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The Challenges of Identifying and Examining Links between Sustainability and Value: Evidence from Australia and New Zealand

Authors Georgia Warren-Myers and Richard Reed

Abstract A commonly-accepted observation by industry stakeholders is that the financial benefits of sustainable real estate investment are inherently difficult to quantify (RICS, 2009). The lack of transparent financial correlations between sustainability and economic return in real estate has created major issues for real estate appraisers and valuers seeking to accurately reflect the impact of sustainability. This paper argues the lack of transparency with financial drivers restricts substantial investment in sustainability because stakeholders have limited ability to measure the sustainability of the building or understand the impact on value.

Although advances in sustainable buildings has gained momentum in the design and construction disciplines, commensurate levels of development and investment in the same buildings by the private sector have remained limited for some time (Reed and Wilkinson, 2005). With sustainable buildings it is commonly accepted that there is limited availability of market information and an absence of transparent mechanisms that identify the financial viability for investment in sustainable commercial property. This is partly due to the relatively recent emergence of sustainable buildings into the mainstream property market. Unfortunately, the absence of a defined connection between sustainability and economic returns directly affects stakeholders who invest in the built environment—predominantly large financial, banking, and superannuation organizations who are the key drivers in the real estate market. Arguably this ongoing absence of reliable and accurate evidence for valuation and appraisal purposes is problematic in trying to identify whether there is any correlation between value and sustainability. Consequently, this leaves the investment industry uncertain about the financial benefits of sustainability (Madew, 2006) and the risks involved in sustainability investment (Warren-Myers, 2009). Therefore, if the progress and uptake of sustainable buildings is to develop further within the real estate market, it is essential that the links in the relationship between market value and sustainability are identified. In turn this will enable sustainable buildings to be promoted to the investment industry with a higher level of confidence about risk and return.

Increasingly stakeholders in the global real estate markets, where possible, seek to incorporate sustainability into commercial building stock through new

developments and upgrading existing buildings. This statement is directly applicable to markets in Australia and New Zealand. Although there is considerable advancement by investors to incorporate sustainability initiatives in their building portfolios, there remains uncertainty about the direct relationship with real estate market values. The type and level of sustainability initiatives being implemented are primarily focused on efficiencies and cost minimization, with a concentration on payback ability of the initiatives. However, the lack of clear financial drivers is preventing substantial investment in sustainability because stakeholders have a limited ability to measure the sustainability of the building or understand the relationship with value. This affects investors' decisions due to a higher level of risk being associated with unknown information, particularly surrounding sustainability. Valuers and appraisers are challenged in finding enough detailed market evidence, sales data, and lease transactions relating to sustainable buildings, let alone examining the different sustainability parameters in the properties for the comprehensive comparison required for market value assessments. This is further compounded by uncertainty in the industry surrounding the accurate measurement of sustainability in reference to commercial real estate.

Valuers and appraisers often operate across global real estate markets and they need to be fluent with the increased diversity in rating tools (Reed, Bilos, Wilkinson, and Schulte, 2009a) and also be able to monitor changes in values in the real estate market (Lorenz et al., 2008). However, for valuers and appraisers to accurately reflect the real estate market, they must be able to compare and analyze the market based on current, comparable, and reliable data. For example, in Australia the sustainability of a particular building is rated using different rating tools. In this scenario, new buildings and construction are commonly assessed through the 'Green Star' system, which has limited applicability to existing buildings or alternatively NABERS, which focuses on the measurable operational aspects of a building. The rating tools have encouraged the design and development of new buildings and also the measurement of existing buildings. However, differences between rating tools raises the question: How do appraisers assess the sustainability of a new or an existing building in relation to the surrounding building stock? If valuers and appraisers are experiencing difficulties in accurately reflecting the changing perception towards sustainability in the real estate market, therefore: If they cannot accurately assess the level of sustainability in a building, then how can they identify whether there is a difference in the value? This paper addresses these questions and examines previous research that identifies misconceptions between (a) stakeholders who drive the market (i.e., investors) and (b) valuers/appraisers, who analyze real estate data to accurately reflect the market and use this information to identify the market value of commercial real estate. Key findings are examined from previous studies undertaken in Australia and New Zealand into the relationship between sustainability and the market value of commercial real estate. However, during this process certain key barriers were identified that prevent the market, and more particularly the valuation profession, from quantifying the linkages between value and sustainability in commercial real estate. The findings discuss key issues in the real estate marketplace to be resolved and whether investment and development of sustainability in commercial real estate can be maintained and increased.

Sustainability and Rating Tools

For some time there has been considerable confusion over the definition of sustainability as more than 500 different definitions exist (Phillips, 2003). The concept and definition of sustainability over the past two decades has been and still is being constantly redefined (JLL, 2007). However, the majority of definitions have developed or evolved from earlier explanations, such as Brundtland (1987), Pearce, Markandya, and Barbier (1989), and WBCSD (2006), which are now widely accepted as a basis for definition.

An awareness of the need for sustainability has developed and changed in recent years due to the increasing global focus on the world's finite resources, excessive carbon dioxide levels, and the threatening consequences of global warming and climate change. This has highlighted the urgent need for solutions. The common acceptance of climate change globally has been through major reports such as the *Stern Review* (2006) in the United Kingdom and the *Garnaut Report* (2008) in Australia. These reports concluded there is overwhelming scientific evidence climate change is occurring; as such it presents serious and seemingly unavoidable global risks. These documents, among others, suggest the cost of maintaining a 'business-as-usual approach' could result in severe impacts on society, the environment, and the economy, where these impacts are likely to escalate if greenhouse gas emissions are not reduced substantially. However, the worst-case scenario can possibly be avoided if strong global action is undertaken immediately (Stern et al., 2006). As a consequence, a global focus on reducing greenhouse gas emissions has developed a greater urgency than previously and governments are endeavoring to coordinate a reduction in emissions.

