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THE IMPACT OF PRICING STRATEGIES ON TIME-ON-MARKET UNDER VARIOUS ECONOMIC CONDITIONS

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ABSTRACT. This study examines how price adjustments in a flat's marketing phase, along with various housing attributes, influence its time-on-market (TOM). A Cox survival model is used for the analysis of two separate periods, one of economic downturns (2003) and one of economic recovery (2004-2006), in Hong Kong. Factors such as price adjustments, sale price, numerous housing attributes, general property price trend, and changes in unemployment rate have significant impacts on TOM, with their respective impacts changing over time. Specifically, the effectiveness of raising list prices before transactions, in optimizing sellers' returns and TOM, depends on economic conditions as well as on the market expectations regarding future property prices. Directions on future studies are then discussed.

KEYWORDS: Time-on-market (TOM); Residential properties; Hong Kong; Searching cost; Economic conditions

1. INTRODUCTION

In property valuations, appraisers relate marketing time to the estimated capital value of a real property. For example, for their definition of "market value" or "open market value", a "reasonable" time period on the market is assumed[1]. Aside from various housing characteristics, other important elements that can influence one's incentive to buy are the sellers' initial asking prices and their expectations of the selling price. While housing characteristics mostly remain static over a long period of time, list prices, consumers' preferences and price aspirations and expectations may change over time.

From a seller's perspective, one question being asked is whether he/she is able to obtain a higher selling price over a longer period of time, or settles for a lower selling price over a shorter period of time. The question that follows may be: what is the optimal selling period if the property is sold at the current market value? From a buyer's perspective, he/she would look for the best possible price for a flat of his/her liking, subject to the amount of information and searching cost that this potential buyer perceives. In other words, how much a seller could gain over the average market price depends on how much a potential buyer is willing to spend, whether in terms of time or money, on searching for relevant market information and similar flats available on the market. Such considerations dictate the time-on-market (TOM) for a flat on sale and the seller's realized return above market price. If the buyer's searching cost exceeds the seller's potential gain through a higher list price, the

transaction is likely to take place sooner, thus a shorter TOM, and vice versa. The latter scenario could reach a point where transactions fall through. For instance, Anglin (1994) reported that 30 to 50 percent of negotiations ended without a transaction and Anglin et al. (2003) noted that about 40 percent of house listings ended without a sale.

But the main problem remains: could sellers with higher selling costs achieve a faster sale, and at the same time, a maximum realizable return? Alternatively, could sellers benefit from longer marketing time in terms of achieving greater real selling prices? If not, what is the optimal pricing strategy such that a seller could achieve the greatest net present value of the selling price in an optimal marketing time, without prior knowledge of the buyer's searching and information costs? This study examines the list price, the sale price and the time on market in the property market under different living tenures, flat sizes, price ranges, and other physical characteristics. Previous studies have examined overseas markets while this study focuses on Hong Kong's residential market.

This paper is organized in four sections. Following this introduction, section 2 provides the literature review on the time-price relationship. Section 3 presents the study methodology. Section 4 describes the data source. Section 5 presents the empirical results and the last section concludes the study.

2. LITERATURE REVIEW

Prior to a transaction for real properties, sellers have to decide whether to maximize selling price or to minimize time-on-market (Miller, 1978; Trippi, 1977). For the former, according to Knight (2002), a seller's search is led by a desire to maximize the discounted present value of realized profits from a transaction through a listing price that balances the marginal costs of continuous searching with the marginal benefits of accepting an offer at present. In the meantime, a buyer faces a similar problem, as he/she searches on the housing market for one particular property which maximizes his/her utility level (Knight, 2002). Based on such interactions between buyer and seller, a logical progression is how to reach that optimal list price for the seller. According to Merlo and Ostalo-Mague (2004), it is typically assumed that a seller faces a trade-off between the rate of arrival of buyers and the sale price. In other words, a lower list price increases the arrival rate of buyers but reduces the chances of high-price transaction (Haurin, 1988). To look at the list price from another perspective, Horowitz (1992) and Yavas and Yang (1995) suggest that it has two different roles. List price is either the seller's reservation price or an upper bound for the seller's reservation price which will be acceptable when a prospective buyer matches the offer.

Specifically, a seller's choice of an offer price is a function of market price for the seller's home, its characteristics, and the availability of properties in the market (Mayer, 1995). Subsequently, this list price influences the arrival rate of buyers, as well as the distribution of bids from them. However, one reason for sellers to set a higher list price is that they have higher loan-to-value ratio, as discovered in an investigation of the Boston condominium market by Genesove and Mayer (1997). They also have a higher expected TOM and tend to obtain higher transaction prices than owners with proportionately less debt.

