INTANGIBLE BEHAVIOURAL MODEL OF UNCERTAINTY IN PROPERTY VALUATION

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ABSTRACT

Instead of many plausible scientific and quantitative approaches to arriving at final valuation opinion, there is still a paucity of studies on the intangible 'art' of valuation, particularly pertaining to psychological and behavioural aspects of Valuers that influence the validity and uncertainty of property valuation. This study aims to identify and formulate the influences of intangible behavioural elements of uncertainty in property valuation, leading to the construction of intangible behavioural model of uncertainty inherent in property valuations which ultimately may reduce the uncertainty of property valuation. A phenomenological-case-study based focus group discussion with 10 experts was conducted. The model discovered that local Valuers are subject to various interwoven behavioural uncertainties in making their valuation judgement, of which the proposed solutions appear viable to curb them. The model provides policy insights to Valuers, academicians and market about the importance and understanding of behavioural property economics, aside from science aspect, especially in addressing the local property valuation status quo.

Keyword: Behavioural uncertainties; Property valuation; Intangible behaviour; Valuation judgement

1. Introduction

Traditionally, property disciplines are inescapable from applying rationalist (normative) approach / neo-classical economics and expected utility theory. It reposes on three basic assumptions (Mullainathan and Thaler, 2000). People are assumed to act independently based on full and relevant information, have rational and correct preferences among outcomes that can be identified and associated with a value, and firms are assumed to optimise decisions by profit maximising while individuals seek to maximise their utility. However, particularly in the property valuation and investment, it appears to negate these assumptions. Studies on the property valuation and investment demonstrate that judgements can be sub-optimal, and considered as irrational behaviour, a view supported by the findings of MacCowan and Orr (2008), Kucharska-Stasiak (2013) and commentary of Warren-Myers (2015). Hard information in fluctuating and illiquid markets and on property's heterogeneous legal and physical characteristics (spatial planning and legal requirements) are not always perfect, symmetric, up-to-date, accurate, reliable, adequate and available thus, high transaction cost (searching information) is resulted. There is evidence to suggest that property Valuers are exposed to various assumptions / speculation, emotional uncertainty, bounded / non rationality, heuristics and cognitive biases and errors, negligence (misconduct) and other behavioural issues, which include that their valuation patterns tend to follow trends and client's influence, in making valuation decision (see Iroham et al., 2014). Thus, research into such problem of uncertainty (symptom of error) is indicative of the emergence of new trends in valuation, especially pertaining to subjectivity of behavioural interaction. That is, Valuers are required to take into account the foregoing subjective behavioural interactions of market actors, including themselves that exhibits low efficiency and unobjectivisation of valuation, which thus ensue in low accuracy and precision of valuation as well as in high discrepancies between multiple valuations although on the very same property. Such problems, i.e., compounded behavioural uncertainties (biases) that lead to systematic errors are imperative to be tackled as they result in loss of investment and confidence of clients (see Naridtanan and Fredric, 2014). Kucharska-Stasiak (2013) asserted that behavioural valuation issues are inevitable as mathematical calculation will eventually rely on subjective interpretations and other behavioural uncertainties of Valuers who will make appropriate adjustments and assumptions in the valuation models (see Crosby, 2000). Thus, one must accept that valuation (estimation) is not a pure science, but rather, the value is predominately derived from art or soft aspect compared to science (Crosby, 2000; Warren-Myers, 2015), which has potential for inaccuracy, variation and bias that are responsible on the context of a Valuers' behavioural uncertainties (see also Damodoran, 2006[1]).

While there is substantial and growing research on 'science' methodological analysis model and tangible comparables and input parameters selection in property valuation validity, the descriptive 'art' behavioural property valuation uncertainty is often neglected or still in its infancy, particularly pertaining to how property Valuers' subjective decision-making process contributes to inaccuracy and uncertainty of valuation. Studies by Kucharska- Stasiak (2013), Lowies et al., (2013), Whittle et al., (2014), Iroham et al., (2014) and Warren- Myers (2015) acknowledge this gap and they recommend further research into the need of behavioural uncertainties of Valuers in property valuation.

[1] Valuations is not a fact (RICS Professional Standards) or a true value as they are all unavoidably biased. The questions are how much and in which directions..

This is particularly true for local context as by far there is no single behavioural valuation research undertaken. Thus, to make the study more feasible, in which conventional normative valuation alone will never suffice especially for the local valuation status quo, this exploratory-descriptive paper aims to revise the notions embedded in the neo-classical theory as well as to transcend the "science" tangible aspects of valuation by introducing a more comprehensive set of intangible behavioural economics theory and psychological dimensions[2] to the local property valuation decision-making processes, after considering the fact that only anchoring, adjustment heuristics and some other limited types of cognitive biases have been studied in this line in earlier research (see Gallimore, 1994, 1996, 2004; Gallimore et al., 2000; Gallimore and Gray, 2002; Diaz, 1990, 1997; Diaz et al., 2002, 2007; Iroham et al., 2014). This research, in short, can be entailed as behavioural property (see Salzman and Zwinkels, 2013) or more precisely, behavioural valuation research (see Gallimore, 2004).

By delving into the area of behavioural valuation of property, this qualitative study attempts to formulate an intangible behavioural model that encapsulates the following objectives: (i) to investigate the intangible Valuers' behavioural uncertainties and their influences in property valuation; and (ii) to suggest solutions in order to curb the intangible psychological and behavioural uncertainties in property valuation. More specifically, the study seeks to answer the following questions:

a) What are the behavioural uncertainties that may influence the Valuer's decision- making in property valuation?;
b) How and why those intangible uncertainties (behavioural components) influence the Valuer's decision-making in property valuation? That is, under what circumstances/ conditions trigger the Valuers to be subject to the behavioural uncertainties?; and
c) What is the possible solution inherent in property valuations and how does it contribute to reducing the uncertainty within the property valuation?

Hence, in undertaking this research, the study can bridge the gap by contributing behavioural economics and psychological knowledge and insights to the field of property valuation research. Although it may appear that the above inaccuracy and high discrepancy / inconsistence of values problems are inherent in the valuation process, this transdisciplinary understanding of the underlying descriptive behavioural causes, along with non-experimental qualitative methodological approach, may help to, at least, counteract them (where possible) and enable a different and wider perspective on valuation figures by providing deeper understanding and explaining rationale behind it, i.e., the complex way in which Valuers make their decision. Thus, the issues of accuracy and uncertainty of valuation have theoretical, methodological and practical implications. They are of particular significant in emerging markets and vacant land, where objectivisation via information availability and comparison methods, seems to be more difficult (Salzman and Zwinkels, 2013).

[2] In fact, studies on heuristics and biases in judgments under uncertainty can be traced to the works of cognitive psychologists (such as Kahneman and Tversky, 1981, 2000; Slovic and Lichtenstein, 1971; Tversky and Kahneman, 1974; Simon, 1978). This idea was relatively late emerging in valuation field, until Ratcliff's (1972) followed by Diaz's (1990) works. Certainly, there are other types of behavioural aspects that will be further reviewed in the literature review section

The paper is structured as follows. Section 2 begins with a literature review, in which it analyses behavioural economics theories and psychological literature. This covers various types of behavioural uncertainties and their application to property valuation process and final figure decision. The examination is used to develop relevant theoretical and conceptual frameworks that underpin the research conducted. Next, in section 3, it continues with a full description of the qualitative research methodology used to gather and analyse the sampled respondents' data on their perceptions, experience and facts for the posed research questions. While a detailed set of results and findings are presented in section 4, discussions of the results are shown in section 5. Finally, section 6 presents the conclusions, implications and recommendations of the research.

