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The Behavioural Chain in the Real Estate Market and Its Implications for the Concept and Measurement of Value

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Abstract

Theoretical background: Markets are inherently multidimensional, encompassing economic, institutional, sociological, spatial, and behavioral dimensions. Behavioral economics challenges traditional economic assumptions, particularly the notion of rational decision-making, by integrating psychological insights to address cognitive limitations and emotional influences on individual decisions. The real estate market exemplifies these dynamics due to its unique inefficiencies and characteristics, such as fixed locations and high capital intensity, which amplify the impact of cognitive biases, heuristics, and emotions on market participants. Behavioral patterns not only shape transaction prices but also influence valuation processes and outcomes. This underscores the need to integrate behavioral economics into valuation methodologies and

the definition of market value, addressing a critical research gap: the insufficient exploration of the interplay between valuation processes and behavioral factors affecting value determination in real estate markets.
Purpose of the article: This study aims to demonstrate the impact of behavioral patterns among property market participants on the formation of market value. It proposes three research hypotheses: (1) there is a behavioral chain in the property market where decision-making, prices, valuation processes, and value itself are interlinked and influenced by behavioral factors; (2) the behavioral nature of market value increases valuation uncertainty, necessitating its reflection in the definition of value; and (3) this uncertainty should be considered in the reporting of valuation results.
Research methods: To situate the concept of market value within the behavioral framework of real estate, this study proposes augmenting the existing definition of value with elements of risk and uncertainty. It further advocates operationalizing this perspective by modifying the reporting of valuation results to include ranges or standard deviations. The research employs (1) a critical analysis of the relevant literature and (2) a survey of professional valuers to validate the theoretical considerations and behavioral aspects of the property market in business practice.
Main findings: This study introduces the concept of a behavioural chain in real estate, encompassing investment decisions, price formation, valuation processes, and resulting market value. It highlights the significant influence of market participants' emotions, cognitive biases, and decision-making under conditions of risk and uncertainty at each stage of this chain. The findings reveal that current definitions of market value inadequately reflect the behavioural and market-specific characteristics of real estate, emphasizing the need for an enriched definition incorporating uncertainty and subjectivity. The study underscores the importance of presenting valuation results as ranges or with standard deviations to better capture inherent uncertainties, enhancing transparency and credibility. Finally, it calls for integrating behavioural economics into valuation standards to align practices with the complexities and dynamics of modern real estate markets.

Introduction

Markets are multidimensional, with not only economic, institutional, sociological, spatial but also behavioural dimensions. The importance of considering human behaviour in economic deliberations was pointed out as early as 1956 by Simon, who observed that because people have access to incomplete information and are limited in processing it, they are unable to maximize utility as traditional economic theories suggest. The existing constraints only allow them to achieve a satisfying or sufficiently satisfying level of utility. This observation contributed to the development of research new movements (e.g. Kahneman & Tversky, 1979; Thaler, 2000;) and the relaxation of the limited assumptions of the classical *homo oeconomicus* paradigm. These include, among others, economic psychology, experimental economics or behavioural economics, which is a scientific field that combines the findings of economics and psychology and is now increasingly forming the theoretical basis of many scientific publications (e.g. Tomal & Brzezicka, 2024). The proponents of behavioural approach sought to bring economic theories closer to reality by formulating assumptions arising from real-world observations (Camerer, 2006) and stressing the need to allow for thought patterns related to human innovativeness and emotions (Akerlof & Shiller, 2010).

The real estate market is influenced by the behavioural patterns of its participants as any other market (Black et al., 2003; Tomal & Brzezicka, 2024). This is supported by a number of studies on, *inter alia*, the limitations of the neoclassical model in

explaining price dynamics in housing markets (Gibb, 2009), heuristics and cognitive errors such as anchoring heuristics, representativeness, affect, framing effects, mental accounting, etc. (Bao & Gong, 2016, 2020; Cascao, 2023; Leund & Tsang, 2013; Levy et al., 2020), hyperbolic discounting (Sun & Seiler, 2013), price bubbles in property markets (Brzezicka & Wiśniewski, 2014), business cycles (Black et al., 2003; D'Amato & Coskun, 2022) or finally property valuation (D'Amato & Coskun, 2022; Jarecki, 2020). The importance of behavioural factors in this market is due to the fact that the decisions of its participants are subject to a particularly high degree of imperfection. This is not only due to the characteristics of real estate, such as fixed location, diversity, relatively high capital intensity but also the characteristics of the real estate market. The real estate market is special because of its low operational, allocative, and informational efficiency (Kucharska-Stasiak, 2016). Informational efficiency means that property prices lag behind changes in the economy and do not fully reflect them (Case & Shiller, 1990; Clayton, 1998; Farlow, 2004, 2013; Martin & Nagel, 2022). This means that they are neither equivalent to value nor can be used as a sole basis for valuation. Low operational efficiency hinders deciding which decision is likely to involve the lowest costs. Low informational efficiency and operational efficiency constrain allocative efficiency, which making it more difficult to establish the best use of a property (Brown, 1991). Due to the scarcity of information about properties, not only prices but also current fashions, tradition and emotions can influence players' decisions (D'Alessandro et al., 2020; Farlow, 2004).

