JOURNAL OF

African Real Estate Research

Volume 9 Issue 2

ISSN: 2304-8395

JARER

December 2024

EDITOR-IN-CHIEF

Prof. Abel Olaleye
Obafemi Awolowo University, Ile Ife, Nigeria

ASSOCIATE EDITOR

Assoc. Prof. Aly Karam
University of Witwatersrand, Johannesburg, South Africa

EDITORIAL BOARD

Dr Rotimi Abidoye
University of New South Wales, Australia

Assoc. Prof. Kwame Addae-Dapaah
University College London, United Kingdom

Assoc. Prof. Kola Akinsomi
University of the Witwatersrand, Johannesburg, South Africa

Dr Abdul-Rasheed Amidu
University of Auckland, New Zealand

Dr Steven C. Bourassa
University of Washington, United States of America

Dr Daniel Dabara
Oxford Brookes University, United Kingdom

Assoc. Prof. (Emerita) Karen Gibler
Georgia State University, United States of America

Prof. Robert Home
Anglia Ruskin University, UK

Prof. Thies Lindenthal
University of Cambridge, United Kingdom

Prof. Vida Maliene
Liverpool John Moores University, United Kingdom and Vytautas Magnus University, Lithuania

Assoc. Prof. Kathy Michell
University of Cape Town, South Africa

Prof. Manya Mooya
University of Cape Town, South Africa

EDITORIAL BOARD

Agnes Mwasumbi
Ardhi University, Tanzania

Prof. Anupam Nanda
University of Manchester, United Kingdom

Prof. Graeme Newell
University of Western Sydney, Australia

Prof. Karl-Werner Schulte
Regensburg University, Germany

Prof. Robert A. Simons
Cleveland State University, United States of America

Dr Timothy Tunde Oladokun
Obafemi Awolowo University, Nigeria

Assoc. Prof. François Viruly
University of Cape Town, South Africa

Assoc. Prof. Yung Yau
Lingnan University, Hong Kong

JOURNAL MANAGER

Dayni Sanderson

Urban Real Estate Research Unit, University of Cape Town

COPYEDITOR

Dayni Sanderson

SOCIAL MEDIA

This journal is hosted by the University of Cape Town Libraries on request of the journal owner/editor. The University of Cape Town Libraries and University of Cape Town take no responsibility for the content published within this journal, and disclaim allliability arising out of the use of or inability to use the information contained herein. We assume no responsibility, and shall not be liable for any breaches of agreement with other publishers/hosts.

Journal of African Real Estate Research
Volume 9, Issue 2
www.journals.uct.ac.za/index.php/JARER

Editorial for JARER Vol. 9 Issue 2, 2024

Abel Olaleye[1] (https://orcid.org/0000-0002-2705-4813)

[1]Department of Estate Management, Obafemi Awolowo University, Ile-Ife, Nigeria.
[1]Department of Finance and Investment Management, University of Johannesburg, South Africa.

To cite this article: Olaleye, A. (2024) Editorial for JARER Vol 9, Issue 2, 2024. *Journal of African Real Estate Research*, 9(2), pp. v–vii. DOI: https://doi.org/10.15641/jarer.v9i2.1718

Welcome to the latest edition of the Journal of African Real Estate Research (JARER), the ninth volume and second issue of 2024. JARER continues to be a significant medium through which research on African real estate markets is disseminated. It is heartwarming to say that we continue to witness an increasing trend in the rate of submissions, while the papers being received now are better spread geographically around the continent, covering a range of informative topics. In this issue, we have papers from Uganda, South Africa, Ghana, and Kenya. As usual, the issue contains a wide range of topics from real estate graduates' knowledge and skill requirements, buy versus rent decisions of office space users, REITs implementation, students' housing choice and green building certification, among others.

The first paper by Kitulazzi and Mirembe contributes to the discourse on real estate graduates' knowledge and skills requirements for real estate practice. The study used semi-structured interviews with real estate consultants who hired graduates of the Bachelor of Real Estate Business Management of Makerere University in Uganda. The findings revealed that the most critical knowledge and skills needed by real estate graduates are in health and well-being, property valuation, legal aspects, information and communication technology (ICT), and

[1] Corresponding author's email address: aolaleye@oauife.edu.ng

©2024 The Author(s). Published by UCT Library. This is an open-access article under the CC BY 4.0 license. https://creativecommons.org/licenses/by/4

research. The study concluded that these skills need to be included and emphasized in the curricula of real estate graduates to effectively prepare them for modern-day real estate practice.

In the second paper by Owusu-Ansah, Ayitey and Tudzi, the authors examine whether it is more beneficial for public corporations in Ghana to rent or buy office space for their operations. The study obtained data of all the rented properties of one public corporation in Ghana over the period 2014 to 2019. Based on the information gathered, and using the Net Present Value (NPV) investment appraisal technique, the present value of the cost of each of the options was analysed and compared with a view to establishing the best option. The analyses revealed that it is more expensive to rent than to buy and this questions why decision makers of the studied public corporation still increased their rental spaces over the period.

