Structural Quality as a Driver of Real Estate Value: A Professional Perspective

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***Abstract*—Despite the widely acknowledged importance of structural engineering in construction, its specific contribution to real estate valuation has remained empirically underexplored. This study investigates the relationship between structural engineering quality and building valuation by examining professional perceptions across the construction and real estate industries. Using a quantitative cross-sectional survey design, structured questionnaires were administered to 150 professionals, yielding 107 valid responses (71.33% response rate) from civil engineers, structural engineers, real estate valuers, architects, and property developers. Analysis reveals strong consensus on the valuation significance of structural engineering parameters: foundation quality, material durability, and structural integrity were rated highly or extremely important by over 70% of respondents, while material quality and maintenance requirements were identified as the factors most strongly linked to long-term value retention. Over 70% of respondents believed that high-quality structural engineering moderately or significantly improves long-term asset value, and nearly 90% anticipated that its importance in valuation practice would increase over the next decade. The findings suggest that structural quality has evolved from a baseline compliance requirement to an active value differentiator, with implications for valuation methodology, investment decision-making, and performance-based policy incentives. Drawing on prospect theory, this study contributes to an emerging interdisciplinary dialogue between structural engineering and property economics, and provides a foundation for integrating engineering performance indicators into formal valuation frameworks.**

***Index Terms*—structural engineering quality; real estate valuation; building performance; property value retention; whole-life cost**

I. INTRODUCTION

Real estate valuation is a sophisticated task that is affected by a variety of factors, starting from geographical location to engineering characteristics and regulatory requirements. Among these, the significance of structural engineering excellence has been playing a crucial but underrated role in determining both the current market value and future performance of a real estate asset. Structural engineering is the process of designing, analysing, and implementing load-carrying structures to provide stability, security, and functionality to a structure during its intended service life.

In recent years, growing concerns about environmental sustainability, seismic activity, and long-term costs have significantly increased the significance of structural engineering excellence in real estate valuation. Real estate properties with sound foundations, high-quality materials, and adherence to contemporary engineering standards have been increasingly identified as more valuable assets, commanding higher prices and better value retention. On the other hand, properties with substandard engineering excellence have been facing devaluation, increased maintenance costs, and reduced marketability.

This study explores the relationship between structural engineering quality and real estate valuation by analysing the perspectives of professionals across the construction and real estate industries. A comprehensive survey of 107 practitioners—including structural engineers, civil engineers, real estate valuers, architects, and property developers—was conducted to assess the significance of structural engineering parameters to property values and to identify emerging trends in valuation practice.

The study offers empirical insights into the structural parameters that most significantly shape building value, their interaction with market perceptions, and the implications for engineering practice, valuation methodology, and policy. In doing so, it addresses a gap in the literature between technical engineering standards and financial performance, contributing to a more integrated understanding of sustainable and resilient real estate development.

II. LITERATURE REVIEW

2.1 Property Valuation Fundamentals

The basis of property valuation is founded on proven methods that aim to establish the monetary value of real estate properties. Ling and Archer (2012) identify three main approaches: the sales comparison approach, the income capitalization approach, and the cost approach. These approaches take into consideration physical, location, and economic attributes, but the specific consideration of structural engineering quality is still inconsistently treated in valuation approaches.

The conventional approach to valuation has traditionally emphasised location, age, and aesthetic considerations, where structural integrity is assumed as a minimum necessary requirement rather than a differentiator of value. However, the current market trends and government regulations have started to call into question this conventional wisdom, with a consequent reassessment of the impact of structural quality on current market value and future value trends.

2.2 Critical Valuation Factors

Studies on the determinants of valuation have also revealed a number of important factors that go beyond the conventional location factors. Chegut, Eichholtz, and Kok (2014) show that properties with better environmental ratings receive price premiums, which indicates that physical quality factors such as structural quality can have a strong impact on market perception. Likewise, Fuerst and McAllister (2011) discovered that green attributes are associated with higher occupancy and rent premiums, which highlights the importance of quality construction and engineering.

Lorenz and Lützkendorf (2008) contend that the concept of sustainability in property valuation should extend beyond environmental performance to include technical robustness. Their approach considers structural quality as the core of long-term value preservation, especially in situations where properties are exposed to seismic, climatic, or regulatory risks.