As a result, its participants are exposed to external influences, which may distort their judgments of reality, lead to errors, and redefine their preferences and motivations, causing them to make inconsistent decisions[1] (Kahneman, 2012), which may accumulate into what Shiller has called "social epidemics". According to Schiller, the existing concepts of the real estate market, both the classical ones describing it in terms of a mechanism for the allocation of resources and those defining it as an institutional environment in which demand and supply emerge, are insufficient.[2]

[1] Classical price theory gives little role to the emotional, psychological, and cognitive aspects of prices (Kishore, 2006). However, behavioural research and economic practice have proven them to be important and worth considering (see Brown & Matysiak, 2000; Case & Shiller, 1990; Clayton, 1998; Salzman & Zwinkels, 2017). The behavioural factors in price formation that cause property prices to rise rapidly (market bubbles) are difficult to explain (see Farlow, 2004, 2013; Muellbauer, 2012). At the turn of the 21st century, estate investments in the USA, particularly those involving residential properties, were widely believed to represent the best use of savings (Case & Shiller, 2005; Farlow 2004). The belief was reinforced by the fading appeal of other investment instruments, falling income tax rates and interest rates, and the increasing proportion of young people in the total population (Kucharska-Stasiak, 2018). Investments in real estate increased significantly not only in the United States but also in many other countries (Case & Shiller, 2010), with property prices peaking in 2006. Unfortunately, the boom was followed by the implosion of the real estate market, unprecedented since the late 1930s, triggering a global financial crisis.

[2] The evolution of behavioural concepts has contributed to the emergence of a new perspective called the Behavioural Real Estate Market (BREM), enhancing the traditional neoclassical MREM (Mainstream Real Estate Market) paradigm, which explains the volatility of prices solely in terms of fundamental factors (Brzezicka, 2017; Salzmaz & Zwinkels, 2017). The behavioural economics perspective takes

A behavioural perspective is needed. Research has identified behavioural aspects of property valuation (see section: the behavioural aspects of property valuation). However, they have mainly focused on the process of arriving at a valuation, often ignoring what is crucial – value as the outcome of the valuation. We see this as a research gap.[3] The importance of value in a market as specific as the real estate market justifies the need, from a behavioural economics perspective, to look not only at the valuation process, but also at the outcome of that process, i.e. value. A behavioural chain is created in the market. It is the behaviour of market participants, rich in emotion and simplified forms of reasoning, and therefore cognitive errors, that determines the prices paid, the way in which prices are transformed into market value, and ultimately the level of that value. One aspect influences the next. The market value of a property, as the last link in the chain, also contains behavioural elements. It is subject to uncertainty: the uncertainty of a single valuation and the uncertainty understood as valuation vs. valuation. In 1977, a judge considered that individual valuations of the same property carried out over a similar period should be within a range of 10–15%. In 1978, another judge suggested that the range should be 15%, with higher values allowed in special cases. The amount of variation allowed should depend primarily on the nature of the property in question and the market situation. This was confirmed by a UK judge in 1992 when he ruled that a valuer's estimate of value should be assessed in terms of the inputs used in the valuation, which may have influenced the range of the result (Crosby, 1998; Crosby et al., 2004; Kucharska-Stasiak, 2016). Value is an estimate that is subject to uncertainty due to the weakness of the human mind, which is also highlighted by behavioural economics in a property-specific environment. It must be understood and interpreted correctly and consistently by all market participants.

This study aims to demonstrate the impact of behavioral patterns among property market participants on the formation of market value. It proposes three research hypotheses: (1) there is a behavioral chain in the property market where decision-making, prices, valuation processes, and value itself are interlinked and influenced by behavioral factors; (2) the behavioral nature of market value increases valuation uncertainty, necessitating its reflection in the definition of value; and (3) this uncertainty should be considered in the reporting of valuation results.

account of the conditions under which decisions are made (i.e. risk and uncertainty) and calls for revising concepts explaining how prices are created and transformed into value.

[3] Ongoing discussions on the category of market value have mainly covered issues such as the concepts of highest and best use, hope value, or treating value in terms of highest or most frequently occurring price, among others. Behavioural considerations were not included.

