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Bounded Rationality and Malaysian Housing Policy*

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ABSTRACT

The investment decision in real estate markets is becoming more challenging, due to rising property prices and the limited purchasing power of home buyers. There are numerous studies and statistics focused on property prices, mortgage eligibility, and lifestyle concepts. However, there is limited research on understanding the individual investors' decision-making behaviour. This study aims to explore the investment decision in real estate markets by understanding both rational and boundedly rational behaviour of individual investors. We find that individual investors are affected by cognitive biases such as anchoring, endowment effect, loss aversion, and herding. Nonetheless, they are motivated by rational goals such as capital gain, long term investment, rental yield, and wealth accumulation. Our findings can assist Malaysian housing policy to achieve sustainability in the housing industry.

Keyword: Behavioural economics, Decision making, Real estate investment

JEL Classification: D1, D6, D7, D9, H4, R3

1. Introduction

People face a plethora of choices and it is very challenging for cognitively constrained human agents to make unbiased decisions. Home ownership has transformed from a simple household shelter into a more sophisticated investment opportunity. The two general motives in the housing market, consumption and investment (Brueckner, 1997), have complicated the effort to better understand decision making behaviour. Many of their objectives are to accumulate wealth or receive rental yields, especially with its characteristic of lower risk compared to the other types of investment. Behavioural economics is utilized in this study to understand the investment decision of real estate investors. Gallimore, Hansz and Gray (2000) suggested that decision making processes are not fully rational. Boundedly rational behaviour is better in predicting human behaviour if compared to traditional economic theory (Camerer & Fehr, 2006).

This study is designed to achieve the objective of understanding the investment decision in the real estate market. We employed a research survey to collect data from individual real estate investors who had sold at least one property in their lifetime. It is crucial to investigate the behavioural factors that affect the investment decision in order to enhance the process of making informed decisions. In the meantime, our questionnaire included rational objectives such as long-term capital gain and rental yield for wealth accumulation. This inclusion is aimed at examining the motivations that urged investors to participate in the real estate market. However, due to the condition of recruiting individual investors who had sold at least one property in their lifetime, a sample of 99 individual investors in Malaysia were collected in the research survey. Hence, the results of the study are not meant to generalize, but rather provide us with diverse views on understanding

bounded rational behaviours that influence the individual investors in real estate investment decision.

1.1. Background of the study

In the recent report released by National Property Information Centre (2017a), the Malaysian house price index rose dramatically by 5.5% in 4Q2016 compared to 4Q2015. The increase in housing prices encouraged individual investors to participate in the real estate market. In a recent survey conducted by City & Country of The Edge Malaysia (Khoo, 2017), 60% of working adults aged between 22 and 32 plan to buy a property either now or in the near future. 43% of them said that their affordable range is between RM300,000 and RM500,000[1]. By looking at the statistics provided by NAPIC (2017b), the number of unsold completed residential units with the price range from RM300,000 to RM500,000 increased over the years. There was about a 33% increase in the number of unsold completed units (RM300,000 to RM500,000) from 2014 to 2015 and 66% from 2015 to 2016. Regarding the overhang value for the residential units in this price range, it is a huge increase from RM674 million in 3Q2015 to RM1,143 million in 3Q2016. The statistics are not matching the sentiment of property purchasing indicated by the survey. So, what went wrong and what we have missed? More importantly, what are the forces behind their decision making in purchasing a property? The fear of loss, expectation for capital gains, enjoyment of having own house, regret of making wrong decision, joy in success of investment, and other behavioural factors might be guiding their decisions.

[1] As of 26 February 2018, RM1 is approximately US$ 0.26 according to the Central Bank of Malaysia.

