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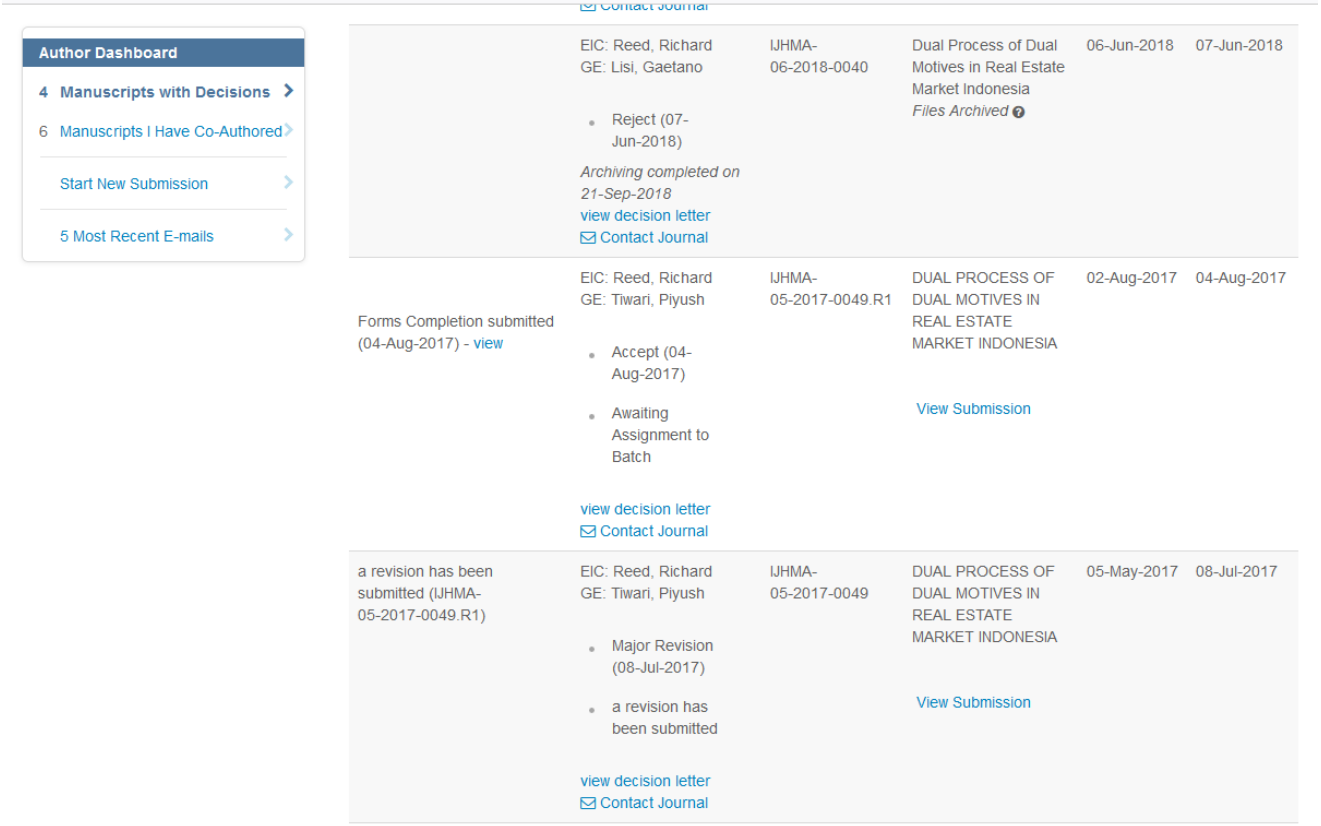

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DUAL PROCESS OF DUAL MOTIVES IN REAL ESTATE MARKET INDONESIA

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Abstract

The dual process of thinking between conscious processes and unconscious processes generate a different decision. Thinking consciously produces rational decisions. However, a person's cognitive limitation makes him or her simplify complex scenarios and thinks implicitly which result in making decision in heuristics or rules of thumbs. This research aims to evaluate the relationship patterns of decision-making and dual motives in purchasing house by time for buyer and family life cycle in Indonesia. Collecting data is done by distributing questionnaires to home buyers within three years (2013-2016). Further data is processed using ANOVA based on group of dual motives, time for buyer and family life cycle. The results show that buyers have consumption motives in buying a landed house and they behave rational, while investors prefer to buy an apartment and tend to behave heuristics. Dual motives of time for buyers are not significant to decision model. Family life cycle is significant to decision model based on dual motives.

Keywords: Dual Process, Dual Motives, Time for Buyer, Family Life Cycle, Rational, Heuristics

Introduction

Every individual makes decision using logic or heuristic. The rule of logic is associated with reasoning, whereas, heuristic is associated with intuition (Gigerenzer and Gaissmaier, 2011). Decisions that are made with the absence of rationality but emotional lead an individual in making mistakes when making a decision (Kahneman and Tversky, 2000; Gilovich, Griffin, and Kahneman, 2002). This condition happens because dual process way of thinking, which consists of conscious process (controlled) or explicit and unconscious process or implicit, results in rational decision or irrational decision. Decisions that are made from explicit reasoning or rational (reasoning-system 2) are decisions that maximizing utilities of alternative choices (Fishburn, 1970; Keeney and Raiffa, 1976). However, when facing a large number of data and information, the cognitive ability of an individual is not able to analyze optimization in a complex way. Cognitive limitation causes an individual to simplify a complex scenario and think implicitly (intuition-system 1) which results in making heuristic or rules of thumbs decision (Kahneman and Tversky, 1974; Einhorn and Hogarth, 1981; Jungermann, 1983).

Anne de Bruin and Flint-Hartle's research (2003) shows property investors in New Zealand act heuristic to overcome the complexity of the cognitive information processing.

The higher the problem's complexity, the more limited information-searching by heuristic behavioral. Information processing system is limited by short term memory, so that heuristic behavior extracts information when evaluate it. Therefore, decisions that are made become bias and inefficient (Simon, 1978a). Case, Shiller, and Thompson (2012) also stated that investors in real estate market act irrational. They buy a house at a high price with the hope that the future price will increase. Investors do not take into account the risks properly and act as if increasing price can guarantee the future (Fitzpatrick and McQuinn, 2007). This condition shows investors' behavior changes from rational to irrational, however, not at the same time. Investors' knowledge develops gradually during searching process, so that investors should decide their position in making decision naturally due to their environment (Polic, 2009). Therefore, one's behavior that is considered as rational cannot be equated to other individual's behavior as everyone has his or her own rationality degree (Simon, 1993).

House has two functions which are consumption and investment (Henderson and Ioannides, 1983). The growth of an individual's worth net will affect consumption motive and investment motive when deciding to purchase a house. A house that is occupied by its owner is bought for consumption motive, regardless the investment motive. On the other hand, when choosing portfolio, a house is considered as an asset investment; regardless the consumption motive (Shiller, 2007), to lessen risking portfolio mixed assets (Seiler, Webb, and Myer, 1999; Hoesli, MacGregor, Adair and McGreal, 2001). Consumption motive occurs because of many factors; pleasure, satisfaction, and non-economics benefit from the occupied house. Whereas, investment motive occurs because of potential financial gain and wealth accumulation when purchasing second house, even though Higgins (2013) stated that first house or second house cannot always be categorized as investment if it is an asset in balance and part of family financial plan (in Wiens, June 2013).

Dual motives model from Henderson and Ioannides is continued by Ioannides and Rosenthal (1994) to measure housing demand in America, and the result showed that portfolio motives model which is consumption motive, is the driving decision in purchasing houses. On the contrary, the result in Arrondel and Lefebvre's (2001) research in measuring housing demand in France using the same dual motives model, showed that the driving decision in purchasing houses is investment motive. When the research was conducted in Spain, this model cannot explain the reason for the purchase of a house (Arrondel, Badenes, and Spadaro, 2007). Inconsistency results show weakness of Henderson and Ioannides' model. It cannot always illustrate portfolio perspective from purchasing decision in those

three countries. Contradiction that appears in dual motives researches above, makes it a necessary to be analysed in property market in Indonesia.

Demographic factors of age, education, income, family size (Ioannides and Rosenthal, 1994; Arrondel and Lefebvre, 2001) and behavior in making decision are driving purchase decision. First-home buyers (FHB) need a house for living, but they have financial problem, their income is relatively low. The amount of income and loan approved affect the price of the house that can be bought. Therefore, consideration of choosing a house related to one's financial decision is made rationally (Goss, 2010; Moniko, 2013). Whereas, non-first-home buyers who already have better economic stage will be at ease on their domestic's amenability. The impulse to invest is stronger than to consume because the families can set aside their income as savings and have already accumulate their wealth (Hood, 1999). However, Burns (2009) shows when people are looking for a house and specific location, investors involve emotional and sentimental factor. Investors do not involve in risk analyzing formally and comparatively, therefore, shown inefficiency in processing risks and uncertainty optimally. Financial information such as ratio Loan To Value (LTV) and capitalization rate also encourage investors to act irrationally.

This research will examine about dual motives factor that is inconclusive which has not yet observed a dual process in oneself when making decision. The previous research was also limited when discussing dual motives and dual process on first-home buyer and its relation with family life cycle. Therefore, this research confirms involvement of dual process in behavioral model of decision-makers related to dual motives in purchasing house. This research also emphasizes the relation between dual process and dual motives on time for buyer and family life cycle.

Literature Review

Behavioral Real Estate

Investment is a sacrifice to make to get an expected profit for the future (Jaffe and Sirmans, 1989). Types of investment are distinguished between financial investments and real investments. Real estate is one of the investment products which is approved because of needs in real estate market and integrated stock market. Even Seiler et al. (1999) and Hoesli et al. (2001) recommend investors to do diversification portfolio on real estate product to lessen direct real estate risk in mixed assets portfolio such as stock, bond, option, or futures. Investors who do direct real estate also get volatility risk which decreasing through diversification escalation, and total return portfolio escalation (Byrne and Lee, 2003).

Traditional financial theory states that investors act rationally by calculating all available information in decision-making process (Kishore, 2006). However, information flow and real estate market knowledge are not consistent. This happens because real estate market is inefficient; value is determined by market and price is made from negotiation. Investors act based on intuition or emotion in decision-making process (Diaz, 1990, 1997; Gallimore, 1994, 1996; Wolverton, 1996; Hardin, 1999; Levy and Schuck, 2005). Hereafter, there will be a shifting research to behavioural finance which tries to explain the inability of expected utility maximization theory that talks about investors' behaviour in efficient market. Behavioural finance evolves to explain economic decision which is done by an individual by combining behaviour theory, cognitive psychology, conventional economy, and financial theory. Behavioural finance seeks to overcome inconsistency in research's outcome about human's behavioural, either in individual or group, by explaining why and how of the impact to market which might be inefficient.

Farlow (2004) showed determinants of house prices in efficient market are income, interest rate, demographic changes, credit availability, and tax structure. Case and Shiller (1989, 1990) stated that change in house's price has strong positive autocorrelation until 3-year period, yet change in house's price fundamentally is still low. Brown and Matysiak (2000) examined the effect of momentum in property index, which return from the previous years was 80%, can explain today's profit. Thus, today's returns can be predicted using previous data like Clayton's research (1998). This matter proved that real estate market is efficient. On the other hand, Quigley (1999) said that economic fundamental is very important as determinant of house's prices, but model can only explain 10%-40% the changes in property's price. The changes in house's price is very fluctuating, and that fluctuating is not explained fundamentally but decided by individual's behaviour and financial institution. That is to say, future's price of a house cannot be predicted based on today's information. More to practical sides, real estate market has lack of liquidity higher than equity market and bond. Accumulation cost, processing information, and real estate trading fees are higher than stock and bond trading fees. This condition illustrates weak form efficient in real estate market.

An individual's behaviour in real estate market determined decision-making process which involves psychology factor and investment in micro level (decision-making process by individual and group) and macro level (financial market role). Investors' decision-making process combines quantitative aspect (purpose) and qualitative (subjective) which based on specific feature from investment product or financial service. Investors, based on cognitive

factor (mental process) and affective (emotional) by individual (or group), make valuation and decision based on past events, personal belief, and preferences. An individual experiences shifting in making decision from rational to psychological and social (Bargh, 2002; Farragher and Kleinman, 1996; Miles, Pringle, and Webb, 1989) so it is needed to have further analyse on one's behaviour which against rational approach.

Potentials in bias source decision-making rational choice are many factors such as individual factor, social, or structural. First of all, individual has limited cognitive abilities to process information and making estimation, resulting in making heuristic decision to simplify complex environment (Corbin, 1980; Hogarth, 1981; Meyer and Eagle, 1982). Second, social source bias, like brokers or lenders, give undesirable or unintentional information for their own personal interest (Palm, 1982; Smith and Clark, 1980; Smith and Mertz, 1980), resulting rational decision become bias by decision environment (Kreibich and Petri, 1982). Third, the source of the embedded structural bias in societal norms. Implication of social settings in society is not based on personal egoism but is in line with society's hope (Bassett and Short, 1980; Pipkin, 1981; Sheppard, 1980).

Wofford (1985) illustrates investors' cognitive process in making investment decision in real estate market. Perception and expectation are processed through several of "filters" (heuristic, characters, beliefs, and bias). Hereafter, investment's purpose and decision-making are influenced by those processes. It is much easier when investors understand the psychological process to lessen decision-making bias. Furthermore, Phyrr, Cooper, Wofford, Kapplin, and Lapides (1989) showed real estate investors often failed to consider important factors in decision-making process. Difficulties and lack of information make investors concentrate in few main assumption related to future condition, evaluate with rules of thumb, then make decision. Most of the investors exaggerate about today's information, resulting in too optimistic with their decision, whereas information that are not favorite causes decisions that are made pessimistically. Investors have irrational and bias preferences because they cannot control risks and uncertainties. As a result, investors use intuitive ability in processing uncertainties so there is no rational decision-making.

Robbins (2001) stated that decisions happen because of reaction of problems, differences between today's statement, and desired condition, therefore, it is needed to consider an alternative. However, decision-making process by an individual shows independent difference from cognitive ability (intelligence) with motivation difference or personality (Galotti, Ciner, Altenbaumer, Geerts, and Woulfe, 2006). Decision-making by an individual creates basic micro economic analysis which makes an individual to have various

style to make decision driven by rationality (Edwards, 1967; Mellers, Schwartz, and Cooke, 1998; Simon, 1992). Therefore, a good decision is not only determined by experience and decision-makers' skill, but also adequacy and validity of the information such as data or knowledge that is gained from different environment (Ahmad, Ahmad, Din, Razak and Noor, 1999).

Dual Process Measurement

Limited cognitive ability directs an individual to take decision in heuristic way as a shortcut (Shah and Oppenheimer, 2008) especially in complex and uncertainty environment (Ritter, 2003) by decreasing valuation complexity in predicting values of consideration in a simple way (Kahneman and Tversky, 1974). An individual does heuristic because of limited time in searching information and outcome effort so heuristic decision causes trade-off; the loss of accuracy due to the pace and savings cognition (Shah and Oppenheimer, 2008). In 1996, Epstein, Pacini, Denes-Raj, and Heier (1996) developed Cognitive Experiential Self Theory (CEST), a theory that measures one's preferences to two cognitive styles, to Rational Experiential Inventory (REI). REI-40 is designed to asses preferences information processing. First, rational style, measuring adaptation from scale Need for Cognition (NFC) (Cacioppo and Petty, 1982) which emphasizes on consciousness and analytical approach. Second, experience style that is measured with scale Faith Intuition (FI) which emphasizes on pre-conscious, affective, and holistic approach.

First measurements of dual process in REI-40 were Rational Ability which is an individual's thinking ability using logic and analytic, and Rational Engagement which is the involvement of an individual in decision-making on pleasure of analytical thinking using logic. Second, Experiential Ability which is an ability that is possessed by an individual based on intuition and feeling, and Experiential Engagement which is the involvement of an individual in decision-making based on his or her feeling and intuition. Rational thinking is symbolized as slow, discussion or consultative, following rules, especially verbally and consciously. Whereas, intuition is symbolized as pre conscious, closely related to affective, quick, operational automatically and holistically. An individual's emotional response on an incident has chronological reaction; experience system, automatically and immediately, searches for a memory bank which connected to a related incident. Memories and feelings of an individual affect the process and behavioral tendencies subsequently. If an individual recalls positive feeling, he or she will automatically think and have the tendency to reproduce feelings. If an individual recalls negative feeling, he or she will automatically think and have

the tendency to avoid feelings. Thus, experiential significantly related to interpersonal relationship that are positive, creative, and emotional expression (Epstein, 1990, 2008; Evans, 2008; Hammond, 1996; Hogarth, 2005; Kahneman, 2003; Kahneman and Frederick, 2002; Sloman 1996; Stanovich and West, 2000) (cited in Witteman, Bercken, Claes, and Godoy, 2009).

Dual Motives of Housing Wealth Accumulation

Real estate investment is a commitment on individual's fund with purposes to maintain and improve asset and get benefit. Benefits that are expected by real estate investors are income which consists of active income (income from activities that are directly done by an individual for example: salary, bonus, commission); passive income (income from activities that are not directly done by an individual for example: rental income, dividend); and portfolio income (interest income, stock dividend, capital gain, royalty) (Cortesi, 2013). Haight and Singer (2005) stated that investment on real state needs hard work because investors must have skills, knowledge, and power to find the right property, evaluate it, set the finance, manage the property, or find the buyer. House investment is financial investment where an individual is motivated to own a house because the needs to have a shelter according to the individual's financial capability.

Shiller (2007) stated that home-buyers have different purposes because of investment booster or consumption booster. Investors are sellers of property who want portfolio in some properties and do not have to stay in every of those properties (Haughwout, Lee, Tracy, and Klaauw, 2011). Whereas, consumption is a desire to own a house which will be used for one's own. One of the boosters to do house-purchasing for consumption interest is social and emotional side of the house ownership. Bigger transaction value with low frequency happens in purchasing a house especially by household buyers. Investment decision or consumption involves trade-off process when deciding a location. Individuals or families with high income choose desired location with better quality of public places and facilities. Otherwise, Individuals or families with lower income choose less-desired location. Individuals or families choose location based on the level of their wealth and nowadays "compatibility" condition. Empirically, characteristics of social economy (size of household, age of each members of the household, education, income) also affect preferences and choices of location on individuals or families (Haavio and Kauppi, 2011). Table 1 shows families grouping according to marriage age which is also named as family life cycle stages.

Table 1. Marriage Age Scheme of Family Life Cycle Stage

No	Family Life Cycle Stage	Explanation	Age Group (year old)	Marriage Age (year old)
1.	Honeymooners	Married couples, with children or not yet with children	14 – 20	0 – 5
2.	Full Nest 1	Couples with the eldest aged less than 6 years old	21 – 30	6 – 10
3.	Full Nest 2	Couples with the eldest aged 6 – 12 years old	31 – 40	11 – 15
4.	Full Nest 3	Couples with the eldest aged 13- 20 years old	41 – 50	16 – 20
5.	Empty Nest 1	Couples with at least one child is living with the parents	51 – 60	21 – 25
6.	Empty Nest 2	Couples with all children no longer live with the parents	61 – 70	26 – 30
7.	Dissolution	Couples who have been living alone, one spouse had died, and do not live with the child.	71 +	31+

Source: Spanier, Sauer, Larzelere (1979)

Marriage and children are main factors that drive someone to buy the first house, therefore, people have the tendency to choose a residence that is not an investment-opportunities-area. Psychologically, home-buyers intend to live in a long time so they can do whatever activities they want like decorating the house and interact with the neighbors to build a social community in the desired neighborhood. Younger families have stronger relationship between house's price and consumption needs than older families. Younger families bound the needs of minimal house size because it is related to financial needs and the loan to be provided. Considered financial needs are utilities fee, maintenance fee, mortgage, insurance, and property tax which have to be paid along the ownership. Furthermore, buyers' experience changes in house needs because of high income, price of the house, capability to pay debt, interest rate, and inflation (Campbell and Cocco, 2005).

Case et al.'s research (2012) showed buyers act irrationally when buying house with investment purpose. Media information influences decision-making. Investors find it easy to memorize newest information which resulting in making bias decision. Investors prefer known investment product by ignoring basic investment principles and diversification to reach optimization (Barberis, 2001). However, Henderson and Ioannides (1983) use portfolio choices model and prove owner-portfolio is inefficient because there is too much investment on houses. This result indicates that house owner is irrational in his or her financial decision.

On the other hand, inefficient portfolio is the result of rationality from the balance of consumption benefit and distortion of house product investment portfolio (Brueckner, 1997). Consumption decision is based on the needs of information and rational thinking; it involves a group of activities which connected one another to choices of some available alternatives.

H1 : When an individual buys a house with consumption motive, his or her decision model tends to be rational compare to an individual with investment motive.

House is needed by every individual or families as a residence. Marriage is one of the reasons for an individual to purchase a house for the first time. First Home Buyer (FHB) do a lot of consideration before deciding rationally, such as, source of fund to pay the down payment (DP), the amount of income that can cover monthly instalment, potential on changes in economic condition which affects on the amount of the loan interest rate, and increased income. FHB's position that is limited financially push them to act unhurried (Goss, 2010; Monico, 2013). FHB make some alternatives for house choices which will be purchased suitable to their financial capability. FHB are willing to choose houses with so-so location for adjusting the fund they own (Fisher and Gervais, 2007; Kupke, 2008). The level of an individual's wealth which has been accumulated encourages the occurrence of portfolio motives, second or subsequent house investment as diversified investment products. The purpose of the investment is capital gain, rental income, or retired wealth (Fisher and Gervais, 2007). In purchasing process, non-FHB party does not involve in risk and return analysing, prioritize experiences, and has limited information and knowledge gained. Therefore, non-FHB act with their own intuition. Decision are made in heuristic way (Burns, 2009; Gigerenzer and Gaissmaier, 2011).