2. Descriptive Model: Behavioural and psychological uncertainties in property valuation

Behavioural instincts change the decision-making of economic agents in many different situations and environments are presented accordingly. This paper analyses and conceptualises psychology and behavioural economics theoretical framework in property valuation discipline, which its literature mainly adopted from behavioural finance and investment of property and stock markets as well as little from property valuation (see Whittle et al., 2014). These cover MacCowan and Orr's (2008) fund management and property disposal and other types of property transactions instances that associated with behavioural disciplines, Gallimore's et al., (2000) small company's property investment, Salzman and Zwinkels' (2013) corporate and household housing investment and valuation, Naridtanan and Fredric's (2014) property valuation and investment confidence, Baum's et al., (2000) valuation bias and client influence on commercial property and so on. Succinctly, despite the various scopes of properties, mainly these behavioural uncertainties are reviewed as follows that include biases, heuristics, satisficing effects, client influences, ethics/ professionalism and negligence. This considerably confirms Diaz and Hanz's (2007) four lines of inquiry in behavioural valuation, which emphasised on (i) departures from normative models, (ii) comparable sales selection, (iii) valuation biases (see Sherin, 2002), and (iv) agency-related impacts or feedback.

a) Biases and Heuristics

Issue of Valuer's misjudgement has often been attributed to the adoption of cognitive heuristics habit (Diaz, 1997; Gallimore, 1996). Heuristics is the use of simplifying cognitive shortcuts in solving complex problems (making decision) (Simon, 1978). As complexity and detailed information increases, people prefer to use heuristics to eliminate alternatives, often with just a limited amount of information search and evaluation (Gallimore et al., 2000). This can ease the Valuers' time and effort (less transaction cost of searching and information) in making valuation decision. However, Hogarth (1981) acknowledges the potential biasing effect of heuristics (Diaz and Hansz, 1997). Heuristics or biases are of various types: representative heuristic, availability heuristic, anchoring and adjustment heuristic (Tversky and Kahnemann,1974), and positivity/ confirmation heuristic (Evans,1989).

Tversky and Kahneman (1973) indicates that a person evaluates the frequency of classes or the probability of events by availability; i.e., by the ease with which relevant or more making sense instances come to mind" (Tversky and Kahneman,1973, p. 207).

Quan and Quigley (1991) show that Valuers make use of their memory, past successful and unsuccessful experience, lesson, belief/ philosophy, principles, preferences, perception, intuition, sentiments, interpretation, and human capital (prior knowledge/ expertise), when valuing property. The information via metacognition is easily available and retrieved compared with macroeconomic, market and property specific data. For example, Valuers will choose the most recent information or the information most easily and vividly recalled or obtained (Baum et al., 2000; Diaz et al., 2002). This recency biases/ anchoring is based on 1 or 2 examples, rather than on the basis of how frequently the event has actually occurred. This includes unclosed contract prices on subject and comparable properties. The availability heuristic is closely related to the confirmation/positivity bias and anchoring, and other types of behavioural biases as presented in the following sections.

Next, representative heuristic is similar to stereotyping. A Valuer classifies an event or object with others of a type that they are familiar with. Lessons are learned from experience and assumptions are made that the valuation is the same as that seen elsewhere. As contented by McCowan and Orr (2008), it is suggested that valuation decisions are biased towards the markets that the Valuers are more familiar with and hold good-quality data; thus, using them to stereotyping other similar properties, which this incurs inaccuracy of decision. This also applies to herding behaviour or cascade effect, which reconciles herd behaviour with the rational-choice approach. It induces one to decide on the "feel" of the herd by relying on their valuation information rather than on rigorous independent analysis and private information, which is easier and cost and time saving. It is because they are concerned of what others think of their valuation decisions; imitating their decision makes them felt that their valuation is more validly acceptable and correct. This tendency is accentuated in the case of decisions involving high uncertainty, such as pricing of heterogeneous assets in residential property (e.g., vacant land or commercial/ industrial assets) or technical knowledge.

The third heuristic is anchoring and adjustment bias. Valuers tend to solve problems by forming a-priori value estimates as a reference of what the answer/ standard might be (Iroham et al., 2014). Adjustment process to the initial starting estimate is generally insufficient and lead to bias that may cause Valuers to underestimate or overestimate the actual market value. Aside from the Valuer's own knowledge and experience (see availability bias), this anchoring/ benchmarking process can be performed through personal contact of experts' opinion (other Valuers (colleagues)/ property agents, negotiators as informers) (see Yiu et al., 2006; McCowan and Orr, 2008; Salzman and Zwinkels, 2013) via asking price technique (see Diaz et al., 1999), be based on uncompleted contract price of a comparable property, news media or advertisement which can be deemed 'noise trading' (see Shiller, 2002) and anchored onto their previously appraised values/ transacted price for similar property (see momentum effect) (see Clayton et al., 2001; see also Gallimore and Gray, 2002). A semi-rational model shows that property Valuers are often over-confident byoverreacting when the informer's private information is confirmed (Wang et al., 2000; Salzman and Zwinkels, 2013). For instance, an interesting fragment of story provided by Valuers' contact of market information is more memorable than the routine market information. This ease of recall also adds a false impression of importance or frequency for that information, giving an erroneous interpretation of the market (Gallimore et al., 2000). Another biased phenomenon

is Valuers are often influenced by sensationalist news headlines or advertisement. This is deemed social epidemic (momentum effect) (Salzman and Zwinkels, 2013). At times, media or public's urges exaggeratedly intensify recent property price hikes or market boom, which consequently induce irrational exuberance of some Valuers to overreact by following the trendy popularity. Similar to representative bias, Hansz and Diaz (2001) show that the bias is even stronger, especially for expert Valuers working in unfamiliar markets (e.g., location of property).

The fourth heuristic, the positivity/ confirmation bias, was identified when Evans (1989) noted that humans have a fundamental tendency and strategy to seek information consistent with their current presupposition, beliefs, principles or philosophy, and avoid the collection of potentially falsifying evidences, although the latter are valid. In this regard, it is suggested that Valuers look for ways of confirming their individual perceptions of valuation, which can be linked to Valuer's attitude issues. In general, people tend to not adjust their expectations easily because they look around for a logic which explains and reinforces their beliefs. Salzman and Zwinkels (2013), Gallimore (1994) and Baum et al., (2000) evidence that Valuers tend to eliminate or underreact to negative evidence and facts than to evidence that supports their existing view. This bias may also lead Valuers to manipulation and adjustment of existing information just to fit in and confirm their ways (Havard, 2000) (see also opportunism issue of Williamson, 1975). This can be reasoned that since they have self-selected into a property oriented profession or other possible attitudinal issues (pride and reputation), they may have a deep-seated affinity for property valuation; thus, it is unlikely for them to reject their own worldview.