1.2. Significance of the study

The objective of economic research is to predict economic outcomes and understand market interaction (Malmendier & Tate, 2005). We aim to enhance our understanding of the individual real estate investors. Our key assumption is that people do not act rationally all of the time, that is, they do not always maximize their utility or profit even when they wish to. To highlight this fact, this study focuses on individual investors who have sold at least one property. In the past, there were studies conducted that emphasized institutional investors and valuers. However, the investigation of individual investors is rather more challenging. For instance, the degree of loss aversion of institutional investors is hardly measured because they are acting as intermediaries and will not manifest the affective component of loss aversion (Paraschiv & L'Haridon, 2008) due to their role as professional agents. As individual investors are not 'professional' but have the same objective of earning profits from their investment, it is crucial to discover the existence of bounded rational behaviours as the influence of these behaviours on the outcome of investment is still unknown.

Furthermore, we also aim to investigate the importance of rational goals. Individual investors are more than qualified to be part of the study as they have experience in the whole investment process, from purchasing of property to the sale of property.

2. Literature Review

There are many studies that focus on institutional investors but investigation of the decision-making behaviours of individual investors has not drawn much attention from researchers. Real estate investment involves several decision-making processes that are essential when determining the

success of an investment. This section focuses on the real estate investment decision and bounded rational behaviours.

2.1. Investment decision

People always face more than one choice and need to select from different options. This process can be very challenging when people fail to weigh the value of costs and benefits. Nonetheless, the more information available the better, especially for individual investors in making investment decisions. Investing in real estate markets has lower risks compared to investing in security markets. Case and Shiller (1988) suggested that houses are always viewed as a safer investment, as long as the investors hold the property long enough. An individual investor is required to comprehend the whole market in order to succeed in real estate investment. It is very important for the individual real estate investor to understand the institutional environment, such as by comprehending taxation and property law, housing policies, and the macroeconomic and financial situation.

Unlike institutional investors, individual investors are not technically aware of the existence of cognitive biases when making the decision to buy, hold, or sell property. According to Paraschiv and L'Haridon (2008), institutional investors may not manifest the affective component of loss aversion in the situation of selling an object. Institutional investors are sophisticated while individual investors, as a group, are un-sophisticated (Grinblatt & Keloharju, cited in MacCowan & Orr, 2008). Institutional investors are similar to investment managers and pension fund and REITs managers (Lim, McGreal & Webb, 2006). Generally, institutional investors are not emotionally invested in any one property. Shiller (2001) provided a different insight into the behaviour of institutional investors and suggested that institutional investors may have

the need for justifiable authority to confirm their best judgements, which are often generated intuitively. In this case, there is a contrary notion of regret avoidance and independence. Individual investors have the freedom to make investment decisions without worrying about a need for authority, but they still attempt to avoid the regret sentiment in case the decision does not deliver satisfactory results.

In view of the differences between institutional and individual investors, it evokes reflection on whether real estate investments involve spontaneous decision making. Real estate investment may not appear to require impulsive decision making, but it often does. However, a rational investor should always obtain sufficient information before taking action. Anecdotal evidence suggests that the decision to buy and sell a house is a joint decision, where the individual uses agent knowledge and acquires other relevant information to narrow down choices in terms of price and location. For institutional investors, there are in-house research teams that help them to perform forecasting before making a strategic decision.

Furthermore, Brian Elton and Associates (cited in Seelig, Burke & Morris, 2006) described the investors' actual behaviour as unpredictable because it may change according to institutional circumstances. For example, the decision-making process of individual investors may be affected by the speech and methods that are used by real estate agents and financial officers. Participants in Bargh's experiment pushed away all unpleasant words, instead focusing on those that were pleasant (Bargh, 1997). Hence, the impact of automatic behaviour and the push-pull reaction seems to be part of the decision-making process. More importantly, the outcomes of a decision should not be overemphasised, instead effort should be spent on evaluating the process of deciding (Einhorn & Hogarth, 1981).

2.2. Bounded rational behaviours

Individual investors adjust the value of a property from an initial anchor value. In the case of property valuers, Diaz (1998) concluded that they use a reference point as anchor in the negotiation process. They tend to make a decision based on the previous situation in which he/she succeeded in the negotiation process. Valuation of a property is mainly affected by the most recently-valued property (Scott & Lizieri, 2011). Waweru, Mwangi and Parkinson (2014) concluded that anchoring is one of the major factors that influence property investment decision making by using the feedback from 155 real estate agents in Nairobi. According to Grover and Singh (2015), anchoring does affect the decision of real estate investors where investors set the value of the property based on the recent selling/buying prices.