H2 : An individual who buys a house for the first time with consumption motive, his or her decision model tend to be rational compare to an individual who buys a second house and subsequent with investment motive.

McCharty's research (1976) describes the difference of housing needs based on families life cycle. Newly married couples buy their first house for living. This also applies to families who have small, little children. Consumption motive in younger families group is more dominant than investment motive. Level of education and high income allow a person to get a loan for purchasing houses. However, younger families with consumption motive has

limitation on income and wealth, resulting in failure in credit application when purchasing a house. FHB condition in younger families, with its limitation, make consideration from various choices' alternatives rationally before making decision (Arrondel, Badenes, and Spadaro, 2007; Goss, 2010; Monico, 2013). Whereas, married couple with school-age children, grown up, or even the children have already married and no longer living with the parents, have different housing needs (McCharty, 1976). Those kind of families groups have investment motive more dominant than consumption motive; depends on the income and possessed wealth. Established families decide to buy their second house and the next house and subsequent as investment portfolio. Purchased house is expected to provide rental income or capital gain when it is resold. However, the effect of previous transaction experience and information from broker or developer direct older families to act using experience system, so that older families' decision is not consistent in processing information about risk and return on the purchased house. Purchasing decision is not made rationally (Burns, 2009).

H3 : An individual who buys the first house with consumption motive on younger families, his or her decision model tend to be rational compare to an individual who buys second house and subsequent in older families with investment motive.

Methodology

This study uses primary data by distributing questionnaires to buyers of houses or apartments who have done transactions in the last three years (2013-2016). Respondents are domiciled in Surabaya, but the location of the purchased property is located in all areas in Indonesia. Respondents search is done incidentally at the property broker's office, the developers' office, and the online way through Google forms. Period of questionnaires spread was over four (4) months from May to September 2016. The questionnaire uses REI 40 as a measure of buyer rationality. Before distributing the items on the questionnaire, REI 40 is translated into *Bahasa Indonesia* by involving linguists and psychologists who provide inputs so that the questionnaire can be understood easily by the respondents. Questionnaire obtained 254 respondents. Further data that can be processed are 231 data. Then, the data is tested for its validity and reliability, and data analysis using ANOVA contained in SPSS program.

Table 2. Research Variable

Variable	Keterangan
Dual Motives	1 = Consumption; 0 = Investment
Time For Buyer	1 = First Home Buyer; 0 = Not First Home Buyer
Family Life Cycle	1 = Younger Family (less than 10 years marriage) ; 0 = Older Family (more than 10 years marriage)
Dual Process	10 item Rational Ability and 10 item Rational Engagement (REI 40) 10 item Experential Ability and 10 item Experential Engagement (REI 40) 1 = very not true; 2 = not true; 3 = true enough; 4 = true; 5 = very true
Age	1 <= 20 years; 2 = 21-30 years; 3 = 31-40 years; 4 = 41-50 years; 5 = 51-60 years; 6 > 61 years
Education	1= until Undergraduate; 2 = Postgraduate
Income	1 <= Rp.3million; 2 = Rp.3-5million; 3 = Rp.5-10million; 4 = Rp.10-25million; 5 = Rp.25-50million; 6 > Rp.50million
No. of family	Number of family

Data and Results

Table 3 shows data of descriptive respondents who have consumption and investment motive based on Time For Buyer (TFB), Family Life Cycle (FLC), dual process, age, education, income, and number of family. The majority of respondents is non-FHB, dominated by younger families, married below 10 years, has a rational decision-making model. Buyers are dominated by 31-40 years old people, have bachelor degree, have an income of 10-25 million Rupiahs, and most of them have the number of family members borne by 3 people.

Table 3. Respondents' Demographic Data

	Consumption	Investment
Time For Buyer		
First-Home Buyer	42	13
Non-First-Home Buyer	88	88
Family Life Cycle		
Younger Family	97	51
Older Family	33	50
Dual Process		
Rational	120	86
Heuristic	10	15
Age		
<= 20 years	2	2
21-30 years;	53	19
31-40 years;	45	31
41-50 years;	20	32
51-60 years	10	18
> 61 years	0	1

Education		
Until Undergradute	112	80
Postgradute	18	21
Income		
< Rp.3million	6	3
Rp.3-5million	30	9
Rp.5-10million;	29	15
Rp.10-25million	34	29
Rp.25-50million	17	26
> Rp.50million	14	19
No. of Family		
1	27	9
2	33	17
3	29	36
4	24	23
5	13	9
6	5	6

Measuring the level of rationality of buyers of houses and apartments using REI 40 which classifies the question items into two namely Rational and Experential, where Rational Group is measured from two subs; Rational Ability – individual's thinking ability using logic and analytical, and Rational Engagement – individual's involvement in making decision on pleasure of analytical thinking using logic. Experential group is measured from two subs; Experiential Ability which is individual's ability based on intuition and feeling, and Experiential Engagement which is individual's involvement in decision-making based on his or her feeling and intuition. Both group were searched for their average score, then used in ANOVA analysis. The test of decision-making model of dual motives is listed in Table 4. Testing of decision-making model of dual motives and Time for Buyer (TFB) in Table 5. Testing of decision-making model of dual motives and Family Life Cycle (FLC) is listed in Table 6.

Table 4. ANOVA Findings for Dependent Variable in Decision-Making Model for *Dual Motives*, TFB and FLC

Panel A: Table ANOVA

Variable		**Sum of Squares**	**df**	***Mean* Square**	**Hypothesis**	**F**	**Sig.**
Dual Motives	Between groups	.751	1	.751	H_1	3.408	.066
	Within groups	50.458	229	.220			
	Total	51.209	230				

Panel B: Mean

Variable		**Categories**	**Mean**	**Std. Dev.**	**N**
Decision Model	*Dual Motives*	Consumption	2.7190	.44616	130
		Investment	2.6041	.49779	101

Homogeneity test is performed before ANOVA test on variable of dual motives. Levene statistical motive of ownership (L = 2.685, p-value = .103) shows that the data have the same variance (homogeneous). The result of F test on the motive of ownership (F = 3.408; p-value = .066) shows there are statistically significant differences in decision-making model on consumption motive (M=2.7190) and investment motive (M=2.6041). Therefore, an individual with consumption motive has a decision model that tends to be rational compared to an individual with investment motive.

Table 5. ANOVA Findings for Dependent Variables in Decision-Making Models on Variable Interaction of Dual Motives and TFB

Panel A: Table ANOVA

	Sum of Squares	df	*Mean* Square	Hypothesis	F	Sig.
Between groups	.824	3	.275	H_2	1.238	.297
Within groups	50.385	227	.222			
Total	51.209	230				

Panel B: Mean

	Group	Mean	Std. Dev.	N
Decision Making Model	Consumption, FHB	2.7519	.41812	42
	Consumption, *Non*-FHB	2.7033	.46043	88
	Investment, FHB	2.5838	.55295	13
	Investment, *Non*-FHB	2.6070	.49252	88
	Total	2.6687	.47186	231

Table 5 shows homogeneity test in dual motives and TFB interaction group (L = 1.035, p-value = .378) indicating data have the same variance. F test results in dual motives and TFB interaction group (F = 1.238; p-value = .297) show no statistically significant differences in the decision-making model. Post hoc tests between group do not show significant differences in decision-making models. Therefore, an individual who buys a house for the first time with consumption motive has no different in his or her decision model than an individual who buys the second house and subsequent with investment motive.

Table 6 shows homogeneity test in the interaction group of dual motives, TFB, and FLC (L = 4.331, p-value = .001) indicating data have unequal variance, therefore difference test used Welch test. The Welch test results in the interaction group of dual motives, TFB, and FLC (W = 3.839; p-value = .004) show statistically significant differences in decision-making model. Post hoc test intergroup is FHB with consumption motive in younger family (group 1) was significantly different statistically (p-value = .047) to second and subsequent house buyers who have investment motive in older family (group 6) as well as non-FHB

group who have consumption motive in younger family (group 2) is significantly different statistically (p-value = .003) to second and subsequent house buyers who have investment motive in the older family (group 6) in purchasing decision-making model. Different test results are also found in non-FHB group which have investment motive in younger family (group 5) to non-FHB group with investment motive in older family (group 6) (p-value = .025) in decision-making model. Thus, FHB with consumption motive in younger family have decision model that tends to be rational compared to non-FHB in older family with investment motive.

Table 6. ANOVA Findings for Dependent Variables Decision-Making Models in Variable Interaction of Dual Motives, TFB, and FLC

Panel A: Table ANOVA

	Sum of Squares	df	*Mean* Square	Hypothesis	F	Sig.
Between groups	4.438	5	.888	H_3	4.270	.001
Within groups	46.771	225	.208			
Total	51.209	230				

Panel B: Mean

	Group	Mean	Std. Dev.	N
Decision Making Model	Group 1 (C,FHB,YF)	2.7519	.41812	42
	Group 2 (C,NFHB,YF)	2.7920	.34744	60
	Group 3 (C,NFHB,OF)	2.5132	.60363	28
	Group 4 (I,FHB,YF)	2.5627	.58476	11
	Group 5 (I,NFHB,YF)	2.7805	.42735	40
	Group 6 (I,NFHB,OF)	2.4720	.49695	50
	Total	2.6687	.47186	231

Discussion

Dual motives vs Decision Model

Every individual believes his or her thoughts are truly rational, however, bias occurred while processing in rational system because rational system does not provide creative ideas to be created as information resource. When a person reacts an incident emotionally, the order of reaction will automatically directed to experience system and instantly looking for a memory bank that related to related incident. Memory and feelings of an individual affect process and behavior tendency further, therefore, experience system has a positive or negative effects in rational system. That process is proven to occur also in individuals who buy a house. This research proves that buyers, who are driven by factors of need for reasons: rather than renting a house or still living in a relative's or parents' house, make decision to buy a house. Buyers choose a house with many considerations to be a residence that provides comfort like Koklic and Vida's research (2009).

Those many considerations are processed in a longer time by collecting many information from parents or relatives, friends, or newspaper, brochure, or internet. Buyers' experience in searching process for a desired house in a time will affect their experience in another time. Buyers will consider their financial ability such as availability and capability in paying. Numbers of consideration will make buyers tend to use rational system in making decision. Also, buyers with experience in doing property transactions more than once in limited time tend to decide rationally (Frederick and Loewenstein, 1999; Read, 2004). From investors' point of view, purchasing a house or apartment is portfolio allocation. Investors have purposes to get additional income from rent, to get profit when the house is sold (capital gain), and to prefer property as their investment product instead of other products. Time needed for investors to make decision is shorter; through property broker, house exhibition, and products launching. This media creates interaction between investors and developers or mediators, so that investors' position will be influenced and pushed to make quick decision with bait; direct profit. The influence of spouse, children, friends, even oneself really affects in making decision if it is dominated by emotional factor. Resulting in driving investors to use experience system or intuition in purchasing house, because problem-solving is made quickly and has the tendency to ignore the information especially in a situation with high complexity level, uncertainty, and time-pressure (Gigerenzer and Gaissmaier, 2011; Tversky and Kahneman, 1973, 1974).

Time For Buyer vs Decision Model

Newly married FHB or married but not yet have children have preferences more to consumption motive, the need to own a house as a place to build new families and to live comfortably. FHB have a desire to build an independent household without depending on parents, so that FHB try to find information and take consideration about the first-purchased-house. Decision is adjusted with the financial condition. Whereas, non-FHB are more dominated by investment motive, even though the purchasing of second house and so on is not always categorized as investment if it is used as a family asset (Wiens, June 2013). Financial capability and the high amount of wealth motivate an individual to invest. Repetitive house-purchasing directs non-FHB to use experience system compare to their rationality in making decision. However, dual process on TFB cannot be differentiated significantly. Information processing process in FHB and non-FHB uses rational system and experience system at the same time and they interact to one another (Foxall and Goldsmith, 1994; Campbell and Cocco, 2005; Scanlon and Whitehead, 2010, Epstein, 1996).

Family Life Cycle vs Decision Model

Group 1, FHB with consumption motive in families with marriage age less than 10 years (younger families) (M=2.7519) and group 2, non-FHB in younger families with consumption motive (M=2.7920) tend to be rational in making purchasing-decision compare to group 6, non-FHB with investment motive in older families (M=2.4720). The amount of income will affect family in accumulating wealth. That condition illustrates a family's ability to decide purchasing a house. If you are still an obstacle, then purchasing-decision through many consideration is not yet decided. On the other hand, good financial condition will ease the family in making purchasing-decision faster. Married coupled and the additional family members are driven to buy a house with considerations: to have one instead of rent one, still living with parents, or does not have enough house capacity anymore. Houses will be used as a comfortable residence with family in environment that is desired by buyers. Non-FHB with consumption motive in younger families have the ability to find information about the house they are going to buy. If they have enough, then there will be a desire to invest. Risk and return consideration will be done carefully because, however, the level of wealth of younger families is still limited, like planning to move to a popular and expensive area with reputation considerations (Haavio and Kauppi, 2011). Whereas, married couples, which have been married for more than 10 years with good financial condition, have the ability to accumulate wealth from income earned, therefore, investment motive is more dominant than consumption motive. Houses in popular location are considered as a prospect in the future and a benefit, which is higher rent income or capital gain, rather than houses in unpopular location (Hutchison, 1994; Seelig, etc., 2009; Tan, 2009). This research also shows non-FHB group with investment motive in younger families (group 5) tend to be rational in making decision compare to non-FHB group with investment motive in older families (group 6). Knowledge improvement and investment experience allow older families to make better investment decision by studying the risks more accurately and having better understanding in risk and return relationship in real estate market which is considered more stable compare to stock market (Fishbein and Ajzen, 1975; Foxall and Goldsmith, 1994). However, emotional factor that binds older families related to environment location and condition in their surroundings, social condition, and personal relationship with the neighbours will direct older families act irrational to fulfil their want. Repetitive experiences in purchasing houses also drive older families to use intuition in making decision (Koklic and Vida, 2009).

Conclusion

Dual motives in family life cycle show the differences in making purchasing-decision model, whereas dual motives in first home buyer have no differences in making purchasing-decision. Research on decision-making behavior is important to be developed to create an efficient real estate market. Subject's involvement in real estate market such as developers can focus in deciding developing strategy and selling residential house product and better, more efficient apartment. There is no price volatility especially institution's involvement in property market. Risk of loss can be reduced by developers, government, and buyers. Buyers or investors' behavior which tend to be heuristic need to be understood more so that government and developers can prevent bubble market. Government control over funding in property sector holds an important role, therefore, developers, buyers, and investors who use the fund will consider rationally not emotionally.

Research can be developed further by going deep into demographic background and family life cycle structure of families related to dual process. A house shows a family's wealth and saving in retirement, so that demand will always take place. Dynamical needs occur according to shift in family cycle. Dual process in every family's stages is important to be analyzed.

References

Ahmad, A.M., Ahmad, F., Din, G., Razak, H.A. and Noor, N.A.M. (1999), *Pengantar pengurusan*, Universiti Utara Malaysia, Sintok.

Arrondel, L., Badenes, N. and Spadaro, A. (2007). "Consumption and investment motives in housing wealth accumulation of Spanish households", *Social Science Electronic Publishing, Inc*, pp. 1-24, available at: http://dx.doi.org/10.2139/ssrn.1597126.

Arrondel, L. and Lefebvre, B. (2001), "Consumption and investment motives in housing wealth accumulation: a French study", *Journal of Urban Economics*, Vol. 50, pp. 112-137.

Barberis, N. (2001), "Investors seek lessons in thinking", *Financial times*, Mastering Investment part six, June 18.

Bargh, J.A. (2002), "Losing consciousness: Automatic influences on consumer judgment, behavior and motivation", *Journal of Consume Research*, Vol. 29, pp. 280-285.

Bassett, K. and Short, J.R. (1980), *Housing and residential structure*, Routledge and Kegan Paul, London.

Brown, G.R. and Matysiak, G.A. (2000), *Real estate investment. A capital market approach,* Pearson Education, Harlow.

Brueckner, J.K. (1997), "Consumption, investments motives, and the portfolio choices of homeowners", *Journal of Real Estate Finance and Economics*, Vol. 15 No. 2, pp. 159-180.

Burns, L.M. (2009), "The effect of the first home owner's grant on the Perth housing market", Thesis of Bachelor Degree, School of Economics and Finance, Curtin University of Technology, Perth.

Byrne, P. and Lee S. (2003), "The impact of real estate on the terminal wealth on the UK mixed-asset portfolio", Working paper 05/03, Department of Real Estate and Planning.

Cacioppo, J.T. and Petty, R.E. (1982), "The need for cognition", *Journal of Personality and Social Psychology*, Vol. 42, pp. 116-131.

Campbell, J.Y. and Cocco, J.F. (2005), "How do house prices affect consumption? Evidence from micro data", NBER Working Paper No. 11534, Cambridge, Massachusetts Avenue.

Case, K.E. and Shiller, R.J. (1989), "The efficiency of the market for single-family homes", *The American Economic Review*, Vol. 79 No. 1, pp. 125-137.

Case, K.E. and Shiller, R.J. (1990), "Forecasting prices and excess returns in the housing market", *American Real Estate and Urban Economic Association Journal*, Vol. 18 No. 3, pp. 253-273.

Case, K.E., Shiller, R.J., and Thompson, A. (2012), "What have they been thingking? Homebuyer behavior in hot and cold markets", Cowles Foundation Discussion Paper No. 1876. Yale University, Connecticut.

Clayton, J. (1998), "Further evidence on real estate market efficiency", *Journal of Real Estate Research*, Vol. 15, pp. 41-57.

Corbin, R.M. (1980), "The secretary problem as a model of choice", *Journal of Mathematical Psychology*, Vol. 21, pp. 1-29

Cortesi, G.R. (2013), *Mastering Real Estate Principles*, (6th ed.), Kaplan, Inc., Dearborn Real Estate Education, United State of America.

De Bruin, A. and Flint-Hartle, S. (2003), "A bounded rationality framework for property investment behaviour", *Journal of Property Investment and Finance,* Vol. 21 No. 3, pp. 271 – 284.

Diaz, J. III (1990), "How appraisers do their work: a test of the appraisal process and the development of a descriptive model", *Journal of Real Estate Research*, Vol. 5 No. 1, pp. 1-15.

Diaz, J. III (1997), "An investigation into the impact of previous expert value estimates on appraisal judgment", *Journal of Real Estate Research*, Vol. 13 No. 1, pp. 57-66.

Edwards, W. (1967), "The theory of decision making", In W. Edwards and A. Tversky (Eds.), *Decision making*, Penguin Books, Harmondsworth, UK, pp. 13-64.

Einhorn, H.J. and Hogarth, R.M. (1981), "Behavioral decision theory: Processes of judgement and choice", *Annual Review of Psychology*, Vol. 32, pp. 52-88.

Epstein, S., Pacini, R., Denes-Raj, V., and Heier, H. (1996), "Individual differences in intuitive-experiential and analytical-rational thinking styles", *Journal of Personality and Social Psychology*, Vol. 71 No. 2, pp. 390–405.

Farlow, A. (2004), "UK house prices: a critical assessment", Paper presented at the Credit Suisse First Boston Housing Market Conference, 12 May 2003 (pp.1-22), avaliable at: http://www.andrewfarlow.com/part1ukhousing.pdf

Farragher, E. and Kleinman, R. (1996), "A re-examination of real estate investment decision making practices", *Journal of Real Estate Portfolio Management*, Vol. 2 No. 1, pp. 31-39.

Fishbein, M. and Ajzen, I. (1975), *Belief, attitude, intentions and behavior: An introduction to theory and research*, Reading, MA, Addison Wesley.

Fishburn, P.C. (1970), *Utility theory for decision making,* Wiley, New York.

Fisher, J.D.M. and Gervais, M. (2007), "First time home buyers and residential investment volatility", Working paper presented to Federal Reserve Bank of Chicago, 29 November 2007 (pp.1-7), available at: https://www.google.com/search?q=fisher+and+gervais+2007&ie=utf-8&oe=utf-8&client=firefox-b

Fitzpatrick, T. and McQuinn, K. (2007), "House prices and mortgage credit: empirical evidence for Ireland", *The Manchester School*, Vol. 75 No. 1, pp. 82-103.

Foxall, G.R. and Goldsmith, R.E. (1994), *Consumer psychology for marketing*, Routledge, London.

Frederick, S. and Loewenstein, G. (1999), "Hedonic adaptation", In D. Kahneman, E. Diener, and N. Schwarz (Eds.), *Well-Being: The foundations of hedonic psychology*, pp. 302-329, Russell Sage Foundation Press, New York.

Gallimore, P. (1994), "Aspects of information processing and value judgement and choice", *Journal of Property Research*, Vol. 11, pp. 97-110.

Gallimore, P. (1996), "Confirmation bias in the valuation process: A test for corroborating evidence", *Journal of Property Research*, Vol. 13, pp. 261-273.

Galotti, K., Ciner, E., Altenbaumer, H., Geerts, H. and Woulfe, J. (2006), "Decision- making styles in a real-life decision: Choosing a college major", *Personality and Individual Differences*, Vol. 41, pp. 629-639.

Gigerenzer, G. and Gaissmaier, W. (2011), "Heuristic decision making", *Annual Review Psychology*, Vol. 62, pp. 451–482, DOI: 10.1146/annurev-psych-120709-145346.

Gilovich, T, Griffin, D. and Kahneman, D. (2002), *Heuristics and biases: The psychology of intuitive judgment*, Cambridge University Press, New York and Cambridge, England.