The contribution of the built environment to resource consumption, waste, and greenhouse gas emissions production is gradually gaining momentum (Brown, Dillard, and Marshall, 2006). As a result, specific taskforces have been developed to focus on sustainable development for the built environment, such as the RICS (2009), Department of Environment Transport and the Region (DETR, 1999, 2000), and Egan (2004). In addition, in Australia and New Zealand there have been other groups including government, non-profit organizations, and industry bodies; for example, the Department of Energy, Utilities and Sustainability (DEUS, NSW government), the New Zealand Ministry for Environment, and the World and National Green Building Councils. These groups have aimed to develop policy and legislation, create assessment tools, and educate and promote the implementation of sustainability in the property industry. There has been considerable research into the importance of sustainability in the built environment and the triple bottom line model and its relationship with the built environment (e.g., Pivo and McNamara, 2005; WWF and Insight, 2005; Eurosif, 2006, 2007; and Strong and Hemphill, 2006).

Classifying sustainability has been attempted by various researchers, industry and non-profit groups, organizations, and government (e.g., Hemphill, McGreal, and Berry, 2002; Boyd, 2006; Ellison and Sayce, 2006; Green Building Council of Australia, 2007; Lutzkendorf and Lorenz, 2005; New Zealand Green Building

Council, 2007; United Nation Environment Programme, 2008). Nevertheless, the identification of the optimal classification system is still uncertain. There is a plethora of sustainability indicators and the abundant nature of such indicators makes it inherently difficult to identify the ‘right’ indicators to use (Sayce and Ellison, 2003; Ellison and Sayce, 2007). The difficult task of identifying what attributes or indicators are the ‘right’ indicators remains highly subjective. At the same time there has been considerable focus on what constitutes sustainability and sustainable development. The actual measurement of these characteristics has been introduced by environmental rating tools to the property industry, which in turn has proved to complicate the selection of the ‘right’ sustainable attributes.

An earlier study concluded that more than 600 tools were available to measure or evaluate the environmental, social, and economic dimensions of sustainability in the built environment (Building Research Establishment, 2004). The vital role of Green Building Councils have played in promoting sustainability in the built environment has been driven primarily by the development of rating tools to provide benchmarks, objectives, and rewarding of best practice (Todd, Crawley, Geissler, and Lindsey, 2001). Rating tools (Exhibit 2) that have gained considerable traction in the commercial property industry, which have often been developed in specific national contexts, are Leadership in Energy and Environment Design (LEED) (United States and Canada), ENERGY STAR (United States), Building Research Establishment Environmental Assessment Method (BREEAM) (United Kingdom), Comprehensive Assessment System for Building Environmental Efficiency (CASBEE) (Japan), Green Star (Australia), and National Australian Built Environment Rating System (NABERS) (Australia). These tools predominately focus on using the design elements within a property to identify the sustainability design potential of the property (Warren, 2009). The industry

Exhibit 1 | Comparison of Green Star and NABERS

	Green Star	NABERS
Assessment	Design, broad holistic criteria	Operation, measurable building data
Star Ratings	4–6 Stars (No 1/2 Star Increments)	0–5 Stars (1/2 Star Increments)
Rating Categories	8 environmental categories (energy, water, management, indoor environment quality, land use and ecology, materials, transport) plus an innovation category	Energy and Water Waste and IEQ (Pilot)
Administrator	Green Building Council Australia and New Zealand Green Building Council	DECC (NSW Government)
Rating Frequency	Once off	Annual
History	6 years (based on LEED & BREEAM)	10 years (previously known as ABGR)

Note: The source is Warren-Myers (2009).

preference for these tools is evidenced by the utilization of these formats in other countries. Although there are similarities between the tools, the mechanisms of assessment and operation of the tools make cross-country comparison difficult (Reed, Bilos, Wilkinson, and Schulte, 2009b).

Although building rating tools have helped to develop the concept and the development of more sustainable properties, the downside is the varying degrees of assessment characteristics, parameters, and approaches available (Reed, Bilos, Wilkinson, and Schulte, 2009a). In turn this complicates assessment and investment parameters for stakeholders, particularly global property investors, because the development and use of these complex tools makes understanding the level of sustainability in the property and the surrounding response by the market increasingly more difficult (Dixon et al., 2008).

Many of the rating tools share similar intellectual property and intent with the majority of these tools rating a building through the design and construction phases of a property. Note only ENERGY STAR, EBOM (LEED), NABERS and Australian Building Greenhouse Rating (ABGR)¹ examine a property in operation based on actual usage of resources. This research examines buildings in Australasia (i.e., Australia and New Zealand), therefore the tools requiring further explanation are those primary assessment tools used in the commercial property market in Australia and New Zealand. While this paper focuses specifically on the Australasian region, it is acknowledged that there is continuing development worldwide on the topic and issue of rating tools; however, this study only addresses the tools used in commercial property within the region. The assessment tools utilized to rate the sustainability aspects in commercial property in the Australasian region are Green Star, Green Star NZ, and NABERS (which now includes ABGR). The key differences between the tools are shown in Exhibit 1,

Exhibit 2 | Global Rating and Assessment Tools



The source is Reed, Bilos, Wilkinson, and Schulte (2009b).

where there are alternative environmental categories assessed, stages of certification and associated requirements, assessment methodologies, as well as the actual rating attributed to each system.