By virtue of the above implications of interwoven biases and heuristics, more alternative behavioural patterns of Valuers' satisficing effect, overconfidence (optimism) and subjective selection along with the respective instances are showcased as follows. Satisficing is a process by which a Valuer, in selecting a course of action, takes the first opportunity that meets the minimum criteria. The search for alternatives then ceases, even though there is no time pressure or strict deadline imposed by client (Gallimore et al., 2000). This can be associated with conservatism bias, in which conservative Valuers were found to be unwilling to change their opinion on prices of residential property assets. Senior Valuers were unwilling to incorporate new information which is relevant although the market had changed. Most of them were of the opinion that the decisions made in the past (experience) were the major basis of decision making process by the senior Valuers instead of current market analysis. Next, over-confidence is, just like over-optimism, a bias that originates from a mental illusion of control and knowledge and possibly from other forms of aforesaid biases (herding bias, personal internal anchoring). This includes hindsight bias, which is considered as availability bias. Meaning that Valuers think they knew certain events (property prices) in advance. Such over-confident/ oversimplying behaviour refers to an underestimation of risk. Due to arbitrary reference point, from the speculative perceptions and vast experience (historical decisions) and reputational establishment, sophisticated and experienced Valuers are likely

to be overconfident in their own ability to judge asset values by ignoring current information in their analysis (Salzman and Zwinkels, 2013). As emphasised, selection of data from the same database source for valuation is not a mathematical exercise, but a heuristic process of Valuers' subjective preference or professional intuition and gut feeling (Klein and Kahneman, 2009), that could be derived from the above biases (systematic errors, e.g., herding, anchoring and availability) and mainly from random deviations[3] or client's influences, who eventually select market/ macroeconomic data and comparables input on their own (see Mallinson and French, 2000; French and Gabrielli, 2003; Kucharska-Stasiak, 2013), without being able to provide detailed justification of how they choose and weight the parameters or define the necessary adjustments for comparables. In light of those biases and random deviations inherent in self- selecting process, large discrepancy or variation of valuation may result not only from the choice of different market and comparables (property) input data (e.g., its location), but also from the valuation principles/ assumptions (potential of property in terms of tenure of holdings whether it is based on unexpired term or whether it is based on existing use or future use) and methodological analysis techniques. For instance, although same macroeconomic and property input data are provided to Valuers, such uncertainty or subjectiveness results which involves whether to apply the income model (constant in the capitalisation method and variable in the discounted cash flow analysis) or investment or comparison methods, especially for commercial and office buildings (Smit and Vos, 2003) and the actual calculation process (e.g., the manner of incorporating exogenous data and accounting for rental value growth, vacancy rate, yield and property conditions) (see Havard,2000)

b) Negligence, professionalism and misalignment of interest

Biases (i.e., being subjectively selective) in valuations cannot be explained by heuristics alone as another behavioural uncertainty found is negligence of Valuers (whether intentionally or unintentionally). Negligence could also be induced by the above heuristics and biases. At times, a Valuer, in arriving at his valuation, has simply miscalculated or wrongly calculated and reported the area of the holding, or failed to make a thorough site/ property inspection; thus, overlook important comparables features and market data or missed to make allowance for some item of expected future expenditure and many more, and that such a discrete error or omission can be shown in the erroneous valuation report, which have subsequently led to an over or under valuation to a specific degree (See Mallinson and French, 2000; Crosby et al., 1998; Crosby 2000 on case laws of valuation negligence). However, such carelessness, the mala fide one, is deemed unethical or unprofessional behaviour of Valuers who are discovered that they are likely to overstate the defensible property value (Levy and Schuck, 1999; Naridtanan and Fredric, 2014). Unethical/ unprofessional valuation is also related to issue of misalignment of interest (perverse incentives) that causes moral hazard[4] (Cho and Megbolugbe, 1996). As Levitt and Dubner (2005) explain the roots of misalignment, it could be due to information asymmetry.

[3] By far, there is no rules or standard of procedures dictate the qualification and selection of market and property data as well as valuation analysis techniques; thus, such deviation is inevitably necessary.

[4] Such conflict of interest can occur within principal-agent issue. If the valuers' objectives and interest differ from the principal/ client, then the former may take advantage of the unobservability of actions to pursue his/her own ends' (Molho, 1997). In other words, this is an act of self-interest and

Oftentimes, Valuers (often an expert) are better informed and more informative and knowledgeable than their clients who are laypersons; thus, the former tend to opportunistically overstate the value of a property because of their incentive to set the appraised value to be equal to or greater than the transaction price, which that increases their revenues (see Naridtanan and Fredric, 2014). The moral hazard could be resulted due to undue institutional and political intervention (regulatory requirements) surrounding the property appraisals, which imposes a heavy burden of proof for low appraised values on public Valuers (Baum et al., 2000). Such political information, which favours government and public Valuers, for low values is unfair to their clients who are not aware of the internal political decision for undervaluation (information asymmetry). As the self-interested (unprofessional) government Valuers have no position and authority to reject their top management's decision if they wish to safeguard their valuation job, albeit ethically it could be right to do so if the call for undervaluation is not bona fide, they have to succumb to it; thus, this is a conflict of interest, i.e., the public Valuers should not be the appropriate agents for that valuation. Besides, unethical conduct and moral hazard in valuation involves the Valuers accommodating the requirements of a specific client instead of being an impartial, objective and independent Valuer (Amidu and Aluko, 2007) (see below on agency issue).

c) Client influences

Client influence or pressure is another behavioural uncertainty depicted in property valuation. Uncertainty of whether a Valuer subjects himself to the principal-agent moral hazard is posed. This is a summary of factors affecting client influence on the valuation outcome. These include (i) client type- sophisticated, individual/ institution client, (ii) procedural (methodological) influence, (iii) integrity of Valuers, (iv) age and experience of Valuers, (v) size of valuation firm, (vi) client size (firm and income generation) and their relationship and so on (see more Levy and Schuck ,1998, 2005, Kamalahasan, 2013 on client influence model in property valuation).

However, only several circumstances along with instances are discussed as follows. Such agency issue arises because there has emerged a 'mutuality of interests' (win-win situation) between Valuer and client, in terms of economic dependence and/or the provision of non-auditing services by the valuation firm (Baum et al., 2000). Generally, various types of clients (developer, bankers, chargor) pressure the Valuers by requesting or forcing them to alter the value estimates in order to meet the clients' expectation (Kinnard et al., 1997; Wolverton and Gallimore, 1999), even without supportive documentations. For instance, Valuers are being pressured by banks to inflate the value of homes (Rothacker, 2008) as this allows lenders to make bigger loans. This is similar to developer's intention for upward value in order to get more funding purpose.

As Gallimore and Wolverton asserted, rather than independently assessing the property value, Valuers are merely to validate or confirm the pending price. Pressures come in various forms. Levy and Schuck (1999) found that both sophisticated pressure, based on the use of property and market knowledge and information (process of valuation including

changing valuation purpose, addition and omission of input parameters or comparables and other transaction data, e.g., emphasising subject property's positive attributes, withholding negative information), and unsophisticated pressure, based on the threat of withholding and delaying fee payments or future assignments, were encountered by Valuers. Typically, client's size matters; the bigger the client in terms of firm and amount of fees given, the more likely are Valuers to revise their initial value to fit their client's demand. This is an acceptable practice and rational to safeguard business relationship as well as for future instructions. However, there are instances where neither client size nor the level of value adjustment influence the Valuer's decisions (Worzala et al., 1998). Such resistance of influence is not impossible and lesser, if firm integrity and high professionalism of Valuers, and large-size (established) and multi-service valuation firms with less economic dependence on clients are observed (see Kamalahasan, 2013 for other contributing factors).