Goss D. (2010), "Pathways into first-home-ownership", Refereed papers presented at the 4th Australasian Housing, Sydney, 5th - 7th August 2009.

Haavio, M. and Kauppi, H. (2011), "Owner-occupied housing as an investment, regional house price cycles, and residential sorting", pp. 1-84, Discussion Papers, Bank of Finland Research, available at: http://www.suomenpankki.fi/en.

Haight, G.T. and Singer, D.D. (2005), *The real estate investment handbook*, The Frank J. Fabozzi Series, John Wiley and Sons, Inc., Hoboken, New Jersey.

Hardin, W.G. III (1999), "Behavioural research as an academic pursuit: Lessons from other disciplines and implications for real estate", *Journal of Property Investment and Finance*, Vol. 17 No.4, pp. 333-352.

Haughwout, A., Lee, D., Tracy, J., and Klaauw, W.V.D. (2011), "Real estate investors, the leverage cycle, and the housing market crisis", Federal Reserve Bank of New York, Staff Report No. 514, available at: http://www.econstor.eu/bitstream/10419/60965/1/668533382.pdf.

Henderson, J.V. and Ioannides, Y.M. (1983), "A Model of Housing Tenure Choice", *American Economic Review*, Vol. 73 No. 1, pp. 98-113.

Hoesli, M., MacGregor, B., Adair, A. and McGreal, S. (2001), *The Role of Property in Mixed Asset Portfolios (MAPs),* RICS Foundation, RS0201.

Hogarth, R.M. (1981), "Beyond discrete biases: Functional and dysfunctional aspects of judgemental heuristics", *Psychology Bulletin*, Vol 90, pp. 197-217.

Hood, J.K. (1999). "The determinants of home ownership: An application of human capital Investment Theory to the home ownership decision", *Honors Projects*, Illinois Wesleyan University, 71, available at: http://digitalcommons.iwu.edu/econ_ honproj /71.

Hutchison, N.E. (1994), "Housing as an investment", *Journal of Property Finance*, Vol. 5 No. 2, pp. 47-61.

Ioannides, Y.M. and Rosenthal, S.S. (1994), "Estimating the consumption and investment demands for housing and their effect on housing tenure status", *Review of Economics and Statistics*, Vol. 76 No. 1, pp. 127-141.

Jaffe, A.J. and Sirmans, C.F. (1989), *Fundamentals of real estate investment*, (2nd ed.). Prentice Hall, Englewood Clifts, New Jersey.

Jungermann, H. (1983), "The two camps of rationality", In R.W.Scholz (Eds.), *Decision making under uncertainty*, pp. 63-86. North-Holand/Elsevier, Amsterdam.

Kahneman, D. and Tversky, A. (1974), "Judgment under uncertainty: heuristics and biases", *Science, New Series*, Vol. 185 No. 4157, pp. 1124-1131.

Kahneman, D. and Tversky, A. (2000), *Choices, values, and frames,* Cambridge University Press, New York and Cambridge, England.

Keeney, R.L. and Raiffa, H. (1976), *Decisions with Multiple Objectives,* Wiley, New York.

Kishore, R. (2006), "Theory of Behavioural Finance and its Application to Property Market: A Change in Paradigm", Paper presented at the Twelfth Annual Pacific Rim Real Estate Society Conference, Auckland, New Zealand.

Koklic, M.K. and Vida, I. (2009), "A strategic household purchase: Consumer house buying behavior", *Managing Global Transition*, Vol. 7 No. 1, pp. 75-96.

Kreibich, V. and Petri, A. (1982), "Locational behavior of households in a constrained housing market", *Environment and Planning A*, Vol. 14, pp. 1195-1210.

Kupke, V. (2008), "Factors important in the decision to buy a first home", 14th Pacific Rim Real Estate Society Conference, Kuala Lumpur.

Levy, D. and Schuck, E. (2005), "The influence of clients on valuations: the clients' perspective", *Journal of Property Investment and Finance*, Vol. 23 No. 2, pp. 182-201.

McCarthy, K.F. (1976), *The household life cycle and housing choices*, The Rand Corporation, Santa Monica, California.

Mellers, B.A., Schwartz, A., and Cooke, A.D.J. (1998), "Judgment and decision making", *Annual Review of Psychology*, Vol. 49, pp. 447-477.

Meyer, R.J. and Eagle, T.C. (1982), "Context-induced parameter instability in a disaggregate stochastic model of store choice", *Journal of Marketing Research*, Vol. 19, pp. 62-71.

Miles, M., Pringle, J. and Webb, B. (1989), "Modeling the corporate real estate decision", *Journal of Real Estate Research*, Vol. 4 No. 3, pp. 47-66.

Monico, M. (2013), "Australian attitudes and behaviours towards buying their first home", RAMS First Home Buyers' Pulse Check Survey 2013, RAMS Financial Group Pty. Ltd, Australian.

Palm, R. (1982), "Homebuyer response to information content", In W.A.V. Clark (Eds.), *Modelling Housing Market Search*, pp. 187-208, St. Martin's Press, New York.

Pipkin, J.S. (1981), "The concept of choice and cognitive explanations of spatial behavior", *Economic Geography,* Vol. 57, pp. 315-329.

Polic, M. (2009), "Decision making: Between rationality and reality", *Interdisciplinary Description of Complex Systems*, Vol. 7 No. 2, pp. 78-89.

Pyhrr, S.A., Cooper, J.R. Wofford, L.R. Kapplin, S.D. and Lapides, P.D. (1989), *Real Estate Investment: Strategy, Analysis, Decision*, (2nd ed.) John Wiley and Sons, Inc., United States of America.

Quigley, J.M. (1999), "Real estate prices and economic cycles", *International Real Estate Review*, Vol. 2 No. 1, pp. 1-20.

Read, D. (2004), "Utility theory from Jeremy Bentham to Daniel Kahneman", Working Paper Department of Operational Research No. LSEOR 0464, London School of Economics and Political Science.

Ritter, J.R. (2003), "Behavioral finance", *Pacific-Basin Finance Journal,* Vol. 11 No. 4, pp. 429-437.

Robbins, P.S. (2001), *Organizational Behavior* (9th ed.), Prentice-Hall, New York.

Scanlon, K. and Whitehead, C.M.E. (2010), "The economic rationality of landlords", In Housing Economics Working Group, 2006, Copenhagen, Denmark, LSE Research Online, pp. 1-28, available at: http://eprints.lse.ac.uk/29951/

Seelig, T., Burke, T., Penningar, S. and Morris, A. (2009), "What motivates households to invest in the private rental market", *AHURI Research and Policy Bulletin*, Vol. 115, pp. 1 – 4.

Seiler, M.J., Webb, J.R. and Myer, F.C.N. (1999), "Diversification Issues in Real estate Investment", *Journal of Real Estate Literature*, Vol. 7 No. 2, pp. 163-179

Shah, A.K. and Oppenheimer, D.M. (2008), "Heuristics made easy: An effort-reduction framework", *Psychological Bulletin,* Vol. 134 No. 2, pp. 207-222. DOI: 1.1037/0033-2909,134.2.207.

Sheppard, E. (1980), "The ideology of spatial choice", *Papers of the Regional Science Association*, Vol. 45, pp. 193-213.

Shiller, R.J. (2007), "Understanding recent trends in house prices and home ownership", NBER (National Bureau of Economic Research, Inc) Working paper No. 13553, pp. 1-46.

Simon, H.A. (1978a), "Information processing theory of human problem solving", In W.K. Estes, (Eds.). *Handbook of Learning and Cognitive Processes,* Vol. 5, pp. 271-295, Erlbaum, Hillsdale, NJ.

Simon, H.A. (1992), "Decision making and problem solving". In M. Zey (Eds.), *Decision making: Alternatives to rational choice models*, pp. 32-53, Sage Publications, Newbury Park, USA.

Simon, H.A. (1993), "Decision making: Rational, nonrational, and irrational", *Educational Administration Quarterly*, Vol. 29 No. 3, pp. 392-411.

Smith, T.R. and Clark, W.A.V. (1980), "Housing market search: Information constraints and efficiency", In W.A.V. Clark and E.G. Moore, *Residential Mobility and Public Policy* (Eds.), pp. 100-125, Sage Publications, Beverly Hills, California.

Smith, T.R. and Mertz, F. (1980), "An analysis of the effects of information revision on the outcome of housing-market search, with special reference to the influence of realty agents", *Environment and Planning A*, Vol. 12, pp. 155-74.

Spanier, G. B., Sauer, W., and Larzelere, R. (1979), "An Empirical Evaluation of the Family Life Cycle", *Journal of Marriage and Family*, Vol. 41, No. 1, pp. 27-38.

Tan, T.H. (2009), "Homeowning motivation in Malaysia", *Journal of Accounting-Business and Management*, Vol. 16 No. 1, pp. 93–112.

Tversky, A. and Kahneman, D. (1973), "Availability: A heuristic for judging frequency and probability", *Cognitive Psychology*, Vol. 5 No. 2, pp. 207–232.

Tversky, A. and Kahneman, D. (1974), "Judgment under uncertainty: heuristics and biases", *Science*, Vol. 185 No. 4157, pp. 1124-1131.

Wiens, C.E.T. (2013, June 11), "The Experts: Should You Think of Your House as an Investment?" *The Wall Street Journal,* available at: http://www.wsj.com/articles /SB10001424127887323949904578538012957595402 (accessed 27 November 2016).

Witteman, C., van den Bercken, J., Claes, L. and Godoy, A, (2009), "Assessing Rational and Intuitive Thinking Styles", *European Journal of Psychological Assessment*; Vol. 25 No. 1, pp. 39–47, DOI 10.1027/1015-5759.25.1.39.

Wofford, L.E. (1985), "Cognitive Processess as Determinants of Real Estate Investment Decision", *The Appraisal Journal*, July, p.393.

Wolverton, M. (1996), "Investigation into price knowledge induced comparable sale selection bias", Doctoral Thesis, Georgia State University, Atlanta, GA.

Bukti konfirmasi submit artikel dan komentar dari reviewer

International Journal of Housing Markets and Analysis

Decision Letter (IJHMA-05-2017-0049)

From: piyush.tiwari@unimelb.edu.au

To: anas@petra.ac.id

CC:

Subject: International Journal of Housing Markets and Analysis - Decision on Manuscript ID IJHMA-05-2017-0049

Body: 08-Jul-2017

Dear Assoc. Prof. Njo:

Manuscript ID IJHMA-05-2017-0049 entitled "DUAL PROCESS OF DUAL MOTIVES IN REAL ESTATE MARKET INDONESIA" which you submitted to the International Journal of Housing Markets and Analysis, has been reviewed. The comments of the reviewer(s) are included at the bottom of this letter.

The reviewer(s) have recommended some major revisions to your manuscript. Therefore, I invite you to respond to the reviewer(s)' comments and revise your manuscript.

To revise your manuscript, log into https://mc.manuscriptcentral.com/ijhma and enter your Author Centre, where you will find your manuscript title listed under "Manuscripts with Decisions." Under "Actions," click on "Create a Revision." Your manuscript number has been appended to denote a revision.

You will be unable to make your revisions on the originally submitted version of the manuscript. Instead, revise your manuscript using a word processing program and save it on your computer. Please also highlight the changes to your manuscript within the document by using the track changes mode in MS Word or by using bold or coloured text.Once the revised manuscript is prepared, you can upload it and submit it through your Author Centre.

When submitting your revised manuscript, you will be able to respond to the comments made by the reviewer(s) in the space provided. You can use this space to document any changes you make to the original manuscript. In order to expedite the processing of the revised manuscript, please be as specific as possible in your response to the reviewer(s).

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Because we are trying to facilitate timely publication of manuscripts submitted to the International Journal of Housing Markets and Analysis, your revised manuscript should be uploaded as soon as possible. If it is not possible for you to submit your revision in a reasonable amount of time, we may have to consider your paper as a new submission.

Once again, thank you for submitting your manuscript to the International Journal of Housing Markets and Analysis and I look forward to receiving your revision.

Sincerely,
Dr. Piyush Tiwari
Guest Editor, International Journal of Housing Markets and Analysis
piyush.tiwari@unimelb.edu.au

Reviewer(s)' Comments to Author:
Referee: 1

Recommendation: Major Revision

Recommendation: Major Revision

Comments:
This is interesting and timely topic. However, literature review and methodology need to be developed.

Additional Questions:
1. Originality: Does the paper contain new and significant information adequate to justify publication? (i.e. is it a contribution to knowledge?): This paper shows contributory potential, specifically if specific points on dual motives and rational financial behaviour will be developed at the subsequent stage.

2. Relationship to Literature: Does the paper demonstrate an adequate understanding of the relevant literature in the field and cite an appropriate range of literature sources? Is any significant work ignored to your knowledge?: The paper demonstrates appropriate understanding of the relevant literature; however, life cycle and utility maximisation theories are not properly discussed. Another limitation of the literature review is predominant focus upon investment motives with relevance to the business side, while household's decisions need more attention.

3. Methodology: Is the paper's argument built on an appropriate base of theory, concepts, or other ideas? Has the research or equivalent intellectual work on which the paper is based been well designed? Are the research methods employed appropriate?: The theoretical basis needs to be developed being focused upon households' behaviour perspective. The empirical methods also can be developed (beyond Anova approach). The research has been appropriately deigned, just needs to be deepened and improved. Research methods are appropriate, but can include more advanced econometric techniques.

4. Results: Are results presented clearly and analysed appropriately? Do the conclusions adequately tie together the other elements of the paper?: Results are presented clearly and analysed appropriately. Conclusions adequately tie together the overall context of the paper.

5. Implications for research, practice and/or society: Does the paper identify clearly any implications for research, practice and/or society? Does the paper bridge the gap between theory and practice? How can the research be used in practice (economic and commercial impact), in teaching, to influence public policy, in research (contributing to the body of knowledge)? What is the impact upon society (influencing public attitudes, affecting quality of life)? Are these implications consistent with the findings and conclusions of the paper?: The paper identifies policy implications building bridge between the theory and real life. However, arguments can be developed and implications could be discussed from wider perspective.

6. Quality of Communication: Does the paper clearly express its case, measured against the technical language of the field and the expected knowledge of the journal's readership? Has attention been paid to the clarity of expression and readability, such as sentence structure, jargon use, acronyms, etc.: The paper clearly expresses its case, against the expected knowledge of the journal's readership. Expressions and technical terms are clear.

Referee: 2

Recommendation: Major Revision

Comments:
This is an interesting paper which has the potential to be published in IJHMA. However, in its present form it would attract criticism and the authors(s) may wish to consider the following points:
a) The paper needs to be proof read by a native English speaker. The sentence construction, grammar and punctuation all need to be considerably improved. In its present form it is very difficult to read.
b) It is unusual to see the conclusion in the introductory section. The final two sentences of that section should be deleted and instead the thesis structure should be explained.
c) In the Methodology section it is not clear on how the respondents were selected, how the questionnaires were distributed and completed (online?) or what percentage the 254 respondents represents from the total population of home buyers between May to September 2016. Why this time period?
d) I think it would help to interpret the result, if some of the macro statistics on the Indonesian housing market were included. Moreover, if the results are to have applicability beyond Indonesia, it might be worth including some background information on any unique cultural attitudes to home ownership and household formation, which might have influenced the findings.

Additional Questions:
1. Originality: Does the paper contain new and significant information adequate to justify publication? (i.e. is it a contribution to knowledge?): Yes, it is an interesting topic which should be of interest to the journal readership.

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2. Relationship to Literature: Does the paper demonstrate an adequate understanding of the relevant literature in the field and cite an appropriate range of literature sources? Is any significant work ignored to your knowledge?: Yes, reasonable coverage.

3. Methodology: Is the paper's argument built on an appropriate base of theory, concepts, or other ideas? Has the research or equivalent intellectual work on which the paper is based been well designed? Are the research methods employed appropriate?: Insufficiently explained - need to better understand the sample selection.

4. Results: Are results presented clearly and analysed appropriately? Do the conclusions adequately tie together the other elements of the paper?: Adequately presented.

5. Implications for research, practice and/or society: Does the paper identify clearly any implications for research, practice and/or society? Does the paper bridge the gap between theory and practice? How can the research be used in practice (economic and commercial impact), in teaching, to influence public policy, in research (contributing to the body of knowledge)? What is the impact upon society (influencing public attitudes, affecting quality of life)? Are these implications consistent with the findings and conclusions of the paper?: Understanding housing needs at different stages of the lifecycle is of interest to policy makers, planners and developers.

6. Quality of Communication: Does the paper clearly express its case, measured against the technical language of the field and the expected knowledge of the journal's readership? Has attention been paid to the clarity of expression and readability, such as sentence structure, jargon use, acronyms, etc.: Very poor - major issues with the quality of the written communication.

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DUAL PROCESS OF DUAL MOTIVES IN REAL ESTATE MARKET INDONESIA

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Abstract

The dual process of thinking between conscious processes and unconscious processes generate a different decision. Thinking consciously produces rational decisions. However, a person's cognitive limitation makes him or her simplify complex scenarios and think implicitly result in making decision in heuristics or rules of thumbs. This study aims to evaluate patterns of decision-making relationships and dual motives for home purchasing by first home buyers and family life cycle in Indonesia. Collecting data was done by distributing questionnaires to home buyers within three years (2013-2016). Further data was processed using ANOVA based on group of dual motives, time for buyer, and family life cycle. The results show that buyers have consumption motives in buying a residence and they behave rational, while investors prefer to buy an apartment and tend to behave heuristics. Dual motives of time for buyers are not significant to decision model. Family life cycle is significant to decision model based on dual motives.

Keywords: Dual Process, Dual Motives, Time for Buyer, Family Life Cycle, Rational, Heuristics

Introduction

Every individual makes decision using logic or heuristic. The rule of logic is associated with reasoning, whereas, heuristic is associated with intuition (Gigerenzer and Gaissmaier, 2011). Decisions that are made with the absence of rationality but emotional lead an individual in making mistakes when making a decision (Kahneman and Tversky, 2000; Gilovich, Griffin, and Kahneman, 2002). This condition occurs because of a dual process thinking that consists of a conscious (controlled) or explicit process and an unconscious or implicit process that results in rational decision making or irrational decision. The decision of explicit or rational thinking (reasoning-system 2) is a decision that maximizes alternative choices (Fishburn, 1970; Keeney and Raiffa, 1976). However, when facing a large number of data and information, the cognitive ability of an individual is not able to analyze optimization in a complex way. Cognitive limitation causes an individual to simplify a complex scenario and think implicitly (intuition-system 1) which results in making heuristic or rules of thumbs decision (Kahneman and Tversky, 1974; Einhorn and Hogarth, 1981; Jungermann, 1983).

Anne de Bruin and Flint-Hartle (2003) studies show that property investors in New Zealand behave heuristically to overcome the complexity of cognitive information

processing. The higher the complexity of the problem, the more limited the search for information by heuristic behavior. Information processing system is limited by short term memory, so that heuristic behavior extracts information when evaluate it. As a result, decisions that are made to be biased and inefficient (Simon, 1978a). Case, Shiller, and Thompson (2012) also stated that investors in real estate market act irrational. They buy a house at a high price with the hope that the future price will increase. Investors do not take into account the risks properly and act as if increasing price can guarantee the future (Fitzpatrick and McQuinn, 2007). This condition shows investors' behavior changes from rational to irrational, however, not at the same time. Investors' knowledge develops gradually during searching process, so that investors should decide their position in making decision naturally due to their environment (Polic, 2009). Thus, certain behaviors that may be rational for a particular individual cannot be equated to other individuals' behaviors, depending on the degrees of rationality of each person (Simon, 1993).

The functions of the house are consumption and investment (Henderson and Ioannides, 1983). The growth of the net wealth of the individual will affect the motives of consumption and investment when deciding the purchase of the house. A house that is occupied by its owner is bought for consumption motive, regardless the investment motive. On the other hand, when choosing portfolio, a house is considered as an asset investment; regardless the consumption motive (Shiller, 2007), to lessen risking portfolio mixed assets (Seiler, Webb, and Myer, 1999; Hoesli, MacGregor, Adair and McGreal, 2001). Consumption motive occurs because of many factors; pleasure, satisfaction, and non-economics benefit from the occupied house. Whereas, investment motive occurs because of potential financial gain and wealth accumulation when purchasing second house, even though Higgins (2013) stated that first house or second house cannot always be categorized as investment if it is an asset in balance and part of family financial plan (in Wiens, June 2013).

Dual motives model from Henderson and Ioannides was investigated further by Ioannides and Rosenthal (1994) to measure housing demand in America, and the result showed that portfolio motives model which is consumption motive, is the stimulus decision in purchasing houses. On the contrary, the result in Arrondel and Lefebvre's (2001) research in measuring housing demand in France using the same dual motives model, showed that the stimulus decision in purchasing houses is investment motive. When the research was conducted in Spain, this model cannot explain the reason for the purchase of a house (Arrondel, Badenes, and Spadaro, 2007). Inconsistent results show the weaknesses of the Henderson and Ioannides models, since they cannot always reflect the portfolio perspective

of purchasing decisions in those three countries. The existence of contradictions on the results of dual motives research above makes it necessary to conduct further research on the property market in Indonesia.

Demographic factors of age, education, income, family size (Ioannides and Rosenthal, 1994; Arrondel and Lefebvre, 2001) as well as decision-making behavior are stimuli of purchasing decisions. First home buyers (FHB) need a house for living, but they are in financial trouble because their income is relatively low. The amount of income and the approved loan will determine the price of the house that can be purchased, so considerations of house selection related to financial decisions are done rationally (Goss, 2010; Moniko, 2013). Whereas, not first home buyers are already on better economic level, their household burden has started to decrease. The investment stimulus is stronger than consumption because the family can set aside their income as savings and has accumulated their wealth (Hood, 1999). However, Burns (2009) points out when investors are searching for a particular residence and location, they involve emotional and sentimental factors. Investors are not involved in formal and comparative risk analysis, so it is not effective to process risks and uncertainties at optimally. Financial information such as ratio Loan To Value (LTV) and capitalization rate also encourage investors to act irrationally.