2.3 Structural Design Impact on Valuation

There has been a growing trend in the engineering literature to focus on the economic aspects of structural design. Flanagan and Jewell (2008) highlight the need for whole-life value assessment approaches that combine construction costs with maintenance, repair, and subsequent decommissioning costs. Structural designs that incorporate quality materials, multiple load paths, and optimal foundation systems tend to have lower whole-life costs, thus improving net present value.

Bosher and Dainty (2011) examine disaster risk reduction as a structural engineering concern that has a direct bearing on asset value. Seismic-resistant, wind-resistant, or flood-resistant structures exude an element of resilience that can be directly linked to lower insurance costs, lower disaster risks, and marketability in disaster-prone areas. The ISO 13822 (2015) standard for the assessment of existing structures is a technical guideline that supports the relationship between engineering excellence and economic viability.

2.4 Critical Structural Elements

Some of the structural elements that have been found to be highly significant in the determination of building value have been identified. Foundation quality has been found to be a major concern, as it is responsible for supporting the entire superstructure, and it is difficult and expensive to retrofit or repair (Wilkinson & Sayce, 2019). The structural frame system, whether it is steel, reinforced concrete, or timber, has been found to affect not only the construction costs but also the adaptability of the structure in the future and seismic resistance.

Load-bearing capacity and redundancy of the structure have been found to affect the safety factors and adaptability of the structure to accommodate changing uses without the need for extensive structural changes (Geraedts & van der Voordt, 2007). Material quality and durability have been found to affect the maintenance requirements and the risk of early deterioration, which in turn affect the construction costs and investor confidence (Lützkendorf & Lorenz, 2011).

Conformity with building regulations and standards is a legal requirement and a market indicator of quality. Kok, Monkkonen, and Quigley (2014) highlight that building regulations are increasingly incorporating performance standards that provide financial rewards for better engineering design, thus providing a financial incentive to go beyond the minimum standards. In conclusion, the literature has provided a conceptual framework that establishes the relationship between structural engineering quality and property valuation, but the empirical evidence to support these relationships for various stakeholders is still scarce, and this study aims to fill this research gap.

2.5 Prospect Theory and Structural Risk Perception

Prospect theory, originally formulated by Kahneman and Tversky (1979), offers a powerful behavioural lens through which to interpret how market participants evaluate risk and uncertainty in real estate decisions. Unlike classical expected utility theory, which assumes rational value maximisation, prospect theory posits that individuals assess outcomes relative to a reference point and exhibit asymmetric sensitivity to gains and losses. Crucially, losses are experienced as psychologically more painful than equivalent gains are pleasurable—a phenomenon known as loss aversion. Tversky and Kahneman (1992) subsequently refined this framework into cumulative prospect theory, which further accounts for the systematic overweighting of low-probability, high-impact events, a feature particularly relevant to the perception of catastrophic structural risk.

The application of prospect theory to property markets has attracted growing scholarly attention. Genesove and Mayer (2001) demonstrated that residential sellers whose properties had declined in value relative to their acquisition price set higher listing prices and accepted lower transaction probabilities, providing direct evidence of loss aversion shaping behaviour in housing markets. Bokhari and Geltner (2011) extended this finding to commercial real estate, showing that reference-dependent pricing and loss aversion materially influence transaction prices in office and industrial markets. Thaler's (1980) concept of mental accounting further suggests that property investors frame structural defects not merely as maintenance line items but as distinct loss events, heightening their psychological salience relative to quality improvements of equal monetary value.

In the context of structural engineering and building valuation, prospect theory provides a compelling explanation for why market participants may penalise structural deficiencies more severely than they reward equivalent quality improvements. The prospect of structural failure, escalating maintenance costs, regulatory non-compliance, or catastrophic loss represents a category of outcome that activates loss aversion mechanisms, leading buyers, investors, and valuers to assign disproportionate weight to engineering risk. This asymmetry implies that the value penalty associated with poor structural quality may substantially exceed the premium commanded by superior engineering—a proposition with direct implications for how structural risk is priced in real estate markets, and for how engineers and developers communicate engineering quality as a risk-mitigation mechanism. Integrating prospect theory into the study of structural valuation thus bridges behavioural economics and property appraisal, enriching the conceptual framework within which this research is situated.