Therefore, aside from suggesting different types of behavioural biases discovered in valuation and they are interrelated, at least in qualitative manner (e.g., herding behaviour and overconfidence issue), it is also illustrated that the client's influence (conflict of interest), ethical issue, heuristics, and negligence are deemed or linked to biases, due to their adverse selections made. All these biases/ moral hazards can ultimately be associated with self-interest or opportunism concept (see Williamson, 1985). That is, by virtue of personal interest (less transaction cost, i.e., less time and effort required), whether intentionally, Valuers may rather subject to unprofessionalism by choosing to dwell in their convenient and quick subjective experiential and opinionated assumption or even by succumbing to client's pressure than further searching mathematical evidences for justifying the property valuation.

2.1 Conceptual framework

To grasp one of the intentions of this paper, a conceptual (operational) framework (see Figure 1) that derived from the above underlying theoretical framework is demonstrated as follows. Apart from presenting diverse behavioural uncertainties involved in valuation, a nexus, which showcases an interconnection between the poor/ imperfect market and property input data, Valuer's intangible behavioural uncertainties involvement and inaccuracy and inconsistency of property valuation. In other words, the real inevitable bounded rationality issue on market and property input data that creates uncertainty subjects the Valuers' assumptions to their various behavioural and psychological uncertainties/ biases in biasedly justifying the property valuation (process and figure). Consequently, this is detrimental to valuation validity and reliability.

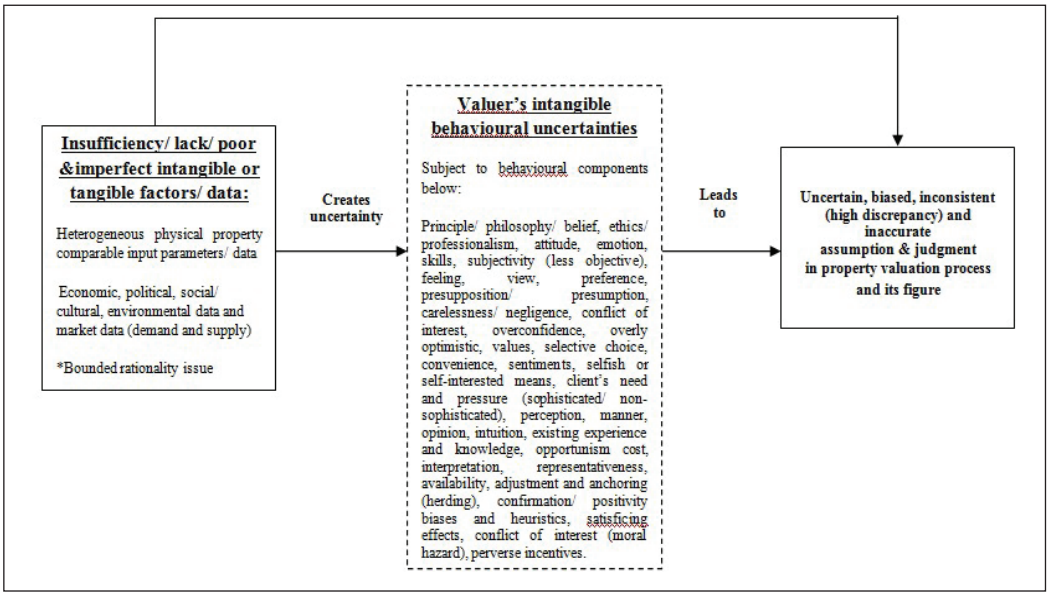

Figure 1: Behavioural Uncertainties in Property Valuation

Behavioural uncertainty approaches

There are approaches recommended by several studies in improving the valuation validity and discrepancy issues, in which some are relevantly useful at curbing behavioural uncertainties of Valuers. As merely ensuring Valuers to have high qualifications and experience will not eliminate the valuation uncertainty in terms of random deviations, one should seek to eliminate the systematic (behavioural) ones (Kucharska-Stasiak, 2013). These behavioural and psychological factors are necessary to be identified, compiled and made aware to Valuers. As Hardin (1999) posited property valuation theory and the task environment (empirical) should be integrated so that it can be investigated whether incorrect valuation exists because of insufficient knowledge, or other reasons. Through the root cause investigation, one can have know-how to manage each of the issues.

There should be a specific procedural guidance and rules on the recording of occasions when a Valuer discusses the outcome of the valuation with the client or any other interested party in the RICS red book. This includes the standards of best practice and minimum requirements for the conduct, monitoring and recording of draft valuation meetings designed to show what information was produced by the client which might influence the value derived, and how that information was used to influence, or otherwise, the final valuation figure (Kucharska-Stasiak, 2013). Also, aside from obligating professional ethics course in valuation (Hoyt et al., 2002), a new independent oversight body and code of conduct to remove undue influence (moral hazard) from the valuation process is necessary; emphasising the application of more stringent penalties for violating professional ethics regulations of property Valuers. Penalties include formal caution, note of warning, suspension of certification, and certificate withdrawal.

To reduce the discrepancies between valuation, an idea of margin of error (bracketing) with widely acceptable value range of 10%-15% should be introduced and enforced in the Red Book (Crosby et al., 2011; see also Kucharska-Stasiak, 2013). Provided that the process of deriving the final figure (i.e., methodology or calculations) is invalid, if the estimated value out of the bracket range, it acts an evidence of negligence and incompetence (Crosby et al., 2000). To limit valuation discrepancy, national valuation standards and policy should also provide for the measurement and reporting of valuation uncertainty, especially abnormal uncertainty. The standards should specify methodological analysis and standardise input parameters and comparables selection in a more exact and consistent manner for certain properties so that it could not be freely interpreted and arbitrarily chosen, thus limiting discrepancies arising from inconsistent assumptions concerning, e.g., the manner of accounting for rental agreements, the vacancy rate, the valuation models used, the manner of arriving at the yield and so on (Crosby, 2000; Francis,2012). Such consistency and standardisation can also be substantiated via tribunals and courts institutions (as third party), in which it constitutes the expert witnesses (external Valuers) who determine the hearing over valuation validity; if a Valuer strays from the experts' verdict, this will be found negligent (Baum et al., 2000). Lastly, espousing other countries' best practices of valuation are necessarily important for improvements and ideas as the International Valuation Standards promote the development of the valuation profession and best practices around the world such as Australia, France, Germany, Italy, Netherlands, the UK, and Spain (see Hordijk et al., 2011) and cooperates with other organisations concerned with standards and regulation.

3. Methodology

As indicated earlier, the main research design adopted by this transformative (advocacy) qualitative action research (Waterman et al., 2001) was phenomenological case study (Yin, 2003) and its data collection method was one-day focus group discussion (Gill et al., 2008; Liamputtong, 2009). While such research strategy was suitable, especially to study in depth experiences, perceptions or opinions of experts as well as facts pertaining to the above research questions, the discussion technique is to understand meanings and interpretations of the group people in order to gain an understanding of a specific issues from their perspectives. This discussion is likened to group interviews, in which it involved both registered and non-registered ten (10) Valuer experts from Johor Bahru district, Malaysia.