This research was conducted in Surabaya as one of the second largest cities after Jakarta, the capital city of Indonesia. Also, Surabaya has stable economic growth and conducive security conditions. In addition, Surabaya was also selected as one of the cities of 5 (five) cities in Asia including Colombo, Sri Lanka; Faisalabad, Pakistan; Irbid; Chittagong, Bangladesh with the purpose of property investment (Pamudji, January 2015). Surabaya experienced an increase in house prices in the first quarter - 2017 (qtq 3.04%) and is predicted to be the highest of 7.67% per year compared to cities in Indonesia (Bank Indonesia, 2017). This research will examine the factors of dual motives that are inconclusive, because they have not yet observed the dual process in a person when making decision. Previous research was also very limited to discuss dual motives and dual process at time for buyer and its relation with family life cycle. The composition of the writing is as follows. It is started with a literature review on real estate behavioral, dual process measurement, dual motives of housing wealth accumulation, and building hypotheses. The third section shows the research's methodology followed by data analysis and discussion. The final section is a conclusion and suggestion for further research.

Comment [A1]: Referee 2, comment d

Comment [A2]: Referee 2, comment b

Literature Review

Behavioral Real Estate

Investment is a sacrifice to make to get an expected profit for the future (Jaffe and Sirmans, 1989). Types of investment are distinguished between financial investments and real investments. Real estate is one of the investment products which is approved because of needs in real estate market and integrated stock market. Even Seiler et al. (1999) and Hoesli et al. (2001) recommend investors to do diversification portfolio on real estate product to lessen direct real estate risk in mixed assets portfolio such as stock, bond, option, or futures. Investors who do direct real estate also get volatility risk which decreasing through diversification escalation, and total return portfolio escalation (Byrne and Lee, 2003).

Traditional financial theory states that investors act rationally by calculating all available information in decision-making process (Kishore, 2006). However, information flow and real estate market knowledge are not consistent. This happens because real estate market is inefficient; value is determined by market and price is made from negotiation. Investors act based on intuition or emotion in decision-making process (Diaz, 1990, 1997; Gallimore, 1994, 1996; Wolverton, 1996; Hardin, 1999; Levy and Schuck, 2005). Hereafter, there will be a shifting research to behavioural finance which tries to explain the inability of expected utility maximization theory that talks about investors' behaviour in efficient market. Behavioural finance evolves to explain economic decision which is done by an individual by combining behaviour theory, cognitive psychology, conventional economy, and financial theory. Behavioural finance seeks to overcome inconsistency in research's outcome about human's behavioural, either in individual or group, by explaining why and how of the impact to market which might be inefficient.

Farlow (2004) showed determinants of house prices in efficient market are income, interest rate, demographic changes, credit availability, and tax structure. Case and Shiller (1989, 1990) stated that change in house's price has strong positive autocorrelation until 3-year period, yet change in house's price fundamentally is still low. Brown and Matysiak (2000) examined the effect of momentum in property index, which return from the previous years was 80%, can explain today's profit. Thus, today's returns can be predicted using previous data like Clayton's research (1998). This matter proved that real estate market is efficient. On the other hand, Quigley (1999) said that economic fundamental is very important as determinant of house's prices, but model can only explain 10%-40% the changes in property's price. The changes in house's price is very fluctuating, and that fluctuating is not explained fundamentally but decided by individual's behaviour and financial institution.

That is to say, future's price of a house cannot be predicted based on today's information. More to practical sides, real estate market has lack of liquidity higher than equity market and bond. Accumulation cost, processing information, and real estate trading fees are higher than stock and bond trading fees. This condition illustrates weak form efficient in real estate market.

An individual's behaviour in real estate market determined decision-making process which involves psychology factor and investment in micro level (decision-making process by individual and group) and macro level (financial market role). Investors' decision-making process combines quantitative aspect (purpose) and qualitative (subjective) which based on specific feature from investment product or financial service. Investors, based on cognitive factor (mental process) and affective (emotional) by individual (or group), make valuation and decision based on past events, personal belief, and preferences. An individual experiences shifting in making decision from rational to psychological and social (Bargh, 2002; Farragher and Kleinman, 1996; Miles, Pringle, and Webb, 1989) so it is needed to have further analyse on one's behaviour which against rational approach.

Potentials in bias source decision-making rational choice are many factors such as individual factor, social, or structural. First of all, individual has limited cognitive abilities to process information and making estimation, resulting in making heuristic decision to simplify complex environment (Corbin, 1980; Hogarth, 1981; Meyer and Eagle, 1982). Second, social source bias, like brokers or lenders, give undesirable or unintentional information for their own personal interest (Palm, 1982; Smith and Clark, 1980; Smith and Mertz, 1980), resulting rational decision become bias by decision environment (Kreibich and Petri, 1982). Third, the source of the embedded structural bias in societal norms. Implication of social settings in society is not based on personal egoism but is in line with society's hope (Bassett and Short, 1980; Pipkin, 1981; Sheppard, 1980).

Wofford (1985) illustrates investors' cognitive process in making investment decision in real estate market. Perception and expectation are processed through several of "filters" (heuristic, characters, beliefs, and bias). Hereafter, investment's purpose and decision-making are influenced by those processes. It is much easier when investors understand the psychological process to lessen decision-making bias. Furthermore, Phyrr, Cooper, Wofford, Kapplin, and Lapides (1989) showed real estate investors often failed to consider important factors in decision-making process. Difficulties and lack of information make investors concentrate in few main assumption related to future condition, evaluate with rules of thumb, then make decision. Most of the investors exaggerate about today's information, resulting in

too optimistic with their decision, whereas information that are not favorite causes decisions that are made pessimistically. Investors have irrational and bias preferences because they cannot control risks and uncertainties. As a result, investors use intuitive ability in processing uncertainties so there is no rational decision-making.

Robbins (2001) stated that decisions happen because of reaction of problems, differences between today's statement, and desired condition, therefore, it is needed to consider an alternative. However, decision-making process by an individual shows independent difference from cognitive ability (intelligence) with motivation difference or personality (Galotti, Ciner, Altenbaumer, Geerts, and Woulfe, 2006). Decision-making by an individual creates basic micro economic analysis which makes an individual to have various style to make decision driven by rationality (Edwards, 1967; Mellers, Schwartz, and Cooke, 1998; Simon, 1992). Therefore, a good decision is not only determined by experience and decision-makers' skill, but also adequacy and validity of the information such as data or knowledge that is gained from different environment (Ahmad, Ahmad, Din, Razak and Noor, 1999).

Dual Process Measurement

Limited cognitive ability directs an individual to take decision in heuristic way as a shortcut (Shah and Oppenheimer, 2008) especially in complex and uncertainty environment (Ritter, 2003) by decreasing valuation complexity in predicting values of consideration in a simple way (Kahneman and Tversky, 1974). An individual performs heuristics due to limited time to search for information and effort to be issued; thus, a heuristic decision leads to a trade-off of loss of accuracy due to speed and austerity of cognition (Shah and Oppenheimer, 2008). In 1996, Epstein, Pacini, Denes-Raj, and Heier (1996) developed Cognitive Experiential Self Theory (CEST), a theory that measures one's preferences to two cognitive styles, to Rational Experiential Inventory (REI). REI-40 is designed to asses preferences information processing. First, rational style, measuring adaptation from scale Need for Cognition (NFC) (Cacioppo and Petty, 1982) which emphasizes on consciousness and analytical approach. Second, experience style that is measured with scale Faith Intuition (FI) which emphasizes on pre-conscious, affective, and holistic approach.

First measurements of dual process in REI-40 were Rational Ability which is an individual's thinking ability using logic and analytic, and Rational Engagement which is the involvement of an individual in decision-making on pleasure of analytical thinking using logic. Second, Experiential Ability is the ability of an individual based on intuition and

feelings and Experiential Engagement is the involvement of an individual in decision-making based on feelings and intuition. Rational thinking is symbolized as slow, deliberative / consultative, following the rules, especially verbally and consciously. Whereas, intuition is symbolized as a pre-conscious, closely related to affective, fast, operating automatically and holistically. An individual's emotional response on an incident has chronological reaction; experience system, automatically and immediately, searches for a memory bank which connected to a related incident. Memories and feelings of the individual influence the process as well as the trends of further behavior. If positive feelings are recalled, individuals will automatically think and have a tendency to reproduce feelings. If an individual recalls negative feeling, he or she will automatically think and have the tendency to avoid feelings. Thus, experiential significantly related to interpersonal relationship that are positive, creative, and emotional expression (Epstein, 1990, 2008; Evans, 2008; Hammond, 1996; Hogarth, 2005; Kahneman, 2003; Kahneman and Frederick, 2002; Sloman 1996; Stanovich and West, 2000) (cited in Witteman, Bercken, Claes, and Godoy, 2009).

Dual Motives of Housing Wealth Accumulation

Real estate investment is a commitment of individual funds with the aim of maintaining and increasing capital and gain profit. The expected benefit of real estate investors is income consisting of active income (income from individual direct activities, eg salaries, bonuses, commissions) is called active investors; passive income (income from indirect activity by individual, eg, rental income, dividend) is called passive investors; and portfolio income (interest income, stock dividend, capital gains, royalties) (Cortesi, 2013). Haight and Singer (2005) stated that investment on real state needs hard work because investors must have skills, knowledge, and power to find the right property, evaluate it, set the finance, manage the property, or find the buyer. House investment is financial investment where an individual is motivated to own a house because the needs to have a shelter according to the individual's financial capability.

Shiller (2007) stated home buyers have different goals due to investment stimuli or consumption stimuli. Investors are property buyers who want a portfolio on some properties and do not have to stay on all those properties (Haughwout, Lee, Tracy, and Klaauw, 2011). Whereas, consumption motive is a desire to own a house which will be used for one's own. One of the stimuli to do house-purchasing for consumption interest is social and emotional side of the house ownership. The value of large transactions but low frequency occurs on the purchase of houses, especially by household buyers. Home is considered as the greatest asset

in most families, as well as a sense of security, independence, and privacy (Rahman, 2010). The house is owned for a long time of at least 15 years even 50 years. (Snively, 2009). Psychological factor in the buyer's self is the feelings of freedom to do activities according to the buyer's wishes such as decorating the house and interacting with the neighbours to build social communities in selected housing environments (Campbell and Cocco, 2005). Snively (2009) points out several reasons for house as consumption needs, firstly, the appreciation of house prices does not result in an increase in the wealth of homeowners, whereas the rise in house prices is an indicator of the owner's net wealth. If the increase is higher, it will allow a person to fund more consumption including using a loan to have a higher value asset. Second, the availability of credit funds or the use of equity funds to finance house purchases with consumption motives, but also purchases for investment. Third, according to Campbell and Cocco (2005), buyers experience changes in consumption influenced by income, house prices, debt repayment ability, interest rates, and inflation.

Comment [A3]: Question 2. Referee 1

Investment or consumption decision involves a trade-off process when selecting a house location. Highly earned individuals or families choose desirable locations with better quality on public areas and facilities, whereas individuals or families with lower income choose less desirable locations. Individuals or families choose a house location based on the current level of wealth and "match" conditions as well as the stages in the family life cycle. Empirically, socioeconomic characteristics (household size, age of household members, education, and income) also affect the preferences and choices of location in such individuals or families (Haavio and Kauppi, 2011). Table 1 shows families grouping according to marriage age which is also named as family life cycle stages.

Table 1. Marriage Age Scheme of Family Life Cycle Stage

No	Family Life Cycle Stage	Explanation	Age Group (year old)	Marriage Age (year old)
1.	Honeymooners	Married couples, with children or not yet with children	14 – 20	0 – 5
2.	Full Nest 1	Couples with the eldest aged less than 6 years old	21 – 30	6 – 10
3.	Full Nest 2	Couples with the eldest aged 6 – 12 years old	31 – 40	11 – 15
4.	Full Nest 3	Couples with the eldest aged 13- 20 years old	41 – 50	16 – 20
5.	Empty Nest 1	Couples with at least one child is living with the parents	51 – 60	21 – 25
6.	Empty Nest 2	Couples with all children no longer live with the parents	61 – 70	26 – 30

7.	Dissolution	Couples who have been living alone, one spouse had died, and do not live with the child.	71 +	31+

Source: Spanier, Sauer, Larzelere (1979)

McCharty's (1976) study shows different house needs according to the family life cycle. Newly married young families or families who already have young children buy a house for shelter. While families who are married with children at school age, or growing up, even their children are married and do not live with the parents, have different house needs. Marriage and children are the main factors that encourage a person to make the first home purchase, people have the tendency to choose a residence that is not in the area with investment opportunities. Psychologically, home buyers intend to stay for a long time, have a feeling of freedom to do activities as they wish, to be able to socialize with neighbors to build a social community in a desired housing environment Younger families have a stronger relationship between house prices and consumption needs than older families. Younger families are bound to need a minimal house size because it is related to financial needs and loans that must be provided. Considered financial needs are utilities fee, maintenance fee, mortgage, insurance, and property tax which have to be paid along the ownership (Campbell and Cocco, 2005).

Comment [A4]: Question 2, Referee 1

Case et al.'s research (2012) showed buyers act irrationally when buying house with investment purpose. Media information influences decision-making. Investors find it easy to memorize newest information which resulting in making bias decision. Investors prefer known investment product by ignoring basic investment principles and diversification to reach optimization (Barberis, 2001). However, Henderson and Ioannides (1983) use portfolio choices model and prove owner-portfolio is inefficient because there is too much investment on houses. This result indicates that house owner is irrational in his or her financial decision. On the other hand, inefficient portfolio is the result of rationality from the balance of consumption benefit and distortion of house product investment portfolio (Brueckner, 1997). Consumption decision is based on the needs of information and rational thinking; it involves a group of activities which connected one another to choices of some available alternatives.

H1 : When an individual buys a house with consumption motive, the decision model tends to be rational compared to an individual with investment motive.

House is needed by every individual or families as a residence. Marriage is one of the reasons for an individual to purchase a house for the first time. However, the condition of first home buyer (FHB) with relatively low income and savings faces credit constraints when buying a house. FHB does a lot of consideration before deciding rationally, such as, source of fund to pay the down payment (DP), the amount of income that can cover monthly instalment, potential on changes in economic condition which affects on the amount of the loan interest rate, and increased income. FHB's position that is limited financially push them to act unhurried (Goss, 2010; Monico, 2013). FHB make some alternatives for house choices which will be purchased suitable to their financial capability. FHB are willing to choose houses with so-so location for adjusting the fund they own (Fisher and Gervais, 2007; Kupke, 2008). The level of an individual's wealth which has been accumulated encourages the occurrence of portfolio motives, second or subsequent house investment as diversified investment products. The purpose of the investment is capital gain, rental income, or retired wealth (Fisher and Gervais, 2007). In purchasing process, not FHB party does not involve in risk and return analysing, prioritize experiences, and has limited information and knowledge gained. Therefore, not FHB act with their own intuition. Decision are made in heuristic way (Burns, 2009; Gigerenzer and Gaissmaier, 2011).

H2 : An individual who buys a house for the first time with consumption motive, his or her decision model tend to be rational compare to an individual who buys a second house and subsequent with investment motive.

McCharty's research (1976) describes the difference of housing needs based on families life cycle. Newly married couples buy their first house for living. This also applies to families who have small, little children. Consumption motive in younger families group is more dominant than investment motive. Level of education and high income allow a person to get a loan for purchasing houses. However, younger families with consumption motive has limitation on income and wealth, resulting in failure in credit application when purchasing a house. FHB condition in younger families, with its limitation, make consideration from various choices' alternatives rationally before making decision (Arrondel, Badenes, and Spadaro, 2007; Goss, 2010; Monico, 2013). Whereas, married couple with school-age children, grown up, or even the children have already married and no longer living with the parents, have different housing needs (McCharty, 1976). Those kind of families groups have investment motive more dominant than consumption motive; depends on the income and

possessed wealth. Established families decide to buy their second house and the next house and subsequent as investment portfolio. Purchased house is expected to provide rental income or capital gain when it is resold. However, the effect of previous transaction experiences and information from brokers or developers leads older families to act using experience system, so that older families' decisions are inconsistent in the processing of risk and return information on purchased houses. Purchasing decision is made irrationally (Burns, 2009).

H3 : An individual who buys the first house with consumption motive on younger families, his or her decision model tend to be rational compare to an individual who buys second house and subsequent in older families with investment motive.

Methodology

This study uses primary data by distributing questionnaires to buyers of houses or apartments who had made transactions in the last three years (2013-2016). Respondents are domiciled in Surabaya, but the location of the purchased property is located in all areas in Indonesia. Respondents search is done incidentally at the property broker's office, the developers' office, and by the online way through Google forms, due to the unavailability of official data on the number of property purchased transactions during the study period. The period of spreading questionnaire was four (4) months since May-September 2016, because in those months, developers often held exhibition of housing, open house, and gathering event. The process of seeking respondents by visiting direct respondents such as door-to-door system is more effective than using the letter. Questionnaires can be collected from 254 respondents, then selected based on transaction time of 3 (three) years and purchased transactions only at house or apartment. Further data that can be processed was 231 questionnaires.

Comment [A5]: Referee 2, comment c

The research questionnaire used REI 40 as a measure of buyer rationality. Before the item was distributed on the questionnaire, REI 40 was translated into *Bahasa Indonesia* by involving linguists and psychologists who gave inputs to the questionnaire so that it can be understood easily by the respondents. Then, the data is tested for its validity and reliability before analyzing data using ANOVA which contained in SPSS program. This research did not develop predictive model so it did not require econometric model. The use of ANOVA is more appropriate to confirm differences in between group decision models. Table 2 shows the operational definition of the research variables used in this study.

Comment [A6]: Question 3, Referee 1

Table 2. Research Variable

Variable	Keterangan
Dual Motives	1 = Consumption; 0 = Investment
Time For Buyer	1 = First Home Buyer; 0 = Not First Home Buyer
Family Life Cycle	1 = Younger Family (less than 10 years marriage) ; 0 = Older Family (more than 10 years marriage)
Dual Process	10 item Rational Ability and 10 item Rational Engagement (REI 40) 10 item Experential Ability and 10 item Experential Engagement (REI 40) 1 = very not true; 2 = not true; 3 = true enough; 4 = true; 5 = very true (inverse item no. 3, 4, 5, 6, 7, 8, 10, 11, 16, 18, 19, 21, 23, 24, 25, 27, 31, 32, 33,34, 39)
Age	1 <= 20 years; 2 = 21-30 years; 3 = 31-40 years; 4 = 41-50 years; 5 = 51-60 years; 6 > 61 years
Education	1= until Undergraduate; 2 = Postgraduate
Income	1 <= Rp.3million; 2 = Rp.3-5million; 3 = Rp.5-10million; 4 = Rp.10-25million; 5 = Rp.25-50million; 6 > Rp.50million
No. of family	Number of family

Comment [A7]: Question 3, Referee 1

Data and Results

Table 3 shows data of descriptive respondents who have consumption and investment motive based on Time For Buyer (TFB), Family Life Cycle (FLC), dual process, age, education, income, and number of family. The majority of respondents is not FHB, dominated by younger families, married below 10 years, has a rational decision-making model. Buyers are dominated by 31-40 years old people, have bachelor degree, have an income of 10-25 million Rupiahs, and most of them have the number of family members borne by 3 people.

Table 3. Respondents' Demographic Data

	Consumption	Investment
Time For Buyer		
First-Home Buyer	42	13
Not First-Home Buyer	88	88
Family Life Cycle		
Younger Family	97	51
Older Family	33	50
Dual Process		
Rational	120	86
Heuristic	10	15
Age		
<= 20 years	2	2
21-30 years;	53	19
31-40 years;	45	31
41-50 years;	20	32

51-60 years	10	18
> 61 years	0	1
Education		
Until Undergradute	112	80
Postgradute	18	21
Income		
< Rp.3million	6	3
Rp.3-5million	30	9
Rp.5-10million;	29	15
Rp.10-25million	34	29
Rp.25-50million	17	26
> Rp.50million	14	19
No. of Family		
1	27	9
2	33	17
3	29	36
4	24	23
5	13	9
6	5	6

Measuring the level of rationality of buyers of houses and apartments by using REI 40 which classifies the question items into two, namely Rational and Experential. Rational Group is measured from two subs; Rational Ability – individual's thinking ability using logic and analytical, and Rational Engagement – individual's involvement in making decision on pleasure of analytical thinking using logic. Experential group is measured from two subs; Experiential Ability which is individual's ability based on intuition and feeling, and Experiential Engagement which is individual's involvement in making decision based on his or her feeling and intuition. Both groups were searched for their average score on a continuum scale, then used in the ANOVA test. Scale 1 leads to the tendency of heuristic decision-making models and scale 5 leads to the tendency of rational decision-making models. The test of decision-making model of dual motives is listed in Table 4. Testing of decision-making model of dual motives and Time for Buyer (TFB) is listed in Table 5. Testing of decision-making model of dual motives and Family Life Cycle (FLC) is listed in Table 6.