III. RESEARCH METHODOLOGY

3.1 Research Objectives

The primary objectives of this research are:

- To identify structural factors that affect building value
- To understand how structural quality impacts property prices
- To examine future trends in structural engineering and valuation

These objectives translate into the following research questions: RQ1: Which structural engineering parameters do industry professionals consider most significant in determining building value? RQ2: To what extent does structural engineering quality influence long-term building value retention, as perceived by professionals across engineering and valuation disciplines? RQ3: How do industry professionals expect the role of structural engineering quality in property valuation to evolve over the next decade?

3.2 Research Design

This study employs a quantitative cross-sectional survey design using a structured questionnaire. The research instrument was developed based on an extensive review of relevant literature and validated through pilot testing with a small group of industry professionals. The questionnaire comprised three main sections: demographic information, structural engineering quality parameters, and valuation impact assessments. Respondents were asked to rate various factors on Likert-type scales and provide categorical responses to questions about their professional experience and perspectives.

3.3 Scope of Study

The scope of this study is limited to commercial and residential buildings in an urban and suburban setting. The study will investigate structural engineering quality on a number of different parameters such as foundation design, structural framework, material quality, load-carrying capacity, earthquake and wind resistance, and code standards. The scope of the study is also limited to the present state of valuation and future trends over the next ten years, with a focus on long-term retention of value over a period of 20 years.

3.4 Sampling Frame

The sampling strategy employed purposive sampling to ensure representation across key stakeholder groups:

- Target Population: Professionals involved in building design, construction, valuation, and investment
- Sampling Method: Purposive sampling ensuring stakeholder diversity
- Sample Size: A total of 150 questionnaires were distributed, out of which 107 valid responses were received, resulting in a response rate of 71.33%.
- Sample Composition: Civil Engineers (32.71%), Structural Engineers (30.84%), Real Estate Valuers (22.43%), and other professionals including Architects, Developers, and Brokers (14.02%)
- Experience Profile: 72.96% with 11+ years of experience; 51.40% with 20+ years
- Employment Mix: Self-employed (47.66%), Salaried (39.25%), Other (13.09%)

The engineering-heavy composition (63.55% engineers) combined with significant representation from real estate valuers ensures that responses reflect both technical expertise and market valuation experience. The high proportion of seasoned professionals with extensive experience provides mature perspectives on how structural quality influences values over complete building lifecycles.

3.5 Data Collection

Data collection was conducted through online and paper-based surveys distributed to professional networks, industry associations, and direct contacts. The survey remained open for a period of eight weeks, with periodic reminders sent to maximize response rates. All responses were anonymized to encourage candid assessments. Data quality was ensured through validation checks, including consistency tests and completeness requirements. Responses with substantial missing data or evident pattern-based answering were excluded from analysis.

3.6 Data Analysis

Data were analysed using descriptive statistical methods. Given that the research objectives are oriented toward measuring professional perceptions and establishing the relative importance of structural engineering parameters rather than testing causal hypotheses, a descriptive approach is appropriate and consistent with similar survey-based studies in the property valuation literature (Lorenz & Lützkendorf, 2008; Warren-Myers, 2012). Frequency distributions and percentage responses were calculated for all Likert-scale and categorical items. Responses were grouped into consolidated categories (e.g., “important” or “very important”) to facilitate comparison across items. Analysis was conducted using spreadsheet software, with data validation checks applied prior to analysis to ensure completeness and internal consistency. Future research incorporating a larger and more geographically diverse sample would benefit from inferential statistical techniques, including cross-tabulation with chi-square testing to compare responses across professional subgroups, and mean score analysis with standard deviations to enable more precise comparison of consensus levels across structural parameters.

3.7 Limitations of the Study

Several limitations of this study should be acknowledged. First, the sample composition is heavily weighted toward engineers (63.55%), which may introduce a professional bias toward overvaluing structural parameters relative to the assessments of pure market valuers or investors. Second, purposive sampling, while appropriate for ensuring stakeholder diversity, limits the statistical generalisability of the findings to the broader population of built environment professionals. Third, all data are self-reported, which creates a risk of social desirability bias: respondents may have stated what they believe represents best practice rather than accurately reporting their actual decision-making behaviour. Fourth, the study does not control for geographic variation, building type, or stage of the market cycle, all of which may significantly affect how structural quality is priced in practice. Fifth, the cross-sectional research design captures professional opinion at a single point in time and cannot establish causal relationships between structural engineering quality and property value outcomes. Longitudinal research designs and transaction-level data would be required to move from perceptual evidence to demonstrated market effects.