Those expert Valuers were identified from The Board of Valuers, Appraisers, Estate Agents and Property Managers Malaysia and Malaysian Institute of Professional Property Managers database. The researcher directly contacted them via invitational email and phone call to enquire their willingness to undertake in the discussion[5]. The choice of the Johor Bahru town in Malaysia is due to the major and active/ diverse valuation operations being carried out for rapid property development and dealings. The Valuers consisted of both government and private sectors, although most of them represented local government and one from government institution and some from private firms. Besides showing their keen involvement in property valuation, management, investment and sales in heterogeneous properties (commercial, residential, industrial, agricultural and vacant land or mixed development) and scopes of work, be it corporate or individual valuation (such as loan, sales, rental, mortgages/ charges, investment, acquisition, etc.), they are also considered highly experienced and qualified due to their educational background, professional affiliations and positions in their organisations, namely senior/ deputy and branch managers or directors.

The issues of behavioural uncertainties are associated with various stakeholders (clients), e.g., bankers, sellers or buyers (land owners, property developers and managers) and so on. Next, altogether eight questions posed were in semi-structured form, begin with the exploration of Valuers' behavioural uncertainties that includes biases and end with the recommendations of valuation issues. A review of the literature identified the topic areas to be probed and the questions to be asked during the discussion (see content validity). Also, face validity (validated by peers) on the interview questions were carried out. The discussion was chaired and facilitated by the author (as moderator) and was carried out at a hotel's conference room. Including ice-breaking session, introduction (i.e., briefing of problems and aims of study) and breaks, it has lasted for about 3 hours (from 9am to 12pm), in which the discussion was voice recorded and field noted for transcribing purpose. Although there is no rule of thumb (magic number) for qualitative non-probabilistic sampling, the optimum size for a focus group is six to eight participants (excluding researchers). This is consistent with Bryman's (2008) and Guest's et al., (2006) argument that 10 experts are considerably acceptable, since themes concerning common views and experiences are garnered among relatively homogeneous people. It was sampled via purposive expert samplings, i.e., after few experts' responses gained, the researcher then asked their favours to recommend other relevant respondents perhaps their colleagues who also involved in this area (see Macmillan and Schumacher, 1997 on snowball and reputational sampling).

Thus, via the total of 22 content thematic (coding)[6] analysis and five categorisation[7] on the transcript, which derived abductively (i.e., deductively and inductively), the following section selectively reported the results and their main interpretations (i.e., findings) below. Along with the respective findings, two types of results presentations: some textual and diagrammatic (codes and categories) mind-mapping forms generated were illustrated accordingly to address the posed objectives and research questions. To ensure the research credibility (rigour) and dependability, especially dealing with the large and complex dataset, Atlas.Ti software was used during transcribing, analysis (coding process, relationships between codes and among the categories) and result generating processes.

[5] Out of few attempts, there were some rejections due to inappropriateness of date and time of discussion. However, for those experts were willing, before the formal and actual discussion, a list of questions was sent to them via email so that they can be more familiar with the scope of work required and be ready for the discussion.

[6] There are 15 thematic codes on the behavioural uncertainties of valuers, whereas 7 codes on recommendations of the behavioural issues. The entire coding process was executed by one same researcher alone. This was considered sufficient (see Campell's et al., 2013) as intracoder is more suitable in this qualitative sense (i.e., superficially reviewed (re-assignation of codes) by the researcher for the 2nd time (see Searle, 1999).

[7] There are 4 categories on the behavioural uncertainties of valuers (such as biases and client influence) and 1 category on recommendations of the behavioural issues.

4. Results and Findings

(i) Intangible Valuers' behavioural uncertainties and their instances in property valuation

Generally, there are various intangible uncertainties of Valuers' psychological and behavioural biases involved in property valuation. These include: subjective preferences, overconfidence (optimism), past experiences for stereotyping, recency effect, existing knowledge, understanding, common-sense rules, and memory, opinions/ views/ principles/ beliefs, feeling/ intuition, anchoring and adjusting, satisficing, and herding behaviour, ethical issues which involve carelessness/ negligence, and both sophisticated and unsophisticated client influence either in valuation process or its final figure. Also, Valuers' decision may likely be subject to various institutional and political setting (government intervention) that bring issue of conflict of interest against the clients, carelessness/ negligence as well as subjective selection/ preferences are the two most mentioned Valuer's behaviour.

Local Valuers tend to ask around or obtain current market values of some property predominately from public Valuers (as a major market regulator) and some from their colleagues (private Valuers, bankers and real-estate agents), to use it as reference and benchmark. From there, some subjective adjustment is performed. Such anchoring or following-other-Valuers behaviour (herding issue) makes some private Valuers feel more certain and correct about their assumption in their valuation (less deviation from other Valuers), since most of the Valuers arrive at the similar values.

Also, although it is not rampant, the issue of recency occurred, whereby the Valuers are biased toward or tended to follow/ anchor the current unique market trend that stimulated by foreign investment, instead of overall and historical market of the property. Some Valuers are overly engrossed in that recent and specialised market that suddenly booms and have based on it to justify the nearby local residential valuation. Apparently, this may not truly reflect the local property market value.

Most of the local property valuations involve one common technique, i.e., comparison method. Due to less application of other techniques on certain properties (vacant land) such as investment or discounted cash flow method and typicality and frequent use of the comparison method, most of the Valuers subjectively choose this method, which is easier and convenient to be employed on residential properties. Meaning that, due to their frequent application, they tend to use it together with some typical and often used input parameters/ comparables. Valuers who have been used to standard comparables (input parameters) and procedures of valuation which are considered sufficient or 'good enough' in the sense that it is justifiable and logical that observed normal valuation practice, they may not attempt to search other relevant or unique data or comparables for that similar property valuation.

In addition to the subjective selection or preference issue, Valuers' choice on methodology and inclusion of input parameters (comparables) are highly biased. In other words, despite the practice and some general guidelines on valuation, since valuation requires discretion and judgement of a Valuer, subjectiveness is unavoidable; thus, selection and inclusion of data and methodology can be rather widespread among Valuers. More importantly, such subjectiveness is permissible as long as it does not go against the norm or practice of

valuation, since so far, no specific guidelines or laws and policies to address the issue. For instance, with similar methodology (comparison method), two different Valuers included quite a different type and number of input parameters (comparables) for one residential property, in which both can justify their selection. Thus, this intangible uncertainty also leads to inconsistency and discrepancy of valuation.

It is found that Valuers (both public and private) inevitably establish their valuation judgement based on their these following intangible uncertainties: various and diverse opinion, memory, understanding (knowledge), perception, experience (successful and unsuccessful) and feeling about the property valuation; thus, value of the same property will be valued differently, especially on the legal planning and land requirements (tenure system, planning guidelines) and market's opinion and views. Thus, questions on which Valuer's valuation is correct and which one is wrong is never being straightforward. However, the issue arises when a Valuer is overly dependent on employing the aforesaid elements, which this exposes higher risk of bias; thus, accuracy and credibility of valuation will be questionable, since ultimately, in the eye of court, proper and hard evidences as testaments are necessarily prioritised.

Moreover, another intangible uncertainty is human error. Due to certain reasons, Valuers are unavoidably subject to carelessness or negligence (not being cautious) in their property valuation decision, which particularly includes miscalculation of area or value, insertion of number, overlooking some input comparables search/ inspection, inclusion and omission, and inappropriate methodology selection.