The behavioural aspects of property valuation

Valuation models, which establish norms that guide valuers throughout the property valuation process, are additionally enhanced by professional standards, interpretative notes, and legal regulations. Valuers carry out technical, analytical, computational and interpretative work using property documentation and market information, including prices. However, due to low market efficiency, prices do not quickly and fully reflect the market situation. They are the result of the behaviour of the parties to the transaction, which, as mentioned above, is subject to emotions, simplified forms of reasoning and therefore cognitive errors (Kahneman, 2012). Cognitive errors and heuristics do not escape the valuers either, who do not always adhere to the requirement of a normative model of valuation, which is reflected in a relatively new line of research based on the achievements of behavioural economics, namely behavioural aspects of property valuation (e.g. Jarecki, 2020). Diaz and Hansz (2002) point out that, much like experienced chefs who do not strictly follow recipes, professional valuers often diverge from formal valuation models, relying instead on their own judgment and experience. The first to reveal it were American psychologists in the 1990s, whose experiment showed that valuers are not independent experts as they are supposed to be because they are subject to cognitive dissonance and use mental shortcuts that influence valuation outcomes (Northcraft & Neale, 1987). The problem of mental shortcuts in valuers has been confirmed by other authors, including Gallimore (1994), Bokhari and Geltner (2011), Bucchianerii and Minson (2013), and Da Silva et al. (2019). US and UK studies have shown that valuers who value the same property again tend to be attached to the figure they reported before (anchoring heuristics), by which the new figures are different from those that would have been obtained if market data alone were used (Gallimore & Wolverton, 2000). Gallimore and Wolverton (1997) have also observed the use of availability heuristics among valuers. Research on availability heuristics has shown that the order and format in which market information is presented is important because it influences how the data is perceived for valuation purposes (Einhorn & Hogarth, 1985; Hardin, 1997). For instance, in the sequential presentation of data, more emphasis is placed on those at the end of a sequence. It is also notable that the way data are presented (sequentially or simultaneously) can affect a valuation result.

Among the behavioural factors that significantly influence property valuation are also the valuer's business environment and the client's attitude (valuation feedback). Depending on clients' needs and character, they may suggest a value they would like to see, a valuation method of their preference, or insist on adjusting the value. To force a valuer into compliance, they may use the carrot (promise to promote the valuer among potential clients) and the stick (negative opinions). The ability of clients to influence a valuation process and its outcomes has been confirmed by studies carried out in the most transparent countries, such as the US, the UK and Australia (e.g. Diaz & Hansz, 2002; Kinnard et al., 1997; Kishore, 2006; Wolverton, 2000;), as well as

in Nigeria, Malaysia, Thailand (e.g. Chen & Yu, 2009; Palakavong & Swierczek, 2014) and Poland (Kucharska-Stasiak et al., 2018; Małkowska et al., 2019). In relation to the behavioural chain in the property market outlined in the article, parties to a transaction, operating within a context of limited and uncertain information, make decisions based on subjective judgments, are influenced by emotions, apply simplified reasoning, and make errors. Their behaviour influences the prices paid for properties, which are subsequently converted into value in the valuation process by experts who, as noted, are equally subject to the same laws of human nature. These distortions pertain, among other factors, to subjectivity in the selection of valuation inputs, such as the choice of comparable properties, the evaluation of their relevance according to the order in which data is received, or the impact of client influence. This situation seems to substantiate the need to incorporate an inherent element of behavioural economics into both the definition of market value and the methods used to measure it.

The behavioural nature of value, a definition of value and the question of its measurement

The behavioural dimension does not appear to have a universally accepted definition, such as the one used in International Valuation Standards (IVS) and European Valuation Standards (EVS), which defines market value as follows: "The estimated amount for which an asset or liability should exchange on the valuation date between a willing buyer and a willing seller in an arm's length transaction, after proper marketing and where the parties had each acted knowledgeably, prudently and without compulsion" (IVS, 2020, p. 39).

The estimated amount is usually understood in terms of the most likely price (EVS, 2020). In some circumstances, mostly in investment contexts, it is equated with the highest price (Mooya, 2009). In cases that require objective market value to be established, (such as the calculation of fees, taxes, or damages), it represents as a typical, most common price. For market value to objectively represent market circumstances, a valuer must consider whether a given transaction adequately meets all conditions specified in the definition of market value and explained in its interpretation. The conditions require parties to the transaction to be aware of the market situation (have access to information), to make rational decisions (act prudently), to be free of duress, and to be unrelated to each other. Also, no time constraints may exist. Further, for the market value obtained to be reliably interpreted, the best, legally permissible, and confirmed by the market use of the property in question must be known. A use that is not yet permitted can also be taken into account, providing that the issuance of a pertinent permit is underway.

The market value of real estate is thus a hypothetical construct founded on several simplifying assumptions, which, according to Mooya (2016), partly derive

from neoclassical theories referring to the *homo oeconomicus* model. Consequently, the standard value theory only works in well-developed and competitive markets, where what is observable, through the level of transaction prices, is equivalent to value (Mooya, 2016). As indicated earlier in this paper, these are assumptions that have been criticised by the body of work in behavioural economics. The definition and interpretation of market value does not correspond to the behavioural chain that exists in the property market.