IV. ANALYSIS

4.1 Demographics of the Respondents

4.1.1 Professional Role of Respondents

Professional Role	Frequency	Percentage
Civil Engineer	35	32.71
Structural Engineer	33	30.84
Real Estate Valuer	24	22.43
Other (please specify)	10	9.35
Architect	5	4.67
Developer	5	4.67
Property Investment Manager	3	2.80
Real Estate Agent/Broker	2	1.87
Contractor/Builder	1	0.93
Total	107	100.00

The respondent pool demonstrates strong technical expertise, with nearly two-thirds comprising Civil Engineers (32.71%) and Structural Engineers (30.84%). This engineering-heavy composition, combined with significant representation from Real Estate Valuers (22.43%), ensures responses are grounded in both technical knowledge and market valuation experience.

4.1.2 Years of Experience

Years of Experience	Frequency	Percentage
More than 20 years	55	51.40
2-5 years	18	16.82
11-15 years	14	13.08
6-10 years	10	9.35
Less than 2 years	7	6.54
16-20 years	8	7.48
Total	107	100.00

The survey reflects seasoned professional judgment, with over half (51.40%) having more than 20 years of experience. This extensive experience base, totaling 72.96% with over 11 years of experience, provides mature perspectives on how structural engineering quality influences building values over time.

4.1.3 Type of Employment

Employment Type	Frequency	Percentage
Self-Employed	51	47.66
Salaried	42	39.25
Consultants	10	9.35
Partner in a Firm	5	4.67
Other	1	0.93
Total	107	100.00

The employment distribution reveals a balanced mix of independent practitioners (47.66% self-employed) and organisational employees (39.25% salaried), providing perspectives from both entrepreneurial consultants who directly interface with clients and institutional professionals who work within larger organisational frameworks.

4.2 Structural Engineering Quality and Valuation Impact

4.2.1 Importance of Structural Engineering Aspects in Determining Building Value

Structural Factor	Not Important (1)	Slightly Important (2)	Moderately Important (3)	Very Important (4)	Extremely Important (5)
Foundation quality and design	2	6	20	21	58
Structural frame system	1	6	18	33	49
Load-bearing capacity	3	5	24	34	41
Seismic resistance design	1	7	28	23	48
Wind resistance capability	2	10	33	26	36
Structural integrity	2	4	23	33	45
Quality of structural materials	1	5	20	27	54
Structural system redundancy	2	13	27	28	37
Floor/ceiling load capacity	4	8	34	27	34

The data reveals strong consensus on the critical importance of structural engineering factors in building valuation. Foundation quality and design emerged as the most highly valued factor, with 73.83% of respondents rating it as either 'Very Important' or 'Extremely Important'. Quality of structural materials (75.70%) and structural integrity (72.90%) also received overwhelming recognition. Even factors like structural system redundancy and floor load capacity, which might be considered secondary, were rated as moderately to extremely important by over 80% of respondents. This indicates a comprehensive recognition across all measured structural parameters as significant value determinants.

4.2.2 Impact on Long-term Building Value Retention

Impact on Long-term Value (20 years)	Frequency	Percentage
Significantly increases long-term value retention	48	44.86
Moderately increases long-term value retention	28	26.17
Neutral impact on long-term value	16	14.95
Slightly decreases long-term value retention	10	9.35
Significantly decreases long-term value retention	9	8.41
Total	107	100.00

The table provides evidence that structural engineering quality is widely perceived as a critical determinant of a building's long-term value. A substantial proportion of respondents (44.86%) reported that high-quality engineering significantly increases value retention, with an additional 26.17% acknowledging a moderate positive effect. This indicates that more than 70% of stakeholders associate engineering excellence with sustained asset value. By contrast, only 14.95% considered the impact neutral, while a small minority (17.76% combined) believed it could slightly or significantly decrease value retention. This suggests a strong consensus that poor engineering undermines long-term durability and investor confidence, whereas robust structural quality serves as a safeguard for property valuation.