It is also discovered that the local Valuers are highly vulnerable to client influence. The influence or pressure by client (buyers or sellers of property, bankers and developers) can come in various forms, mostly include final valuation figure alteration and methodology selection on the valuation. Interestingly, there are two types of client's influence found; the unsophisticated and sophisticated clients. The former is more frequently encountered by the Valuer. Question on whether or not the Valuers are influenced by them is not fully disclosed; however, some Valuers are found to be resistant to the client's unethical request by declining the offer of clients. For instance, the unsophisticated client normally attempts to influence/ pressure the Valuer by giving maximum fees and business in order to change the final figure of value or they simply quote/ offer their desired property value to the Valuers for confirmation or validation, rather than evaluation; if the Valuers decline then they may suffer loss of business, while the sophisticated client, their influence is indirect, which of course ultimately alter the final figure. That is, as it is disbenefitting, the client may not fully reveal/ withhold some necessary information or supply misinformation, as camouflage, (as perceived by them via some advertisements) that distort the property value. Also, some of them may intervene by urging their Valuers to change the technique or principle in arriving at the final valuation (e.g., either using highest and best use or existing land use).

It is also found that property valuation is subject to political (governmental) intervention. Although this is not rampant or subtly acknowledged, it is rather influential and critical. Public Valuers particularly, due to uncertain (dynamic) condition of local political setting, they are compelled to follow the instruction and discretion imposed by the top management (governments). This has suggested that conflict of interest/ moral hazard issue occurs as the

Valuers' professional position and decision can no longer stand impartially, e.g., although it is not governed or dictated by policies or laws, due to government's authority, Valuers *must* apply the imposed valuation method and principle (i.e., existing land use) on certain property (vacant land and low-cost housing) that may disbenefit or compromise the interest of sellers as it produces much lower value compared to market value.

Furthermore, the finding and results do not only suggest that Valuers are subject to the above behavioural uncertainties *individually* and *independently*, but rather, all the above behavioural issues are interconnected with each other. This thus entails that Valuers may *simultaneously* be exposed to various behavioural issues in making their valuation decision. This study shows that many heuristics (memory, knowledge, understanding, experience) and biased behaviours (herding, anchoring and adjusting, opinionated views, principles, instinct, sentiments and gut feeling) and subjective selection of Valuers' are associated with carelessness and negligence (overlooking) issue. Sometimes, those biased and heuristic applications can lead to negligence, i.e., Valuers may or may not realise that when they based on their personal preference, so-called vast experience which may lead to committing stereotyping and satisficing issue, (outdated) or insufficient knowledge, views and opinion that establish from the inaccurate and misleading information of clients, current (specialised) market, other valuation reports or colleagues, memory and do some adjustment based on them, gut feeling and instinct, without doing independent and further/ exhaustive research and analysis, they have in fact been directly and indirectly subject to carelessness or negligence as they may neglect or overlook some relevant comparables either by omitting or without including them in calculation, or without latest updates (especially legal: planning and land law setting), engage in wrong and inadequate information on location/ area/ status of land and property and so on.

It is also suggested that the above subjective preference or selection on the comparables and methodology in valuation are associated with the aforesaid biased and heuristic behaviours. This entails that based on the Valuers' past experience, perception, preference, memory, feeling, knowledge and opinion on the current surrounding market condition (e.g., recency issue), principles, other external sources with some adjustments (herding issue; anchoring on other Valuers' valuation), client's (whether sophisticated or unsophisticated) and political/ institutional pressure, they manage to influence by 'guiding' and assisting the Valuers to discretionally and subjectively decide on the valuation methodology application and input parameters selection. For instance, based on the past experience which have made some Valuers to be subject to stereotyping (generalising) and satisficing issue, as mentioned, they have shaped the Valuers to be predisposed to certain set of methodology and input parameters selection. Since those behavioural and psychological issues of Valuers and some other intangible uncertainties codes (client and political influences) are interrelated, it also revealed that the four categories for the behavioural uncertainties themes accordingly are interconnected as well. Aside from suggesting biases are the most rampant and common behaviour presented by Valuers in property valuation, more intriguingly, biases are also the most relatable element with other intangible uncertainties (client influence, heuristics and ethics), i.e., the former uncertainties are considered as the latter (biased behaviour). All of the above textual findings and results can succinctly be illustrated in the graphical result below (Figure 2), for better understanding. The 15 coloured boxes are indicated as codes, while the four white boxes are the categories of the respective codes which were linked with the red-dotted lines.

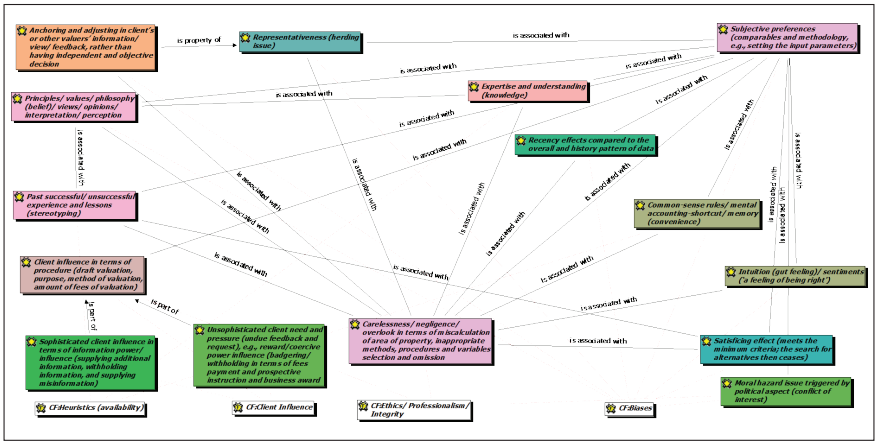

Figure 2: Intangible behavioural uncertainties of Valuers in property valuation

(ii) To suggest solutions in order to curb the intangible behavioural uncertainties in property valuation

From the graphical result[8] below (Figure 3), there are seven primary suggestions proposed to address the valuation status quo (e.g., biasness in valuation, huge discrepancy of Valuers' values, unreliable and inaccurate values, unethical/ negligent Valuers, and subjection to external pressures (moral hazard). These include the following: (i) more transparent and consistent land and planning institutions, i.e., plan for comprehensive and fair institutions; less rapid-changing policies and laws, as well as for better understandings of Valuers and agencies collaboration; (ii) less political and government intervention, which brings lesser moral hazard (conflict of interest) and corruption; (iii) more efficient governance and enforcement of the existing laws together with adaptive, more objective and knowledgeable Valuers, rather than having piles of unpractical, non-adaptive, and unenforceable laws and guidelines; (iv) high ethics and professionalism (i.e., with high integrity Valuers to withstand undue political and client's influence via some courses that are endorsed by the local enforcing body/ board, institutions, guidelines and laws); (v) technology assistance (remote sensing-satellite imagery and GIS techniques for the property attributes and surroundings, i.e., size, facilities and location); (vi) other countries' best practices (as reference) in property valuation, especially their methodology, policies/ laws, interpretations; and (vii) more sharings of practical experiences and knowledge pertaining to some specific situational property valuation via discussions and journal publications, which can usefully act as benchmark to facilitate Valuers' decision. Also, the suggestions are interconnected in some senses, mainly on (i) efficient governance and enforcement of institutions, (ii) free of political influence and (iii) consistent and transparent land and planning institutions. In order to have a more transparent and consistent system pertaining to property management and valuation which also includes land and planning institutions, it should not be influenced by unnecessary government or undue political intervention. Interestingly, while the former positively contributing to a wellbeing (integrity and professionalism) of Valuer (i.e., being more cautious, informative and knowledgeable Valuers), it is also required to contributing to a more efficient governance and enforcement.