We propose to emphasise elements of risk and uncertainty in the definition of the market value of property, as well as to take into account the emotions raised by behavioural economics, instinctive behaviour, the use of simplified forms of inference in conditions of often poor data availability. Our proposal is based proposal on Mooya's (2016) observation that a market price results from competition and coordination among numerous, heterogeneous, and institutionally related actors who have limited cognition and act under uncertainty and that market value can be positive in competitive markets with a large number of similar properties for a valuer to compare, or normative in markets where comparable properties are few (Mooya, 2016), making valuations more of an art than of science.

This distinction between markets based on their activity levels allows a better understanding and interpretation of the market value of real estate and exposes its weaknesses. In our opinion, market value is represented by: the estimated amount, understood as the most probable, thus, typical price of a property obtainable as of the estimation day, assuming that the parties are willing to conclude a contract, act emotionally and instinctively, use simplified reasoning, have limited access to data, try to act prudently, are free of duress, and the property in question has been on the market for an appropriate period of time.

The above definition modifies the current one by adding a new element:

– understood as the most probable, thus, typical price of a property;

– act emotionally and instinctively, use simplified reasoning, have limited access to data, try to act prudently.

In summary, the need to take into account the above elements of behaviour, as revealed by the achievements of behavioural economics, is the effect of the transaction: (1) in an inefficient market where the transaction price cannot provide a simple basis for determining value (Brown, 1991), (2) between parties acting under conditions of bounded rationality, subject to emotions, acting instinctively, using simplified forms of reasoning, processing available information; (3) seeking to maximise their own satisfaction and not necessarily utility (Case & Shiller, 2010; Kahneman & Tversky, 1979; Simon, 1956; Thaler & Sunstein, 2022). It also arises from the behaviour of valuers themselves who, while operating in an information-rich environment, remain susceptible to cognitive errors and environmental influences (D'Amato & Coskun, 2022).

The extension of the definition of market value to include elements of market participants' behaviour must also be reflected in the way in which value is measured and interpreted. This is in line with the conclusion of the team led by Mallinson,

who pointed to the need to develop standards for the expression and measurement of valuation uncertainty (*The Mallinson Report*. *Key Finding*, 1994). This topic was also considered in the 2002 Report (*Property Valuation – The Carsberg Report*, 2002) The need to disclose uncertainty was emphasised by French and Gabrielli (2004). The topic of valuation uncertainty and its measurement has also been discussed by, among others, the Financial Stability Forum, the IVSC, TEGOVA, API, and even the G20 (Joslin, 2005). The intensity of these considerations has increased as uncertainty in markets caused by unpredictable events – so-called black swans (Taleb, 2008). Several ways of measuring valuation uncertainty have been proposed so far, such as qualitative methods (verbal reporting, rating reports in terms of uncertainty), quantitative methods (e.g. the Monte Carlo method), and operative clauses in valuation agreements. However, the efforts to design a standard approach to quantifying valuation uncertainty have not yet been successful. Nevertheless, debates and studies have proven useful in that they pointed to the problem in need of resolution and led researchers to agree that valuation uncertainty should be expressed in a way that both valuers and their clients will find acceptable (French & Gabrieli, 2004).

Indicated, in the context of the behavioural dimension, the specificity of the property market and the process of arriving at value suggests that the market operates in price ranges rather than points. The awareness of that causes that the real estate market prefers price intervals to price points (Damodaran, 2006; Mooya, 2009). The benefits of presenting property prices as intervals rather than price points has been studied by Aluko (2007), and French and Gabrielli (2004) have demonstrated the probabilistic nature of the estimation result. In our opinion, presenting a valuation outcome as a price interval is the most convenient way to express its uncertainty, and the standard deviation appears to be a relevant measure of risk. Presenting value as a price interval is a common approach in the art market, which has many similarities to the real estate market. The goods traded in the art market are also heterogeneous, there is limited access to information, transactions are relatively few, and emotions play an important role. And yet, the value of artworks is presented using intervals rather than concrete figures unless the purpose of valuation prevents such an approach (Szafrański & Wilk, 2017).

The behavioural aspects of market value as viewed by valuers – the survey results

The research section attempts to provide confirmation in business practice of the theoretical considerations of the behavioural aspects of the property market and to demonstrate the need to change the presentation of the valuation result to better reflect its behavioural nature. The research method employed in this study is a questionnaire-based survey, a prevalent approach in social and economic sciences as well as market research, particularly within the context of property valuation uncertainty (e.g. Joslin, 2005). An online version of the survey was distributed to members of

local valuers' associations and shared on social media platforms within professional valuers' groups nationwide. The survey was conducted from December 2022 to May 2023, garnering responses from 90 valuers (52 women and 37 men). The estimated response rate was approximately 2.2%.