Green Star and NABERS are the two primary rating tools used for commercial property in Australia; New Zealand also uses an adapted version of Green Star, but yet NABERS. NABERS is an operational tool requiring at least 12 months of building data in order to achieve certification; at present, NABERS rates only in two main categories: energy and water. The assessment tools for waste and indoor environment quality are in the pilot stage. Whereas Green Star uses a standard base of eight environmental assessment categories and the tool rates properties under (a) Design and (b) As-Built. The Design tool is the most readily used and assesses the property on its *potential* to achieve certain performance levels, while the As-Built rates the property on completion and ensures the elements certified in the Design stage are implemented as stipulated in the Design tool. There is concern with these tools around certification creep (the escalation of requirements) and the state-based discrepancies.

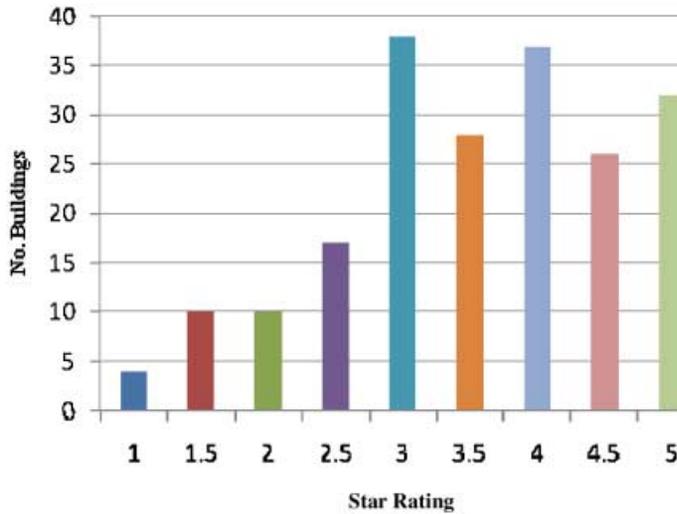
To-date relatively little research has been undertaken to compare the performance potential of a property rated under the Green Star system in comparison to actual performance. Therefore, the rating tool is highly theoretical and unproven in performance (e.g., the energy and water calculators, which assess the design of the property and estimate the potential consumption levels in operation). However, Green Star is arguably holistic in a sense since it incorporates some measures that are inherently difficult to assess in an operationally-based performance assessment (e.g., assessing levels of effect on the land use and ecology of the site or the transport benefits of a property).

As the focus has been primarily on new design and construction, due to the considerable promotion of the Green Star rating system, the lack of a tool that evaluates existing properties has been a considerable hindrance for the property market through not being able to compare the new and existing property stock. Although the NABERS system does examine the existing building stock, this is not an 'apples to apples' comparison as required for valuation and appraisal. The Green Star certification structure means owners' are not under any obligation to share how they achieved the certification. This creates a potential issue for valuers and appraisers as they are unable to gain an understanding of how the property achieved a particular certification, which consequently limits the comparative analysis required in valuation. This further limits an appraiser's' ability to develop more strategic knowledge around sustainability characteristics and attributes and the influence of ratings. For example, in a particular scenario two different properties may achieve a 5-Star Green Star rating in design; however property A achieved a key proportion of its points through the energy category while property B achieved the score predominately through water, land use and ecology, and materials. In this example, both properties have the same rating but are inherently different in their sustainability attributes. Thus comparison of certified properties is inherently difficult unless the owner and other owners have been forthcoming with how they achieved their ratings.

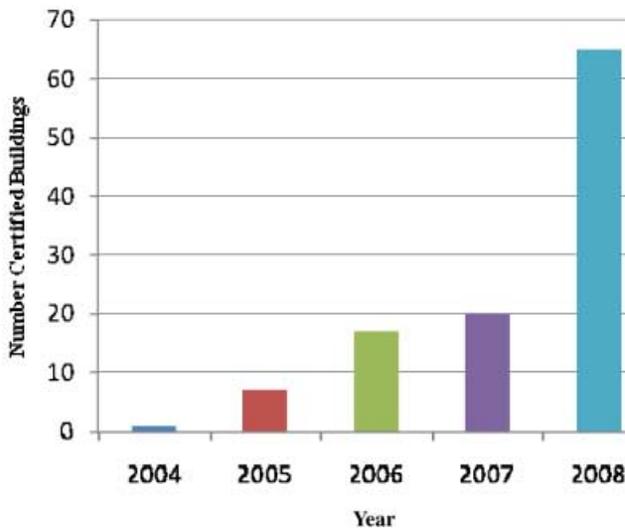
While in the same system there is difficulty undertaking a direct comparison, it should be noted that examining new and existing properties with the two industry rating tools (i.e., Green Star and NABERS) is even more complicated. However, there have been suggestions of combining the two rating tools. An article in *The Financial Review* (11/09/08), for example, suggested that Green Star and NABERS were joining forces to make an optimal tool. However, to-date there has been little to no indication of any progress towards a unified rating tool utilizing both Green Star and NABERS. The actual integration of the tools was not discussed in the article, although this does present a way forward by unifying the segmented rating tool system in Australia. It is envisaged that a unified tool would also reduce the amount of confusion about rating tools by stakeholders in the industry. Both these rating tools are used on a voluntary basis; however, to achieve real change in the industry a degree of government input is needed.² This has developed in Australia where disclosure of property consumption of energy will be required to be disclosed at point of transaction (Council of Australian Governments, 2009). A study into the Kyoto Protocol targets found that those countries achieving a reduction compared to 1990 levels were those that had a relatively more stringent regulatory regime (Kruse, 2008). The Building Code of Australia (BCA) is not making significant advances in the level of sustainability through the Building Code, although the 2010 revisions may be different; note that Green Star is arguably not the correct mechanism to legislate the use of because the parameters are continually changing and are focused on leading edge properties and rewarding best practice rather than policing the industry (NZGBC, 2008), in addition to the focus (to date) on new or major refurbished properties and ignoring existing property. However, the Property Council of Australia (PCA) has incorporated NABERS (previously known as the ABGR) ratings into the upper levels of its property quality grading matrix (PCA, 2006). In this scenario, the number of properties actually certified under these systems compared to the total stock indicates the limited market acceptance and take-up rate.

