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A CONCENTRATION STUDY OF THE PRIVATE NEW RESIDENTIAL UNITS MARKET

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High price of private residential units is a social issue for many economies. The property price of many developed cities has risen beyond reach of the general public. In 1996, the Hong Kong Consumer Council also commented that the residential market is quite concentrated. The enactment of the Hong Kong Competition Ordinance echoes the need to look into the market competition level so as to better protect consumer welfare. Market concentration is a major indicator to measure competition. The primary aim of this study is to evaluate the concentration level of the private new residential market in Hong Kong. The concentration level is mainly evaluated by concentration measures including the Concentration Ratio and Hirfindahl-Hirschman index. The result shows that the top five developers are holding a dominant position in the market. It is envisaged that the big developers could retain their dominance due to their substantial land bank.

Keywords: New Residential Units, Price, Land Supply System, Concentration, Competition.

1 INTRODUCTION

High residential property price has always been a focal issue of social concern in major cities. In Hong Kong, the housing of the under-privileged is mainly assisted by the Government through extensive rental public housing program. House buyers rely on the private residential market. Among others, Hong Kong has recorded unprecedented rises of property price after the 2008 financial turmoil. Complaints from society have never in this connection. By 2009, the cost for purchasing residential properties ranked the 4th among all the international metropolitans (Poon 2011). The residential property prices in Hong Kong have accented 117.2% from December 2008 to December 2012, while the climbing trend of property price continues after 2012 up to 2015 at a rate far beyond inflation (Rating and Valuation Department of Hong Kong 2015).

The new private residential market is considered as the prime determinant of the price of residential units. Used residential units are usually valued at a discount of the new ones. The overly-high price can be attributed to insufficient competition in the private new residential units market in Hong Kong. Market competition has been advocated to be the main enabler to promote and preserve efficiency. In traditional static economic analysis, welfare is assumed to be enhanced with the increment of competition intensity, with perfect competition synchronously indicating welfare maximization (Audretsch *et al*. 2001). Optimum competition would bring greater economic efficiency including more effective use of resources and greater productivity gains for the economy, since market players are spurred to be more efficient, innovative and responsive to consumer needs (Hong Kong Competition Commission 2015, Whish and Bailey 2012). In a market with de-monopolization, liberalization and privatization, market players need to win consumers by offering lower prices and better products (Hussein *et al.* 2012).

In 2012, the Hong Kong government enacted the first-ever Hong Kong Competition Ordinance (HKCO). The objective of the study is to look into the application of the conduct rules of the HKCO in evaluating the existence or otherwise of dominant market power. The new residential unit market is used as an illustration. The study is reported in the following six parts: 2) the economic and legal aspects of competition, 3) Concentration measures, 4) Data analysis and findings, and 5) Discussion and Limitations of the study, and 6) Concluding remarks.

2 THE ECONOMIC AND LEGAL ASPECTS OF COMPETITION

Hong Kong has been identified as one of the most free economies in the world (Chen and Lin 2002, HKCC 2014). The Hong Kong government has adopted the laissez faire philosophy that pins on the belief that the market force is the best way to allocate resources (Chen and Lin 2002). However, the general impression is not entirely true and it tends to confuse laissez faire with perfect competition. Anti-competition conducts, such as price fixing and bid riggings that may confine consumer choices or jet up prices, are not absent from Hong Kong (HKCC 2014).

In many developed economies, there are legislative interventions to protect trades and competition. The rationale underpins these legislations is that the abuse of dominant market power could significantly influence market competition. Market power refers to conditions where the providers of a good or a service can consistently raise prices above the price level established by a competitive market (Alvarado 1998). Accumulation of market power is indicated by the concentration of resources in the hands of a few merchandise producers/service providers or an insufficient number of producers/providers (Alvarado 1998). Therefore, the producers or providers with market power would have the ability to individually affect either the total quantity or the prevailing price in the market. Consequently, the market competition might be distorted if they abuse such ability.

In Hong Kong, the first-ever competition law, the Hong Kong Competition Ordinance (HKCO), was enacted in June 2012 and came into force on 14th December 2015. The HKCO has two conduct rules to regulate anti-competition conducts and a merger rule to prohibit merges that substantially lessen competition in Hong Kong. The Second Conduct Rule is relevant to this study:

> "An undertaking that has a substantial degree of market power in a market must not abuse that power by engaging in conduct that has as its object or effect the prevention, restriction or distortion of competition in Hong Kong"

The Guidelines on the Second Conduct Rule (GSDR) highlights market share as the initial screening device in assessing the substantial market power since higher market share of undertakings usually indicate higher degree of market power (Hong Kong Competition Commission 2015). Market share distribution largely correlates to market structure, showing the extent to which market power is distributed among incumbents (Adelman 1951, Ye *et al.* 2009). In this regard, concentration is a principal indicator of market power. The significance of concentration arises from the proposition that highly concentrated market is dominated by a few large firms. This situation could be worse if barrier to entry is high (McCloughan and Abounoori 2003). Concentrated market is a fertile ground for the abuse of market power that most competition policies object to guard against (McCloughan 2004).