Comment [A8]: Question 3, Referee 1

Table 4. ANOVA Findings for Dependent Variable in Decision-Making Model for *Dual Motives*, TFB and FLC

Panel A: Table ANOVA

Variable		Sum of Squares	df	*Mean* Square	Hypothesis	F	Sig.
Dual Motives	Between groups	.751	1	.751	H_1	3.408	.066
	Within groups	50.458	229	.220			
	Total	51.209	230				

Panel B: Mean					
	Variable	**Categories**	**Mean**	**Std. Dev.**	**N**
Decision Model	*Dual Motives*	Consumption	2.7190	.44616	130
		Investment	2.6041	.49779	101

Homogeneity test is performed before ANOVA test on variable of dual motives. Levene statistical motive of ownership (L = 2.685, p-value = .103) shows that the data have the same variance (homogeneous). The result of F test on the motive of ownership (F = 3.408; p-value = .066) showed that there are statistically significant differences in decision-making model on consumption motive (M=2.7190) and investment motive (M=2.6041). Therefore, an individual with consumption motive has a decision model that tends to be rational compared to an individual with investment motive.

Table 5. ANOVA Findings for Dependent Variables in Decision-Making Models on Variable Interaction of Dual Motives and TFB

Panel A: Table ANOVA						
	Sum of Squares	**df**	***Mean* Square**	**Hypothesis**	**F**	**Sig.**
Between groups	.824	3	.275	H_2	1.238	.297
Within groups	50.385	227	.222			
Total	51.209	230				

Panel B: Mean				
	Group	**Mean**	**Std. Dev.**	**N**
Decision Making Model	Consumption, FHB	2.7519	.41812	42
	Consumption, *Not FHB*	2.7033	.46043	88
	Investment, FHB	2.5838	.55295	13
	Investment, *Not FHB*	2.6070	.49252	88
	Total	2.6687	.47186	231

Table 5 shows homogeneity tests on interaction groups of dual motives and TFB (L = 1.035, p = .378) shows data have the same variance. F test results in the dual motives and TFB interaction group (F = 1.238; p = .297) showed no statistically significant differences in the decision model. Post hoc intergroup tests did not show significant differences in decision-making model. Therefore, the decision model of the individual who buys the first house with consumption motive has no difference than the individual who buys the second house and then with investment motive.

Table 6 shows homogeneity test in dual motive interaction group, TFB, and FLC (L = 4.331, p = .001) show data having unequal variance, therefore, different test using Welch test. The Welch test's result in the dual motives interaction group, TFB, and FLC (W = 3,839; p = .004) show significant differences in the decision model. Post hoc intergroup test of FHB with consumption motive in younger families (group 1) was significantly different (p = .047)

statistically under five percent against second and subsequent home buyers who had an investment motive in older families (group 6) and not FHB group who has consumption motive in younger families (group 2) is significantly different (p = .003) statistically below five per cent against second and subsequent home buyers who have an investment motive in older families (group 6) in the retrieval model buying decision. Different test results were also found in not FHB group that had an investment motive in younger families (group 5) against the not FHB group with an investment motive in older families (group 6) (p = .025) in the decision-making model. Thus, FHB with consumption motives in younger families tend to have rational decision model than FHB in older families with investment motives.

Table 6. ANOVA Findings for Dependent Variables Decision-Making Models in Variable Interaction of Dual Motives, TFB, and FLC

Panel A: Table ANOVA

	Sum of Squares	df	*Mean* Square	Hypothesis	F	Sig.
Between groups	4.438	5	.888	H_3	4.270	.001
Within groups	46.771	225	.208			
Total	51.209	230				

Panel B: Mean

	Group	Mean	Std. Dev.	N
Decision Making Model	Group 1 (C,FHB,YF)	2.7519	.41812	42
	Group 2 (C,NFHB,YF)	2.7920	.34744	60
	Group 3 (C,NFHB,OF)	2.5132	.60363	28
	Group 4 (I,FHB,YF)	2.5627	.58476	11
	Group 5 (I,NFHB,YF)	2.7805	.42735	40
	Group 6 (I,NFHB,OF)	2.4720	.49695	50
	Total	2.6687	.47186	231

Discussion

Dual motives vs Decision Model

Every individual believes his or her thoughts are truly rational, however, bias occurred while processing in rational system because rational system does not provide creative ideas to be created as information resource. When a person reacts an incident emotionally, the order of reaction will automatically directed to experience system and instantly looking for a memory bank that related to related incident. An individual's memories and feelings influence the process and the tendency of further behavior, therefore, the experience system has a positive or negative effect on the rational system. That process is proven to occur also in individuals who buy a house. This study proves that buyers who are driven by a factor of necessity; rather than renting a house or living in a relative's / parents'

house, will make a purchase on a house. Buyers choose a house with many considerations to be a residence that provides comfort like Koklic and Vida's research (2009).

Those many considerations are processed in a longer time by collecting many information from parents or relatives, friends, or newspaper, brochure, or internet. Buyers' experience in searching process for a desired house in a time will affect their experience in another time. Buyers will consider their financial ability such as availability and capability in terms of paying. Numbers of consideration will make buyers tend to use rational system in making decision. Also, buyers with experience in doing property transactions more than once in limited time tend to decide rationally (Frederick and Loewenstein, 1999; Read, 2004).

From investors' point of view, purchasing a house or apartment is portfolio allocation. Investors aim to earn additional income from the lease, to earn profits when the house is later sold (capital gain), and to prefer the property as investment products than other products. The time required to make decision is shorter for investors; through property brokers, home exhibitions, and product launching. This media creates the interaction of investors and developers or intermediaries, so that the position of investors will be influenced and encouraged to make decisions as soon as possible with "lure" of profits that can be obtained immediately. The influence of spouse, children, friends, even oneself really affects in making decision if it is dominated by emotional factor. As a result, the condition encourages investors to use the experience or intuition system in purchasing houses, because problem-solving is made quickly and tends to ignore information, especially in situations with high complexity level, uncertainty, and time-pressure (Gigerenzer and Gaissmaier, 2011; Tversky and Kahneman , 1973,1974).

Time For Buyer vs Decision Model

Newly married FHB or married but not yet have children have preferences that are inclined to the motive of consumption, which is the desire to have a house as a place to build a new family and to live comfortably. FHB have a dream to build households independently without being dependent on parents, so FHB seeks information and takes into considerations the house to be purchased for the first time. Decisions are adjusted to the condition of the limited funds they have. Therefore, when FHB make a purchase, they need more time to think and make comparisons on existing options before they finally decide. Whereas, not FHB are more dominated by investment motives although second and subsequent home purchases are not always categorized as investment if it is used as a family asset (Wiens, June 2013). Financial capability and the high amount of wealth motivate an individual to invest.

Repetitive house-purchasing directs not FHB to use experience system compare to their rationality in making decision. However, dual process on TFB cannot be distinguished significantly. Information processing process on FHB and not FHB using rational system and experience system at the same time simultaneously interact (Foxall and Goldsmith, 1994; Campbell and Cocco, 2005; Scanlon and Whitehead, 2010, Epstein, 1996).

Family Life Cycle vs Decision Model

Group 1, FHB with consumption motive in families of under 10 years old age (younger families) and not FHB in younger families with consumption motive (Group 2) tend to be rational in making purchasing decision compared to not FHB with investment motive in older families (Group 6). Married families with additional family members are encouraged to purchase a house with considerations; to have one instead of to rent one, are no longer have reasons to stay with parents, or insufficient house capacity. Therefore, the purchased house is used as a place to live and live comfortably with the nuclear family. However, in certain cases, parents live together in the house, so the environment around the purchased house is adjusted to the buyers' - and maybe the parents of the buyers - wish.

Comment [A9]: Referee 2, comment d

Purchases that occur by young families aged around 20 years old are affected by their financial condition, which sometimes involve financial support from parents or relatives. The process of product selection and family deliberation takes a considerable time before it is decided. As a result, younger families tend to be rational in making decision. On the other hand, if the financial condition is better, then the family will be at ease to make faster purchasing decisions. Not FHB in younger families with sufficient funds tend to have an investment motive in the property than other investment products (stocks, bonds). They will consider the risks and returns of the houses or apartments they bought carefully because they understand that their experience is still limited, such as planning the cost of moving to a popular area with reputation considerations. While married families of more than 10 years with good financial condition, have the ability to accumulate wealth from income earned, therefore, the investment motivation is more dominant than the consumption motive. House investment is considered to have prospects in the future if it is located in popular location. Another benefit of house investment is obtaining rent income or higher capital gain due to the popular location (Hutchison, 1994; Seelig, dkk., 2009; Tan, 2009). Increased knowledge and investment experience allow older families to make better investment decisions by studying risks more accurately and understanding risks and returns relationship in the real estate market that are deemed to be more stable than the stock market better (Fishbein and Ajzen,

1975; Foxall and Goldsmith , 1994). However, the emotional factors that bind older families related to the location and environmental conditions around them; social conditions and personal relationships with neighbors, will lead the older families to act irrational to fulfill their desires. The tendency to live in the environment, the communities they recognize, and the proximity of children and grandchildren encourage older families to use intuition in making decisions.

Conclusion

Buyers with consumption motives are more likely to be rational in deciding house purchases than buyers with investment motives, as well as interactions with family stages. Younger individuals or families tend to be more rational in decision making than individuals or older families who tend to decide heuristics. However, there is no difference at Time for Buyer. Purchasing a house is an important decision in one's life so that decisions are tend to involve parents or relative. The habit of living in a large family structure along with several levels of family structure makes oneself tends to make decisions by involving a deliberative process. However, in families with excellent financial capabilities and no complex family structure, decisions can be personally defined. Research on the behavior of buyers or property investors need to be developed in order to make the real estate market more efficient. The behavior of buyers or investors who tend to be heuristic needs to be understood further so that government and developers can prevent the happening of bubble market. The risk of loss in dual process of purchasing decision can be suppressed by the developers, the government, as well as the buyers themselves, especially in the availability of fund purchases. Government's control on financing in the property sector plays an important role so that developers, buyers, and investors who use loans take rational rather than emotional considerations. The developer can also determine the strategy of selling residentials and apartments according to individual needs at the stage of his or her life cycle.

Comment [A10]: Additional question 1 and question 5, Referee 1

References

Ahmad, A.M., Ahmad, F., Din, G., Razak, H.A. and Noor, N.A.M. (1999), *Pengantar pengurusan*, Universiti Utara Malaysia, Sintok.

Arrondel, L., Badenes, N. and Spadaro, A. (2007). "Consumption and investment motives in housing wealth accumulation of Spanish households", *Social Science Electronic Publishing, Inc*, pp. 1-24, available at: http://dx.doi.org/10.2139/ssrn.1597126.

Arrondel, L. and Lefebvre, B. (2001), "Consumption and investment motives in housing wealth accumulation: a French study", *Journal of Urban Economics*, Vol. 50, pp. 112-137.

Barberis, N. (2001), "Investors seek lessons in thinking", *Financial times*, Mastering Investment part six, June 18.

Bargh, J.A. (2002), "Losing consciousness: Automatic influences on consumer judgment, behavior and motivation", *Journal of Consume Research*, Vol. 29, pp. 280-285.

Bassett, K. and Short, J.R. (1980), *Housing and residential structure*, Routledge and Kegan Paul, London.

Brown, G.R. and Matysiak, G.A. (2000), *Real estate investment. A capital market approach,* Pearson Education, Harlow.

Brueckner, J.K. (1997), "Consumption, investments motives, and the portfolio choices of homeowners", *Journal of Real Estate Finance and Economics*, Vol. 15 No. 2, pp. 159-180.

Burns, L.M. (2009), "The effect of the first home owner's grant on the Perth housing market", Thesis of Bachelor Degree, School of Economics and Finance, Curtin University of Technology, Perth.

Byrne, P. and Lee S. (2003), "The impact of real estate on the terminal wealth on the UK mixed-asset portfolio", Working paper 05/03, Department of Real Estate and Planning.

Cacioppo, J.T. and Petty, R.E. (1982), "The need for cognition", *Journal of Personality and Social Psychology*, Vol. 42, pp. 116-131.

Campbell, J.Y. and Cocco, J.F. (2005), "How do house prices affect consumption? Evidence from micro data", NBER Working Paper No. 11534, Cambridge, Massachusetts Avenue.

Case, K.E. and Shiller, R.J. (1989), "The efficiency of the market for single-family homes", *The American Economic Review*, Vol. 79 No. 1, pp. 125-137.

Case, K.E. and Shiller, R.J. (1990), "Forecasting prices and excess returns in the housing market", *American Real Estate and Urban Economic Association Journal*, Vol. 18 No. 3, pp. 253-273.

Case, K.E., Shiller, R.J., and Thompson, A. (2012), "What have they been thingking? Homebuyer behavior in hot and cold markets", Cowles Foundation Discussion Paper No. 1876. Yale University, Connecticut.

Clayton, J. (1998), "Further evidence on real estate market efficiency", *Journal of Real Estate Research*, Vol. 15, pp. 41-57.

Corbin, R.M. (1980), "The secretary problem as a model of choice", *Journal of Mathematical Psychology*, Vol. 21, pp. 1-29

Cortesi, G.R. (2013), *Mastering Real Estate Principles*, (6th ed.), Kaplan, Inc., Dearborn Real Estate Education, United State of America.

De Bruin, A. and Flint-Hartle, S. (2003), "A bounded rationality framework for property investment behaviour", *Journal of Property Investment and Finance,* Vol. 21 No. 3, pp. 271 – 284.

Diaz, J. III (1990), "How appraisers do their work: a test of the appraisal process and the development of a descriptive model", *Journal of Real Estate Research*, Vol. 5 No. 1, pp. 1-15.

Diaz, J. III (1997), "An investigation into the impact of previous expert value estimates on appraisal judgment", *Journal of Real Estate Research*, Vol. 13 No. 1, pp. 57-66.

Edwards, W. (1967), "The theory of decision making", In W. Edwards and A. Tversky (Eds.), *Decision making*, Penguin Books, Harmondsworth, UK, pp. 13-64.

Einhorn, H.J. and Hogarth, R.M. (1981), "Behavioral decision theory: Processes of judgement and choice", *Annual Review of Psychology*, Vol. 32, pp. 52-88.

Epstein, S., Pacini, R., Denes-Raj, V., and Heier, H. (1996), "Individual differences in intuitive-experiential and analytical-rational thinking styles", *Journal of Personality and Social Psychology*, Vol. 71 No. 2, pp. 390–405.

Farlow, A. (2004), "UK house prices: a critical assessment", Paper presented at the Credit Suisse First Boston Housing Market Conference, 12 May 2003 (pp.1-22), avaliable at: http://www.andrewfarlow.com/part1ukhousing.pdf

Farragher, E. and Kleinman, R. (1996), "A re-examination of real estate investment decision making practices", *Journal of Real Estate Portfolio Management*, Vol. 2 No. 1, pp. 31-39.

Fishbein, M. and Ajzen, I. (1975), *Belief, attitude, intentions and behavior: An introduction to theory and research*, Reading, MA, Addison Wesley.

Fishburn, P.C. (1970), *Utility theory for decision making,* Wiley, New York.

Fisher, J.D.M. and Gervais, M. (2007), "First time home buyers and residential investment volatility", Working paper presented to Federal Reserve Bank of Chicago, 29 November 2007 (pp.1-7), available at: https://www.google.com/search?q=fisher+and+gervais+2007&ie=utf-8&oe=utf-8&client=firefox-b

Fitzpatrick, T. and McQuinn, K. (2007), "House prices and mortgage credit: empirical evidence for Ireland", *The Manchester School*, Vol. 75 No. 1, pp. 82-103.

Foxall, G.R. and Goldsmith, R.E. (1994), *Consumer psychology for marketing*, Routledge, London.

Frederick, S. and Loewenstein, G. (1999), "Hedonic adaptation", In D. Kahneman, E. Diener, and N. Schwarz (Eds.), *Well-Being: The foundations of hedonic psychology*, pp. 302-329, Russell Sage Foundation Press, New York.

Gallimore, P. (1994), "Aspects of information processing and value judgement and choice", *Journal of Property Research*, Vol. 11, pp. 97-110.

Gallimore, P. (1996), "Confirmation bias in the valuation process: A test for corroborating evidence", *Journal of Property Research*, Vol. 13, pp. 261-273.

Galotti, K., Ciner, E., Altenbaumer, H., Geerts, H. and Woulfe, J. (2006), "Decision- making styles in a real-life decision: Choosing a college major", *Personality and Individual Differences*, Vol. 41, pp. 629-639.

Gigerenzer, G. and Gaissmaier, W. (2011), "Heuristic decision making", *Annual Review Psychology*, Vol. 62, pp. 451–482, DOI: 10.1146/annurev-psych-120709-145346.

Gilovich, T, Griffin, D. and Kahneman, D. (2002), *Heuristics and biases: The psychology of intuitive judgment*, Cambridge University Press, New York and Cambridge, England.

Goss D. (2010), "Pathways into first-home-ownership", Refereed papers presented at the 4th Australasian Housing, Sydney, 5th - 7th August 2009.

Haavio, M. and Kauppi, H. (2011), "Owner-occupied housing as an investment, regional house price cycles, and residential sorting", pp. 1-84, Discussion Papers, Bank of Finland Research, available at: http://www.suomenpankki.fi/en.

Haight, G.T. and Singer, D.D. (2005), *The real estate investment handbook*, The Frank J. Fabozzi Series, John Wiley and Sons, Inc., Hoboken, New Jersey.

Hardin, W.G. III (1999), "Behavioural research as an academic pursuit: Lessons from other disciplines and implications for real estate", *Journal of Property Investment and Finance*, Vol. 17 No.4, pp. 333-352.

Haughwout, A., Lee, D., Tracy, J., and Klaauw, W.V.D. (2011), "Real estate investors, the leverage cycle, and the housing market crisis", Federal Reserve Bank of New York, Staff Report No. 514, available at: http://www.econstor.eu/bitstream/10419/60965/1/668533382.pdf.

Henderson, J.V. and Ioannides, Y.M. (1983), "A Model of Housing Tenure Choice", *American Economic Review*, Vol. 73 No. 1, pp. 98-113.

Hoesli, M., MacGregor, B., Adair, A. and McGreal, S. (2001), *The Role of Property in Mixed Asset Portfolios (MAPs),* RICS Foundation, RS0201.

Hogarth, R.M. (1981), "Beyond discrete biases: Functional and dysfunctional aspects of judgemental heuristics", *Psychology Bulletin*, Vol 90, pp. 197-217.

Hood, J.K. (1999). "The determinants of home ownership: An application of human capital Investment Theory to the home ownership decision", *Honors Projects*, Illinois

Wesleyan University, 71, available at: http://digitalcommons.iwu.edu/econ_ honproj /71.

Hutchison, N.E. (1994), "Housing as an investment", *Journal of Property Finance*, Vol. 5 No. 2, pp. 47-61.

Ioannides, Y.M. and Rosenthal, S.S. (1994), "Estimating the consumption and investment demands for housing and their effect on housing tenure status", *Review of Economics and Statistics*, Vol. 76 No. 1, pp. 127-141.

Jaffe, A.J. and Sirmans, C.F. (1989), *Fundamentals of real estate investment*, (2nd ed.). Prentice Hall, Englewood Clifts, New Jersey.

Jungermann, H. (1983), "The two camps of rationality", In R.W.Scholz (Eds.), *Decision making under uncertainty*, pp. 63-86. North-Holand/Elsevier, Amsterdam.

Kahneman, D. and Tversky, A. (1974), "Judgment under uncertainty: heuristics and biases", *Science, New Series*, Vol. 185 No. 4157, pp. 1124-1131.

Kahneman, D. and Tversky, A. (2000), *Choices, values, and frames,* Cambridge University Press, New York and Cambridge, England.

Keeney, R.L. and Raiffa, H. (1976), *Decisions with Multiple Objectives,* Wiley, New York.

Kishore, R. (2006), "Theory of Behavioural Finance and its Application to Property Market: A Change in Paradigm", Paper presented at the Twelfth Annual Pacific Rim Real Estate Society Conference, Auckland, New Zealand.

Koklic, M.K. and Vida, I. (2009), "A strategic household purchase: Consumer house buying behavior", *Managing Global Transition*, Vol. 7 No. 1, pp. 75-96.

Kreibich, V. and Petri, A. (1982), "Locational behavior of households in a constrained housing market", *Environment and Planning A*, Vol. 14, pp. 1195-1210.

Kupke, V. (2008), "Factors important in the decision to buy a first home", 14th Pacific Rim Real Estate Society Conference, Kuala Lumpur.

Levy, D. and Schuck, E. (2005), "The influence of clients on valuations: the clients' perspective", *Journal of Property Investment and Finance*, Vol. 23 No. 2, pp. 182-201.

McCarthy, K.F. (1976), *The household life cycle and housing choices*, The Rand Corporation, Santa Monica, California.

Mellers, B.A., Schwartz, A., and Cooke, A.D.J. (1998), "Judgment and decision making", *Annual Review of Psychology*, Vol. 49, pp. 447-477.

Meyer, R.J. and Eagle, T.C. (1982), "Context-induced parameter instability in a disaggregate stochastic model of store choice", *Journal of Marketing Research*, Vol. 19, pp. 62-71.

Miles, M., Pringle, J. and Webb, B. (1989), "Modeling the corporate real estate decision", *Journal of Real Estate Research*, Vol. 4 No. 3, pp. 47-66.

Monico, M. (2013), "Australian attitudes and behaviours towards buying their first home", RAMS First Home Buyers' Pulse Check Survey 2013, RAMS Financial Group Pty. Ltd, Australian.

Palm, R. (1982), "Homebuyer response to information content", In W.A.V. Clark (Eds.), *Modelling Housing Market Search*, pp. 187-208, St. Martin's Press, New York.

Pipkin, J.S. (1981), "The concept of choice and cognitive explanations of spatial behavior", *Economic Geography,* Vol. 57, pp. 315-329.

Polic, M. (2009), "Decision making: Between rationality and reality", *Interdisciplinary Description of Complex Systems*, Vol. 7 No. 2, pp. 78-89.

