Company Investors versus Individual Investors in the Hong Kong Property Market

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Abstract: This paper compares the company investors and individual investors in the property market by employing a unique micro data set for Hong Kong residential market. Company investors are typically identified as "speculators," and frequently related to financial volatility. Several features of the Hong Kong property market make the comparison interesting. It is established that company investors differ from individual counterparts in several dimensions. In particular, company investors hold for shorter duration and trade in more risky terms (and earn higher average return as a result). This paper also gives a brief account of the property market "speculations" in the 1990s.

Keywords: Investors; Speculators; Property market; Modelling

1. INTRODUCTION

This paper compares the company investors and individual investors in the property market by employing a unique micro data set for Hong Kong residential market. Company investors in the financial markets are typically identified as "speculators," and frequently related to financial volatility. Even the seminal contributions on this line are too numerous to mention here. Interested readers may consult Cutler, Poterba and Summers (1990, 1991) and the reference therein, among others. To our knowledge, however, the literature on housing market speculation is relatively small. This paper takes a preliminary step towards this direction.

The property market of Hong Kong is chosen for several reasons. First, real estate in Hong Kong is unusually important. For instance, Brown and Chau (1997) report that the total value of all real estate in Hong Kong exceeds the total value of all shares, cash and deposit. Also, the total size of all private residential in square meter is almost as large as three times of the sum of non-residential property including office, commercial premises, industrial, factories and storage.

Second, company investors apparently have a larger share in Hong Kong property market than some other countries. For instance, Goodman and Grupe (1995) and Simmons (1997) report that company investors owned 8.3% and 12% of all United States residential properties in 1991 and 1996 respectively. Hong Kong company investors own 10.5% in 1991 and even 14.1% in 1996 of Hong Kong private residential property. Although individual ownership dominates the market, the influence of company investors cannot be neglected. It should be noticed that the company investors in Hong Kong real estate market are different from company investors in the UK or US real estate markets. In the latter case, company investors are typically small or "shell" companies.

Third, housing market speculations in Hong Kong are widely discussed in the media. However, hard evidence is relatively rare because it is very difficult to identify the speculators statistically. This paper takes a preliminary attempt by using company investors as a proxy. We employ a disaggregate data set on Hong Kong residential property market and provide a quantitative comparison of the company and individual investors based on the micro data. We focus on the difference in number of transactions, duration and rates of return. See Chou and Shih (1995) for an overview of Hong Kong housing market. We are limited by the data availability for more complete comparison. Rates of return in this study are the capital return in non-weighted average. Duration is simply equal to the time lag between two transactions of the same property. Notice that unlike many Western countries, there is *no capital gains tax* in Hong Kong. Thus, the difference in rates of return as well as holding duration, if any, will be attributed to the difference of the two types of investors.

The rest of this paper is organized as follows. After briefly exploring the merits of being company investors in the Hong Kong property market, this paper will explain the methodology. The empirical results will then be presented. The

last section concludes and some details are provided in the appendix.

2. WHY AND HOW DO COMPANY INVESTORS TAKE PART IN PROPERTY MARKET

In this section, we provide a brief discussion on company investors in the Hong Kong property market. In Hong Kong, and virtually every one can become a company investor. First, Company Registry provides facilities to allow the promoters of companies to incorporate their enterprises easily and to register all documentation required by the Business Registration Ordinance. An unregistered company name and documents such as Memorandum and Articles of Association and a Statutory Declaration of Compliance should be handed in together with the fee around HK$1800. Normally, the certificate of incorporation will be issued in about 6 working days. With the certificate of incorporation, business registration certificate can be applied from Business Registration Office. The processing time for registration of business takes 4 working days and registration fee about HK$2,250.

Second, limited companies have limited liability. It reduces the risk in buying advanced properties. Before the mortgage loans are applied, if the property market undergoes a sudden drop in price, company investors can minimize the loss by declaring bankruptcy of the companies. Third, if a company has its own business, purchasing property under the name of the company can reduce the profit tax. Interest of the mortgage is a deductible expense. Tax is an important element in distinguishing two types of investors in Hong Kong. Rypkema, Donovan and Cohen (1987) also try to explain that how does the Tax Reform Act lead to non-taxable company investors may replace individual investors in the residential market.

In recent years, lesser investors use companies as the vehicles for transactions. There are several reasons. First, there is some political pressure to suppress property market speculations. Also, due to the Asian financial crisis, profits from property trading fall with the property prices. In addition, from year 1998/99 onwards, home loan interest paid is deductible from a person's assessable income under salary tax. This further lowers the incentive to invest as a company investor.