For the latter, TOM has been studied in three different dimensions. The first dimension is the relationship between TOM and price concession ratio; the second is that between TOM and sale price. The last dimension focuses on the how search theory explains TOM (Kalra and Chan, 1994). With regard to the first dimension, it has been shown in Belkin et al. (1976), Kang and Gardner (1989), and a more recent study by Leung et al. (2002),

that TOM has a positive correlation with the ratio of list price to sale price. Kalra and Chan (1994) have a similar finding, although the impact of price concession appears to be more noticeable for the transactions of higher-priced homes. However, it is not always the case, as Jud et al. (1995) report no significant impact of price concession on time-on-market. Instead, they find that TOM is influenced by the standard deviation in sale price. They suggest that a wider distribution of prices may encourage sellers to hold out for higher transaction prices, therefore resulting in a longer TOM.

Meanwhile, some other researchers have concentrated their efforts on examining the relationship between TOM and sale price. Yet, the resulting empirical evidence on this matter has been mixed and somewhat inconclusive. Specifically, the sign on TOM has been found to be rather unpredictable (Asabere et al., 1993). For instance, some studies have discovered a positive correlation between TOM and sale price (for instance, Trippi, 1977; Miller, 1978; Asabere and Huffman, 1993), whereas an inverse relationship between the two was found in Cubbins (1974).

From a theoretical standpoint, search theory has been frequently used to explain the relationship between sellers' choice for listing price and time-on-market. Generally speaking, the search theory usually assumes a direct relationship between selling price and TOM. Sellers are willing to wait longer for the probability of a better offer from a buyer (see Miller, 1978; Turnbull and Sirmans, 1993; Merlo and Ortalo-Magne, 2004). Yet this may not always be the case, as potential buyers might regard properties which remain unsold for a relatively long period of time as detective. According to Taylor (1999), this situation constitutes a phenomenon called negative herding. As such, a longer time-on-market may result in a lower sales price.

A number of papers have also linked sellers' pricing strategies to TOM. It is often found that the more overpriced a flat is, the slower it will be sold, as shown on numerous occasions in the literature such as Miller (1978), Ong and Koh (2000), Anglin and Wiebe (2004), Li (2004) and Merlo and Ortalo-Magne (2004). Asabere et al. (1993) report that the both overpricing and underpricing strategies would prevent sellers from achieving the optimal TOMs that correspond to the highest sale prices (in net present values).

Besides property prices, housing characteristics are other important determinants of TOM. Miller (1978) points out that, given a housing supply and demand conditions, a property's TOM is a function of its attractiveness (attributes) in comparison to other properties on the market. A key element of a flat's attractiveness is its age. However, there has been no consensus about how age affects time-on-market. For instance, Zuehlke (1987) reports that the age of a property is an important determinant of TOM, but Kalra and Chan (1994) and Ong and Koh (2000) reach a different conclusion. On the other hand, Haurin (1988) suggests that TOM is directly affected by the atypicality of a house. In other words, it takes more time for properties with more unusual features to market before they can be transacted (Kalra and Chan, 1994). For example, it is found by Ong and Koh (2000) in a Singaporean study that condominiums on lower floors tend to have longer TOM. Li (2004) found that property characteristics, such as pool view, number of bedrooms or toilet and private enclosed space, are not significant in explaining the time on market. But properties on higher floors, with southern or northern facing, and with more convenient traffic will have shorter marketing time.

Researchers have also studied the impact of (housing or financial) market conditions on TOM. It has been reported in several studies (e.g. Anglin et al., 2003; Kalra and Chan, 1994; Yang and Yavas, 1995; Haurin, 1988) that TOM is influenced by both local and national

economic conditions as well as being subject to strong seasonal effects. In a recent study conducted by Leung et al. (2002) in Hong Kong, the inflation factor is another critical factor besides price ratio that influences TOM.

3. STUDY METHODOLOGY

This study seeks to provide some empirical insight into the effects of various factors on TOM. In particular, we hypothesize that price adjustments during the marketing phase, as reflected by the difference between list price and final transaction/sale price, has direct influence on TOM.

A Cox survival model is to be used for modeling TOM One distinctive feature which separates the Cox model from other survival models is that, in a Cox model, the baseline hazard function is left unspecified. As a result, it can be said as a semi-parametric model, for the covariates could enter the model linearly as the baseline hazard can take a variety of forms (Fox, 2002). It is concluded by Fox (2002) that such model specification avoids the problems incurred by the arbitrary (and even incorrect) assumptions as to the form of baseline hazard. Suppose TOM is a continuous random variable. Let $f(t)$ denotes the probability density function of TOM, $F(t) = \Pr(\text{TOM} \le t)$ its cumulative distribution function and $S(t) = \Pr(\text{TOM} \ge t) = 1 - F(t)$ its survival function, then its hazard rate

$$h(t) = f(t) / S(t). \tag{1}$$

The hazard rate measures the likelihood that a housing unit will be sold at time t, given that it has not been sold at time t. If two houses A and B have hazard rates $h_1(t)$ and $h_2(t)$ respectively, with $h_1(t) \ge h_2(t)$ for all t, then house A tends to have a shorter TOM than house B does. Now, in Cox model, the hazard function of TOM is assumed to take the following form:

$$h(t) = h_0(t)\Lambda(X, Z), \tag{2}$$

where: $h_0(t)$, called the *baseline hazard rate*, is a non-negative function of time and Λ is a time-independent function that may depend on some housing attributes **X** (age of property, number of bedrooms, whether it is near the central business district, etc.) some other variables **Z** that affect both TOM and home prices (months of inventory, velocity of sales, $\bar{P}_S$, P_L, mortgage interest rate, unemployment rate, consumer price index, gross domestic product, etc.). Different definitions of $h_0(t)$ and Λ give rise to different models of TOM. For example, Jud et al. (1996) assumes that

$$h_0(t) = pt^{p-1}, \tag{3}$$

$$\Lambda = \exp(-\beta - B'X - C'Z), \tag{4}$$

where: $h_0(t) = pt^{p-1}$ is the baseline hazard rate of the Weibull distribution. When $p = 1$, the baseline hazard rate becomes constant and the density function of TOM decays exponentially. Hence Cox model reduces to the Exponential model in this case.

Cox models are not the only hazard models that appear in TOM literature. The semi-log regression in (3), for instance, can be re-casted as a hazard model with the following density and survival function:

$$f(t) = \varphi[\log(\Lambda t)/\sigma](\sigma), \tag{5}$$

$$S(t) = \Phi[-\log(\Lambda t)/\sigma], \tag{6}$$

where: σ is the standard deviation of ε_{TOM} in (1) and φ, Φ are respectively the density function and cumulative distribution function of the standard normal distribution. This model is sometimes called the log-normal model as TOM follows a log-normal distribution in this case. Another model that has appeared in the literature is the log-logistic model (see e.g. Glower et al. 1998), in which

$$h(t) = p\,\Lambda t^{p-1}/(1 + \Lambda t^p), \tag{7}$$

$$S(t) = (1 + \Lambda t^{p})^{-1}. \quad (8)$$

Note that these two models are not proportional hazard models, so we do not speak of their baseline hazard rates. At any rate, given that $\Lambda(\mathbf{X}, \mathbf{Z})$ is fixed, the Cox model, the log-normal model and the log-logistic model are all one-parameter models.

The variables in **X** and **Z** are as follows:

ln(SIZE)	is the natural logarithm of the size (in square feet) of the housing unit;
KLN	is a dummy variable that the housing unit for sale is located in the Kowloon Peninsula;
NT	is a dummy variable that the housing unit for sale is located in the New Territories;
E, S, W, N, NE, SE, and NW	are dummy variables that represent the orientation of the housing unit (the direction where the living room of an apartment is facing);
VACANT	is the dummy variable that the housing unit is in vacant possession;
OWNER	is the dummy variable that the housing unit is owner-occupied;
RENTER	is the dummy variable that the housing unit is renter-occupied;
FLOOR	is a dummy variable; 1 if the flat is higher than the 20th floor, 0 otherwise;
SPACES	is the number of parking spaces entitled to the housing unit;
BEDROOMS	is the number of bedrooms;
CLUBHOUSE	is the dummy variable that there is a club house;
POOL	is the dummy variable that there is a swimming pool;
RPPI	is the return (rate of change) of the property price index, computed by the Rating and Valuation Department, the HKSAR Government, on a monthly basis;
UNEMPLOYCH	is the changes in unemployment rate in Hong Kong;
PPA	is the dummy variable which indicates positive price adjustments during the marketing period (i.e. List Price < Final Sale Price).

Initially we intended to include other variables, such as the rate of change in property price/rental index (RPPI/RPRI), the year-to-year growth of the consumer price index (CPIYYPERCH), changes in the best lending rate (BLRCH), adjustments in the median household income (ROCINCOME), along with changes in unemployment rate (UNEMPLOYCH) in the vector **Z**. However, as Table 1 shows, these variables are highly correlated. Therefore, to avoid multicollinearity and to keep the hedonic regression parsimonious, we include only RPPI (which is only slightly correlated with other variables) and UNEMPLOYCH (which is also included in, e.g., Jud et al. 1996) but not other economic variables in the hedonic regression.

Table 1. Correlation between selected economic variables between January 2003 and June 2006

	RPPI	BLRCH	UNEMPLOYCH	CPIYYPERCH	RPRI	ROCINCOME
RPPI	1	–.065	–.259	–.091	.362*	.443**
BLRCH		1	–.008	.370*	.197	.165
UNEMPLOYCH			1	–.129	–.531**	–.403**
CPIYYPERCH				1	.316*	.159
RPRI					1	.346*
ROCINCOME						1

Note: * denotes significance at 5% ** at 1%

The Cox model will be deployed in this paper for the analysis. Both **X**, **Z** will be considered explanatory variables. Various researchers (e.g. Zuehlke 1987, Haurin 1988, Larsen and Park 1989, Yang and Yavas 1995, Ong and Koh 2000, Gensove and Mayer 2001, Anglin et al., 2003 or Li 2004) have included different variables **X** and **Z** in specifying Λ. In this study, the proportional hazard assumption is presumed, as Cox (1972) finds that under such assumption, one can actually use a partial likelihood method to estimate the coefficients **B** and **C** in (4) without knowing the baseline hazard function.