Pyhrr, S.A., Cooper, J.R. Wofford, L.R. Kapplin, S.D. and Lapides, P.D. (1989), *Real Estate Investment: Strategy, Analysis, Decision*, (2nd ed.) John Wiley and Sons, Inc., United States of America.

Quigley, J.M. (1999), "Real estate prices and economic cycles", *International Real Estate Review*, Vol. 2 No. 1, pp. 1-20.

Read, D. (2004), "Utility theory from Jeremy Bentham to Daniel Kahneman", Working Paper Department of Operational Research No. LSEOR 0464, London School of Economics and Political Science.

Ritter, J.R. (2003), "Behavioral finance", *Pacific-Basin Finance Journal,* Vol. 11 No. 4, pp. 429-437.

Robbins, P.S. (2001), *Organizational Behavior* (9th ed.), Prentice-Hall, New York.

Scanlon, K. and Whitehead, C.M.E. (2010), "The economic rationality of landlords", In Housing Economics Working Group, 2006, Copenhagen, Denmark, LSE Research Online, pp. 1-28, available at: http://eprints.lse.ac.uk/29951/

Seelig, T., Burke, T., Penningar, S. and Morris, A. (2009), "What motivates households to invest in the private rental market", *AHURI Research and Policy Bulletin*, Vol. 115, pp. 1 – 4.

Seiler, M.J., Webb, J.R. and Myer, F.C.N. (1999), "Diversification Issues in Real estate Investment", *Journal of Real Estate Literature*, Vol. 7 No. 2, pp. 163-179

Shah, A.K. and Oppenheimer, D.M. (2008), "Heuristics made easy: An effort-reduction framework", *Psychological Bulletin,* Vol. 134 No. 2, pp. 207-222. DOI: 1.1037/0033-2909,134.2.207.

Sheppard, E. (1980), "The ideology of spatial choice", *Papers of the Regional Science Association*, Vol. 45, pp. 193-213.

Shiller, R.J. (2007), "Understanding recent trends in house prices and home ownership", NBER (National Bureau of Economic Research, Inc) Working paper No. 13553, pp. 1-46.

Simon, H.A. (1978a), "Information processing theory of human problem solving", In W.K. Estes, (Eds.). *Handbook of Learning and Cognitive Processes,* Vol. 5, pp. 271-295, Erlbaum, Hillsdale, NJ.

Simon, H.A. (1992), "Decision making and problem solving". In M. Zey (Eds.), *Decision making: Alternatives to rational choice models*, pp. 32-53, Sage Publications, Newbury Park, USA.

Simon, H.A. (1993), "Decision making: Rational, nonrational, and irrational", *Educational Administration Quarterly*, Vol. 29 No. 3, pp. 392-411.

Smith, T.R. and Clark, W.A.V. (1980), "Housing market search: Information constraints and efficiency", In W.A.V. Clark and E.G. Moore, *Residential Mobility and Public Policy* (Eds.), pp. 100-125, Sage Publications, Beverly Hills, California.

Smith, T.R. and Mertz, F. (1980), "An analysis of the effects of information revision on the outcome of housing-market search, with special reference to the influence of realty agents", *Environment and Planning A*, Vol. 12, pp. 155-74.

Spanier, G. B., Sauer, W., and Larzelere, R. (1979), "An Empirical Evaluation of the Family Life Cycle", *Journal of Marriage and Family*, Vol. 41, No. 1, pp. 27-38.

Tan, T.H. (2009), "Homeowning motivation in Malaysia", *Journal of Accounting-Business and Management*, Vol. 16 No. 1, pp. 93–112.

Tversky, A. and Kahneman, D. (1973), "Availability: A heuristic for judging frequency and probability", *Cognitive Psychology*, Vol. 5 No. 2, pp. 207–232.

Tversky, A. and Kahneman, D. (1974), "Judgment under uncertainty: heuristics and biases", *Science*, Vol. 185 No. 4157, pp. 1124-1131.

Wiens, C.E.T. (2013, June 11), "The Experts: Should You Think of Your House as an Investment?" *The Wall Street Journal,* available at: http://www.wsj.com/articles /SB10001424127887323949904578538012957595402 (accessed 27 November 2016).

Witteman, C., van den Bercken, J., Claes, L. and Godoy, A, (2009), "Assessing Rational and Intuitive Thinking Styles", *European Journal of Psychological Assessment*; Vol. 25 No. 1, pp. 39–47, DOI 10.1027/1015-5759.25.1.39.

Wofford, L.E. (1985), "Cognitive Processess as Determinants of Real Estate Investment Decision", *The Appraisal Journal*, July, p.393.

Wolverton, M. (1996), "Investigation into price knowledge induced comparable sale selection bias", Doctoral Thesis, Georgia State University, Atlanta, GA.

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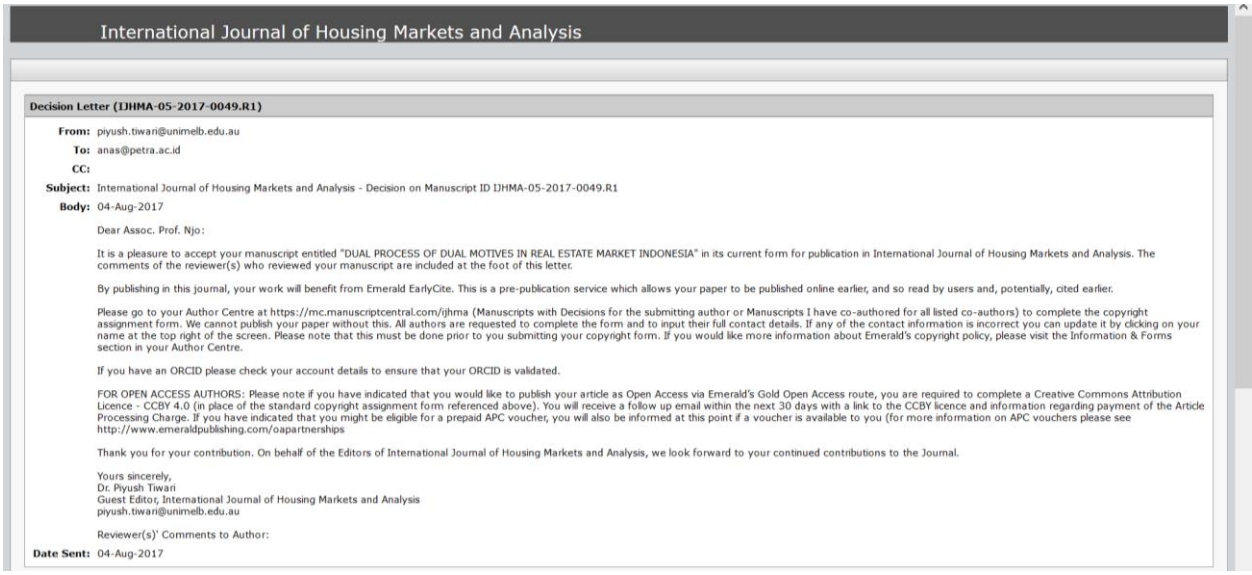

International Journal of Housing Markets and Analysis

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From: piyush.tiwari@unimelb.edu.au
To: anas@petra.ac.id
CC:
Subject: International Journal of Housing Markets and Analysis - Decision on Manuscript ID IJHMA-05-2017-0049.R1
Body: 04-Aug-2017

Dear Assoc. Prof. Njo:

It is a pleasure to accept your manuscript entitled "DUAL PROCESS OF DUAL MOTIVES IN REAL ESTATE MARKET INDONESIA" in its current form for publication in International Journal of Housing Markets and Analysis. The comments of the reviewer(s) who reviewed your manuscript are included at the foot of this letter.

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Thank you for your contribution. On behalf of the Editors of International Journal of Housing Markets and Analysis, we look forward to your continued contributions to the Journal.

Yours sincerely,
Dr. Piyush Tiwari
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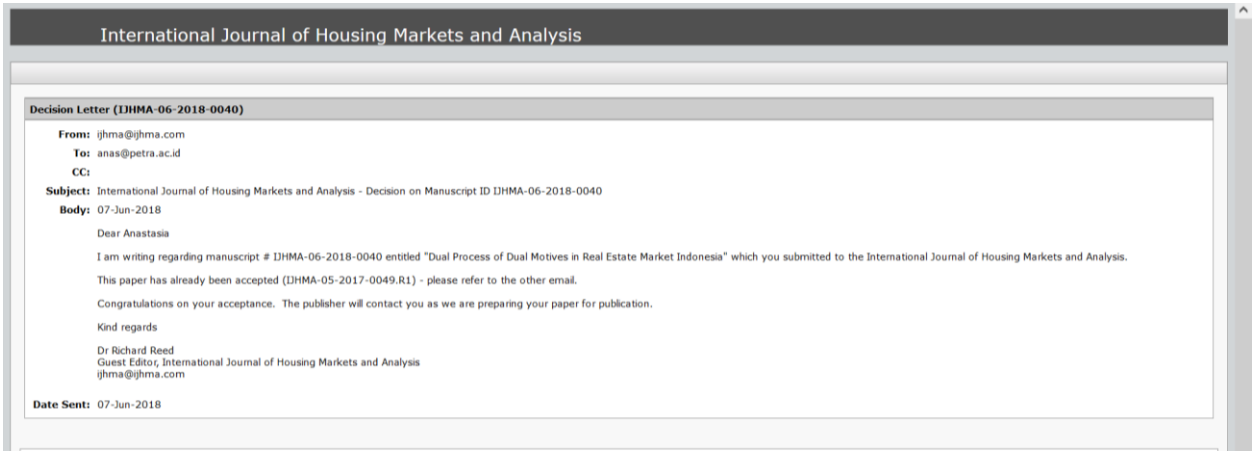

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From: ijhma@ijhma.com
To: anas@petra.ac.id
CC:
Subject: International Journal of Housing Markets and Analysis - Decision on Manuscript ID IJHMA-06-2018-0040
Body: 07-Jun-2018

Dear Anastasia

I am writing regarding manuscript # IJHMA-06-2018-0040 entitled "Dual Process of Dual Motives in Real Estate Market Indonesia" which you submitted to the International Journal of Housing Markets and Analysis.

This paper has already been accepted (IJHMA-05-2017-0049.R1) - please refer to the other email.

Congratulations on your acceptance. The publisher will contact you as we are preparing your paper for publication.

Kind regards

Dr Richard Reed
Guest Editor, International Journal of Housing Markets and Analysis
ijhma@ijhma.com

Date Sent: 07-Jun-2018

Dual process of dual motives in real estate market Indonesia

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Abstract

Purpose – The dual process of thinking between conscious processes and unconscious processes generate a different decision. Thinking consciously produces rational decisions. However, a person's cognitive limitation makes him or her simplify complex scenarios and think implicitly result in making decision in heuristics or rules of thumbs. This paper aims to evaluate patterns of decision-making relationships and dual motives for home purchasing by first home buyers and family life cycle in Indonesia.

Design/methodology/approach – Collecting data was done by distributing questionnaires to home buyers within three years (2013-2016). Further data were processed using ANOVA based on group of dual motives, time for buyer and family life cycle.

Findings – The results show that buyers have consumption motives in buying a residence and they behave rational, while investors prefer to buy an apartment and tend to behave heuristics. Dual motives of time for buyers are not significant to decision model. Family life cycle is significant to decision model based on dual motives.

Originality/value – This is an unpublished dissertation study to qualify for graduation.

Keywords Heuristics, Rational, Dual motives, Dual process, Family life cycle, Time for buyer

Paper type Research paper

Introduction

Every individual makes decision using logic or heuristic. The rule of logic is associated with reasoning, whereas heuristic is associated with intuition (Gigerenzer and Gaissmaier, 2011). Decisions that are made with the absence of rationality but emotional lead an individual in making mistakes when making a decision (Kahneman and Tversky, 2000; Gilovich *et al.*, 2002). This condition occurs because of a dual process thinking that consists of a conscious (controlled) or explicit process and an unconscious or implicit process that results in rational decision-making or irrational decision. The decision of explicit or rational thinking (reasoning-system 2) is a decision that maximizes alternative choices (Fishburn, 1970; Keeney and Raiffa, 1976). However, when facing a large number of data and information, the cognitive ability of an individual is not able to analyze optimization in a complex way. Cognitive limitation causes an individual to simplify a complex scenario and think implicitly (intuition-system 1) which results in making heuristic or rules of thumbs decision (Kahneman and Tversky, 1974; Einhorn and Hogarth, 1981; Jungermann, 1983).

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de Bruin and Flint-Hartle (2003) show that property investors in New Zealand behave heuristically to overcome the complexity of cognitive information processing. The higher the complexity of the problem, the more limited the search for information by heuristic behavior. Information processing system is limited by a short-term memory so that heuristic behavior extracts information when evaluate it. As a result, decisions are made to be biased and inefficient (Simon, 1978a). Case *et al.* (2012) also stated that investors in real estate market act irrational. They buy a house at a high price with the hope that the future price will increase. Investors do not take into account the risks properly and act as if increasing price can guarantee the future (Fitzpatrick and McQuinn, 2007). This condition shows investors' behavior changes from rational to irrational, however, not at the same time. Investors' knowledge develops gradually during searching process, so that investors should decide their position in making decision naturally due to their environment (Polic, 2009). Thus, certain behaviors that may be rational for a particular individual cannot be equated to other individuals' behaviors, depending on the degrees of rationality of each person (Simon, 1993).

The functions of the house are consumption and investment (Henderson and Ioannides, 1983). The growth of the net wealth of the individual will affect the motives of consumption and investment when deciding the purchase of the house. A house that is occupied by its owner is bought for consumption motive, regardless the investment motive. On the other hand, when choosing portfolio, a house is considered as an asset investment; regardless the consumption motive (Shiller, 2007), to lessen risking portfolio mixed assets (Seiler *et al.*, 1999; Hoesli *et al.*, 2001). Consumption motive occurs because of many factors; pleasure, satisfaction and non-economics benefit from the occupied house. Whereas, investment motive occurs because of potential financial gain and wealth accumulation when purchasing second house, even though Higgins (2013) stated that first house or second house cannot always be categorized as investment if it is an asset in balance and part of family financial plan (in Wiens, 2013, June).

Dual motives model from Henderson and Ioannides was investigated further by Ioannides and Rosenthal (1994) to measure housing demand in America, and the result showed that portfolio motives model which is consumption motive, is the stimulus decision in purchasing houses. On the contrary, the result in Arrondel and Lefebvre's (2001) research in measuring housing demand in France using the same dual motives model showed that the stimulus decision in purchasing houses is investment motive. When the research was conducted in Spain, this model cannot explain the reason for the purchase of a house (Arrondel *et al.*, 2007). Inconsistent results show the weaknesses of the Henderson and Ioannides models, as they cannot always reflect the portfolio perspective of purchasing decisions in those three countries. The existence of contradictions on the results of dual motives research above makes it necessary to conduct further research on the property market in Indonesia.

Demographic factors of age, education, income, family size (Ioannides and Rosenthal, 1994; Arrondel and Lefebvre, 2001) as well as decision-making behavior are stimuli of purchasing decisions. First home buyers (FHB) need a house for living, but they are in financial trouble because their income is relatively low. The amount of income and the approved loan will determine the price of the house that can be purchased, so considerations of house selection related to financial decisions are done rationally (Goss, 2010; Monico, 2013). Whereas, not FHBs are already on better economic level, their household burden has started to decrease. The investment stimulus is stronger than consumption because the family can set aside their income as savings and has accumulated their wealth (Hood, 1999). However, Burns (2009) points out when investors are searching for a particular residence and location, they involve emotional and sentimental factors. Investors are not involved in formal and comparative risk analysis, so it is not effective to process risks and uncertainties at optimally.

Financial information such as ratio loan to value and capitalization rate also encourage investors to act irrationally.

This research was conducted in Surabaya as one of the second largest cities after Jakarta, the capital city of Indonesia. Also, Surabaya has stable economic growth and conducive security conditions. In addition, Surabaya was also selected as one of the cities of five cities in Asia including Colombo, Sri Lanka; Faisalabad, Pakistan; Irbid; Chittagong, Bangladesh with the purpose of property investment (Pamudji, January 2015). Surabaya experienced an increase in house prices in the first quarter – 2017 (qtq 3.04 per cent) and is predicted to be the highest of 7.67 per cent per year compared to cities in Indonesia (Bank Indonesia, 2017). This research will examine the factors of dual motives that are inconclusive because they have not yet observed the dual process in a person when making decision. Previous research was also very limited to discuss dual motives and dual process at time for buyer and its relation with family life cycle. The composition of the writing is as follows. It is started with a literature review on real estate behavioral, dual process measurement, dual motives of housing wealth accumulation and building hypotheses. The third section shows the research's methodology followed by data analysis and discussion. The final section is a conclusion and suggestion for further research.

Literature review

Behavioral real estate

Investment is a sacrifice to make to get an expected profit for the future (Jaffe and Sirmans, 1989). Types of investment are distinguished between financial investments and real investments. Real estate is one of the investment products which is approved because of needs in real estate market and integrated stock market. Even Seiler *et al.* (1999) and Hoesli *et al.* (2001) recommend investors to do diversification portfolio on real estate product to lessen direct real estate risk in mixed assets portfolio such as stock, bond, option or futures. Investors who do direct real estate also get volatility risk which decreasing through diversification escalation, and total return portfolio escalation (Byrne and Lee, 2003).

Traditional financial theory states that investors act rationally by calculating all available information in decision-making process (Kishore, 2006). However, information flow and real estate market knowledge are not consistent. This happens because real estate market is inefficient; value is determined by market and price is made from negotiation. Investors act based on intuition or emotion in decision-making process (Diaz, 1990, 1997; Gallimore, 1994, 1996; Wolverton, 1996; Hardin, 1999; Levy and Schuck, 2005). Hereafter, there will be a shifting research to behavioral finance which tries to explain the inability of expected utility maximization theory that talks about investors' behavior in efficient market. Behavioral finance evolves to explain economic decision which is done by an individual by combining behavior theory, cognitive psychology, conventional economy and financial theory. Behavioral finance seeks to overcome inconsistency in research's outcome about human's behavioral, either in individual or group, by explaining why and how of the impact to market which might be inefficient.

Farlow (2004) showed determinants of house prices in efficient market are income, interest rate, demographic changes, credit availability, and tax structure. Case and Shiller (1989, 1990) stated that change in house's price has strong positive autocorrelation until three-year period, yet change in house's price fundamentally is still low. Brown and Matysiak (2000) examined the effect of momentum in property index, which return from the previous years was 80 per cent, can explain today's profit. Thus, today's returns can be predicted using previous data like Clayton's (1998) research. This matter proved that real estate market is efficient. On the other hand, Quigley (1999) said that economic fundamental is very important as determinant of house's prices, but model can only explain 10 – to 40 per cent the changes in property's

price. The changes in house's price is very fluctuating, and that fluctuating is not explained fundamentally but decided by individual's behavior and financial institution. That is to say, future's price of a house cannot be predicted based on today's information. More to practical sides, real estate market has lack of liquidity higher than equity market and bond. Accumulation cost, processing information and real estate trading fees are higher than stock and bond trading fees. This condition illustrates weak form efficient in real estate market.

An individual's behavior in real estate market determined decision-making process which involves psychology factor and investment in micro level (decision-making process by individual and group) and macro level (financial market role). Investors' decision-making process combines quantitative aspect (purpose) and qualitative (subjective) which based on specific feature from investment product or financial service. Investors, based on cognitive factor (mental process) and affective (emotional) by individual (or group), make valuation and decision based on past events, personal belief and preferences. An individual experiences shifting in making decision from rational to psychological and social (Bargh, 2002; Farragher and Kleinman, 1996; Miles *et al.*, 1989), so it is needed to have further analyze on one's behavior which against rational approach.

Potentials in bias source decision-making rational choice are many factors such as individual factor, social or structural. First, individual has limited cognitive abilities to process information and making estimation, resulting in making heuristic decision to simplify complex environment (Corbin, 1980; Hogarth, 1981; Meyer and Eagle, 1982). Second, social source bias, like brokers or lenders, give undesirable or unintentional information for their own personal interest (Palm, 1982; Smith and Clark, 1980; Smith and Mertz, 1980), resulting rational decision become bias by decision environment (Kreibich and Petri, 1982). Third, structural source bias are deeply rooted in the norms of the society. Implication of social settings in society is not based on personal egoism but is in line with society's hope (Bassett and Short, 1980; Pipkin, 1981; Sheppard, 1980).

Wofford (1985) illustrates investors' cognitive process in making investment decision in real estate market. Perception and expectation are processed through several of "filters" (heuristic, characters, beliefs, and bias). Hereafter, investment's purpose and decision-making are influenced by those processes. It is much easier when investors understand the psychological process to lessen decision-making bias. Furthermore, Pyhrr *et al.* (1989) showed real estate investors often failed to consider important factors in decision-making process. Difficulties and lack of information make investors concentrate on few main assumptions related to future condition, evaluate with rules of thumb and then make decisions. Most of the investors exaggerate about today's information, resulting in too optimistic with their decision, whereas information that are not favorite causes decisions that are made pessimistically. Investors have irrational and bias preferences because they cannot control risks and uncertainties. As a result, investors use intuitive ability in processing uncertainties so there is no rational decision-making.

Robbins (2001) stated that decisions happen because of reaction of problems, differences between today's statement and desired condition; therefore, it is needed to consider an alternative. However, decision-making process by an individual shows independent difference from cognitive ability (intelligence) with motivation difference or personality (Galotti *et al.*, 2006). Decision-making by an individual creates basic micro economic analysis which makes an individual to have various styles to make decision driven by rationality (Edwards, 1967; Mellers *et al.*, 1998; Simon, 1992). Therefore, a good decision is determined not only by experience and decision makers' skill but also by adequacy and validity of the information such as data or knowledge that is gained from different environment (Ahmad *et al.*, 1999).