In analyzing markets' change in terms of sustainability, the number of properties that have actually adopted more sustainable practices through certification schemes and non-certified initiatives in Australia and New Zealand needs to be investigated further. Of the 208 properties with NABERS ratings in 2009, 202 had achieved a NABERS (energy) star rating, as shown in Exhibit 3. While NABERS properties are rated through the assessment of annual operational data, there is an option to improve ratings by the purchase of green power.³

Green Star is certified only once and Exhibit 4 demonstrates the increasing number of Green Star certified properties in the industry. However, with over 22 million square meters of commercial office space in capital cities around Australia (PCA, 2009), the comparison of sustainable properties versus conventional indicates very limited take-up of certification. The number of Green Star properties in New Zealand has been increasing since 2007; by 2009 there were 10 properties certified with 21 registered projects (Cowley, 2009). Although increasing in number, this still represents a very small proportion of sustainable property in the commercial property market. The limited number of sustainable properties in comparison to the broader market limits transactional evidence (i.e., rents and sales) in the

Exhibit 3 | Number of Properties in Australia with NABERS (energy ratings) in 2009

The source is Warren (2009).

Exhibit 4 | Number of Certified Green Star Properties in Australia (2004–2008)

The source is Warren (2009).

market. The low frequency of transactions restricts the amount of evidence that appraisers and valuers can use to analyze and form opinions. This is further exacerbated by the number of properties purpose-built for government, owner/occupiers, and outside of major central business districts in suburban or regional areas. Although exponential growth in sustainable properties, in comparison to

the larger commercial property markets, this represents only a very small percentage of properties. Consequently, this limits valuers' and appraisers' ability to examine and compare market evidence in practice to analyze whether sustainability is the factor influencing a rent or sale price. However, the lack of data is only one issue. Valuers and appraisers do not traditionally have high levels of sustainability knowledge as a core element in their valuation or appraisal practice; consequently, changing market dynamics towards or against sustainability may not be fully recognized by valuers or appraisers. Therefore, if valuers and appraisers are uncertain or lack knowledge of sustainability, their ability to accurately assess whether sustainability has any influence or relationship with market value is questioned.

Methodology

The objective of the research was to provide an account of the perception of the market and provide subsequent evidence to identify and examine the relationship between sustainability and market value. The qualitative approach involved two surveys: (1) a survey of real estate market investors and (2) a survey of commercial valuers/appraisers. Investors were identified because they are the main demand drivers in the market while the role of valuers/appraisers is to reflect the activity in the market through valuation/appraisal. For sustainability to receive serious investment, real estate occupiers and investors who want to respond to issues raised by the sustainability agenda, there is a need to understand the affects of building occupation and ownership regarding sustainability through perception and its relation to worth (Ellison and Sayce, 2006). Therefore, to successfully determine the relationship between sustainability and market value in commercial real estate, it is important to focus on both stakeholder groups. The dual approach has been used in recent attitudinal studies, which compare real estate professionals' attitudes and opinions (e.g., real estate valuers/appraisers) and stakeholders (e.g., real estate investors). The aim is to determine the likely market uptake of sustainability from buyers and investors and determine the degree to which valuers/appraisers perceive that this uptake would impact on the market value of commercial office buildings. Sims and Dent (2005) found that obtaining the opinions of valuers/appraisers and agents appeared to produce a reliable and accurate assessment of market value.

The investor surveys were undertaken in Australia and New Zealand during 2007 and 2008. The investor survey involved an interview of nine unstructured questions relating to sustainability, commercial real estate, and value. The respondents were decision-makers including predominately chief executive officers (CEOs), fund managers, general managers, and portfolio managers of major commercial real estate funds, listed and unlisted trusts, and companies. These investors totaled 59 potential participants identified in Australia and New Zealand. The respondents included 14 investors in New Zealand and 16 investors in Australia, equating to a response rate of 51%.

