice of land banking is a strategic response to risk. This is achieved by having a portfolio that consists of land of different risk profiles.

## **Chapter 5 Conclusion and Recommendation**

### **5.1 Conclusion**

Chapter 1 sets the framework that this dissertation is based upon by reviewing the existing mathematical model in estimating the risk and investment decision-making of the housing projects. It then gives a detail conception of residual valuation and looks at how it analyses the investment opportunity. After that, some problems of residual valuation are stated. The analysis concludes that all the mathematical models only work upon a certain number of assumptions and variables. Developers can not totally rely upon these methods to make the investment decision, they have to form their own judgment about the variable factors in the housing market to make the models work. From that, five main variables are concluded which will most affect the profitability of a housing project.

- a) Land Cost
- b) Short-term Interest Rate
- c) Building Cost
- d) Rental/Sales Income
- e) Investment Yield

Based on these difficulties, two approaches are employed to tackle the problem. Diversification is the one to reduce the market risk by spreading the risk or reducing the proportion of high risk into the 'portfolio'. Sensitivity analysis is another approach, which is specified to estimate the unique risk. The key of sensitivity analysis is to isolate or highlight the most critical factors or variables, so that a careful focus can be kept on these.

Chapter 2 looks at an empirical case – Hong Kong private housing sector from 1997 to 2001, in order to illustrate all the principles in this report. The analysis examines the factors of housing market, which could greatly influence these major property firms' decision-making and project risk profile, such as government's political decision and general economic conditions. Several findings can be concluded:

- 1) Government's policy does not directly interfere in the commercial decision of developers and consumers. Nevertheless, it is obvious that these policies always

have a significant impact on the housing market. Especially Hong Kong SAR Government's Home Ownership Plan greatly reduces the market share of low-income householders in the private sector.

- 2) Hong Kong economy continues its downward adjustment, since late 1997 - the outbreak of Asian financial crisis. The tough economic conditions led the property price and housing demand to drop dramatically. The buyer-seller relationship in the housing market has swapped from *Independent Domesticated Market* to *Independent Buyer's Market*.
- 3) As a result of market position changes, the decision-making models of local developers have changed correspondingly. During the pre-crisis period, developers tried to build up a profitable housing market. They broadly recognized capturing the industry's growth as their first target. Price is rarely used as a weapon to beat others. However, since the beginning of the crisis, developers started to compete head-on, and the competition lay in kicking the opponent out of the housing market by using the price weapon. Property firms, nowadays, may accept to invest in a housing project with a profit margin lower than half of it at the pre-crisis period.

Chapter 3 analyses some investment models in property firms by giving three different types of housing project as a sample. From that, it can be said that these projects are well designed for the target buyers to catch the different market demands. The strategies are:

<b>Classified Buyers</b>	<b>Location</b>	<b>Preferred Flat Size</b>	<b>Affiliated Facilities</b>	<b>Price Per Square Foot</b>
High Income Class	Prime	Large	Luxury Club House	>HK\$3,000 even much higher
Sandwich Class	Convenient Transportation	Small	Decent Facility Management	Around HK\$3,000
Low Income Class	Developing Area	A Variety of Size	None	Less than HK\$3,000

Table 5.1 Strategies in Housing Market

Chapter 4 highlights that diversification is a strategy to spread the market risk, which is broadly employed by major property firms in Hong Kong. Principally, diversification can be divided into two categories: vertical integration and horizontal diversification. Most of the leading property firms deploy both of them.

- 1) Vertical Integration. All the biggest three property firms have their own in-house or 'inner-cycle' contractors to construct projects for themselves in order to reduce uncertainty. Besides, they have taken over or merged some property management companies as part of their vertical integration strategy so as to enhance the value of their development by providing high level of property management skills.
- 2) Horizontal Diversification: Based on the uprising Chinese economy, major Hong Kong property firms have already extended the range of their business into main land China housing market. These property firms have their competitive advantage of experience in a variety of complicated projects together with their strong financial ability, so they could explore the right opportunity to invest in profitable housing projects in main land China. The result of horizontal diversification is that these developers successfully extend their business into a low risk profile housing market. Thus, the risk is spread into portfolio business
- 3) The strategy of diversification is also applied to compose the land bank in terms of location and usage. With a well spread location and large amount of ready-to-develop land, it is very likely that the owner of this kind of land bank would have a possibility to generate a huge profit when the next housing boom comes, and meet the different market needs.