Respondents were primarily individuals aged over 50 (44.9%) and those aged 31–40 (28.1%), with the majority having a technical (53.4%) or business (31.8%) educational background. A significant portion of the respondents were highly experienced: 52.8% had more than 12 years of professional experience, and 56.2% conducted over 50 valuations per year, predominantly in residential property markets.

The survey comprised 12 questions focused on the following areas: interpretation of the definition of market value, characteristics of the property market (including low efficiency), behavioural aspects of decision-making processes within this market, and behavioural aspects specific to property valuation. The findings of this survey permit the formulation of the following conclusions:

Surveyed property valuers generally concur with the definitional assumptions of market value. Their uncertainties, often reflected in responses such as "difficult to say" (37.7%; $n = 34$), pertain to definitional elements typical of neoclassical models and critiqued by behavioural economics, such as "acting prudently and knowledgeably" and "not being under duress". Respondents recognize behavioural patterns among market participants during investment and consumption decision-making stages: the heterogeneity of properties, the relatively low frequency of transactions, and the lack of substitutes (no two properties are identical) create pressure and compulsion in decision-making (e.g. "we won't find another one like this; someone else will buy it"). Consequently, this contributes to greater susceptibility to emotional influences.

At the same time, the majority of surveyed valuers (60.7%) recognize that behavioural factors – such as emotions, environmental influence, and instinct, which are typical of participants in this market – are not fully accounted for in the definition of market value. They agree that these factors, along with trends and often limited awareness of market conditions, influence both prices and value. This acknowledgment reinforces the idea that price and value possess a behavioural dimension. Since market value is intended to reflect typical behaviours of real estate market participants, these behaviours should not be excluded from its definition and interpretation. Surveyed valuers are aware of the informational limitations inherent in real estate market prices. The vast majority (61.8% of respondents, $n = 56$) agree that transaction prices and rental rates do not fully reflect all available information regarding the transaction objects. They also believe that these prices cannot be fully explained by fundamental factors, suggesting that non-economic factors may constitute between 11% and 30% of the price (55.1% of respondents, $n = 50$). Previous studies suggest that the influence of fundamental factors may be even less significant. For instance, Salzman and Zwinkels assert that fundamental factors account for only 10% to 40% of property price variations (2013), a finding attributed to the market's low efficiency, as highlighted by researchers (Maier & Herath, 2009).

They are aware of the presence of behavioural aspects in valuation, identifying their sources in the subjectivity of market evidence assessment, adopted assumptions, and cognitive biases, thereby confirming another stage of the behavioural chain. They recognize that factors such as experience, the timing of the assignment, relationships between entities, diligence, accuracy, and the pressure stemming from the client's desire for a mortgage loan approval (Jarecki, 2020) influence valuation levels, further affirming that value also has a behavioural dimension. However, they exclude the influence of emotions and environmental pressures on valuation outcomes, which is inconsistent with the literature and the findings of numerous studies (e.g. Levy & Schuck, 1999).

A chain of behavioural dependencies emerges in the real estate market: investment decisions are behavioural, prices are behavioural, the process of deriving value is behavioural, and value itself is behavioural. At each stage of this chain, market participants are subject to emotions, make mistakes, seek to maximize personal satisfaction rather than utility, and operate under conditions of risk and uncertainty. Given that the process of determining market value is intended to simulate the typical behaviours of market participants, the concept of value should reflect the specific characteristics of this market, as well as the conditions under which its participants operate, including risk and uncertainty.

The above confirms a widely recognized phenomenon in the literature: the poor understanding of the nature of market value among valuation clients, who often regard value as a certain category expected to match price (French & Gabrieli, 2014). This issue is also reflected in conducted empirical research, as confirmed by the vast majority of surveyed property valuers. Furthermore, the lack of understanding of the difference between market value as an *ex-ante* concept and price as an *ex-post* measure negatively impacts both the public image of property valuers and the perception of property valuation itself. More than half of the respondents (58.4%, $n = 53$) reported encountering situations where discrepancies between value and price were interpreted as an error by the valuer.

The majority of surveyed property valuers agree on the need to implement an alternative presentation format for valuation results (41.7%, $n = 38$). The authors of this study suggest that such a change could positively influence the business community's perception of the valuer's role and enhance client understanding that a valuation report represents a subjective and scientific analysis. A significant portion of respondents remain undecided (32.6%, $n = 29$), yet this group exceeds the number of those who oppose the change. Among those supporting the change, there is a preference for presenting results in the form of a numerical range, verbally informing clients, including disclaimers in reports, and using rating systems for valuation reports. Respondents were also invited to propose their own ideas for modifying or improving result presentation. Their suggestions included sensitivity analysis, and some comments emphasized the use of quantitative methods to complement the presentation, with the caveat that certain valuation purposes (e.g. tax assessments) would still require a specific figure.