3 CONCENTRATION MEASURES

The GSDR suggests two methods to measure market share concentration; i) Concentration Ratios (CR) and ii) Herfindahl-Hirschman Index (HHI). Concentration Ratio (CR) is the most widely known and used measure of industrial concentration. CR is represented by the percentage of the market share occupied by the largest firms in a certain industry (Parker 1991). Data revealing employment, net output, turnover or work done can all be used in measuring CR (McCloughan 2004). As a matter of fact, concentration Ratio is often used for its convenience in collection of data. It has also been criticized for the narrow focus on a few large firms without taking the rest of firms into consideration (Ye *et al.* 2009).

HHI was proposed by Hirschman (1980) who used this index to measure concentration of control or power an industry (Hirschman 1980). Hirfindahl-Hirschman index (HHI) is the sum of the squared market shares of the top 50 firms (or all the firms if they are less than fifty) in a particular sector (Nawrocki and Carter 2010). When Hirschman (1980) developed this index for measuring concentration, he stressed that an important condition of perfect competition implies the presence of both a relatively equal distribution and a large number of producing firms in this industry. Unlike concentration ratio, all participants are considered in HHI. Besides, HHI weights each firm by its own relative market share, giving higher weights to larger firms.

CR focuses on the market share of the leading market participants while HHI weights the share of all participants to show inequality in market share distribution. While CR leaves the rest of market participants out of consideration, using HHI could offset this demerit. Therefore, CR and HHI can be used in parallel to enhance the evaluation.

4 DATA ANALYSIS AND FINDINGS

For residential units, the Hong Kong Consumer Council of Hong Kong uses housing units annually produced by each developer to represent their annual market share. Gross Floor Area (GFA) of buildings has also been adopted to demonstrate the market share condition in this study. GFA is defined as the area contained within the external walls of the building measured at each floor level by the Census and Statistic Department of Hong Kong. GFA Production is a way to represent the output of residential units. In addition, the annual completion in GFA is generally available in the annual report of listed developers and therefore used in this study.

To evaluate the concentration of private new residential unit market, developers listed on the Hong Kong Stock Exchange are ranked by their market capitals. By looking into developers' annual report from year 2009 to 2012, their annual GFA completions of residential development are compared against the total GFA completed annually in Hong Kong. Data are obtained from the Key Statistics on Business Performance and Operating Characteristics of the Building, Construction and Real Estate Sectors by Census and Statistics Department of Hong Kong.

4.1 Calculation of Concentration Ratio (CR)

The range of concentration ratio is from 0 to 1. Zero indicates that the market is perfectly competitive while one indicates little competition (Ye *et al.* 2009). The calculation of CR, by its definition, is the percentage of the market share occupied by the largest firms in a certain industry. It can be conducted by the following formula, where Si denotes the market share of firm i and n denotes the total number of firms whose market shares are counted in;

$$CR_n=\sum_{i=1}^{n} S_i \tag{1}$$

Four-firm concentration ratio (CR4, the percentage of market share held by the largest four undertakings) and five-firm concentration ratio (CR5, the percentage of market share held by the largest five undertakings) are mostly used in previous studies (McCloughan 2004). Therefore, CR4 and CR5 are both calculated in this study.

4.2 Calculation of Hirfindahl-Hirschman Index (HHI)

Since the market shares are measured from 0 to 1, the range for HHI is between zero (perfect competition) and one (little competition) (Chiang *et al.* 2001, Nawrocki and Carter 2010). Total number of participants in a certain market shall be considered in HHI. HHI outcomes are usually compared against the threshold index suggested in Merger Guidelines of U.S. Department of Justice and the Federal Trade Commission (Kerber *et al.* 2009). To follow the index format convention, percent sign (%) is left out for both Si and HHI expressions. For example, 19.71% is expressed as 19.71. The outcome of HHI will be between 0 and 10000. In the following formula, *Si* denotes the market share of firm *i* and *n* denotes the total number of firms whose market shares are counted in;

$$\text{HHI}=\sum_{i=1}^{n} S_i^{\,2} \tag{2}$$

One drawback of HHI is the difficulty in collecting data of every single firm (Adelman 1951). In this regard, Hirschman (1980) provided some alternatives. When data of the majority of large firms are available, the rest few can be lumped as "other firms". An approximate determination could be made by setting a maximum and a minimum limit to the remaining firms (Hirschman 1980). The limit setting of HHI are purely based on math calculations. The maximum HHI could be calculated by assuming all "other firms" are holding the same market share as the firm holding the least available market share. As for the minimum HHI, it can be calculated by assuming all the "other firms" achieves perfect competition.