4.2.3 Structural Engineering Factor Most Significantly Impacting Long-term Value

Factor	Frequency	Percentage
Material quality and durability	28	26.17
Maintenance requirements	26	24.30
Foundation quality	17	15.89

Code compliance level	15	14.02
Seismic/disaster resistance	9	8.41
Structural system flexibility	7	6.54
Load-bearing capacity	6	5.61
Total	107	100.00

The table highlights which dimensions of structural engineering are most strongly linked to long-term building value. Material quality and durability emerged as the most significant factor (26.17%), followed closely by maintenance requirements (24.30%), underscoring the importance of tangible longevity and reduced lifecycle costs. Foundation quality (15.89%) and compliance with regulatory codes (14.02%) also featured prominently, reflecting the dual importance of structural integrity and legal conformity. While seismic resistance, system flexibility, and load-bearing capacity scored lower, their presence indicates recognition of contextual value drivers, particularly in risk-prone or specialised environments. Collectively, these findings underscore the multidimensional nature of engineering quality in shaping real estate value, with both physical durability and operational sustainability acting as core determinants.

4.2.4 Expected Importance of Structural Engineering Quality in Future Valuation

Expected Change (Next 10 Years)	Frequency	Percentage
Increase significantly	67	62.62
Increase moderately	29	27.10
Remain the same	13	12.15
Decrease moderately	2	1.87
Total	107	100.00

The table points toward an expected escalation in the significance of structural engineering within property valuation practices over the next decade. A clear majority (62.62%) anticipate that its importance will increase significantly, and a further 27.10% foresee a moderate increase. This near-unanimous expectation of rising relevance suggests that structural performance is increasingly being integrated into long-term investment risk assessments and valuation frameworks. Only a marginal 1.87% predict a decline, reflecting minimal skepticism. These results imply that evolving environmental challenges, stricter regulatory standards, and growing emphasis on sustainable development will intensify the role of engineering quality as a determinant of real estate value. Hence, structural engineering is not only viewed as central to current valuation but is also projected to function as a critical factor in defining the resilience and competitiveness of future building assets.

V. DISCUSSION

The results of this study offer strong empirical support that structural engineering quality is a significant factor in building valuation across a range of dimensions. The study shows that there are a number of important insights that emerge, which help to integrate theoretical approaches with real-world market realities.

First, the clear view that emerges from the responses of the overwhelming majority of the sample, covering engineers, valuers, and investors, about the relative importance of structural quality suggests that market perceptions have matured to the point where structural integrity is no longer simply a basic requirement but a value-enhancing differentiator that attracts price premiums and guarantees optimal long-term performance. This finding is consistent with the sustainability literature (Chegut et al., 2014; Lorenz & Lützkendorf, 2008) but extends it by showing that structural quality, in and of itself, and irrespective of environmental certification, has significant valuation weight.

Second, the emphasis on foundation quality, material strength, and maintenance needs suggests a sophisticated appreciation of whole-life economics. These factors are direct contributors to whole-life costs and performance, as outlined in the approaches developed by Flanagan and Jewell (2008). The prominent placement of these variables suggests that market participants are aware of the long-term financial implications of engineering choices, which go beyond the immediate costs of construction to optimize net present value.

Third, over seven in ten respondents think that good structural engineering is important in maintaining value over the long term, either significantly or moderately. This confirms the role Wilkinson and Sayce (2019) and Bosher and Dainty (2011) suggested, and it is quite surprising, especially in view of the range of professional backgrounds of the respondents. It is clear that there is broad consensus across disciplines about the economic benefits of engineering excellence.

Fourth, when considering the future, respondents think that the importance of structural quality will increase in valuation practice. Around 90% think that its importance will increase over the next ten years, probably due to climate change adaptation requirements, seismic design requirements, and increasing regulation. This is in line with trends in performance-based design and resilience engineering, which indicate a need for valuation approaches to take these aspects into account explicitly.

The research also reveals significant differences in the relative weights assigned to different structural aspects. Foundation quality and durability of materials are at the top of the list, while seismic resilience and structural flexibility are rated lower. This might be due to regional differences in risk, or it could indicate that some engineering aspects are still under-valued relative to their actual contribution to building performance and safety.

However, there are a few points that must be considered. The sample size is not particularly large, and this reduces the validity of the findings and their generalizability to the wider population of professionals in the built environment. There is also the potential for response bias, given that all the information is based on self-reporting. This could mean that respondents have been adjusting their answers to conform to what is generally accepted as best practice, rather than what they actually believe. In addition, the sample does not represent the full range of the practitioner community. It is likely that the views of certain regions and certain sections of the community are not represented.