The valuer/appraiser survey was distributed and accessed online and included 16 questions including information about each participant's location, experience,

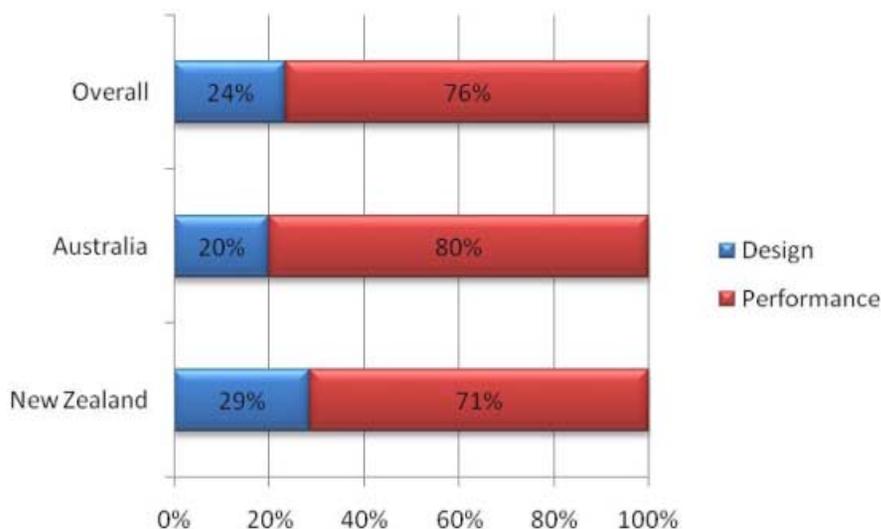
perception of rating tools, drivers of market value and sustainability, and its effect on elements in the valuation equation. The Australian Property Institute (API), Property Institute of New Zealand (PINZ), and the Royal Institution of Chartered Surveyors (RICS) assisted with the survey distribution (e.g., via their member newsletters). A total of 255 responses were received through the online survey. The response rate was not as significant as the investor survey, although when the percentage of practicing commercial valuers/appraisers is taken into account the survey response rate improves. Using this type of survey approach enabled most valuers/appraisers to potentially access the survey; in turn this would produce some interesting insights into the valuation profession and their knowledge and understanding of sustainability in commercial real estate.

Measurement of Sustainability: Investor and Valuer / Appraiser Perceptions

Investors are the drivers of the commercial real estate market, while valuers/appraisers tend to reflect the market dynamics through valuation in the form of a hypothetical sale. Therefore, the perception, action, and rationale of the investment sector is extremely important. The perception of investors is discussed in other publications; however, their perceptions on rating tools are relevant to this paper. Investors were asked whether they would have a preference for a design-rated building or a building that demonstrated performance. Overall, the overwhelming response from Australian and New Zealand investors was for operation. However, many respondents argued there was a place for both design rating and performance because of the ability to impact on a building's operational potential through design.

Exhibit 5 highlights that Australian investment companies have greater knowledge⁴ about the impact of design rating tools, where this may support reasons why they overwhelmingly prefer performance over the design rating tool. In contrast, New Zealand respondents have a preference for a design (or attribute rating) tool, as well as a performance tool. On an individual basis, they are not as supportive and prefer having either design or performance, but have a strong preference for a tool that rates the attributes of a building, as well as measuring the performance of the building. Overall, the preferred option is for measuring the building performance.

The impact of these results represents an observed preference for the performance assessment of buildings. If investors are actively making choices in preference to operational over design-rated buildings, this will have a flow-on effect on the apparent perceived value of 'Green Star' in the market. However, being able to identify and quantify the level of sustainability in a building is inherently important, although to place additional emphasis on having a 'certification' may misinform the industry of the true market value of building sustainability. The focus of investors as reported is reflected to some extent by the increasing use of NABERS certifications (Warren, 2009); however, findings relating to valuers/appraisers perception seem to differ somewhat.

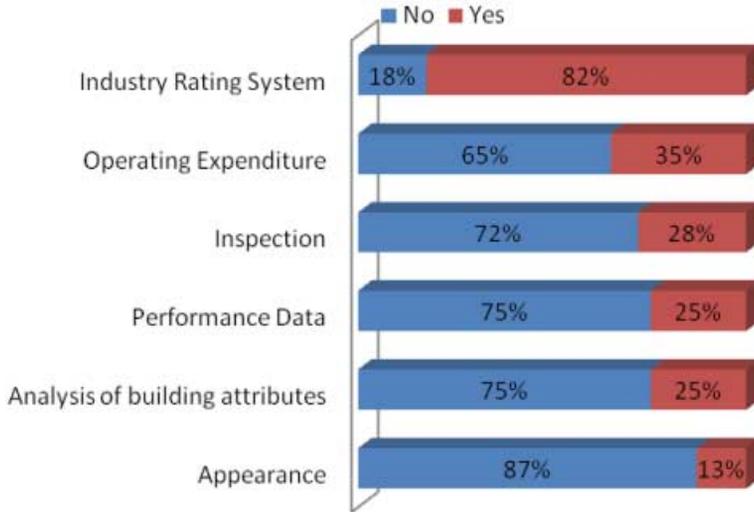
Exhibit 5 | Investor Perceptions on the Distribution of Preference for Design Ratings or Building Performance

The valuer/appraiser survey provided important insights into their perspective of sustainability and rating tools. Although the survey was developed with an objective to find whether valuers/appraisers had identified value in sustainability, the results have accurately identified how large the knowledge gap is for the valuation industry. Certainly a number of responses were identified as having considerable knowledge about sustainability in buildings and the industry rating tools; however, the vast majority of respondents lacked knowledge and understanding. Results for the initial analysis identified that only 35% of respondents had actually valued a building promoted as having sustainable attributes while the vast majority (65%) had not. Given that there were not a considerable number of buildings with sustainable attributes, this proportion probably reflects local market conditions.