4.3 Findings

The five major developers with the highest market shares are shown as A-E in Table 1, with their annual market share from 2009 to 2012 and an average market share throughout these four years. CR4 and CR5 are compared against thresholds that have been suggested in other competition guidelines. Table 2 serves as reference of thresholds of concentration ratio in overseas legislations. By referring to these thresholds, the largest 4 to 5 developers in Hong Kong residential property market are collectively holding a dominant market position.

Table 1. Market share measures.

Developer	2009		2010		2011		2012		Average	
	Annual GFA Completion (ft2)	Market Share (%)	Annual GFA Completion (ft2)	Market Share (%)	Annual GFA Completion (ft2)	Market Share (%)	Annual GFA Completion (ft2)	Market Share (%)	Annual GFA Completion (ft2)	Market Share (%)
A	1815000	14.54%	4097000	22.40%	2858000	16.20%	3645000	19.71%	2483000	18.56%
B	2958774	23.70%	3610135	19.74%	2432927	13.79%	3624918	19.60%	2525351	18.87%
C	2847667	22.81%	3543963	19.38%	2090857	11.85%	3171252	17.15%	2330748	17.42%
D	1972891	15.80%	1287464	7.04%	1149517	6.52%	1341786	7.26%	1150332	8.60%
E	691395	5.54%	1419621	7.76%	1808478	10.25%	1559149	8.43%	1095729	8.19%
Total	12486136		18287883		17642049		18492398		13381693	
CR4	76.84%		69.28%		52.09%		64.89%		63.44%	
CR5	82.38%		76.32%		58.61%		72.15%		71.63%	
HHI	1573-1670		1377-1544		741-1010		1191-1285		1145-1389	

With reference to the figures in Table 1, except for year 2011, the largest 3 participants already hold a dominant position. Adding the market share of the 4th and 5th largest developers, there is only less than a quarter market share left for the rest of all property developers. Such situation signals a highly concentrated market where a “competition problem” is highly possible to occur (McCloughan 2004).

The thresholds for HHI could be found in US Horizontal Merger Guidelines where merger cases would be assessed as non-concentrated, moderately concentrated or highly concentrated (see Table 3). Taking the US guideline as a reference, HHI steadily stayed as moderately concentrated when applying the 1992 version. And it even fell into “non-concentrated” category from the year of 2010 if the 2010 version is adopted thence.

Table 2. CR thresholds as screening tools.

Region	**Legislation**	**Suggested Threshold**
Singapore	Competition Act 2004	>60%
Malaysia	Laws Of Malaysia Act 712 Competition Act 2010	>60%
UK	Competition Act 1998	>50%
Australia	Competition and Consumer Act 2010	(No threshold suggested)
Europe	Article 102 of the Treaty on the Functioning of the European Union	<40% not likely dominant
US	The Sherman Antitrust Act (1890)	>50% and sustainable over time

Table 3. HHI thresholds as screening tools.

Version		**2010**	**1992**
US Horizontal Merger Guideline	Non-concentrated	Under 1500	Under 1000
	Moderately concentrated	1500 - 2500	1000 - 1800
	Highly concentrated	Over 2500	Over 1800

5 DISCUSSIONS

Unlike high CRs that indicates a significantly concentrated market, HHI demonstrated the competition condition of property market from another perspective. The squaring mechanism of HHI places more focus to the individual market shares, showing the extent of inequality. Although the total market share of five developers is large in absolute value, their shares are quite equally matched, especially for the top three. The outcome of HHI assessment and CR analysis are in fact complementary. When the CR analyses demonstrate that the top-3 to top-5 firms held a dominant position in the residential property market, the HHI analyses show that there is no single dominant firm. The individual competitiveness is almost equal among members within this group.

The findings in this study are subject to two caveats. Firstly, on investigating the private residential property developers, the data of private developers that are not listed in the Hong Kong Stock Exchange Market are not available. These data might have potential impacts to the HHI analysis if the market share of any one of these private developers ranked higher than the 5th biggest listed developers. Secondly, this study only focuses on the two major indicators of market power suggested by guidelines. It is acknowledged that there are other indicators such as buyers’ countervailing power and economic regulations by the government, which may also have impact on the existence of dominant market power. Future study could be more comprehensive if these factors are evaluated and analyzed altogether.

6 CONCLUSIONS

The residential property price in Hong Kong has kept rising in the last decade and has been ranked within the top three metropolitan cities in the world. The rise after the 2008 global financial turmoil has been phenomenal and far beyond inflation. In this regard, there may be a case of insufficient competition that has lead to the rocketed prices. This study explores the concentration of the new private residential property market using the measures suggested by the Guidelines of the Second Conduct Rule of the Hong Kong Competition Ordinance. The result suggests that the new residential unit market is quite concentrated. For the period from 2009 to 2012, the big five developers in Hong Kong collectively held a dominant position of the potential supply. However, their respective market shares are almost equal and balanced. It is further found that the substantial land banks of big developers also facilitate the big developers to continuously hold their collective dominant position in the near future.

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