In the Cox model, if the coefficient of a variable is positive, then an increase in the value of the variable would tend to make TOM longer; otherwise, an increase in the value of the variable would tend to make TOM shorter. In order to understand the dynamics of TOM in different years with changing economic conditions, two sub-period investigations are to be carried out (2003 and 2004-2006). It should be noted that, unlike many previous studies, the first period was regarded as the crisis period when Hong Kong was still suffering economic downturn, due to the effects of the SARS epidemic. By contrast, the second period was similar to the situations depicted in other studies, as Hong Kong's economy had gradually recovered from the aftermath of SARS. Sub-period investigations allow for comparisons of the effects (and adjustments) of different variables on TOM in various years, which could contribute to the existing literature considering the nature of Hong Kong's economy during the period.

4. SAMPLE DATA

The samples were collected on a cross-sectional basis, including their initial asking prices and eventual sale prices, from January 2003 to June 2006. This was a period when Hong Kong had gradually been recovering from the lasting impact of the Asian Financial Crisis in the late 1990s, only to be temporarily hit again due to the SARS epidemic. The number of properties with negative equity reached a historic high of 106,000 by the end of the 2nd quarter of year 2003 (Figure 1) and unemployment rate was higher than 8% (Figure 2). Afterwards, the economy had gradually improved, as well as the price trend and number of transactions of real properties (Table 2). Unemployment rate had continued to fall and interest rate had started climbing in 2005 due to higher demand for mortgage loans, as reflected by the increase in property transactions in 2004 and 2005. Besides, unlike many western countries, Hong Kong has arguably the largest public housing system in the world, along with Singapore. Yet, as a response to the controversies surrounding the government's assistance homeownership (HOS) especially during the economic downturn, the Housing Authority (HA) had ceased the construction and sale of HOS flats since 2003. This policy change in some ways has helped accelerate the recovery of Hong Kong's property market.

Table 2. Numbers of sale and purchase agreements for residential properties, new completions of residential flats and vacancy rates

Year	2003	2004	2005	2006
No. of sale and purchase agreements for residential properties	71,576	100,630	103,362	82,472
No. of new completions of residential flats	26,397	26,036	17,321	16,579
Vacancy rate (%)	6.8	6.2	6.0	5.9

Source: Rating and Valuation Department

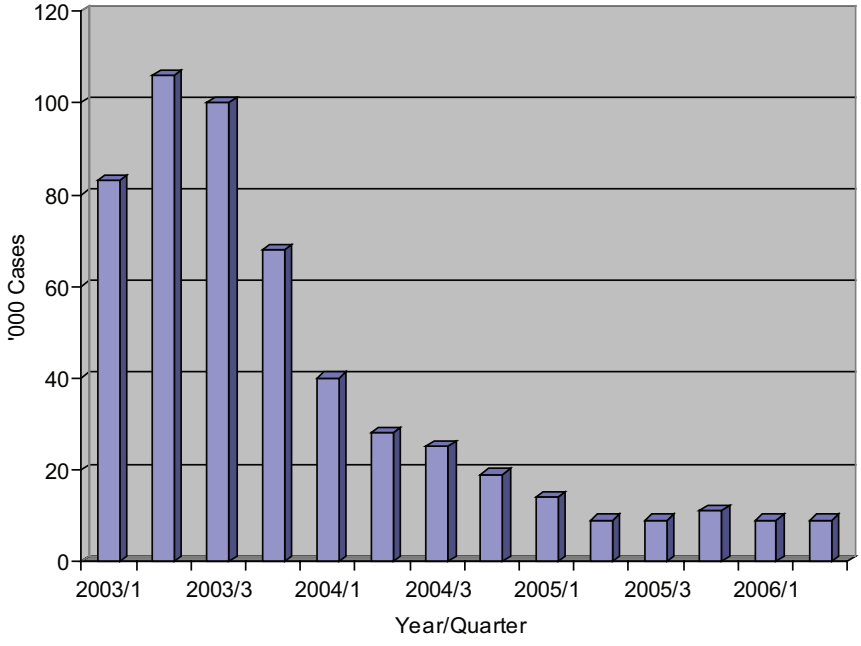

Figure 1. Number of residential negative equity cases
(Source: Hong Kong Monetary Authority)