Dual process measurement

Limited cognitive ability directs an individual to take decision in heuristic way as a shortcut (Shah and Oppenheimer, 2008) especially in complex and uncertainty environment (Ritter, 2003) by decreasing valuation complexity in predicting values of consideration in a simple way (Kahneman and Tversky, 1974). An individual performs heuristics due to limited time to search for information and effort to be issued; thus, a heuristic decision leads to a trade-off of loss of accuracy due to speed and austerity of cognition (Shah and Oppenheimer, 2008). In 1996, Epstein *et al.* (1996) developed cognitive experiential self-theory, a theory that measures one's preferences to two cognitive styles, to rational experiential inventory (REI). REI-40 is designed to asses preferences information processing. First is the rational style, measuring adaptation from scale need for cognition (Cacioppo and Petty, 1982), which emphasizes on consciousness and analytical approach. Second is the experience style that is measured with scale faith intuition which emphasizes on pre-conscious, affective and holistic approach.

First measurements of dual process in REI-40 were rational ability which is an individual's thinking ability using logic and analytic, and rational engagement which is the involvement of an individual in decision-making on pleasure of analytical thinking using logic. Second, experiential ability is the ability of an individual based on intuition and feelings, and experiential engagement is the involvement of an individual in decision-making based on feelings and intuition. Rational thinking is symbolized as slow, deliberative/consultative, following the rules, especially verbally and consciously. Whereas, intuition is symbolized as a pre-conscious, closely related to affective, fast, operating automatically and holistically. An individual's emotional response on an incident has chronological reaction; experience system, automatically and immediately, searches for a memory bank which connected to a related incident. Memories and feelings of the individual influence the process as well as the trends of further behavior. If positive feelings are recalled, individuals will automatically think and have a tendency to reproduce feelings. If an individual recalls negative feeling, he or she will automatically think and have the tendency to avoid feelings. Thus, experiential significantly related to interpersonal relationship that are positive, creative and emotional expression (Epstein, 1990, 2008; Evans, 2008; Hammond, 1996; Hogarth, 2005; Kahneman, 2003; Kahneman and Frederick, 2002; Sloman, 1996; Stanovich and West, 2000) (cited in Witteman *et al.*, 2009).

Dual motives of housing wealth accumulation

Real estate investment is a commitment of individual funds with the aim of maintaining and increasing capital and gain profit. The expected benefit of real estate investors is income consisting of active income (income from individual direct activities, e.g. salaries, bonuses, commissions) is called active investors; passive income (income from indirect activity by individual, e.g., rental income, dividend) is called passive investors; and portfolio income (interest income, stock dividend, capital gains, royalties) (Cortesi, 2013). Haight and Singer (2005) stated that investment on real state needs hard work because investors must have skills, knowledge, and power to find the right property, evaluate it, set the finance, manage the property or find the buyer. House investment is financial investment where an individual is motivated to own a house because the needs to have a shelter according to the individual's financial capability.

Shiller (2007) stated home buyers have different goals due to investment stimuli or consumption stimuli. Investors are property buyers who want a portfolio on some properties and do not have to stay on all those properties (Haughwout *et al.*, 2011). Whereas, consumption motive is a desire to own a house which will be used for one's own. One of the stimuli to do house-purchasing for consumption interest is social and emotional side of the

house ownership. The value of large transactions but low frequency occurs on the purchase of houses, especially by household buyers. Home is considered as the greatest asset in most families, as well as a sense of security, independence and privacy (Rahman, 2010). The house is owned for a long time of at least 15 years even 50 years (Snively, 2009). Psychological factor in the buyer's self is the feelings of freedom to do activities according to the buyer's wishes such as decorating the house and interacting with the neighbors to build social communities in selected housing environments (Campbell and Cocco, 2005). Snively (2009) points out several reasons for house as consumption needs; first, the appreciation of house prices does not result in an increase in the wealth of homeowners, whereas the rise in house prices is an indicator of the owner's net wealth. If the increase is higher, it will allow a person to fund more consumption including using a loan to have a higher value asset. Second, the availability of credit funds or the use of equity funds to finance not only house purchases with consumption motives but also purchases for investment. Third, according to Campbell and Cocco (2005), buyers experience changes in consumption influenced by income, house prices, debt repayment ability, interest rates and inflation.

Investment or consumption decision involves a trade-off process when selecting a house location. Highly earned individuals or families choose desirable locations with better quality on public areas and facilities, whereas individuals or families with lower income choose less desirable locations. Individuals or families choose a house location based on the current level of wealth and "match" conditions as well as the stages in the family life cycle. Empirically, socioeconomic characteristics (household size, age of household members, education and income) also affect the preferences and choices of location in such individuals or families (Haavio and Kauppi, 2011). Table I shows families grouping according to marriage age which is also named as family life cycle stages.

McCarthy's (1976) study shows different house needs according to the family life cycle. Newly married young families or families who already have young children buy a house for shelter. While families who are married with children at school age, or growing up, even their children are married and do not live with the parents, have different house needs. Marriage and children are the main factors that encourage a person to make the first home purchase; people have the tendency to choose a residence that is not in the area with investment opportunities. Psychologically, home buyers intend to stay for a long time, have a feeling of freedom to do activities as they wish, to be able to socialize with neighbors to build a social community in a desired housing environment, younger families have a

Table I.
Marriage age scheme of family life cycle stage

No.	Family life cycle stage	Explanation	Age group (year old)	Marriage age (year old)
1	Honeymooners	Married couples, with children or not yet with children	14-20	0-5
2	Full Nest 1	Couples with the eldest aged less than 6 years old	21-30	6-10
3	Full Nest 2	Couples with the eldest aged 6 – 12 years old	31-40	11-15
4	Full Nest 3	Couples with the eldest aged 13- 20 years old	41-50	16-20
5	Empty Nest 1	Couples with at least one child is living with the parents	51-60	21-25
6	Empty Nest 2	Couples with all children no longer live with the parents	61-70	26-30
7	Dissolution	Couples who have been living alone, one spouse had died, and do not live with the child	71+	31+

Source: Spanier *et al.* (1979)

stronger relationship between house prices and consumption needs than older families. Younger families are bound to need a minimal house size because it is related to financial needs and loans that must be provided. Considered financial needs are utilities fee, maintenance fee, mortgage, insurance and property tax which have to be paid along the ownership (Campbell and Cocco, 2005).

Case *et al.*'s (2012) research showed buyers act irrationally when buying house with investment purpose. Media information influences decision-making. Investors find it easy to memorize newest information which resulting in making bias decision. Investors prefer known investment product by ignoring basic investment principles and diversification to reach optimization (Barberis, 2001). However, Henderson and Ioannides (1983) use portfolio choices model and prove owner-portfolio is inefficient because there is too much investment on houses. This result indicates that house owner is irrational in his or her financial decision. On the other hand, inefficient portfolio is the result of rationality from the balance of consumption benefit and distortion of house product investment portfolio (Brueckner, 1997). Consumption decision is based on the needs of information and rational thinking; it involves a group of activities which connected one another to choices of some available alternatives:

H1. When an individual buys a house with consumption motive, the decision model tends to be rational compared to an individual with investment motive.

House is needed by every individual or families as a residence. Marriage is one of the reasons for an individual to purchase a house for the first time. However, the condition of FHB with relatively low income and savings faces credit constraints when buying a house. FHB does a lot of consideration before deciding rationally, such as source of fund to pay the down payment, the amount of income that can cover monthly instalment, potential on changes in economic condition which affects on the amount of the loan interest rate and increased income. FHB's position that is limited financially push them to act unhurried (Goss, 2010; Monico, 2013). FHB make some alternatives for house choices which will be purchased suitable to their financial capability. FHB are willing to choose houses with so-so location for adjusting the fund they own (Fisher and Gervais, 2007; Kupke, 2008). The level of an individual's wealth which has been accumulated encourages the occurrence of portfolio motives, second or subsequent house investment as diversified investment products. The purpose of the investment is capital gain, rental income or retired wealth (Fisher and Gervais, 2007). In purchasing process, not FHB party does not involve in risk and return analyzing, prioritize experiences and has limited information and knowledge gained. Therefore, not FHB act with their own intuition. Decisions are made in heuristic way (Burns, 2009; Gigerenzer and Gaissmaier, 2011):

H2. An individual who buys a house for the first time with consumption motive, his or her decision model tend to be rational compare to an individual who buys a second house and subsequent with investment motive.

McCarthy's (1976) research describes the difference of housing needs based on families' life cycle. Newly married couples buy their first house for living. This also applies to families who have small, little children. Consumption motive in a younger family group is more dominant than investment motive. Level of education and high income allow a person to get a loan for purchasing houses. However, younger families with consumption motive have limitation on income and wealth, resulting in failure in credit application when purchasing a house. FHB condition in younger families, with its limitation, make consideration from various choices' alternatives rationally before making decision (Arrondel *et al.*, 2007; Goss, 2010; Monico, 2013). Whereas, married couple with school-age children, grown up, or even

the children have already married and no longer living with the parents, have different housing needs (McCarthy's, 1976). Those kinds of families groups have investment motive more dominant than consumption motive; depends on the income and possessed wealth. Established families decide to buy their second house and the next house and subsequent as investment portfolio. Purchased house is expected to provide rental income or capital gain when it is resold. However, the effect of previous transaction experiences and information from brokers or developers leads older families to act using experience system, so that older families' decisions are inconsistent in the processing of risk and return information on purchased houses. Purchasing decision is made irrationally (Burns, 2009):

H3. An individual who buys the first house with consumption motive on younger families, his or her decision model tend to be rational compare to an individual who buys second house and subsequent in older families with investment motive.

Methodology

This study uses primary data by distributing questionnaires to buyers of houses or apartments who had made transactions in the past three years (2013-2016). Respondents are domiciled in Surabaya, but the location of the purchased property is located in all areas in Indonesia. Respondents search is done incidentally at the property broker's office, the developers' office and by the online way through Google forms, due to the unavailability of official data on the number of property purchased transactions during the study period. The period of spreading questionnaire was four months since May-September 2016 because in those months, developers often held exhibition of housing, open house and gathering event. The process of seeking respondents by visiting direct respondents such as door-to-door system is more effective than using the letter. Questionnaires can be collected from 254 respondents, then selected based on transaction time of three years and purchased transactions only at house or apartment. Further data that can be processed were 231 questionnaires.

The research questionnaire used REI 40 as a measure of buyer rationality. Before the item was distributed on the questionnaire, REI 40 was translated into *Bahasa Indonesia* by involving linguists and psychologists who gave inputs to the questionnaire so that it can be understood easily by the respondents. Then, the data are tested for its validity and reliability before analyzing data using ANOVA which contained in SPSS program. This research did not develop predictive model so it did not require econometric model. The use of ANOVA is more appropriate to confirm differences in between group decision models. Table II shows the operational definition of the research variables used in this study.

Data and results

Table III shows data of descriptive respondents who have consumption and investment motive based on Time For Buyer (TFB), Family Life Cycle (FLC), dual process, age, education, income and number of family. The majority of respondents are not FHB, dominated by younger families, married below 10 years, has a rational decision-making model. Buyers are dominated by 31-40 years old people, have bachelor degree, have an income of 10-25 million Rupiahs and most of them have the number of family members borne by three people.

Measuring the level of rationality of buyers of houses and apartments by using REI 40 which classifies the question items into two, namely, rational and experential. Rational group is measured from two subs; rational ability – individual's thinking ability using logic and analytical, and rational engagement – individual's involvement in making decision on pleasure of analytical thinking using logic. Experential group is measured from two subs;

Variable	Keterangan
Dual motives	1 = Consumption; 0 = Investment
Time for buyer	1 = First-home buyer; 0 = Not first-home buyer
Family life cycle	1 = Younger family (less than 10 years marriage); 0 = Older family (more than 10 years marriage)
Dual process	10-item rational ability and 10-item rational engagement (REI 40) 10-item experential ability and 10-item experential engagement (REI 40) 1 = very not true; 2 = not true; 3 = true enough; 4 = true; 5 = very true (inverse item no. 3, 4, 5, 6, 7, 8, 10, 11, 16, 18, 19, 21, 23, 24, 25, 27, 31, 32, 33,34, 39)
Age	1 ≤ 20 years; 2 = 21-30 years; 3 = 31-40 years; 4 = 41-50 years; 5 = 51-60 years; 6 > 61 years
Education	1= until Undergraduate; 2 = Postgraduate
Income	1 ≤` Rp.3m; 2 = Rp.3-5m; 3 = Rp.5-10m; 4 = Rp.10-25m; 5 = Rp.25-50m; 6 > Rp.50m
No. of family	Number of family

Table II.
Research variable

experiential ability which is individual's ability based on intuition and feeling, and experiential engagement which is individual's involvement in making decision based on his or her feeling and intuition. Both groups were searched for their average score on a continuum scale, then used in the ANOVA test. Scale 1 leads to the tendency of heuristic decision-making models and Scale 5 leads to the tendency of rational decision-making models. The test of decision-making model of dual motives is listed in Table IV. Testing of decision-making model of dual motives and Time for Buyer (TFB) is listed in Table V. Testing of decision-making model of dual motives and Family Life Cycle (FLC) is listed in Table VI.

Homogeneity test is performed before ANOVA test on variable of dual motives. Levene statistical motive of ownership (L = 2.685, p-value = 0.103) shows that the data have the same variance (homogeneous). The result of F test on the motive of ownership (F = 3.408; p-value = 0.066) showed that there are statistically significant differences in decision-making model on consumption motive (M = 2.7190) and investment motive (M = 2.6041). Therefore, an individual with consumption motive has a decision model that tends to be rational compared to an individual with investment motive.

Table V shows homogeneity tests on interaction groups of dual motives and TFB (L = 1.035, p = 0.378) shows data have the same variance. F test results in the dual motives and TFB interaction group (F = 1.238; p = 0.297) showed no statistically significant differences in the decision model. Post hoc intergroup tests did not show significant differences in decision-making model. Therefore, the decision model of the individual who buys the first house with consumption motive has no difference than the individual who buys the second house and then with investment motive.

Table VI shows homogeneity test in dual motive interaction group, TFB and FLC (L = 4.331, p = 0.001) show data having unequal variance, therefore, different test using Welch test. The Welch test's result in the dual motives interaction group, TFB and FLC (W = 3,839; p = 0.004) show significant differences in the decision model. Post hoc intergroup test of FHB with consumption motive in younger families (Group 1) was significantly different (p = 0.047) statistically under 5 per cent against second and subsequent home buyers who had an investment motive in older families (Group 6) and not FHB group who has consumption motive in younger families (Group 2) is significantly different (p = 0.003) statistically below five per cent against second and subsequent home buyers who have an investment motive in older families (Group 6) in

	Consumption	Investment
Time for buyer		
First-home buyer	42	13
Not first-home buyer	88	88
Family life cycle		
Younger family	97	51
Older family	33	50
Dual process		
Rational	120	86
Heuristic	10	15
Age		
≤20 years	2	2
21-30 years	53	19
31-40 years	45	31
41-50 years	20	32
51-60 years	10	18
>61 years	0	1
Education		
Until undergradute	112	80
Postgradute	18	21
Income		
<Rp.3m	6	3
Rp.3-5m	30	9
Rp.5-10m	29	15
Rp.10-25m	34	29
Rp.25-50m	17	26
>Rp.50m	14	19
No. of family		
1	27	9
2	33	17
3	29	36
4	24	23
5	13	9
6	5	6

Table III.
Respondents' demographic data

the retrieval model buying decision. Different test results were also found in not FHB group that had an investment motive in younger families (Group 5) against the not FHB group with an investment motive in older families (Group 6) ($p = 0.025$) in the decision-making model. Thus, FHB with consumption motives in younger families tend to have rational decision model than FHB in older families with investment motives.

Discussion

Dual motives vs decision model

Every individual believes his or her thoughts are truly rational; however, bias occurred while processing in rational system because rational system does not provide creative ideas to be created as information resource. When a person reacts to an incident emotionally, the order of reaction will automatically directed to experience system and instantly looking for a memory bank that related to related incident. An individual's memories and feelings

influence the process and the tendency of further behavior; therefore, the experience system has a positive or negative effect on the rational system. That process is proven to occur also in individuals who buy a house. This study proves that buyers who are driven by a factor of necessity; rather than renting a house or living in a relative's/parents' house, will make a purchase on a house. Buyers choose a house with many considerations to be a residence that provides comfort like Koklic and Vida's (2009) research.

Those many considerations are processed in a longer time by collecting much information from parents or relatives, friends or newspaper, brochure or internet. Buyers' experience in searching process for a desired house in a time will affect their experience in another time. Buyers will consider their financial ability such as availability and capability in terms of paying. Numbers of consideration will make buyers tend to use rational system in making decision. Also, buyers with experience in doing property transactions more than once in limited time tend to decide rationally (Frederick and Loewenstein, 1999; Read, 2004).

From investors' point of view, purchasing a house or apartment is portfolio allocation. Investors aim to earn additional income from the lease, to earn profits when the house is later sold (capital gain) and to prefer the property as investment products than other products. The time required to make decision is shorter for investors; through property brokers, home exhibitions and product launching. This media creates the interaction of

Variable	Sum of squares	df	Mean square	Hypothesis	*F*	Sig.
Panel A: Table ANOVA						
Dual						
Between groups	0.751	1	0.751	*H1*	3.408	0.066
Motives						
Within groups	50.458	229	0.220			
Total	51.209	230				

Panel B: Mean					
Decision model	Variable	Categories	Mean	*SD*	*N*
	Dual motives	Consumption	2.7190	0.44616	130
		Investment	2.6041	0.49779	101

Table IV. ANOVA findings for dependent variable in decision-making model for *dual motives*, TFB and FLC

	Sum of squares	df	Mean square	Hypothesis	*F*	Sig.
Panel A: Table ANOVA						
Between groups	0.824	3	0.275	*H2*	1.238	0.297
Within groups	50.385	227	0.222			
Total	51.209	230				

Panel B: Mean				
Decision-making model	Group	Mean	*SD*	*N*
	Consumption, FHB	2.7519	0.41812	42
	Consumption, *Not FHB*	2.7033	0.46043	88
	Investment, FHB	2.5838	0.55295	13
	Investment, *Not FHB*	2.6070	0.49252	88
	Total	2.6687	0.47186	231

Table V. ANOVA findings for dependent variables in decision-making models on variable interaction of dual motives and TFB

Table VI.
ANOVA findings for dependent variables decision-making models in variable interaction of dual motives, TFB and FLC

	Sum of squares	df	Mean square	Hypothesis	F	Sig.
Panel A: Table ANOVA						
Between groups	4.438	5	0.888	*H3*	4.270	0.001
Within groups	46.771	225	0.208			
Total	51.209	230				

	Panel B: Mean			
	Group	Mean	SD	*N*
Decision-making model	Group 1 (C, FHB, YF)	2.7519	0.41812	42
	Group 2 (C, NFHB, YF)	2.7920	0.34744	60
	Group 3 (C, NFHB, OF)	2.5132	0.60363	28
	Group 4 (I, FHB, YF)	2.5627	0.58476	11
	Group 5 (I, NFHB, YF)	2.7805	0.42735	40
	Group 6 (I, NFHB, OF)	2.4720	0.49695	50
	Total	2.6687	0.47186	231

investors and developers or intermediaries, so that the position of investors will be influenced and encouraged to make decisions as soon as possible with "lure" of profits that can be obtained immediately. The influence of spouse, children and friends, even oneself really affects in making decision if it is dominated by emotional factor. As a result, the condition encourages investors to use the experience or intuition system in purchasing houses because problem-solving is made quickly and tends to ignore information, especially in situations with high complexity level, uncertainty and time-pressure (Gigerenzer and Gaissmaier, 2011; Tversky and Kahneman, 1973; Kahneman and Tversky, 1974).

Time for buyer vs decision model

Newly married FHB or married but not yet have children have preferences that are inclined to the motive of consumption, which is the desire to have a house as a place to build a new family and to live comfortably. FHB have a dream to build households independently without being dependent on parents, so FHB seeks information and takes into considerations the house to be purchased for the first time. Decisions are adjusted to the condition of the limited funds they have. Therefore, when FHB makes a purchase, they need more time to think and make comparisons on existing options before they finally decide. Whereas, not FHB are more dominated by investment motives, although second and subsequent home purchases are not always categorized as investment, if it is used as a family asset (Wiens, 2013, June). Financial capability and the high amount of wealth motivate an individual to invest. Repetitive house-purchasing directs not FHB to use experience system compare to their rationality in making decision. However, dual process on TFB cannot be distinguished significantly. Information processing process on FHB and not FHB using rational system and experience system at the same time simultaneously interact (Foxall and Goldsmith, 1994; Campbell and Cocco, 2005; Scanlon and Whitehead, 2010; Epstein *et al.*, 1996).

Family life cycle vs decision model

Group 1, FHB with consumption motive in families of under 10 years old age (younger families) and not FHB in younger families with consumption motive (Group 2) tend to be rational in making purchasing decision compared to not FHB with investment motive in

older families (Group 6). Married families with additional family members are encouraged to purchase a house with considerations; to have one instead of to rent one, are no longer have reasons to stay with parents or insufficient house capacity. Therefore, the purchased house is used as a place to live and live comfortably with the nuclear family. However, in certain cases, parents live together in the house, so the environment around the purchased house is adjusted to the buyers' – and maybe the parents of the buyers – wish.