Availability of information is crucial when people do not wish to experience regret when making a decision. People are likely to avoid responsibility when feeling regret after a bad decision has been made (De Bondt & Thaler, 1995). Regret avoidance describes a situation where people avoid decisions as they are reluctant to make the wrong decision (Tetlock, 1992; see also Bell, 1982; Samuelson & Zeckhauser, 1988). Shefrin and Statman (1985) also discussed how aversion to regret contributes to investors' behaviour when averse to realising losses (see also Case & Shiller, 1988). People are averse to making wrong decisions when they perceived themselves as competent. Some investors prefer to hire an agent to help them make a decision in order to negate stress. Taking this into consideration, only experienced agents are able to make the decision and are responsible for the blame or credit from investors.

The endowment effect can be useful for predicting an individual's behaviour when possessing an object. Past

ownership is an influencing factor in the valuation of an object. Hence, there is a positive relationship between the endowment effect and duration of ownership. Strahilevitz and Loewenstein (1998) proposed that the more time a subject possesses an object, the more value he or she will place on a similar object within a shorter time of possession (see also Paraschiv & L'Haridon, 2008). Hence, the study showed that ownership increases the value of an object significantly. Duration of current ownership did significantly increase the value of an object, as well as its perceived attractiveness, to the owner. Such behaviour is attributed to the endowment effect and loss aversion due to emotional attachment (Ariely, Huber & Wertenbroch, 2005). Kahneman (2003) proposed that a good that is given up by the owner will be placed with higher value. This behaviour can also be categorized as loss aversion where a person weighs their losses heavier than gains (Kahneman & Tversky, 1979).

Liberman et al. (1999) argued that when people have experienced losses more frequently than gains, they will have a greater tendency to maintain their current possession over new options. They also highlighted the importance of the source of ownership and the performance of the object. A key point to highlight here is that people value an object more when there is a positive event. In other words, if a property carries a positive experience for an investor, such as good feng shui (particularly in the Asian market) or special design and renovation, that has received positive feedback, or was inherited from someone he/she loved and cared for, the investor tends to overvalue the property, affecting the decision-making process as well as the desired selling/buying price.

On the other hand, herding behaviour is suggested as one of the factors influencing the investment decision. Herding behaviour represents the behaviour of investors when

following the movement of the majority in investment activities. In the financial market, an agent may trade against his initial assessment and instead follow a trend or movement reflective of a previous trade (Avery & Zemsky, 1996). Shiller (2001) proposed that herding behaviour can be due to conformity pressure in the circumstances where people want to secure their status in the group. People tend to neglect their personal information and instead are easily influenced by others in every activity which includes investment and financial transactions (Hirshleifer & Teoh, 2001).

3. Methodology

We collected our data using a self-administered questionnaire distributed to real estate investors who had sold at least one property in their lifetime. Snowball sampling was used to increase the chance of getting responses from the right people who have experience in buying/selling property. The questions were designed to understand the rational motivators that attract investors to participate in real estate investment. These motivations include capital gain, change in stage of family life cycle, long-term investment (5-10 years), lower risk compared to stocks, portfolio rebalancing, rental yield, source of income, speculative income (less than 3 years), supplementary income, taxes, and wealth accumulation. This study developed a measurement scale for bounded rational behaviours based on several cognitive biases as shown in Table 1 below. We used a seven-point Likert Scale to assess variables (from point 1 for Strongly Disagree to point 7 for Strongly Agree). Statistical Package for Social Science (SPSS) version 22.0 was employed to analyse the data and also to conduct hypotheses testing.