3. DATA AND METHODOLOGY

All records are extracted from the property database provided by the Economic Property Research Centre (EPRC). The sampling period is between January 1991 and November 1998.

According to EPRC, there are 46 most frequently traded estates and these estates are available upon request. Since this research relies on repeated sales occurred in the same apartment during the sampling period, only those 46 estates are included. As a result, about 190,000 trading records are sorted.

In that data set, the names of buyer and seller are recorded. When the seller's name includes words like "Company", "Limited", "Ltd" or "Co", such record will be regarded as a transaction belongs to company investors. Otherwise, it will be regarded as individual investors.

To diagnosis the difference of company and individual investors, we further differentiate the estates into groups according to different criteria. We want to isolate the difference in behavior of two types of investors, which simply reflect the difference in preference for apartments of different heights, different size, or different locations from their "inherent difference". Limited by the data availability, we adopt the following procedures. For each premise, we divide into 3 equal parts and the highest part is defined as "high level," the middle part as "middle level" and the lowest part as "low level." To highlight the effect of "height", we compare only the high and low premises and the middle level apartments are excluded. We also separate the apartments of different size. Third, we categorize the estates according to geographical location, namely, Hong Kong Island, Kowloon and New Territories, as in the data set of EPRC.

To compare the behavior of company and individual investors quantitatively, some calculations are conducted. The information of the number of transactions, duration and rates of return are available from the data set and the analysis will be focused on these dimensions. Number of transactions is simply calculated by counting the total number of transactions in each year. Duration represents the holding period of a premise by an investor. It can be calculated by measuring the difference between two transaction dates of the same premise. Capital gain with time adjustment is used as a device in computing the rates of return. The formula is for capital gain is $(P_1/P_0 - 1) \times (365/D) \times 100\%$, where P_0 is the purchasing price, P_1 is the selling price, and D is the duration in days.

Formal statistical tests are conducted. In particular, one-sided hypotheses are stated: the null hypothesis is that the mean of the concerned variable (duration, rate of return) for company investors (subscript c) and for individual investors (subscript i) are identical, $H_0: \mu_c = \mu_i$. The alternatives hypothesis for duration is that

company investors hold shorter time periods, H_1: $\mu_c < \mu_i$ and making higher rates of return, H_1: $\mu_c > \mu_i$. The details can be found in the appendix.

4. EMPIRICAL FINDINGS

Before the empirical findings are presented, it must be acknowledged that the way we define a transaction and the duration between transactions may allocate more "weight" in later years. For example, in calculating the number of transactions in 1994, the premises bought in between 1991 and 1994, and sold in 1994, will all be considered as transactions in 1994. Clearly, this method artificially generates more transactions in later years. Similar "bias" may be introduced in calculating the duration. For instance, if calculating duration of transactions in 1998, the longest duration is 8 years. The average duration is calculated by taking average of all duration recorded in that year. However, it may not be a serious problem for this research since the focus is on the "difference" in behavior of company and individual investors and the distortions described would fairly affect both types of investors.

4.1. Basic Facts about Duration and Rates of Return

Before we compare the company and individual investors, it may be instructive to present some "basic facts" of the Hong Kong property market between 1991 and 1998. The distribution of duration is displayed by Figure 1. In general, a large number of transactions are transacted within half year to one year.
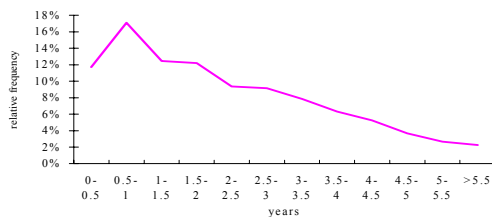

Figure 1: Distribution of (Holding) Duration (1991–1998)

Figure 2 shows the distribution of rates of return over the years. About 30% of transactions are associated with 0% to 10% annual (real) rates of return, which is comparable to the investment return of other assets during the same period.

Figure 2: Distribution of Rates of Return (1991–1998)

4.2. Comparison between Company and Individual Investors

In this section, comparison between company and individual investors will be made. We collect data across different types and locations and examine how they evolve over time. We also examine more disaggregated data to see whether company and individual investors differ across various types and locations.