Purchases that occur by young families aged around 20 years old are affected by their financial condition, which sometimes involve financial support from parents or relatives. The process of product selection and family deliberation takes a considerable time before it is decided. As a result, younger families tend to be rational in making decision. On the other hand, if the financial condition is better, then the family will be at ease to make faster purchasing decisions. Not FHB in younger families with sufficient funds tend to have an investment motive in the property than other investment products (stocks, bonds). They will consider the risks and returns of the houses or apartments they bought carefully because they understand that their experience is still limited, such as planning the cost of moving to a popular area with reputation considerations. While married families of more than 10 years with good financial condition have the ability to accumulate wealth from income earned, the investment motivation is more dominant than the consumption motive. House investment is considered to have prospects in the future if it is located in popular location. Another benefit of house investment is obtaining rent income or higher capital gain due to the popular location (Hutchison, 1994; Seelig *et al.*, 2009; Tan, 2009). Increased knowledge and investment experience allow older families to make better investment decisions by studying risks more accurately and understanding risks and returns relationship in the real estate market that are deemed to be more stable than the stock market better (Fishbein and Ajzen, 1975; Foxall and Goldsmith, 1994). However, the emotional factors that bind older families related to the location and environmental conditions around them; social conditions and personal relationships with neighbors, will lead the older families to act irrational to fulfill their desires. The tendency to live in the environment, the communities they recognize and the proximity of children and grandchildren encourage older families to use intuition in making decisions.

Conclusion

Buyers with consumption motives are more likely to be rational in deciding house purchases than buyers with investment motives, as well as interactions with family stages. Younger individuals or families tend to be more rational in decision-making than individuals or older families who tend to decide heuristics. However, there is no difference at Time for Buyer. Purchasing a house is an important decision in one's life so that decisions are tend to involve parents or relative. The habit of living in a large family structure along with several levels of family structure makes oneself tends to make decisions by involving a deliberative process. However, in families with excellent financial capabilities and no complex family structure, decisions can be personally defined. Research on the behavior of buyers or property investors need to be developed to make the real estate market more efficient. The behavior of buyers or investors who tend to be heuristic needs to be understood further so that government and developers can prevent the happening of bubble market. The risk of loss in dual process of purchasing decision can be suppressed by the developers, the government, as well as the buyers themselves, especially in the availability of fund purchases. Government's control on financing in the property sector plays an important role so that developers, buyers and investors who use loans take rational rather than emotional considerations. The developer can also determine the strategy of selling residentials and apartments according to individual needs at the stage of his or her life cycle.

References

Ahmad, A.M., Ahmad, F., Din, G., Razak, H.A. and Noor, N.A.M. (1999), *Pengantar Pengurusan*, Universiti Utara Malaysia, Sintok.

Arrondel, L. and Lefebvre, B. (2001), "Consumption and investment motives in housing wealth accumulation: a French study", *Journal of Urban Economics*, Vol. 50 No. 1, pp. 112-137.

Arrondel, L., Badenes, N. and Spadaro, A. (2007), "Consumption and investment motives in housing wealth accumulation of Spanish households", Working Paper: Preliminary Draft, pp. 1-24, available at: www.uib.cat/depart/deaweb/webpersonal/amedeospadaro/workingpapers/Arrondel_Badenes_Spadaro.pdf

Bank Indonesia (2017), "Survei Harga Properti Residensial di Pasar Primer: Triwulan I – 2017", Divisi Statistik Sektor Riil, Departemen Statistik, Bank Indonesia, available at: www.bi.go.id/id/publikasi/survei/harga-properti-primer/Pages/SHPR-Tw.I-2017.aspx

Barberis, N. (2001), "Investors seek lessons in thinking", *Financial Times*, Mastering Investment part six, 18 June.

Bargh, J.A. (2002), "Losing consciousness: automatic influences on consumer judgment, behavior and motivation", *Journal of Consumer Research*, Vol. 29 No. 2, pp. 280-285.

Bassett, K. and Short, J.R. (1980), *Housing and Residential Structure*, Routledge and Kegan Paul, London.

Brown, G.R. and Matysiak, G.A. (2000), "Real estate investment", *A Capital Market Approach*, Pearson Education, Harlow.

Brueckner, J.K. (1997), "Consumption, investments motives, and the portfolio choices of homeowners", *The Journal of Real Estate Finance and Economics*, Vol. 15 No. 2, pp. 159-180.

Burns, L.M. (2009), "The effect of the first home owner's grant on the Perth housing market", Thesis of Bachelor Degree, School of Economics and Finance, Curtin University of Technology, Perth.

Byrne, P. and Lee, S. (2003), "The impact of real estate on the terminal wealth on the UK mixed-asset portfolio", Working paper 05/03, Department of Real Estate and Planning.

Cacioppo, J.T. and Petty, R.E. (1982), "The need for cognition", *Journal of Personality and Social Psychology*, Vol. 42 No. 1, pp. 116-131.

Campbell, J.Y. and Cocco, J.F. (2005), "How do house prices affect consumption? Evidence from micro data", NBER Working Paper No. 11534, Massachusetts Avenue, Cambridge.

Case, K.E. and Shiller, R.J. (1989), "The efficiency of the market for single-family homes", *The American Economic Review*, Vol. 79 No. 1, pp. 125-137.

Case, K.E. and Shiller, R.J. (1990), "Forecasting prices and excess returns in the housing market", *Real Estate Economics*, Vol. 18 No. 3, pp. 253-273.

Case, K.E., Shiller, R.J. and Thompson, A. (2012), "What have they been thinking? Homebuyer behavior in hot and cold markets", Cowles Foundation Discussion Paper No. 1876, Yale University, CT.

Clayton, J. (1998), "Further evidence on real estate market efficiency", *Journal of Real Estate Research*, Vol. 15, pp. 41-57.

Corbin, R.M. (1980), "The secretary problem as a model of choice", *Journal of Mathematical Psychology*, Vol. 21 No. 1, pp. 1-29.

Cortesi, G.R. (2013), *Mastering Real Estate Principles*, 6th ed., Kaplan, Inc., Dearborn Real Estate Education, Fort Lauderdale, FL.

De Bruin, A. and Flint-Hartle, S. (2003), "A bounded rationality framework for property investment behaviour", *Journal of Property Investment and Finance*, Vol. 21 No. 3, pp. 271-284.

Diaz, J. III. (1990), "How appraisers do their work: a test of the appraisal process and the development of a descriptive model", *Journal of Real Estate Research*, Vol. 5 No. 1, pp. 1-15.

Diaz, J. III. (1997), "An investigation into the impact of previous expert value estimates on appraisal judgment", *Journal of Real Estate Research*, Vol. 13 No. 1, pp. 57-66.

Edwards, W. (1967), "The theory of decision making", in Edwards, W. and Tversky, A. (Eds), *Decision Making*, Penguin Books, Harmondsworth, pp. 13-64.

Einhorn, H.J. and Hogarth, R.M. (1981), "Behavioral decision theory: processes of judgement and choice", *Annual Review of Psychology*, Vol. 32 No. 1, pp. 52-88.

Epstein, S. (1990), "Cognitive-experiential self-theory", in Pervin, L. (Ed.), *Handbook of Personality Theory and Research*, Guilford, New York, pp. 165-192.

Epstein, S. (2008), "Intuition from the perspective of cognitive-experiential self-theory", in Plessner, H., Betsch, C. and Betsch, T. (Eds), *Intuition in Judgment and Decision Making*, Erlbaum, New York, pp. 23-37.

Epstein, S., Pacini, R., Denes-Raj, V. and Heier, H. (1996), "Individual differences in intuitive-experiential and analytical-rational thinking styles", *Journal of Personality and Social Psychology*, Vol. 71 No. 2, pp. 390-405.

Evans, J.S.B.T. (2008), "Dual-processing accounts of reasoning, judgment, and social cognition", *Annual Review of Psychology*, Vol. 59, pp. 255-278.

Farlow, A. (2004), "UK house prices: a critical assessment", Paper presented at the Credit Suisse First Boston Housing Market Conference, 12 May 2003, pp. 1-22, available at: www.andrewfarlow.com/part1ukhousing.pdf

Farragher, E. and Kleinman, R. (1996), "A re-examination of real estate investment decision making practices", *Journal of Real Estate Portfolio Management*, Vol. 2 No. 1, pp. 31-39.

Fishbein, M. and Ajzen, I. (1975), *Belief, Attitude, Intentions and Behavior: An Introduction to Theory and Research*, Addison Wesley, Reading, MA.

Fishburn, P.C. (1970), *Utility Theory for Decision Making*, Wiley, New York, NY.

Fisher, J.D.M. and Gervais, M. (2007), "First time home buyers and residential investment volatility", Working paper presented to Federal Reserve Bank of Chicago, 29 November, pp. 1-7, available at: www.google.com/search?q=fisher+and+gervais+2007&ie=utf-8&oe=utf-8&client=firefox-b

Fitzpatrick, T. and McQuinn, K. (2007), "House prices and mortgage credit: empirical evidence for Ireland", *The Manchester School*, Vol. 75 No. 1, pp. 82-103.

Foxall, G.R. and Goldsmith, R.E. (1994), *Consumer Psychology for Marketing*, Routledge, London.

Frederick, S. and Loewenstein, G. (1999), "Hedonic adaptation", in Kahneman, D., Diener, E. and Schwarz, N. (Eds), *Well-Being: The Foundations of Hedonic Psychology*, Russell Sage Foundation Press, New York, NY, pp. 302-329.

Gallimore, P. (1994), "Aspects of information processing and value judgement and choice", *Journal of Property Research*, Vol. 11 No. 2, pp. 97-110.

Gallimore, P. (1996), "Confirmation bias in the valuation process: a test for corroborating evidence", *Journal of Property Research*, Vol. 13 No. 4, pp. 261-273.

Galotti, K., Ciner, E., Altenbaumer, H., Geerts, H. and Woulfe, J. (2006), "Decision- making styles in a real-life decision: choosing a college major", *Personality and Individual Differences*, Vol. 41 No. 4, pp. 629-639.

Gigerenzer, G. and Gaissmaier, W. (2011), "Heuristic decision making", *Annual Review of Psychology*, Vol. 62 No. 1, pp. 451-482, doi: 10.1146/annurev-psych-120709-145346.

Gilovich, T., Griffin, D. and Kahneman, D. (2002), *Heuristics and Biases: The Psychology of Intuitive Judgment*, Cambridge University Press, New York, NY and Cambridge.

Goss, D. (2010), "Pathways into first-home-ownership", Refereed papers presented at the 4th Australasian Housing, *Sydney*, 5th-7th August 2009.

Haavio, M. and and Kauppi, H. (2011), "Owner-occupied housing as an investment, regional house price cycles, and residential sorting", Discussion papers, Bank of Finland Research, pp. 1-84, available at: www.suomenpankki.fi/en

Haight, G.T. and Singer, D.D. (2005), The real estate investment handbook, *The Frank J. Fabozzi Series*, John Wiley and Sons, Hoboken, NJ.

Hammond, K.R. (1996), *Human Judgment and Social Policy: Irreducible Uncertainty, Inevitable Error, Unavoidable Injustice*, Oxford University Press, Oxford.

Hardin, W.G. III. (1999), "Behavioural research as an academic pursuit: lessons from other disciplines and implications for real estate", *Journal of Property Investment and Finance*, Vol. 17 No. 4, pp. 333-352.

Haughwout, A., Lee, D., Tracy, J. and Klaauw, W.V.D. (2011), "Real estate investors, the leverage cycle, and the housing market crisis", Federal Reserve Bank of New York, Staff Report No. 514, available at: www.econstor.eu/bitstream/10419/60965/1/668533382.pdf

Henderson, J.V. and Ioannides, Y.M. (1983), "A model of housing tenure choice", *American Economic Review*, Vol. 73 No. 1, pp. 98-113.

Hoesli, M. MacGregor, B. Adair, A. and McGreal, S. (2001), "The role of property in mixed asset portfolios (MAPs)", RICS Foundation, RS0201.

Hogarth, R.M. (1981), "Beyond discrete biases: functional and dysfunctional aspects of judgemental heuristics", *Psychology Bulletin*, Vol. 90 No. 2, pp. 197-217.

Hogarth, R.M. (2005), "Deciding analytically or trusting your intuition? The advantages and disadvantages of analytic and intuitive thought", in Betsch, T. and Haberstroh, S. (Eds.), *The Routines of Decision Making*, Mahwah, Erlbaum, NJ, pp. 67-82.

Hood, J.K. (1999), "The determinants of home ownership: an application of human capital investment theory to the home ownership decision", *Honors Projects*, IL Wesleyan University, Bloomington, p. 71, available at: http://digitalcommons.iwu.edu/econ_honproj/71

Hutchison, N.E. (1994), "Housing as an investment", *Journal of Property Finance*, Vol. 5 No. 2, pp. 47-61.

Ioannides, Y.M. and Rosenthal, S.S. (1994), "Estimating the consumption and investment demands for housing and their effect on housing tenure status", *Review of Economics and Statistics*, Vol. 76 No. 1, pp. 127-141.

Jaffe, A.J. and Sirmans, C.F. (1989), *Fundamentals of Real Estate Investment*, 2nd ed., Prentice Hall, Englewood Clifts, NJ.

Jungermann, H. (1983), "The two camps of rationality", in Scholz, R.W. (Ed.), *Decision Making under Uncertainty*, North-Holand/Elsevier, Amsterdam, pp. 63-86.

Kahneman, D. (2003), "A perspective on judgment and choice: Mapping bounded rationality". *American Psychologist*, Vol. 28, pp. 697-720.

Kahneman, D. and Frederick, S. (2002), "Representativeness revisited: Attribute substitution in intuitive judgment" in Gilovich, D.G.T. and Kahneman, D. (Eds), *Heuristics and Biases: The Psychology of Intuitive Judgment*, Cambridge University Press, Cambridge, pp. 49-81.

Kahneman, D. and Tversky, A. (1974), "Judgment under uncertainty: heuristics and biases", *Science (New York, N.Y.)*, Vol. 185 No. 4157, pp. 1124-1131.

Kahneman, D. and Tversky, A. (2000), *Choices, Values, and Frames*, Cambridge University Press, New York, NY and Cambridge.

Keeney, R.L. and Raiffa, H. (1976), *Decisions with Multiple Objectives*, Wiley, New York, NY.

Kishore, R. (2006), "Theory of behavioural finance and its application to property market: a change in paradigm", Paper presented at the Twelfth Annual Pacific Rim Real Estate Society Conference, Auckland.

Koklic, M.K. and Vida, I. (2009), "A strategic household purchase: consumer house buying behavior", *Managing Global Transition*, Vol. 7 No. 1, pp. 75-96.

Kreibich, V. and Petri, A. (1982), "Locational behavior of households in a constrained housing market", *Environment and Planning A*, Vol. 14 No. 9, pp. 1195-1210.

Kupke, V. (2008), "Factors important in the decision to buy a first home", 14th Pacific Rim Real Estate Society Conference, *Kuala Lumpur*.

Levy, D. and Schuck, E. (2005), "The influence of clients on valuations: the clients' perspective", *Journal of Property Investment and Finance*, Vol. 23 No. 2, pp. 182-201.

McCarthy, K.F. (1976), *The Household Life Cycle and Housing Choices*, The Rand Corporation, Santa Monica, CA.

Mellers, B.A., Schwartz, A. and Cooke, A.D.J. (1998), "Judgment and decision making", *Annual Review of Psychology*, Vol. 49, pp. 447-477.

Meyer, R.J. and Eagle, T.C. (1982), "Context-induced parameter instability in a disaggregate stochastic model of store choice", *Journal of Marketing Research*, Vol. 19 No. 1, pp. 62-71.

Miles, M., Pringle, J. and Webb, B. (1989), "Modeling the corporate real estate decision", *Journal of Real Estate Research*, Vol. 4 No. 3, pp. 47-66.

Monico, M. (2013), "Australian attitudes and behaviours towards buying their first home", RAMS First Home Buyers' Pulse Check Survey 2013, RAMS Financial Group, Sydney, available at: www.rams.com.au/uploadedfiles/content/about_rams/media_centre/2013/rams-first-home-buyers-pulse-check-survey.pdf

Palm, R. (1982), "Homebuyer response to information content", in W.A.V., Clark (Eds), *Modelling Housing Market Search*, St. Martin's Press, New York, NY, pp. 187-208.

Pipkin, J.S. (1981), "The concept of choice and cognitive explanations of spatial behavior", *Economic Geography*, Vol. 57 No. 4, pp. 315-329.

Polic, M. (2009), "Decision making: between rationality and reality", *Interdisciplinary Description of Complex Systems*, Vol. 7 No. 2, pp. 78-89.

Pyhrr, S.A., Cooper, J.R., Wofford, L.R., Kapplin, S.D. and Lapides, P.D. (1989), *Real Estate Investment: Strategy, Analysis, Decision*, 2nd ed., John Wiley and Sons, Hoboken, NJ.

Quigley, J.M. (1999), "Real estate prices and economic cycles", *International Real Estate Review*, Vol. 2 No. 1, pp. 1-20.

Rahman, M.M. (2010). "The Australian housing market: understanding the causes and effects of rising prices", *Policy Studies*, Vol. 31 No. 5, pp. 577-590.

Read, D. (2004), "Utility theory from Jeremy Bentham to Daniel Kahneman", Working Paper Department of Operational Research No. LSEOR 0464, London School of Economics and Political Science.

Ritter, J.R. (2003), "Behavioral finance", *Pacific-Basin Finance Journal*, Vol. 11 No. 4, pp. 429-437.

Robbins, P.S. (2001), *Organizational Behavior*, 9th ed., Prentice-Hall, New York, NY.

Scanlon, K. and Whitehead, C.M.E. (2010), "The economic rationality of landlords", *Housing Economics Working Group, 2006*, LSE Research Online, Copenhagen, Denmark, pp. 1-28, available at: http://eprints.lse.ac.uk/29951/

Seelig, T., Burke, T., Penningar, S. and Morris, A. (2009), "What motivates households to invest in the private rental market", *AHURI Research and Policy Bulletin*, Vol. 115, pp. 1-4.

Seiler, M.J., Webb, J.R. and Myer, F.C.N. (1999), "Diversification issues in real estate investment", *Journal of Real Estate Literature*, Vol. 7 No. 2, pp. 163-179.

Shah, A.K. and Oppenheimer, D.M. (2008), "Heuristics made easy: an effort-reduction framework", *Psychological Bulletin*, Vol. 134 No. 2, pp. 207-222, doi: 1.1037/0033-2909,134.2.207.

Sheppard, E. (1980), "The ideology of spatial choice", *Papers in Regional Science*, Vol. 45 No. 1, pp. 193-213.

Shiller, R.J. (2007), Understanding Recent Trends in House Prices and Home Ownership, NBER (National Bureau of Economic Research, Inc), Working paper No. 13553, pp. 1-46.

Simon, H.A. (1978a), "Information processing theory of human problem solving", in Estes, W.K. (Ed.), *Handbook of Learning and Cognitive Processes*, Erlbaum, Hillsdale, NJ, Vol. 5 pp. 271-295.

Simon, H.A. (1992), "Decision making and problem solving", in Zey, M. (Ed.), *Decision Making: Alternatives to Rational Choice Models*, Sage Publications, Newbury Park, pp. 32-53.

Simon, H.A. (1993), "Decision making: rational, nonrational and irrational", *Educational Administration Quarterly*, Vol. 29 No. 3, pp. 392-411.

Sloman, S.A. (1996), "The empirical case for two systems of reasoning", *Psychological Bulletin*, Vol. 119, pp. 3-22.

Smith, T.R. and Clark, W.A.V. (1980), "Housing market search: Information constraints and efficiency", in Clark, W.A.V. and Moore, E.G. (Eds), *Residential Mobility and Public Policy*, Sage Publications, Beverly Hills, CA, pp. 100-125.

Smith, T.R. and Mertz, F. (1980), "An analysis of the effects of information revision on the outcome of housing-market search, with special reference to the influence of realty agents", *Environment and Planning A*, Vol. 12 No. 2, pp. 155-174.

Snively, S. (2009). "Workshop: After the boom – Where to from here?, What is housing – (consumption good, investment good, asset class, industry, infrastructure) and what role does it play as an automatic stabilizer?, Price Waterhouse Coopers", Reserve Bank of New Zealand, available at: https://repository.digitalnz.org/system/uploads/record/attachment/421/what_is_housing____consumption_good__investment_good__asset_class__industry__infrastructure___and__what_role_does_it_play_as_an_automatic_stabilizer_.pdf

Spanier, G.B., Sauer, W. and Larzelere, R. (1979), "An empirical evaluation of the family life cycle", *Journal of Marriage and Family*, Vol. 41 No. 1, pp. 27-38.

Stanovich, K.E. and West, R.F. (2000), "Individual differences in reasoning: implications for the rationality debate?", *Behavioral and Brain Sciences*, Vol. 23, pp. 645-726.

Tan, T.H. (2009), "Homeowning motivation in Malaysia", *Journal of Accounting-Business and Management*, Vol. 16 No. 1, pp. 93-112.

Tversky, A. and Kahneman, D. (1973), "Availability: a heuristic for judging frequency and probability", *Cognitive Psychology*, Vol. 5 No. 2, pp. 207-232.

Wiens, C.E.T. (2013), "The experts: should you think of your house as an investment?", *The Wall Street Journal*, available at: www.wsj.com/articles/SB10001424127887323949904578538012957595402 (accessed 27 November 2016).

Witteman, C., van den Bercken, J., Claes, L. and Godoy, A. (2009), "Assessing rational and intuitive thinking styles", *European Journal of Psychological Assessment*, Vol. 25 No. 1, pp. 39-47.doi 10.1027/1015-5759.25.1.39.

Wofford, L.E. (1985), "Cognitive processess as determinants of real estate investment decision", *The Appraisal Journal*, July, p. 393.

Wolverton, M. (1996), "Investigation into price knowledge induced comparable sale selection bias", Doctoral thesis, Georgia State University, Atlanta, GA.

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