Valuers/appraisers were asked whether in the case of valuing a building with sustainable attributes, how they would determine the level of sustainability. Exhibit 6 highlights the distribution of responses to this question. The vast majority of valuers/appraisers (82%) indicated that an industry rating tool would be how they would identify the sustainability in a building, while the next parameter was operational expenditure (35%). This contrasting view to the investors in the market is cause for concern. It can be hypothesized that the views of the valuers/appraisers is based on their lack of knowledge and understanding of the concept of sustainability, or alternatively on their lack of knowledge and understanding of how the rating tools work. It is clear that for the valuation profession to accurately assess the market value of sustainability in commercial real estate, there is a need for up-skilling and understanding of sustainability and industry rating tools.

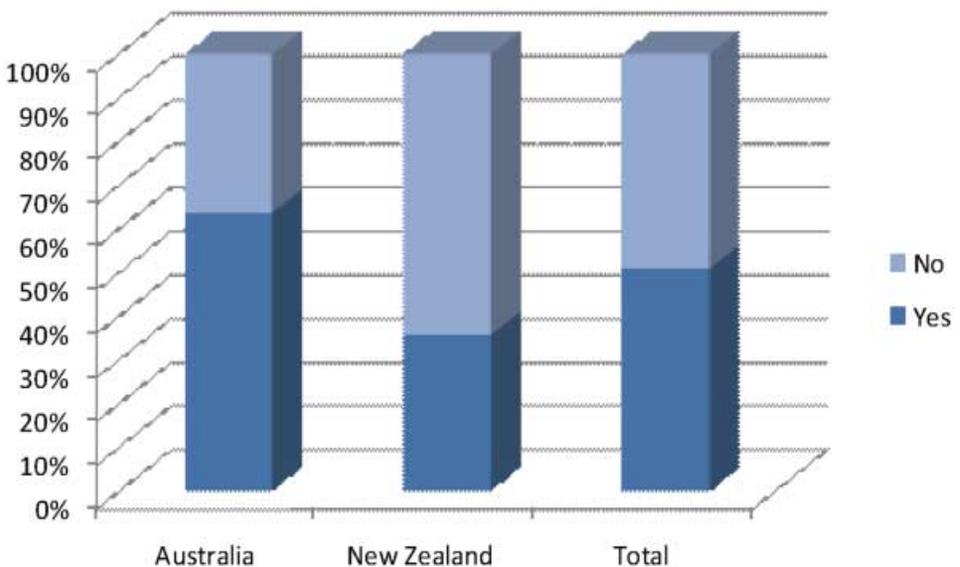
The next question probed further into the understanding of the rating tools present in the industry. The question asked whether valuers/appraisers were familiar with

Exhibit 6 | Valuer/ Appraiser Assessment of the Level of Sustainability in Commercial Real Estate



the distinction between the rating tools. Exhibit 7 highlights that a higher proportion of valuers/appraisers (64%) in Australia were aware of the distinction between the rating tools compared to New Zealand (36%). This result was not unsurprising given that Australia has had industry environmental rating tools since early 2003, while New Zealand was introduced to the concept in 2007. This

Exhibit 7 | Valuer/ Appraiser Familiarity with the Distinction between the Industry Rating Tools



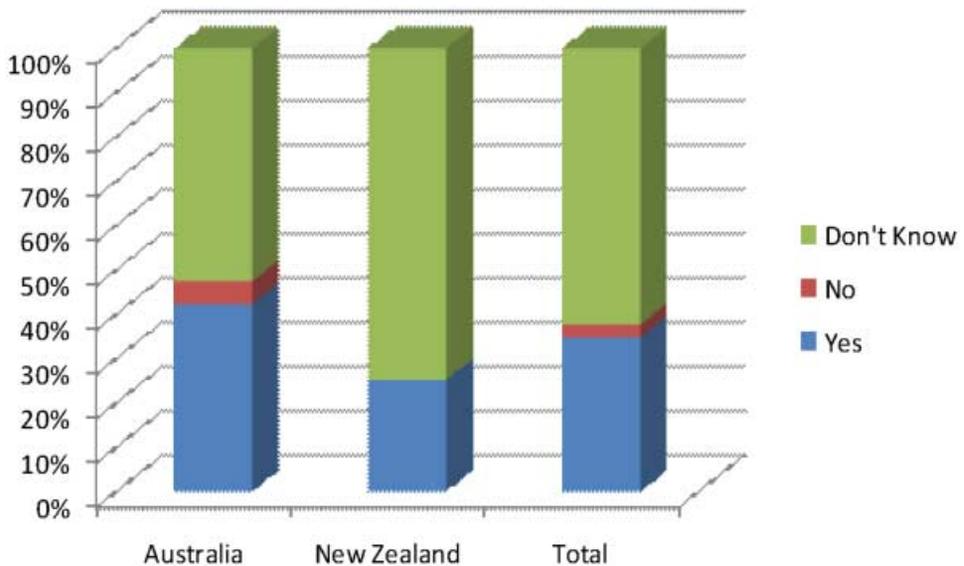
response outlines the valuation profession's general knowledge of rating tools in their industry.

Arguably valuers/appraisers prefer to use an industry rating tool to identify the level of sustainability in commercial buildings. However, if the knowledge of industry ratings tools and the distinctions between them is not fully understood by the valuation community, then how can valuers/appraisers accurately identify the impact of these ratings tools on market value?