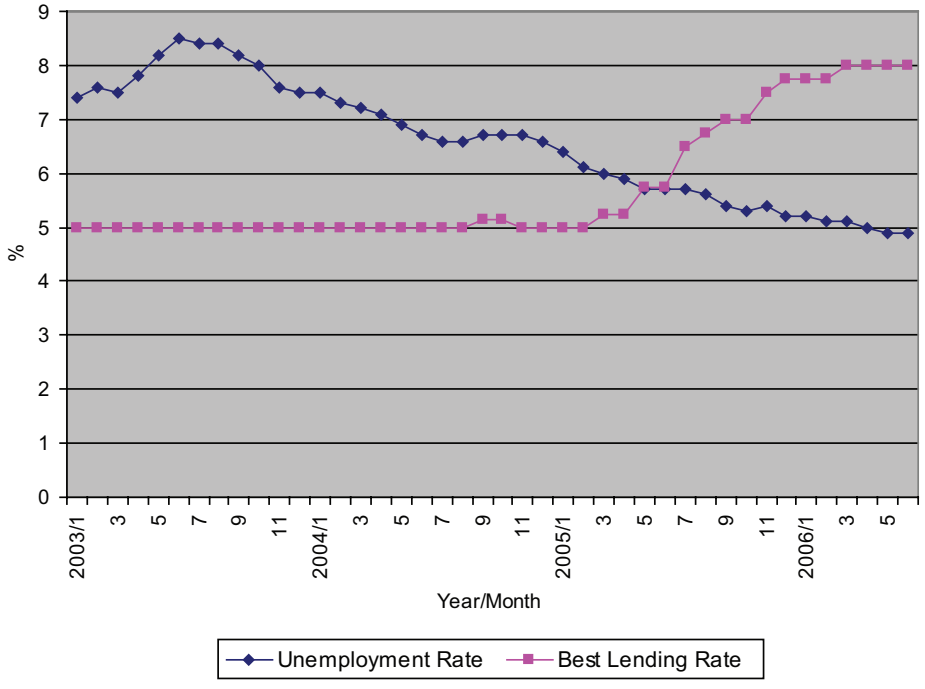

Figure 2. Hong Kong's unemployment rate and best lending rate
(Sources: Census & Statistics Department and HSBC)

The data set of the study covers residential sales only. Completed transactions from the initial listing price to the sale agreement, including individual marketing time in elapse calendar days, were included in the data set for empirical study. The transactions cover pre-sale units (units under construction), owner-occupied units, renter-occupied units and vacant-in-possession units. The data refer to domestic flats randomly selected from 168 development estates and individual buildings of various flat sizes from less than 272 sq. ft. to over 3,882 sq. ft. A total of 62, 43 and 63 estate blocks and individual buildings in Hong Kong Island, Kowloon, and the New Territories, are covered, respectively. There are 4,010 domestic flat sales records of properties listed as early as January of 2003 and sold as late as June of 2006.

It should be noted that the data used for this study, unlike many similar studies on Hong Kong's property market, is not from an official source. The reason is that official data such as the EPRC, based on trading records from the Land Registry of the HKSAR, does not necessarily provide information such as a flat's orientation and its current tenure status due to legal concerns. The dataset used for this study, obtained from Midland Realty[1] of Midland Holding Limited, one of the largest property agencies in Hong Kong, allows us to investigate the possible impacts of aforesaid attributes on property price and TOM, which is something that might not be done via the use of government documentations. This dataset is systematic and reliable, and generally regarded as a suitable reference for studying Hong Kong's property market.

[1] Being a listed company in Hong Kong, as at January 31, 2007, Midland had 426 branches in Hong Kong, mainland China and Macau. Its transactions cover all real properties across Hong Kong amounting to over one-third of the market share in terms of transaction value.

Before further discussions, some summary statistics with regard to the tenure status, price levels and the distribution of TOM are presented in Tables 3 and 4 (Refer to Appendix for a comparison with the sample deployed in another Hong Kong study on TOM (Leung et al., 2002)).

Table 3. Summary statistics

Tenures	Sample	
	No.	%
Pre-sale	150	3.7
Vacant in possession	2037	50.8
Renter-occupied	323	8.1
Owner-occupied	1493	37.2
Unknown	7	0.2
Overall	4010	100
Sale prices (in HKD)	Sample	
	No.	%
$1 – $1.99 mil	1625	40.6
$2 mil – $3.99 mil	1117	27.9
$4 mil – $5.99 mil	414	10.3
$6 mil and over	851	21.2
Overall	4007*	100

Note 1: * excluding cases with missing values;
Note #2: 1USD = 7.8 HKD

It should be noted that about half (51.0%) of the transacted properties are vacant. Statistics also show that about 40% of them are in the low end of the market (the most common flat type in Hong Kong) with a list price below HK$2 million.

A closer look at the marketing periods of individual properties in years and further broken down in quarters of the first year provides some insight to the speed of sales. Table 4 shows the overall distribution of TOM. Slightly over half (54.16%) of the properties were transacted within 3 months after they had been put on sale, followed by 20.47% within the second quarter. In other words, about three-quarters (74.63%) were transacted within 6 months. Only about 8% were sold after having been on the market for over a year. In short, overall sales were effected relatively quickly – despite there is a wide range of TOM, from 1 day to 1,141 days.