[8] Similar to Figure 1 above, the seven coloured boxes are the codes/ themes, while the only one white box is the category/ family. Red dotted lines show the category-code relation.

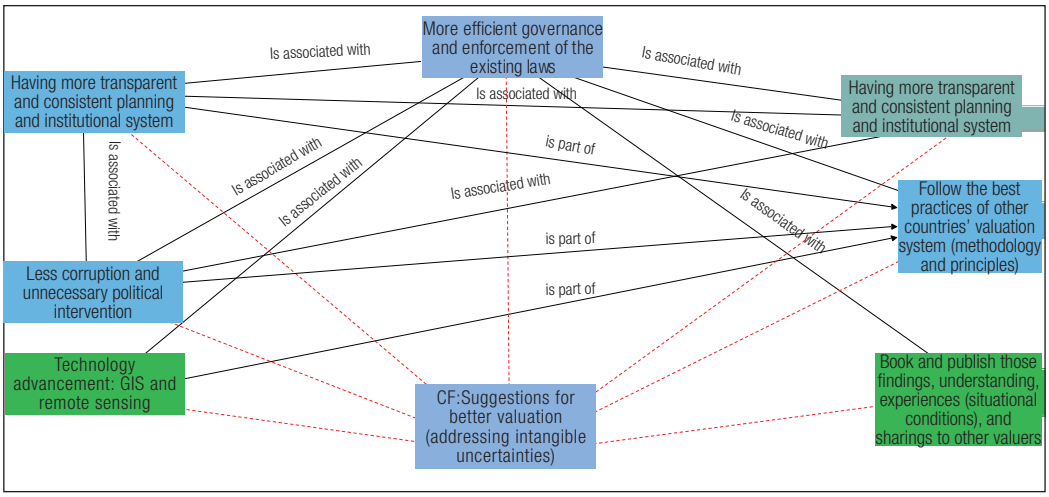

Figure 3: Suggestions to behavioural uncertainties in property valuation

5. Discussion

Instead of relying on purely scientific and quantitative evidence to arriving at final valuation figure, the above local findings generally sufficed to demonstrate public and private Valuers' inevitably behavioural biases and irrationality in their valuation decision, which involve various and diverse opinion, memory, principles/ philosophy, understanding (knowledge), perception, experience (successful and unsuccessful) and feeling about the property valuation; thus, value of the same property will be valued differently, especially on the legal planning and land requirements (tenure system, planning guidelines) and market's opinion and views (see availability biases, Quan and Quigley, 1991). That is, behavioural economics is proven more relevant and practical than normative neoclassical economics assumptions in this context (Kucharska-Stasiak, 2013; Warren-Myers, 2015) at explaining the discrepancy and inaccuracy of valuation, particularly in the realistic and rapid developing world where transaction (information searching) cost exists that caused by the imperfect and asymmetric market and heterogeneous property information (abnormal uncertainty on planning and legal aspects and location) (see Hansz and Diaz, 2001).

Since the local knowledgeable and experienced private Valuers are to benchmark the previous transacted prices or likely refer to by asking price opinion from their reliable colleagues (private and public Valuers) (Diaz et al., 1999) especially, and bankers, brokers/ estate agents' final figure of valuation either for confirming purpose (see confirmation/ positivity bias) (Havard, 2000) or enquiring purpose, particularly when they are unsure about the property features, and do some adjustment, aside from their own availability heuristic (Tversky and Kahneman,1973), such valuation is also subject to biases (i.e., anchoring and adjustment and herding) (McCowan and Orr, 2008; Salzman and Zwinkels, 2013), despite the fact that this can be argued from the necessity of Cascade theory. This is vital because the Valuers feel more certain, comfortable, confident and correct about their assumption in their valuation (less deviation from other Valuers); thus, less rejection by the public Valuers (market regulator) whose decision is deemed standard. Another reason is the story provided by Valuers' personal contact of market information is more memorable that eases recalling process (see availability heuristics) (Wang et al., 2000; Baum et al., 2000; Diaz et al., 2002).

The anchoring and adjustment and herding biases in the local valuation has been ensued by the current unique/ specialised property market trend that stimulated by foreign investment (or mega developers), which booms the nearby valued housing property. Instead of looking into the historical and frequency data and suitability of the context (location and types and other features of property market), this tendency is likely as less objective and emotional Valuers are influenced by noise tradings on the recent price hikes (sensationalist headlines, advertisement and news media) (see Shiller, 2002) or by the momentum effects of the herd on the current trendy popularity (Salzman and Zwinkels, 2013).

It is found that satisficing behaviour is observed in the local valuation, which the local Valuers have been stereotyping (see representative heuristics) on some similar properties by using same methodology and similar input parameters/ comparables (McCowan and Orr, 2008). This happens due to past experience (familiarity of other properties) and their tendency and frequent use of the comparison method, especially on housing estates.

Valuers who have been used to *standard* comparables (input parameters) and procedures of valuation which are considered sufficient or 'good enough' in the sense that it is justifiable and logical that observed normal valuation practice, they may not attempt to search other relevant or unique data or comparables for that similar property valuation. This (so-called standard/ conventional way) can cause inaccuracy to valuation, when the valued properties are abnormal, with different features which requires extra input parameters (Gallimore et al.,2000). This can be associated with conservatism bias that some local senior Valuers, based on their vast experience, alteration (addition) of the input parameters and comparables in the analysis may not be deemed necessary, although the property market is changed and requires updates. Undeniably, sophisticated Valuers' vast experience, pride, reputational establishment, and principles have led them to make such decision. This can be deduced that they are subject to over-confidence (over-optimism) (see Salzman and Zwinkels, 2013).

Despite some general local practice and general guidelines on valuation procedures as well as keeping the above biases at low as possible, questions of whether it is systematic error or random deviation is difficult to determine. Eventually, the Valuers' choice on methodology and inclusion of input parameters (comparables) are still highly subjective, e.g., between the highest and best use or existing use principles (see Smit and Vos, 2003 and Havard, 2000), that could be due to no specific and complete guidelines in the valuation process. By selecting their own input parameters and analysis and valuation principles, with least behavioural uncertainties, the final value can be rather widespread among Valuers. Generally, this is consistent with Mallinson and French's (2000), French and Gabrielli's (2003), Kucharska-Stasiak's, (2013) position on subjective choice. Moreover, the local Valuers admitted that negligence in property valuation process which affects the final figure is sometimes inevitable. Question of whether such negligence is intentional or not; however, the local Valuers' negligence are inherently associated with heuristics and biases (Crosby,2000). The carelessness can be in various forms ranging from miscalculation of area or value, insertion and reporting of number, typographical errors, overlooking some input comparables search/ inspection, inclusion and omission of important details, e.g., no thorough background check as well as inclusion of misleading non-transacted value, to inappropriate methodology selection (see Mallinson and French, 2000; Crosby et al., 1998; Crosby, 2000).