Synthesis, discussion and key findings

In this paper, we propose the concept of a chain indicating behavioural dependencies: investment decisions are behavioural (Brzezicka & Wiśniewski, 2014), prices are behavioural (Brzezicka & Wiśniewski, 2014; Waszczuk, 2024), the process of determining value is behavioural, and value itself is behavioural (Jarecki, 2020; Waszczuk, 2024) (Hypothesis 1). This is because, at each stage of the chain, market participants are influenced by emotions, make errors, aim to maximize personal satisfaction rather than utility, and operate under conditions of risk and uncertainty. Since the process of determining market value seeks to simulate typical participant behaviour, the concept of value must reflect the specific characteristics of the market in which it is created, as well as the conditions under which its participants operate, including risk and uncertainty. Uncertainty is therefore regarded as an inherent aspect of property valuation. In determining the value of real estate, the level of subjectivity – and consequently, uncertainty – appears greater than when determining the value of other goods (Hypothesis 2). However, the current definition and interpretation of market value do not sufficiently account for the unique characteristics of the property market or of property itself as an object of valuation. Accordingly, the definition of value has been supplemented with these elements, making it necessary to alter how the valuation outcome is presented so that it better reflects the functioning of the property market, is more comprehensible to recipients, and, importantly, is safer for the valuer. This need is particularly pronounced as valuation recipients often equate value with price and may remain unaware of the inherent uncertainty in valuation (Hypothesis 3). The inclusion of behavioural elements in the definition of market value does not imply a rejection of the previous concept of value. Rather, it constitutes an essential enhancement, revealing what is most typical in this market: emotions, risk, and uncertainty. Adopting new methods for explaining socio-economic phenomena, we hope that this enriched definition represents a further step in a discussion ongoing for over a century, aligning with a new research trend in the real estate market (BREM) that emphasizes the actual mechanisms governing human behaviour. Recognizing the role of estimation uncertainty advises caution against overconfidence in the valuation outcome (Brzezicka & Wiśniewski, 2014; Sanders, 2018). We assert that revealing the complexity of market value in real estate should also affect its operationalisation, encouraging the presentation of a value range and the specification of standard deviation. Although such operationalisation may not be feasible for all valuation purposes, it will introduce the idea that valuation outcomes are subject to uncertainty and risk. The behavioural nature of market value suggests that future advancements in valuation should focus not on refining valuation methodologies – currently facing a crisis (Mooya, 2009) – but on understanding the relationships between market participants and an increasingly complex environment, as well as their influence on value. To address this need, valuation should integrate the findings of behavioural economics. For this concept to gain acceptance among valuers and the general public, uncertainty and risk should be addressed in professional stan-

dards for property valuation and clarified by professional organizations. This would likely enhance the perceived standing of valuers within the business world and improve public understanding that, in paying for a valuation report, they are paying for both subjective judgment and scientific expertise. Such an approach would add credibility to valuations, thus increasing security in the market, reducing transaction risks in real estate, and potentially lowering transaction costs. We maintain that recipients of valuations should become more aware of what they are paying for and valuers of what they are determining. The discussion on the market value of property cannot be considered concluded; it must respond to the demands of the 21st century. This implies that it may continue to evolve, incorporating social considerations alongside economic aspects, including the sustainability requirements of ecological systems (Life Cycle Cost).

References

Akerlof, G.A., & Shiller, R.J. (2010). *Animal Spirits: How Human Psychology Drives the Economy, and Why It Matters for Global Capitalism.* Princeton University Press.

Black, R.T., Gibler, KM., Gordon Brown, M., Diaz, J. III, Grissom, V. (2003). Behavioral research in real estate: A search for boundaries. *Journal of Real Estate Practice and Education*, *6*(1). **https://doi.org/10.1080/10835547.2003.12091589**

Bokhari, S., & Geltner, D. (2011). Loss aversion and anchoring in commercial real estate pricing: Empirical evidence and price index implications. *Real Estate Economics*, *39*(4), 635–670. **https://doi.org/10.1111/j.1540-6229.2011.00308.x**

Brown, G.R. (1991). *Property Investment and the Capital Markets*. E & FN Spon.

Brown, G.R., & Matysiak, G.R. (2000). *Real Estate Investment: A Capital Market Approach*. Prentice Hall. **https://doi.org/10.1111/j.1540-6229.2011.00308.x**

Brzezicka J. (2017). *Behawioralne aspekty baniek cenowych na rynku nieruchomości*. PhD dissertation. Uniwersytet Warmińsko-Mazurski w Olsztynie.