In short, this report concludes that developers try to manage their markets via land banks, strategic product development, economic conditions and government policies. All of these elements relegate the role of decision-making models, because risk is effectively managed. The important skill for a successful developer is to form his own judgement of all the variables and strip away as much of the uncertainty as possible using data and experience. Only based on the factors of local housing market, decision-makers could make the mathematical models state investment opportunities accurately.

This report has been produced under the constraint of information and data. This is due to the time limitation. There are a few areas that lack information especially on the decision-making model of different property firms in Hong Kong. All the firms do not reveal much on this, considering it as confidential. Meanwhile, along the way, assumptions are made in various points. The assumptions may not be accurate as they are based on limited information and inevitably contain personal judgment and opinions. Further research could help in this respect.

## 5.2 Recommendations

From here, there are various aspects that could be further investigated into such as:

- 1) Case study one specific property firm's decision-making model.
- 2) The changing trend in the investment strategy of developers.
- 3) The relationship between the investment strategy and economic conditions.

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FINANCIAL APPRAISAL

## Appendix I: Residual Valuation

Gross Building Area:	6930 m2	Rentals		
Net Gross Building Area:	5683 m2	£	573.73 per m2	£ 3,260,507.59
		Less Ground Rent (If any)		
			Y.P. in Perpetuity @ 6.5 %	15.38
			Gross Development Value	£ 50,161,655.23
			Less Purchasers Costs	£ 2,502,125.32
		<b>Net Development Value</b>		<b>£ 47,659,529.91</b>
<b>Less</b>		<b>Sub Totals</b>	<b>Sub Totals</b>	<b>Sub Totals</b>
<b>A PRE DEVELOPMENT COSTS</b>				
1. Planning / Building Regulation Fees				
2. Compensation and others	£	173,343.75	£	173,343.75
<b>B CONSTRUCTION COSTS</b>				
1. Demolition	£	162,162.00		
2. Construction Cost	£	9,970,537.50		
3. Contingency @ 5%	£	506,634.98		
4. Professional fees @ 15%	£	1,595,900.17		
5. VAT on Building @ 0%	£	-		
6. VAT on Fees @ 0%	£	-	£	12,235,234.65
<b>C INTEREST (Compounded Quarterly)</b>				
1. Costs 24 Months @ 7%	£	25,807.73		
2. Construction 50% Costs 18 Months @ 7%	£	671,117.02		
3. Void Period				
C(1) 3 Months Interest @ 7%	£	3,485.15		
C(2) 3 Months Interest @ 7%	£	225,861.15	£	926,271.05
<b>D LETTINGS / PROMOTION</b>				
1. Agents Letting @ 15%	£	489,076.14		
2. Agents Funding @ 1.5%	£	752,424.83		
3. Legals on Funding @ 0.5%	£	238,297.65		
4. VAT on selling Fees @ 0%	£	-		
5. Rent Free Period	£	815,126.90		
6. Promotion	£	50,000.00	£	2,344,925.51
<b>E SITE COSTS</b>				
1. Land Price (From Appraisal of Land)			£	19,536,167.18
2. Interest on Total Site Costs			£	3,523,524.42
3. Legals @ 0.5%	£	97,680.84		
4. Surveyors Fees @ 1%	£	195,361.67		
5. Stamp Duty @ 3.5%	£	683,765.85		
6. VAT on Aquisition Fees @ 0%	£	-	£	976,808.36
			£	39,716,274.92
		<b>RESIDUAL PROFIT</b>		<b>£ 7,943,254.99</b>

## **Appendix II**

### **Interview with a director of Sun Hung Kai Properties**

**Date: July 2002**

#### **Questions:**

##### **I The overall picture of housing market in Hong Kong**

- 1) What is the Character of housing market in Hong Kong?
- 2) How is Hong Kong SAR Government's policy to the local housing sector?
- 3) What's the influence of Asian financial crisis to the Hong Kong housing market?

##### **II Decision-making Model**

- 1) What is the difference of decision-making model before and after the outbreak of Asian financial crisis?
- 2) What is your firm's decision-making model in housing project?
- 3) Is this model successful?
- 4) What's the defect in this model?

##### **III Diversification**

- 1) What is the diversification strategy in your firm?
- 2) How does your firm apply this strategy to compose your land bank?
- 3) What is the character of your land bank?