Table 4. Distribution of marketing time (TOM)

Sold	1st Year				2nd	3rd	After 3rd year	Total
in	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	year	year		
No. of days	1–90	91–180	181–273	274 –365	366 –730	731–1095	1096 –1141	–
N	2175	820	461	244	277	32	1	4010
%	54.2	20.4	11.5	6.1	6.9	0.8	0.03	100

5. RESULTS AND FINDINGS

Separate Cox regression models have been carried out in the investigation of the effect of various factors on TOM, and the results are presented in Table 5 below. Generally speaking, the differences between the impact of these variables on TOM in the full sample, the vacant-flat sample, and the occupied-flat sample are negligible.

5.1. Effect of prices

Positive price adjustments during marketing phase (PPA) and sale price [ln(Ps)] are included in **Z** as explanatory variables. Table 5 gives parameter estimates for the Cox model. With regard to property price, the findings suggest that flats that were listed in 2003 tended to be transacted sooner than that listed in the next 3-year period, regardless of prices. In addition, higher-price properties listed in 2003 had much lower TOMs than cheaper flats, but opposite results are observed for those listed from 2004 to 2006.

With regard to PPA, even though the norm in negotiations is that sellers gradually adjust downward from the list price in order to make transactions possible (i.e. List price > Final sale price), this negotiation tactic only is effective for faster transactions during economic downturns (2003), but not during economic recoveries (between 2004 and 2006). Considering the amount of negative-equity properties in 2003 (Figure 1), the availability of flats on the secondary market was much fewer, to the point where it became more costly for potential buyers, both in gathering information and in the time incurred in searching, to obtain better bargains. Meanwhile, it also costs more for potential sellers to locate these potential buyers, as well as to obtain accurate market price information due to the lack of transactions. Besides, during economic downturns, participants on the housing market generally expected that housing prices would continue to drop. In other words, better bargains could be obtained later. Under such circumstances, sellers' strategy for the best possible return was to sell the flats as soon as possible. Downward adjustments from the listing price were means to achieve this goal. Nonetheless, by the time when the economy began its recovery in 2004, the number of negative-equity flats drastically attenuated (Table 2), and property prices gradually went up. As property prices were in a rising trend, it was expected that properties would become even more expensive in the near future. As a result, buyers would tend to make quicker decisions when it came to purchasing flats, and thus making it possible for sellers to achieve higher returns via raising their asking price during the marketing stage, without compromising their TOM.

5.2. Geographical location

Geographical location of the housing unit is shown be significant in 2003, which suggests that if a flat was listed in 2003, flats located in the New Territories would have been sold sooner than one in Kowloon and in Hong Kong Island. This is somewhat contrasting the result in Ong and Koh (2000), in which the authors find that housing units near the central business district tend to have shorter TOMs. Yet, within the next 3 years when Hong Kong's economy was back on track, the positive relationship between NT and TOM indicates that flats in the urban areas appear to be transacted faster than those in the New Territories, which is in line with the literature.

Table 5a. The Cox model results (full sample)

Variables	2003	S.E.	2004–2006	S.E.
ln(Ps)	–1.451***	.081	.419***	.042
KLN	–.415***	.092	.046	.055
NT	–1.218***	.107	.268***	.063
E	–.147	.139	–.015	.084
S	.028	.140	–.025	.083
W	–.150	.156	.149*	.084
N	.051	.142	.101	.085
NE	–.085	.114	.060	.067
SE	.099	.113	.005	.067
NW	–.159	.114	.026	.066
VACANT	–.181	.170	.045	.099
RENTER	–.095	.200	.003	.115
OWNER	–.211	.172	.095	.100
SPACES	.874***	.090	–.268***	.057
BEDROOMS	.662***	.058	–.199***	.035
CLUBHOUSE	.386***	.093	–.154***	.055
POOL	.183*	.102	–.027	.061
FLOORHIGHERTHAN20	–.104	.070	–.007	.040
RPPI	.047***	.012	–.018***	.007
UNEMPLOYCH	.491**	.219	–.539***	.152
PPA	.555***	.081	–.168***	.055
N	1023		2986	
–2 Log Likelihood	14710.697		43278.563	
Chi–square	412.035		129.566	

Table 5b. The Cox model results (vacant flats)

Variables	2003	S.E.	2004–2006	S.E.
ln(Ps)	–1.576***	.117	.398***	.058
KLN	–.378***	.129	.097	.079
NT	–1.253***	.146	.308***	.089
E	–.215	.198	–.120	.120
S	.229	.191	–.210*	.119
W	.056	.211	–.074	.119
N	.067	.195	–.092	.120
NE	.011	.152	–.099	.091
SE	.171	.153	–.086	.093
NW	–.127	.154	–.113	.089
SPACES	.732***	.136	–.180**	.080
BEDROOMS	.765***	.085	–.170***	.050
CLUBHOUSE	.349***	.128	–.090	.080
POOL	.278**	.133	–.121	.084
FLOORHIGHERTHAN20	.013	.095	–.011	.057
RPPI	.044***	.016	–.021**	.010
UNEMPLOYCH	.646**	.279	–1.037***	.211
PPA	.580***	.116	–.122*	.074
N	552		1485	
–2 Log Likelihood	7126.372		19523.481	
Chi–square	234.232		89.922	