Brzezicka, J., & Wiśniewski, R. (2014). Homo oeconomicus and Behavioral economics, *Contemporary Economics*, *8*(4), 353–364. **https://doi.org/10.5709/ce.1897-9254.150**

Bucchianeri, G.W., & Minson, J.A. (2013). A homeowner's dilemma: Anchoring in residential real estate transactions. *Journal of Economic Behavior and Organization*, *89*, 76–92. **https://doi.org/10.1016/j.jebo.2013.01.010**

Clayton, J. (1998). Further evidence on real estate market efficiency. *Journal of Real Estate Research*, *15*(1), 41–58. **https://doi.org/10.1080/10835547.1998.12090915**

Crosby, N. (1998). Valuation accuracy, variation and bias in the context of standards and expectations. *Journal of Property Valuation and Investment*, *16*(2), 126–144. **https://doi.org/10.1108/14635789810223035**

Crosby, N., Hughes, C., & Murdoch, J. (2004). Influences on secured lending property valuations in the UK. *Real Estate & Planning Working Papers*, 2004-04. Henley Business School, University of Reading.

D'Alessandro, D., Gola, M., Appolloni, L., Dettori, M., Fara, G.M., Rebeccchi, A., Settimo, G., & Capolongo, S. (2020). Covid-19 and Living space challenge. Well-being and public health recommendations for health, safe, and sustainable housing. *Acta Biomedica*, *91*(9-S), 61–75. **https://doi.org/10.23750/abm.v91i9-S.10115**

D'Amato, M., & Coskun, Y. (Eds.). (2022). *Property Valuation and Market Cycle*. Springer.

Damodaran, A. (2006). *Valuation Approaches and Metrics: A Survey of the Theory and Evidence*. Stern School of Business.

Da Silva, S., Matsushita, R., Pereira, M., & Fontana, M. (2019). Real estate list price anchoring and cognitive ability. *International Journal of Housing Markets and Analysis*, *12*(4), 581–603. **https://doi.org/10.1108/IJHMA-08-2018-0060**

Diaz, III J., & Hansz, A.J. (2002). Behavioral research into the real estate valuation process: progress toward a descriptive model. *Real Estate Valuation Theory Research Issues in Real Estate*, *8*, 3–29. Appraisal Institute and American Real Estate Society (ARES). **https://doi.org/10.1007/978-1-4615-0909-7_1**

Einhorn, H.J., & Hogarth, R.M. (1985). Ambiguity and uncertainty in probabilistic inference. *Psychological Review*, *92*(4), 433–461.

Farlow, A. (2004). *UK house prices: a critical assessment*. Paper presented at the Credit Suisse First Boston Housing Market Conference.

Farlow, A. (2013). *Crash and Beyond. Causes and Consequences of the Global Financial Crisis*. Oxford University Press.

French, N., & Gabrielli, L. (2004). The uncertainty of valuation. *Journal of Property Investment & Finance*, *22*(6), 484–500. **https://doi.org/10.1108/14635780410569470**

Gallimore, P., & Wolverton M.L. (1997). Price-knowledge-induced bias: A cross-cultural comparison. *Journal of Property Valuation and Investment*, *15*(3), 150–175. **https://doi.org/10.1108/14635789710184989**

Gallimore, P., & Wolverton, M.L. (2000). The objective in valuation: A study of the influence of client feedback. *Journal of Property Research*, *17*(1), 47–57. **https://doi.org/10.1080/095999100368010**

Gallimore, P., & Gray, A. (2002). The role of investor sentiment in property investment decisions. *Journal of Property Research*, *19*(2). 111–120. **https://doi.org/10.1080/09599910110110671**

Gallimore, P., & Hansz, A.J. (2000). Decision making in small property companies. *Journal of Property Investment and Finance*, *18*(6), 602–612. **https://doi.org/10.1108/14635780010357569**

Gallimore, P., & Wolverton, M.L. (1997). Price-knowledge-induced bias: A cross-cultural comparison. *Journal of Property Valuation and Investment*, *3*(15), 150–175. **https://doi.org/10.1108/14635789710184989**

Genesove, D., & Mayer, C. (2001). Loss aversion and seller behaviour: Evidence from the housing market. *The Quarterly Journal of Economics*, *116*(4), 1233–1260. **https://doi.org/10.1162/003355301753265561**

Hardin, W.G. III. (1997). Heuristics use, credit constraints and real estate lending. *Journal of Property Valuation and Investment*, *15*(3), 245–255. **https://doi.org/10.1108/14635789710184961**

Ho, T.H., Lim, N., & Camerer, C.F. (2006). Modeling the psychology of consumer and firm behavior with behavioral economics. *Journal of Marketing Research*, *43*(3), 307–331. **https://doi.org/10.1509/jmkr.43.3.307**

Jarecki, P. (2020). *Wybrane behawioralne aspekty wyceny nieruchomości*. Wyd. UŁ.