4.2.1. Duration

Figure 5 presents the average duration, from 1991 to 1998. Clearly, the average durations of company and individual investors before 1997 are similar. After that, the average holding periods of company investors are significantly shorter. The more disaggregated counterparts seem to display similar pattern. See Law (2000) for more details.
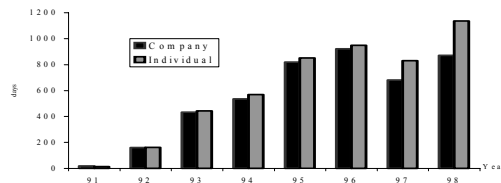

Figure 3: Comparison on Average Duration between Company Investors and Individual Investors (1991–1998)

Now, we turn to a more systematic comparison of the average holding periods of two types of investors. While it seems to have some difference in between the average duration of the two types of investors, the difference in sample mean may come from chance fluctuation in the same population. To verify the significance of the difference, we test the equal-mean hypothesis formally. F-test is employed to determine whether the null hypothesis H_0: $\mu_c = \mu_i$ can be rejected. Table 1 shows the F-ratio and p-value of duration in each category. In each column, the F-value lies beyond $F_{0.001} = 1.32$, and the p-value is smaller than 0.001. This means that if H_0 were true, there is less than 0.1% chance of getting sample means that differ so much. Accordingly, H_0 is rejected.

The mean durations of the two types of investors are indeed different.

Table 1: Summary of F-ratio and p-value of Duration in Hypothesis Testing

Category	F-ratio
Aggregate Data	283.40 *
Low Level Premises	99.56 *
High Level Premises	141.98 *
Small & Medium Premises	132.10 *
Large Premises	27.43 *
Hong Kong Islands	206.74 *
Kowloon	110.71 *
New Territories	42.99 *

Note: * represents p-value < 0.001.

We now turn to a more detailed examination of the distributions of the holding duration. Figure 3 displays the distribution of duration for both company and individual investors over the years. The mode of average duration of company investors is in the range of zero to half a year and that of individual investors is in half year to one year. Thus, company investors frequently transact in a shorter period of time than individual investors do. The relative frequencies of both types of investors decrease with the duration of property holding though. Law (2000) finds that the patterns for individual year and category are similar.
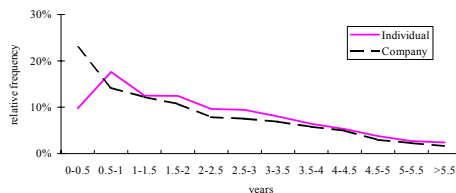

Figure 3: Distribution on Duration of Company and Individual Investors (1991–1998)

4.2.2.   Rates of Return

Figure 4 displays the distribution of the rates of return for company and individual investors over the years. The modes of both company and individual investors are at the range of 0% to 10%. And the "lower tails" of the twoi distributions are very similar. In other words, the company and individual investors are equally likely to make loss and if they do, they are equally severe. However, for very high rates of return, the relative frequency of company investors will be higher than that of individual investors. It seems that company investors trade in more risky terms. Law (2000) shows that this pattern is preserved in individual year and category.
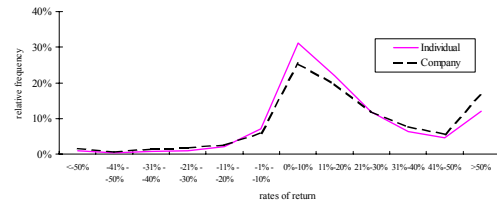

Figure 4: Comparison on Rates of Return between Company and Individual Investors by Class (1991–1998)

To establish the difference in average rates of return formally, ANOVA is applied. As in the previous section, null hypothesis of H_0: $\mu_c = \mu_i$ and alternative hypothesis of H_1: $\mu_c > \mu_i$ are tested by F-test of one way ANOVA. The F-ratio and p-values are summarized in the Table 2. The aggregated data provides a significant result in rejecting the null hypothesis.

Table 2: Summary of F-ratio and p-value of Rates of Return in Hypothesis Testing

Category	F-ratio
Aggregate Data	11.40 *
Low Level Premises	218.51 *
High Level Premises	259.11 *
Small & Medium Premises	11.64 *
Large Premises	0.36 ***
Hong Kong Islands	7.66 **
Kowloon	8.38 **
New Territories	5.54 **

Note: * represents p-value < 0.001; ** represents p-value < 0.01; *** represents p-value > 0.25

In disaggregated data, the means made by company investors ranging from 26.95% to 53.29% are also greater than the means made by individual investors ranging from 20.80% to 33.32% for all categories. From Table 2, we observe three categories with p-value of less than 0.001 and the other three categories with p-value of less than 0.01 are proved to be significant and two samples are based on different populations. However, only the category of large premises cannot pass through the F-test and the p-value is over 0.25. It means the credibility level for H_0 is sufficiently high that H_0 cannot be rejected. The difference in sample means of company and individual investors in large premises may well have occurred under the same population.