Albeit it is indirect to suggest that client pressure or influence from buyers or sellers of property, bankers and developers occurs in the local property valuation process and final figure (see Kinnard et al., 1997; Wolverton and Gallimore, 1999; Levy and Schuck,1998,2005, Kamalahasan, 2013) which can bring 'mutuality of interests' (win-win situation) (see Baum et al., 2000), some Valuers admitted that they have successfully resisted by declining the offer to adjust the value without valid justification (Worzala et al., 1998). This is possible,although it is not likely, perhaps firm integrity and high professionalism of local Valuers, and large-size (established) and multi-service valuation firms with less economic dependence on clients are met (see Kamalahasan, 2013), e.g., some of them, from the profile background, they are highly reputable valuation firms. Despite that, the local valuation is still subject to unsophisticated big clients, especially those who provide maximum fees and business in order to revise the final figure of value or simply quote/ offer their desired property value to the Valuers for confirmation or validation, rather than evaluation. The clients coerce the Valuers, if they do not comply then they suffer loss of future business and late or no payment from them (see Levy and Schuck, 1999). Also, the rarely sophisticated clients with valuation knowledge are encountered as well that they may attempt to withhold negative information and emphasise on positive attributes (see information asymmetry) via some advertisement of media as well as pushing their Valuers to change the principles or techniques of valuation, i.e., from existing use to highest of best use of property which the latter can give higher value (Levy and Schuck, 1999).

All of the above-mentioned biases, heuristics, negligence and client influence have signified that the professionalism and integrity of local property Valuers is questionable and has been compromised (Naridtanan and Fredric, 2014). Moreover, the ethicality of valuation extends to undue political influence, subject to moral hazard (conflict of interest) (Cho and Megbolugbe, 1996). Due to information asymmetry, public Valuers particularly, who are more informed with government's decision compared to layman clients, they are compelled to follow the instruction and discretion imposed by the top management (governments) to apply the imposed valuation method and principle (i.e., existing land use), which this may disbenefit the interest of sellers as it creates much lower Valuer compared to market value (Baum et al., 2000). Imposing such undue obligation on local Valuers has subject themselves to dilemma between their prospective job and client interest/ valuation accuracy. Evidently, local Valuers rather choose the former over the latter. As Williamson (1975) asserted, most of the behavioural biases and uncertainties, if not all, in the local property valuation are inherently associated with opportunistic and self-interested of a Valuer. For their own sake (more and faster profit and fees), convenience, less macroeconomic information searching cost, Valuers may rather disregard their clients' interest and valuation accuracy. Although the common behavioural uncertainties discovered in local property valuation are paralleling with some studies, in some senses; involving various types of biases and heuristics (e.g., availability) (see Salzman and Zwinkels, 2013; Iroham et al., 2014; Whittle et al., 2014 on such systematic errors), subjective selection on input parameters/ comparables and methodology (random errors) (French and Gabrielli, 2003; Kucharska-Stasiak, 2013), negligence (Crosby, 2000), ethics, moral hazard/ conflict of interest (Baum et al., 2000; Naridtanan and Fredric, 2014), opportunistic and self-interested behaviour (Williamson,1975) and client influence (Kamalahasan, 2013), this study establishes prominent differences as *simultaneous combination* and *interrelationships* of the aforesaid extensive behavioural uncertainties along with diverse local circumstances have occurred. This has indeed proven Warren-Myers' (2015) commentary on the significance and need of such study on intangible uncertainties or *Art* parts in property valuation because human-property interconnection is always varying in different context and circumstances.

Based on the local behavioural uncertainties above, the propositions by the local experts are similar to or have confirmed many scholars' ideas and suggestions, especially addressing the systematic deviations (Kucharska-Stasiak, 2013), aside from the random errors, which tenably contributes to better valuation accuracy and consistency. This includes (i) more sharings and publication of practical experiences and theoretical knowledge pertaining to some specific situational property valuation (Hardin, 1999), (ii) high qualification (Kucharska-Stasiak, 2013), ethics and professionalism of code of conduct (i.e., Valuers are able to withstand undue influence or other forms of moral hazard via some courses and penalties that are monitored by the local Board of Valuers, Appraisers, Estate Agents and Property Managers Malaysia (see Hoyt et al., 2002), (iii) more transparent governance with less political influence/ corruption as well as consistent planning and land laws with efficient enforcement (Kucharska-Stasiak, 2013) and (iv) the need of benchmarking other countries' best practices and International Valuation Standards (see Hordijk et al., 2011). Such practices can probably encompass the specification/ standardisation of valuation input parameters, methodology and analysis via national valuation standards and policies, guidelines (e.g., bracketing/ margin of error of 10-15% of final figure) (Crosby et al., 2011), and via tribunals and courts institutions (external Valuers) to monitor the implementation of valuation procedures and reporting of final figure in order to curb negligence issue (Baum et al., 2000).

6. Conclusion and recommendations

In conclusion, provided with various situational instances, these are the main theoretical findings emphasised in this paper: (i) intangible behavioural uncertainties of local valuation embrace the following *interrelated* biases and heuristics (availability, stereotyping/ representative, herding, anchoring and adjusting, confirmation, overconfidence, subjective choice, satisficing and recency effect), negligence, moral hazard, opportunism, and client (both sophisticated and unsophisticated) influence; and (ii) recommendations for addressing behavioural uncertainties require (a) high professionalism, qualification and ethics of Valuers, (b) consistent and transparent institutions as well as efficient enforcement and governance of property valuation, (c) integration and dissemination of valuation theory and practice, and (d) best practices of other countries' in valuation standards of procedure, guidelines, and analytic methodology. Thus, the above-mentioned model's empirical discoveries have achieved our set objectives. However, some methodological limitations are posed. As mentioned, this exploratory-descriptive paper's findings precludes us to draw a conclusive and representative causal-effect inference, especially with solely one-time focus group discussion session with only a group of Valuer experts. Hence, a longitudinal behavioural study via a more rigorous methodology (e.g., explanatory mixed method research with a combination of in-depth personal interviews and questionnaires surveys with quantitative structural modelling) is necessary, especially involving other stakeholders (developers, bankers, estate agents and buyers and sellers) for validation and evaluation. Due to data and time unavailability, although the sample of respondents was homogenised as best as possible (at least all of them are experience, highly qualified and knowledgeable and from property valuation and management background), we did not manage ensure well-rounded distribution of the number of private and public Valuers, as for the current study, the number of the latter prevails. Such different sector with wide-ranging scope, experience/ exposure and knowledge have contributed to broad and diverse yet rather superficial results on certain instances, rather than clearer and more systematic results which are executable via categorisation and delimitation of the background, sector and scope of Valuers. The latter approach is vital as they could be deemed the influential factors in behavioural valuation.

Some strengths of the study were discovered, however. Despite the diverse and broad findings, such initial and mainly exploratory-descriptive study may address the literature lacuna on intangible behavioural uncertainties in property valuation, particularly describing extensive behavioural economics components in real-estate discipline. Also, at least two local empirical contributions are offered by this study: (i) types of behavioural uncertainties (root causes) and their effects as well as the possible solutions in property valuation; and (ii) among the local behavioural uncertainties, identifying the most rampant and influential behavioural uncertainties (which will be biases and client influence) that the Valuers are subject to. The findings offer valuable messages (awareness) and insights to practitioners, particularly local policy-makers, that often-neglected behavioural property study is a *sine qua non* in determining the valuation outcome by suggesting to them that the status quo of local property valuation appears adversarial. It would be premature to conclude that this paper alone can solve the entire aforesaid issues. However, this is good enough as a spark; at least, they act as references of which direction should be focused in the future. Thus, more comprehensive behavioural valuation research should be carried out, in order to produce a sustainable property valuation environment.

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