From a theoretical perspective, the findings align with the predictions of prospect theory in ways that deserve explicit articulation. The near-universal view that poor structural quality imposes significant costs—through devaluation, elevated maintenance, regulatory non-compliance, and reputational risk—while superior engineering commands only moderate premiums is precisely the asymmetry that Kahneman and Tversky (1979) and Tversky and Kahneman (1992) would predict under loss aversion. The reference point for market participants appears to be code-compliant, minimally adequate construction; outcomes below that threshold are processed as losses and penalised disproportionately, while outcomes above it are registered as relatively modest gains. This interpretation is further supported by the finding that material durability and maintenance requirements were ranked as the most significant structural factors for long-term value: these are precisely the attributes that, when deficient, generate the visible and recurrent loss events—repair bills, early obsolescence, insurance claims—that Thaler's (1980) mental accounting framework identifies as psychologically salient. The strong consensus across respondent groups on the rising importance of structural quality over the next decade may also reflect prospect-theoretic reasoning: as climate risks, seismic events, and regulatory penalties become more prominent, the potential downside of structural inadequacy grows, intensifying loss aversion effects.

The theoretical implications are significant. The study contributes to a growing body of work that seeks to integrate structural engineering and property valuation—two disciplines that have historically developed in parallel rather than in dialogue. By demonstrating that practitioners across engineering, valuation, and development roles assign consistent and substantial weight to structural quality parameters, the study provides empirical grounding for incorporating technical performance indicators into formal valuation frameworks. The implication for valuation theory is that conventional hedonic and comparable sales approaches, which treat structural performance as a background assumption rather than a measurable variable, may systematically under-represent the role of engineering quality in price formation—particularly in markets where structural risk differences are pronounced. More broadly, the findings open a productive theoretical avenue at the intersection of behavioural economics, risk perception, and property valuation, where prospect theory serves as the connecting logic between engineering decisions and market outcomes.

Practical implications are very extensive for several parties. Structural engineers must be aware that engineering decisions have implications for marketability and economic returns, in addition to mere compliance and safety. Valuers may choose to employ more sophisticated approaches to structural quality assessment, possibly incorporating technical audits, material analysis, and performance simulations into traditional appraisal work. Real estate investors and developers may use engineering excellence as a competitive tool, particularly in markets that increasingly value lifecycle costs and sustainability.

Public authorities may encourage engineering excellence through tax breaks, expedited permitting for structures that go beyond minimum code requirements, or requiring disclosure of structural quality factors in real estate transactions.

VI. CONCLUSION

This study provides empirical confirmation, drawn from 107 experienced industry professionals, that structural engineering quality is a significant and widely recognised determinant of real estate value. Foundation quality, material durability, structural integrity, and compliance with regulatory codes were consistently rated as important value drivers, with material quality and maintenance requirements identified as the factors most strongly associated with long-term value retention. Over 70% of respondents believed that superior structural engineering moderately or significantly improves long-term asset value, and nearly 90% anticipated that its importance in valuation practice will increase over the next decade. These findings collectively demonstrate that structural quality has moved beyond its conventional status as a baseline technical requirement and is increasingly understood by market participants as an active economic differentiator. The integration of prospect theory into the analysis adds a further contribution, explaining the asymmetric manner in which structural risk and quality are valued: the downside of engineering deficiency appears to be penalised more heavily than the upside of engineering excellence is rewarded, a dynamic with direct implications for how engineers, developers, and valuers communicate and price structural performance.

For design professionals, this is a reminder that decisions made in the design phase have a ripple effect into financial performance far beyond the construction phase. For valuation professionals, it suggests a need for improved technical analysis tools and techniques. For investors and developers, structural quality becomes a competitive advantage in a market-driven environment. For policymakers, there is an opportunity to better align regulation with what markets value through performance-based incentives.

Several directions for future research follow from these findings. Longitudinal studies that track actual transaction prices alongside documented structural performance data would allow the perceptual evidence presented here to be tested against observed market behaviour. Regional comparative research is needed to determine whether the value placed on structural quality varies with seismic risk, climate exposure, regulatory stringency, or market maturity. Experimental or quasi-experimental designs could test whether loss aversion effects in structural risk pricing vary by investor type or professional background. The development of standardised structural quality indices, analogous to green building rating systems such as LEED or BREEAM, would provide the formal measurement infrastructure needed to integrate structural performance into appraisal practice. Finally, disclosure policy research could examine whether requiring structural quality information in property transactions, as some jurisdictions are beginning to consider, materially affects prices and investment behaviour.