Market Value and Industry Rating Tools

There has been discussion in the industry whether a certification has an impact on the rents, yields, and sale prices of commercial real estate. Three key studies to date have been undertaken using the CoStar database to identify whether buildings with sustainability certifications had increased rents and sale prices (Fuerst and McAllister, 2008, 2009; Miller, Spivey, and Florance 2007, 2008a, 2008b; Eichholtz, Kok, and Quigley, 2008, 2009). Primarily using hedonic pricing models and rental/price data, it was determined in all three studies that those buildings that had a certification commanded higher rents and prices. This was important research into the relationship between sustainability and value. The use of hedonic methodology studies are indicative and provide a generalized market analysis of the effect sustainability may have. However, the comparative nature of valuation requires a different type of analysis than hedonic modeling, in that when practicing professionally valuers/appraisers have to compare like with like, to examine the various attributes of the properties, the basis of transaction and other particulars in order to ascertain assumptions and adjustments to assess a market value. This process in the hedonic studies is not able to undertake this process in the same manner as a valuer/appraiser would in practice. As a consequence, there is evidence that can be used in hedonic modeling; however, in practice valuers/appraisers need to have access to more data and have a thorough understanding of a vast variety of characteristics and particularly sustainability in order to draw accurate assessments of any relationship between sustainability and market value. This level of analysis is not undertaken in hedonic studies and although there may be enough data to conduct hedonic modeling relating to sustainability in commercial property, from a valuation and appraisal perspective there is a consensus that although evidence is emerging, there is not yet enough information to draw conclusive views on the relationship between sustainability and market value.

Exhibit 8 illustrates that the valuation profession cannot confirm if there is a relationship between industry rating tools and the market value of commercial real estate. However, where rating tools have been more established, there was a stronger view that it would have some positive impact on the market value, although the Australian valuers/appraisers also indicated industry rating tools had no impact on market value. The overwhelming response to this question was that the valuation professions in Australia and New Zealand do not know to what effect the rating tools have on the market value of commercial buildings. Overall, this response may relate to their lack of knowledge and understanding of the

Exhibit 8 | Valuer / Appraiser Perceptions of Industry Rating Tools' Impact on Market Value

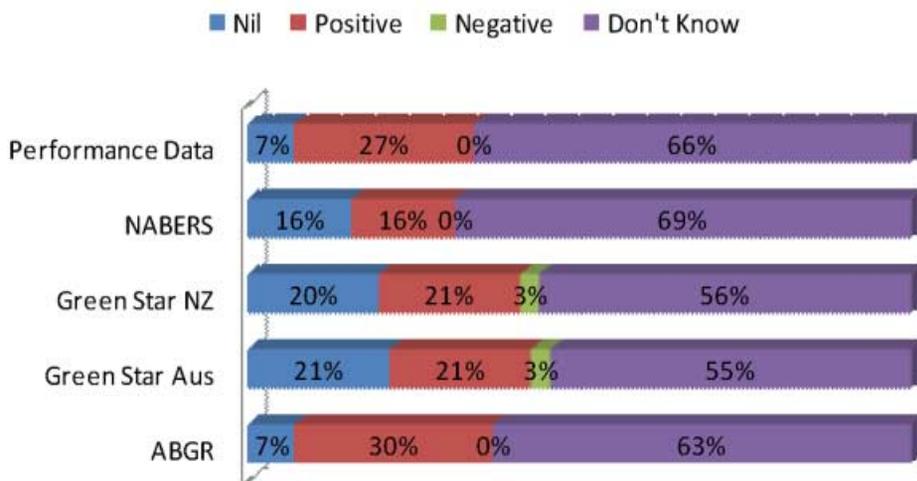
ratings tools and their inability to accurately make a comparative judgment of the buildings.

The survey also asked if the surveyed valuers/appraisers had found evidence of any sort that may be able to identify a connection between sustainability and market value and the overwhelming response was no (i.e., not at this stage). This finding is in contrast to other studies that try to justify that an industry certification through the use of industry rating tools did improve market value. Although it was commented that a building with a certification may help to market the building to tenants or prospective buyers, there was not conclusive evidence to suggest that the certification improved the market value of an office building.

The question of whether industry tools had an impact on the market value of an office building was elaborated on, therefore presenting valuers/appraisers with an opportunity to comment on the range of rating tools and whether there was a perception that the individual rating tools had an effect on market value. Exhibit 9 portrays the perceptions of whether a particular rating tool has an impact on the market value of commercial real estate. Clearly, the 'don't know' response was overwhelming in all categories and ranged from 55% to 69%. However, ABGR (which has since been renamed NABERS Energy although at the time of survey distribution it was still ABGR) was clearly identified with 30% of the market as having an impact on value, followed closely by performance data at 27% having a positive impact on the market value, while Green Star received a close response being evenly split between having a positive impact (21%) or a nil/negative impact (24%) on market value. This corroborates with some of the studies undertaken in the U.S. using the CoStar study. Fuerst and McAllister (2008) and Eichholtz, Kok, and Quigley (2009) both found that the ENERGY STAR certified buildings

Exhibit 9 | Valuer/ Appraiser Perception of Rating Tools

Total Respondents



(similar to NABERS Energy) had a slightly increased premium for rent, whereas LEED rated buildings (similar to Green Star, primarily used for new buildings in design) achieved a much reduced premium or none (Fuerst and McAllister, 2008; Eichholtz, Kok, and Quigley, 2009). In contrast, the study by Miller, Spivey, and Florence (2008) found that LEED achieved a considerably rental premium compared to ENERGY STAR's rental. Evidently methodologies play a large role in the identification of these premiums; however, from a practice perspective these results are not indicative and valuers/appraisers would need to assess their own markets for evidence and comparability before identifying whether a premium exists. The information in Exhibit 9 asked valuers/appraisers in Australia and New Zealand whether any of the rating tools had any impact on the market value, and the overwhelming result was that valuers/appraisers had no idea.