Joslin, A. (2015). An investigation into the expression of uncertainty in property valuations. *Journal of Property Investment & Finance*, *23*. **https://doi.org/10.1108/14635780510599476**

Kahneman, D. (2012). *Thinking Fast and Slow*. Macmillan.

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.

Konowalczuk. J. (2014). *Wycena nieruchomości do celów kredytowych*. Poltex.

Kucharska-Stasiak, E. (2005). *Uncertainty of Valuation In the Emerging Markets, the Polish Case*. Paper presented at the ERES conference, Dublin.

Kucharska-Stasiak, E. (2016). *Ekonomiczny wymiar nieruchomości*. PWN.

Kucharska-Stasiak, E. (2018). Dysfunkcje rynku nieruchomości w warunkach kryzysu gospodarczego. *Bank i Kredyt*, *49*(5), 493–514.

Kucharska-Stasiak, E., Źróbek, S., & Cellmer, R. (2018). Forms and effectiveness of the client's influence on the market value of property: Case study. *Real Estate Management and Valuation*, *26*(3), 82–92.

Levy, D., & Schuck, E. (1999). The influence of clients on valuations: The client valuer relationship. *Journal of Property Valuation and Investment*, *17*(4), 379–400.

Maier, G., & Herath, S. (2009). Real estate market efficiency: A survey of literature. *Housing, Theory and Society*, *26*(4), 245–262.

Mallinson, M., & French, N. (2000). Uncertainty in property valuation – the nature and relevance of uncertainty and how it might be measured and reported. *Journal of Property Investment and Finance*, *18*(1), 13–32.

Małkowska, A., Uhruska, M., & Tomal, M. (2019). Age and experience versus susceptibility to client pressure among property valuation professionals: Implications for rethinking institutional framework. *Sustainability*, *11*(23), 6759. **https://doi.org/10.3390/su11236759**

Martin, I.W.R., & Nagel, S. (2022). Market efficiency in the age of big data. *Journal of Financial Economics*, *145*(1), 154–177. **https://doi.org/10.1016/j.jfineco.2021.10.006**

Mooya, M.M. (2016). *Real Estate Valuation Theory. A Critical Appraisal*. Springer-Verlag.

Muellbauer, J. (2012). *When Is a Housing Market Overheated Enough to Threaten Stability?* In A. Heath, F. Packer, & C. Windsor (Eds.), *Property Markets and Financial Stability* (pp. 73–109). Reserve Bank of Australia.

Northcraft, G.B., & Neale, M.A. (1987). Experts, amateurs and real estate. An anchoring-and-adjustment perspective on property pricing decisions. *Organization Behavior and Human Decision Process*, *39*, 84–97. **https://doi.org/10.1016/0749-5978(87)90046-X**

Palakavong, N., & Swierczek, F.W. (2014). Factors influencing variation in value and investor confidence. *Journal of Business and Management*, *16*(5), 41–51.

Property Valuation – The Carsberg Report. (2002). RICS.

Salzman, D., & Zwinkels, R.C.J. (2017). Behavioral real estate. *Journal of Real Estate Literature*, *25*(1), 77–106. **https://doi.org/10.1080/10835547.2017.12090455**

Sanders, M.V. (2018). Market value: What does it really mean? *The Appraisal Journal*, Summer, 207–208.

Seslen, T.N. (2004). *Housing Price Dynamics and Household Mobility Decisions*. Paper presented at the USC LUSK/FBE Real Estate Seminar.

Shiller, R.J. (2006). Long-term perspectives on the current boom in home prices. *The Economists' Voice*, *3*(4), 1–11. **https://doi.org/10.2202/1553-3832.1145**

Simon, H.A. (1956). Rational choice and the structure of the environment. *Psychological Review*, *63*(2), 129–138. **https://doi.org/10.1037/h0042769**

Szafrański, W., & Wilk, D. (2017). Sposoby czy metody. Aspekty podmiotowe i przedmiotowe wyceny dzieł sztuki w Polsce. *Santander Art and Culture Law Review*, *1*(3), 115–156. **https://doi.org/10.4467/2450050XSNR.17.009.7381**

Thaler, R.H. (2000). From *homo oeconomicus* to *homo sapiens*. *The Journal of Economics Perspectives*, *14*(1), 133–141. **https://doi.org/10.1257/jep.14.1.133**

Thaler, R.H., & Sunstein, C.R. (2022). *Nudge.* Penguin Books.

The Mallinson Report: Key Finding. (1994). RICS.

Wang, K., Zhou, Y., Chan, S.H., & Chau, K.W. (2000). Over-confidence and cycles in real estate markets. Cases in Hong Kong and Asia. *International Real Estate Review*, *3*(1), 93–108.

Waszczuk, J. (2024). Behavioural aspects of price expectations and the anchoring effect on the housing market – Polish case study. *Housing Theory and Society*, *41*(3), 339–359.