Structural engineering quality is more than a technical matter—it is a fundamental economic driver of value creation, value preservation, and risk management in real property. As urbanisation accelerates, climate risks intensify, and building stock ages, the professional and financial consequences of engineering decisions will only grow. This study establishes that the market already recognises this, and that the gap between the technical and economic dimensions of structural quality is closing. Bridging it fully will require collaboration across engineering, valuation, and policy disciplines—and a shared language that connects structural performance to the financial frameworks through which real estate value is measured and managed.

REFERENCES

[1] Bosher, L., & Dainty, A. (2011). Disaster risk reduction and 'built in' resilience: Toward overarching principles for construction practice. Disasters, 35(1), 1–18. https://doi.org/10.1111/j.1467-7717.2010.01189.x

[2] 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

[3] Chegut, A., Eichholtz, P., & Kok, N. (2014). Supply, demand, and the value of green buildings. Urban Studies, 51(1), 22–43. https://doi.org/10.1177/0042098013484526

[4] Flanagan, R., & Jewell, C. (2008). Whole life appraisal for construction. John Wiley & Sons.

[5] Fuerst, F., & McAllister, P. (2011). Green noise or green value? Measuring the effects of environmental certification on office values. Real Estate Economics, 39(1), 45–69. https://doi.org/10.1111/j.1540-6229.2010.00286.x

[6] Geraedts, R., & van der Voordt, T. J. M. (2007). A tool to measure opportunities and risks of converting empty offices into dwellings. Building Research & Information, 35(5), 478–487. https://doi.org/10.1080/09613210701217125

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

[8] ISO. (2015). ISO 13822: Bases for design of structures – Assessment of existing structures. International Standards Organisation.

[9] Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. Econometrica, 47(2), 263–292. https://doi.org/10.2307/1914185

[10] Kok, N., Monkkonen, P., & Quigley, J. M. (2014). Land use regulations and the value of land and housing: An intra-metropolitan analysis. Journal of Urban Economics, 81, 136–148. https://doi.org/10.1016/j.jue.2014.03.004

[11] Ling, D. C., & Archer, W. R. (2012). Real estate principles: A value approach (4th ed.). McGraw-Hill Irwin.

[12] Lorenz, D., & Lützkendorf, T. (2008). Sustainability in property valuation: Theory and practice. Journal of Property Investment & Finance, 26(6), 482–521. https://doi.org/10.1108/14635780810908361

[13] Lützkendorf, T., & Lorenz, D. (2011). Capturing sustainability-related information for property valuation. Building Research & Information, 39(3), 256–273. https://doi.org/10.1080/09613218.2011.556376

[14] Sayce, S., & Connellan, N. (2017). Right price, right place, right time: Valuing sustainability in commercial property. Journal of Property Investment & Finance, 35(6), 583–596. https://doi.org/10.1108/JPIF-05-2017-0041

[15] Sayce, S., Sundberg, A., & Clements, B. (2010). Carbon and value: The impact of climate change on real estate valuation. Journal of Property Research, 27(1), 1–23. https://doi.org/10.1080/09599911003703355

[16] Thaler, R. H. (1980). Toward a positive theory of consumer choice. Journal of Economic Behavior & Organisation, 1(1), 39–60. https://doi.org/10.1016/0167-2681(80)90051-7

[17] Tversky, A., & Kahneman, D. (1992). Advances in prospect theory: Cumulative representation of uncertainty. Journal of Risk and Uncertainty, 5(4), 297–323. https://doi.org/10.1007/BF00122574

[18] Warren-Myers, G. (2012). The value of sustainability in real estate: A review from a valuer's perspective. Journal of Property Investment & Finance, 30(2), 115–144. https://doi.org/10.1108/14635781211206887

[19] Wilkinson, S., & Sayce, S. (2019). Sustainable building adaptation: Innovations in decision-making. John Wiley & Sons.

[20] Wilkinson, S., Remøy, H., & Langston, C. (2020). Sustainable building adaptation: Innovations in decision-making. Routledge.

[21] Wong, J. K. W., & Li, H. (2008). Application of the analytic hierarchy process (AHP) in multi-criteria analysis of green building assessment criteria. International Journal of Construction Management, 8(1), 1–15.

https://doi.org/10.1080/15623599.2008.1077312
0