A range of further comments were added by survey participants when asked if valuers/appraisers could put a percentage value on the rating tools' impact on market value. Respondents' comments as follows:

- “Design ratings like Green Star do not identify the performance of the building only the potential...thus if the building is not proven in performance how can a value be attributed.”
- “If a premium exists it would be identified through the rent, however there is no evidence of this in the market yet.”
- “It would be difficult to put a percentage value because every building would be different.”
- “The impact on value would be directly correlated with the overall net income and capital expenditure costs.”

- “Comparison of office buildings through the rating systems is confusing and difficult let alone identifying the difference in market value.”
- “It’s difficult to assess unless the building demonstrates where it has managed to achieve points within the rating systems.”

The findings from this research have identified a high level of confusion and misunderstanding in the valuation community surrounding sustainability identification and quantification and how the different rating tools relate to identifying the level of sustainability in a building. This may have a direct relationship with the limited knowledge valuers have of sustainability and their limited ability to gain further education on this topic from a valuation perspective. Valuers/appraisers in response to the questionnaire indicate they require a simple solution in terms of being able to identify the level of sustainability by using an industry rating tool. However, at present these results confirm that valuers/appraisers do not have a thorough understanding of the issues that surround the use of rating tools to identify the level of sustainability in a building. In comparison, investors in the real estate market have the opposite opinion as their preference is for buildings to demonstrate performance rather than have a rating. Although acknowledging the positive impacts of a building that has a certification, the majority of investors commented that it would not be a necessary requirement when acquiring real estate. If valuers/appraisers are meant to reflect the markets that the investors drive then the two key actors in this market are not aligned with their perceptions and assessment of sustainability in commercial real estate. This, in turn, makes it inherently difficult for any conclusions to be drawn as to whether sustainability has an impact on the market value of commercial real estate.

Conclusion

These research findings identified and examined key barriers restricting the valuation/appraisal profession from being able to accurately reflect the market value of sustainability through valuation. This research confirmed a need for further education of the valuation/appraisal profession in the industry rating tools and potentially for the development of a simple matrix which valuers/appraisers could use to accurately assess the sustainability of a building; possibly a global matrix or set of metrics could be used to help the valuation and appraisal professions examine property sustainability. However, in order for this to be implemented successfully, the valuation profession would require considerable up skilling in understanding the elements that make a building more sustainable. Other research from other markets, namely the U.K. and Germany (Lutzkendorf and Lorenz, 2005; Ellison and Sayce, 2006) have made attempts to create a matrix; however, the practical implementation of these tools into markets where valuers/appraisers have limited understanding of sustainability would cause considerable issues for the industry.

The research found valuers/appraisers are using industry rating tools as the primary metric to assess the level of sustainability in commercial real estate, yet have little knowledge of the rating tools. This contradicts the metrics used by the

investors within the market, who focus on real estate performance levels. Valuers/appraisers should be reflecting and interpreting the methods used by industry as measurement tools. However, it is not only the contradictory nature of assessment, but the assessment tools themselves that cause issues in valuation practice regarding comparative analysis, which may lead to incorrect assessment and reporting of market values. The research also established that half of the valuers/appraisers were unfamiliar with the workings of the rating tools available in their market. Yet, valuers/appraisers identified rating tools as having a positive effect on market values, but could not clearly differentiate which industry rating tools had an effect. This clearly demonstrates the confusion and limited knowledge in the general valuation profession of sustainability assessment and the relationship with market value, which is enhanced by limited transactions for analysis within specific markets.

The research found investors in assessing sustainability in commercial real estate used performance measures to identify the level of sustainability. As investors concentrated on cost minimization primarily through energy consumption, consequently, their assessment of sustainability was based on the level of energy consumed by the real estate. Investors focus on cost minimization as a result of risk mitigation drivers and the relationship to their perception and identification of value in sustainability. This contradicts valuers' primary response to sustainability assessment, which indicates valuers/appraisers are misinformed regarding investors' investment strategies. The valuation assessment, being a hypothetical simulation investment analysis conducted by valuers/appraisers, may ignore one of the investors' key considerations in addressing sustainability in a transaction, which may lead to incorrect assessments of market value, as the concept and definition in assessing market value may not be reflected adequately in valuation practice.

This research concluded the reliance of valuers/appraisers on a rating system is potentially flawed and could prevent the identification of a relationship between sustainability and market value. The research found valuers/appraisers in Australia and New Zealand were not fully competent and experienced in the nuances of the various certification methodologies. The effect of certification creep, varying state-based discrepancies, and lack of market uptake, complicates and hinders the ability of valuers/appraisers to accurately compare sustainability levels of commercial real estate across different jurisdictions.

Endnotes

- ¹ NABERS and ABGR are now known collectively as NABERS.
- ² Recent legislation in Australia, the Commercial Building Disclosure program (CBD program), requires the disclosure of NABERS ratings to be made available to prospective purchasers and lessors of commercial office space greater than 2,000 square meters or more from November 1, 2010.
- ³ NABERS rating has an option to purchase green power, which affects certification by half a star, affecting actual performance of the property and inflates the rating. This is

an issue relating to misdirection and misinformation to the market about the actual performance of the property.

⁴ Reference made to other findings within the study but not directly reported here are found in Warren-Myers (2009).

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Georgia Warren-Myers, RMIT University, Melbourne, Australia or georgia.warren-myers@rmit.edu.au.

Richard Reed, Deakin University, Melbourne, Australia or richard.reed@deakin.edu.au.