5. CONCLUDING REMARKS

Perhaps the rise and fall of the company investors in Hong Kong property market can be better understood in a historical context. Due to the *linked exchange rate system*, the nominal interest rate of Hong Kong is determined by the United States. Since the inflation rate of Hong Kong was very high in the 90s, the real interest rate was very low, and sometimes negative. For instance, see Renaud, Pretorius and Pasadilla (1997). People switched some of their saving to the property market and the property price soared as a result. The share of transactions of company investors increased in this period. The property market is described as "over-heat." In response to the political pressure, the Governor established an Anti-Speculation Task Force in March 1994. The most important measure was that buyers could not resell the flats until they had been completed and delivered. The share of transaction of company investors decreased in 1995. However, the policy seemed to be losing its effectiveness in 1996. More and more investors decided to set up companies as vehicles for the transaction. Since there was no law prohibiting the sale of companies, the legal restriction was by-passed. The share of transactions associated by company investors increased from 1996 to 1997.

The Asian crisis marked a turning point of the property market. Attempting to counter-attack the speculators, the Hong Kong Monetary Authority increased the interest rates significantly. In fact, interest rate charged on new mortgages increased incrementally from 9% in July 1997 to 11% in June 1998. Furthermore, banks became very conservative to grant new mortgage loans in the first half of 1998. Also, Chiu (1999) suggests that potential home purchasers were unwilling to enter into the market for the obvious reasons of the dismal economic outlook, salary cuts, job insecurity, tight liquidity of banks and rising interest rates. The residential property price dropped about 50%, and the share of transaction of company investors decreased dramatically.

In Hong Kong, company investors are typically blamed to be the speculators who boom the property price. This paper shows that the behaviors of company and individual investors are indeed different in terms of the number of transactions, duration and rates of return. Company investors in average earn greater rates of return and hold the premises in a shorter period of time than that of individual investors. They are less risk-averse in the sense that they are more likely to earn very high or very low rates of return than the individual investors.

This paper is restricted in several dimensions. First, the study period is limited to 1991–1998 due to data unavailability. Second, only the 46 most frequently traded estates are taken into consideration. For instance, the "large premises" category has less than ten estates. More importantly, we cannot trace the identity of investor. For example, an agent can trade in the market as an individual investor and at the same time, establishes a company and invest as a company investor. Similarly, some investors may trade as individual investors first and then as company investors later, or vice versa! The current data set does not allow us to isolate these complications.

With longer time series in the future, different ways in comparing the two types of investors can be employed. For instance, the ways the two types of investors reacting to the change in GDP growth, interest rate, general wage level, etc would be an interesting topic to investigate. Nonetheless, this can only be left to future research.

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APPENDIX

To gain a quantitative sense of the potential difference, formal statistical tests are conducted. In particular, one-sided hypotheses are stated: the null hypothesis is that the mean of the concerned variable (duration, rate of return) for company investors (subscript c) and for individual investors (subscript i) are identical, H_0: $\mu_c = \mu_i$. The alternatives hypothesis for duration is that company investors hold shorter time periods, H_0: $\mu_c < \mu_i$ and making higher rates of return, H_0: $\mu_c > \mu_i$. First, we need to measure the sample means,

$$\overline{X} = \frac{1}{n}\sum_{i=1}^{n} X_i$$

Finding the sample means $\overline{X}_c$ and $\overline{X}_i$ of company and individual investors respectively difference is not enough. It may be due to the difference in the underlying population means μc and μ_i, or may be attributed to chance fluctuations alone. To solve this problem, several quantities are needed. First, their variance are calculated by the formula:

$$s_x^2 = \frac{1}{a-1}\sum_{i=1}^{a} n_i \left(\overline{X}_i - \overline{\overline{X}}\right)^2$$

But the variance cannot tell the whole story neither since samples with the same variance may still come from different populations. Thus the pooled variance is calculated as a chance fluctuation as follow:

$$s_p^2 = \frac{\sum_{i=1}^{a}\sum_{t=1}^{n_i}\left(X_{it} - \overline{X}_i\right)^2}{\sum_{i=1}^{a}(n_i - 1)}$$

To examine the sample variance and their chance fluctuation, *F*-test modified by Sir Ronald Fisher is employed, that is, $F = ns_x^2 / s_p^2$. The greater the F ratio, the lesser the credibility that H_0 is true. The p-value (for probability value) is utilized to measure the probability in the tail of the F distribution beyond the observed value. Following the convention, 5% significant level is chosen. By comparing the p-values and the significant level, the null hypothesis is determined to be rejected or not.