Table 5c. The Cox model results (occupied flats)

Variables	2003	S.E.	2004–2006	S.E.
ln(Ps)	–1.348***	.117	.429***	.060
KLN	–.456***	.133	.006	.077
NT	–1.199***	.159	.223**	.090
E	–.163	.197	.103	.119
S	–.175	.206	.163	.116
W	–.398*	.233	.360***	.120
N	–.007	.209	.302**	.121
NE	–.199	.172	.225**	.100
SE	.000	.168	.113	.098
NW	–.248	.171	.182*	.098
RENTER	–.099	.206	.007	.118
OWNER	–.201	.178	.094	.103
SPACES	.949***	.123	–.339***	.082
BEDROOMS	.587***	.083	–.228***	.049
CLUBHOUSE	.472***	.140	–.215***	.078
POOL	.067	.160	.084	.090
FLOORHIGHERTHAN20	–.232**	.105	.004	.057
RPPI	.053***	.017	–.018*	.009
UNEMPLOYCH	.127	.357	.017	.224
PPA	.570***	.118	–.230***	.082
N	471		1501	
–2 Log Likelihood	6354.273		19568.185	
Chi–square	196.529		82.617	

5.3. Other housing attributes

Among the housing attributes that are significant, opposite results are obtained for SPACES, BEDROOMS, and CLUBHOUSE for the two studying periods. Positive impacts on TOM are found for flats that were being put on sale in 2003, but negative effects are found for those listed between 2004 and 2006. Based upon the findings, it can be concluded that demand for flats with carpark space, clubhouse facilities (for instance, residential estates) and more bedrooms are not as high in 2003, as that during the next three years. As residential estates are generally perceived as properties with relatively higher investment return potential due to better property management and associated facilities, the finding suggests that the demand for flats in 2003 was more likely to be user-oriented, whilst that in 2004-2006 was more investment-driven.

5.4. Macroeconomic variables

Changes in unemployment rate (UNEMPLOYCH) has first shown a significantly positive relationship with TOM of a flat which was put on sale in 2003, while a negative relationship between the two is found for flats that were listed in the period of 2004-2006. In general, an increase in unemployment rate, reflecting aggravated economic conditions, tend to prolong TOM, as potential buyers would become a lot more cautious when it comes to costly decisions such as home purchases. Yet, a negative impact between the change in unemployment rate and TOM of flats listed between 2004 and 2006 is found. It was the time

when the unemployment situation had gradually improved (see Figure 2). Even though the economy was recovering, homeowners were expecting an even better economy in the future. This insinuates better price (and higher potential return) for their flats. In other words, the noticeably longer TOM recorded under an improving economy between 2004 and 2006 is due to the expectation from sellers for higher returns in the near future.

With regard to the correlation between TOM and general property price trend (RPPI), the impacts of RRPI on TOM are significantly positive in 2003, but significantly negative in 2004-2006. For 2003, the reason is that, as property price was expected to keep falling during economic downturns (i.e. negative RPPI), potential sellers would need to sell their flats as soon as possible, in order to minimize losses. Meanwhile, as the economy began to recover, it was expected that property price would continue to ascend in the near future (i.e. positive RPPI), buyers would purchase a property of his/her choosing as soon as possible in order to obtain the best possible bargain. In both situations, faster transactions (and generally a lower TOM) are reached.

6. CONCLUSION

This study has examined how adjustments of list price during the marketing process, along with a variety of housing attributes and market conditions, can affect properties' time-on-market (TOM). Our study utilizes a first-hand database which covers about 4,000 transactions of residential units on the Hong Kong property market under different living tenures, flat sizes, price ranges, and other physical characteristics. This is believed to be more reliable and comprehensive to other secondary data available.

Nonetheless, the investigations offer new, in-depth insights into the dynamics of TOM and pricing decisions. In these investigations, factors such as list price adjustments, sale price, changes in unemployment rate, general property price trend (RPPI), and an apartment's tenure status are all significant on TOM. These findings extend the existing literature in two different ways. Firstly, as a response to Asabere et al. (1993), this study elucidates that whether to overprice or underprice a property mainly lies in the market/economic situations of a specific period as well as the supply/availability of alternatives on the housing market. Secondly, our findings further extend the literature (such as Anglin et al., 2003; Kalra and Chan, 1994; Yang and Yavas, 1995; Haurin, 1988) which states that TOM itself is directly influenced by local and national economic conditions. Actually, such economic conditions play an indirect but important role in the effectiveness of overpricing as a strategy in optimizing TOM as well That is particularly so when the economy either is during or starts recovering from a crisis (i.e. 2003 and 2004). People are uncertain about future market situations. To make situations worse than it already is, housing prices are so much lower than that when homeowners bought their flats. A transaction during this period most likely means losses for them (i.e. negative equities), regardless of their pricing strategies. These factors provide the conditions for lower supply on the secondary property market.