Table 1. Development of measure scales

Bounded rational behaviours	Literature	Number of items
Anchoring	Samuelson and Zeckhauser (1988), Thaler and Sunstein (2009).	4 items
Endowment effect	Carmon and Ariely (2000), Kahneman (2003), Kahneman and Tversky (1984), Thaler (1980).	5 items
Loss aversion	Carmon and Ariely (2000), Genesove and Mayer (2001), Kahneman and Tversky (1979), Samuelson and Zeckhauser (1988).	5 items
Herding	Avery and Zemsky (1996), Banerjee (1992), De Bondt and Thaler (1995), Thaler and Sunstein (2009).	6 items

4. Analysis and Results

Rational motivators which encourage individual investors to participate in real estate investment are illustrated in Table 2. The importance of each motivator was analysed using a *t*-test to assess statistical significance. The table shows some of the relevant descriptive statistics. All of the responses provided by individual investors for each factor were significantly statistically different from point 4 of the Likert scale (i.e., neutral), excepting taxes.

Table 2. The independent samples *t*-test on financial goals

Financial motivators	Mean scores	Test statistics, *t*	*p*-values
Capital gain	5.92	15.468	0.000
Change in stage of family life cycle	4.92	5.991	0.000
Long term investment (5 – 10 years)	5.34	10.106	0.000
Lower risk compared to stocks	5.40	10.023	0.000
Portfolio rebalancing	4.92	6.650	0.000
Rental yield	5.63	13.115	0.000
Source of income	5.53	11.779	0.000
Speculative investment (less than 3 years)	4.54	3.568	0.001
Supplementary income	5.55	12.090	0.000
Taxes	4.24	1.407	0.163
Wealth accumulation	5.98	17.477	0.000

In terms of bounded rational motivators, about 65% of the respondents agreed that they use a previous investment value to decide how much to invest in a current investment. In addition, about 75% of respondents agreed that they set the price of current properties based on the market value. A majority of these investors use first asking prices as a starting point to adjust pricing, even if it is markedly different from the current market price. Investigation of the endowment effect and loss aversion showed that 66% of the individual investors set a higher price than market value when selling their property. This shows that investors weigh losses heavier than gains

when making a decision. Furthermore, the survey also shows that nearly 55% of the respondents agreed that they would keep an undervalued property longer than they should in order to obtain another chance to sell for a higher value. They (74% of the respondents) would hold on to the property if they believed they could get a better price, even if a favourable offer price was made. We also found evidence of herding behaviour. For example, about 80% of the respondents judged the success of a property investment by looking at the attractiveness of the property to others. A majority of these investors were more likely to invest in a property that had a lot of investors interested in it.

5. Discussion and Implications

This study aimed to understand the investment decision of individual investors in the real estate market. The results indicate that the cognitive biases such as anchoring, endowment effect and loss aversion, and herding exist in the decision-making process. The study also shows that goals such as long-term capital gain and rental yield for wealth accumulation are important factors in driving the real estate investment decision. In conclusion, we find evidence for the influence of boundedly rational behaviours in decision making. The outcomes of the study will be able to provide insights for researchers, policy makers and real estate investors.

The research helps to shed light on the planning of Malaysian housing policy, especially on the issue of providing affordable housing in urban areas. In addition, it helps to promote sustainable housing developments in meeting basic housing needs and wants. Policy makers should consider the elements of economics, social acceptance and feasibility of Malaysian housing policies in order to achieve sustainability in Malaysian housing markets. So far, there is still a gap

between demand and supply of affordable housing. This research enables policy makers to design a more effective housing policy in relation to the behaviour of individuals based on diverse ethnic groups, income groups, family size, etc. Due to the economic transformation from an agriculture-based economy to an industrialized economy, there are increasing numbers in the urban population in most ASEAN countries. Most housing policies were designed to assist the urban poor and aimed to improve housing affordability. However, the individual choice has been neglected. An effective public policy should take individual choice into account and help to improve the choice architecture in housing markets. Nonetheless, future research can be carried out by recruiting more participants to get additional views on the bounded rational behaviours that guide real estate investment decisions. The investigation on behaviour of homebuyers is important as their needs and preferences are the push factor on enhancing the current housing policies either in Malaysia or neighbouring countries.

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