Worse, the significance of RPPI on TOM, which is another new finding in this study, shows that expectations of a downward property price trend in the near future cause buyers to postpone their decisions during economic downturns yet to hasten their decisions during economic recoveries, in hopes of even better bargains. For the former scenario, it results in fewer transactions on the property market. This, in addition to the already-low supply of housing, incurs higher cost (both financial and

time) for buyers to obtain information for better deals, and for sellers to locate potential buyers and market price information, than usual. Due to such issue, sellers' strategy for the best possible return was to sell the flats as soon as possible, via downward-adjusting the listing price. By contrast, as the economy gradually recovers (i.e. 2005 and 2006), property price soars. More flats are available on the secondary property market as the number of negative equity flats significantly decreases. Information of better bargains is much easier to obtain. In other words, searching cost for buyers attenuates. However, as participants on the property market expect prices to further go up, potential buyers tend to make their purchasing decisions sooner to minimize the cost; and because of buyers' mentality during this period, sellers are able to raise their listing price sufficient enough to maximize returns.

To conclude, this study, similar to many other studies in the literature, primarily concentrates on pricing strategy and its impact on a property's time on the market in a growing economy. Yet, a constantly growing economy is not always the case, as recent history has shown us the impact of various economic crises on the real estate market (or vice versa, such as the sub-prime crisis in the U.S.). As the world has become increasingly globalized, free flow of capital across the globe has induced a more fluctuating market environment. In other words, both the stock market and the real estate market are getting more susceptible to demand shocks as they were before. As a result, future researches should focus on how property owners respond to such demand shocks in terms of their pricing strategies (for instance, whether or not to underprice the property in order to improve the owner's liquidity as soon as possible?) in an increasingly globalized and fluctuating market.

NOTES

The conditions included in market value definitions of the Uniform Standards of Professional Appraisal Practice (USPAP) in the US generally fall into three categories. One of them is: the conditions of sale (e.g., exposure in a competitive market for a reasonable time prior to sale) (The Appraisal Foundation, 2010). Secondly, one of the conditions included in open market value definitions of the Royal Institution of Chartered Surveyors (RICS) Red Book 5th edition in the UK assumes that, prior to the date of valuation there had been a reasonable period (having regard to the nature of the property and the state of the market).

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SANTRAUKA

KAINODAROS STRATEGIJŲ POVEIKIS PARDAVIMO TRUKMEI ĮVAIRIOMIS EKONOMINĖMIS SĄLYGOMIS

Eddie C. M. HUI

Straipsnyje nagrinėjama, kaip parduodamo buto pardavimo trukmę (angl. *time-on-market*, TOM) veikia kainų koregavimas ir įvairūs būsto ypatumai. Taikant Kokso išgyvenimo modelį analizuojami du atskiri laikotarpiai Honkongo pavyzdžiu: ekonominių nuosmukių (2003) ir ekonominio atsigavimo (2004–2006). Nemenką įtaką pardavimo trukmei daro tokie veiksniai, kaip kainų koregavimas, pardavimo kaina, daugybė būsto ypatumų, bendros NT kainų tendencijos ir nedarbo lygio pokyčiai, o jų poveikis laikui bėgant kinta. Nuo ekonominių sąlygų ir rinkos lūkesčių būsimų NT kainų atžvilgiu ypač priklauso kainų didinimo, prieš sudarant sandorius, efektyvumas, siekiant optimizuoti pardavėjų grąžą ir pardavimo trukmę. Darbe aptariamos būsimų tyrimų kryptys.

APPENDIX

The table below compares the samples deployed in another Hong Kong study on TOM (Leung et al., 2002). It is worth noting that the statistics of TOM as recorded in Leung et al. (2002) is much higher than that of our sample. In addition, this study uses a first-hand database provided by one of the biggest real property agents in Hong Kong, whereas in Leung et al. (2002) a secondary data set was utilized. Furthermore, our study primarily investigates how overpricing, among other housing attributes and macroeconomic variables, influence TOM in a period which the economy was gradually recovering from a low point in 2003 when Hong Kong was under the onslaught of the SARS epidemic. On the other hand, Leung et al. (2002) focused on a period in which Hong Kong's economy had been more fluctuating.

	Leung et al. (2002)	This paper
Sample period	Jan 1993 – Dec 1999	Jan 2003 – June 2006
Sample size	11,612	4,010
Information source	EPRC	Midland Realty
% of transaction from the second-hand market	100%	96.3%
Distribution of market time		
Mean	301.67	132.50
Median	81	78
Standard deviation	460.73	151.27
Max.	3,002	1,141
Min.	1	1