The focus of the third paper, which is written by Chirchir, Mwangi and Iraya, centres on constructing a house price index and the determination of the relationship among economic factors, property supply, and house prices in Nairobi. The Nairobi real estate price index was constructed using a hedonic model based on the data collected on actual selling prices and the characteristics of a sample of houses spanning ten years (2011 to 2020). The paper found that GDP and inflation have significant positive long-run effects on house prices, among other findings. The study envisaged that the government of Kenya may want to commission an official house price index for decision-making by market players.

The fourth paper is written by Nhlabathi and it focuses on investigating the impact of service quality attributes on students' loyalty to student housing in South Africa. Using the service quality model (SERVQUAL), the study surveyed 542 students' and their responses were analysed using structural equation modelling (SEM). The results showed that reliability, empathy, and tangibility positively influenced student loyalty, while assurance and responsiveness had a negative effect. The study concluded on the need for student housing managers and owners, to prioritise employment of staff members who show care about student needs, provision of reliable services and good quality facilities.

The fifth paper written by Kaweezi, Chikafalimani and Musinguzi focuses on exploring the readiness of real estate investment trust (REIT) connected parties towards the implementation

and facilitation of REITs for agricultural financing in Uganda. The study employed a qualitative approach to describe the readiness of connected parties through their lived practice experiences. The knowledge, skills and abilities (KSA) themes of the REITs' connected parties are analysed from the interview notes. The results confirm that limited REIT implementation and operationalisation activity tools, rules and norms deter connected parties` readiness.

The sixth paper by Oladeji and Okoro evaluated the Green Building Council of South Africa's green building certification growth trends including greenwashing and location clustering risk. This study adopted a quantitative descriptive analysis of 510 case studies from the Green Building Council South Africa (GBCSA) certification archives. The data spanned 12 years between 2011 and 2023. The study found a significant growth in green certification in South Africa following the introduction of existing building ratings. The results also revealed that the growth is characterised by low demand for the highest rating levels and clustering in major cities. However, the study found evidence of greater dispersion to smaller cities.

Our appreciation goes to our reviewers and editorial board members who have dedicated their time out of none to support the journal. We thank the board members of the African Real Estate Society, the library services at the University of Cape Town, and our Journal Manager, Dayni Sanderson from the Urban Real Estate Research Unit at the University of Cape Town, who has been working diligently in managing the process. We sincerely appreciate the support provided by IRES, ERES and Prof. Karl-Werner Schulte and his team from the IREBS at Regensburg University.

We hope that the papers in this issue will be found exciting and informative.

Prof. Abel Olaleye
Editor-in-Chief

Journal of African Real Estate Research
Volume 9, Issue 2
www.journals.uct.ac.za/index.php/JARER/

Key Knowledge And Skills Required By Real Estate Graduates For The Real Estate Industry In Uganda

David Kitulazzi[1*] (https://orcid.org/0009-0005-6740-9876) and Rachael Daisy Mirembe[2] (https://orcid.org/0000-0002-3843-2541)

[1 2] Department of Finance, Makerere University Business School

To cite this article: Kitulazzi and Mirembe (2024) Key knowledge and skills required by real estate graduates for the real estate industry in Uganda**.** *Journal of African Real Estate Research,* 9(2), pp.1- 20. DOI: https://doi.org/10.15641/jarer.v9i2.1395.

Abstract

This paper examines the evolving needs of the real estate industry in Uganda, particularly considering the significant changes brought about by the COVID-19 pandemic. It draws attention to the necessity for universities to update their real estate curricula to prepare undergraduate and graduate students for the current and future demands of the workforce. Using a qualitative research design, the study involved semi-structured interviews with real estate consultants who have hired graduates of the Bachelor of Real Estate Business Management of Makerere University in Uganda. The findings reveal that the most critical knowledge and skills for today's real estate graduates are in health and well-being, property valuation, legal aspects, information and communication technology (ICT), and research. This research is important as it highlights the essential areas of knowledge and skills that real estate academic programmes must emphasise to effectively prepare students for the modern real estate industry.

Keywords: *Skills, Knowledge, Real Estate, COVID-19*

*Corresponding author's email address: dkitulazzi@mubs.ac.ug

©2024 The Author(s). Published by UCT Library. This is an open-access article under the CC BY 4.0 license. https://creativecommons.org/licenses/by/4

1. Introduction

The ever-changing real estate industry always calls for a real estate curriculum that reflects these changes. Previously, universities have focused on delivering academic real estate education approaches; on either the British (surveying) approach or the American (finance and investment) approach. For instance, the American approach focuses on finance with most real estate academics being housed or affiliated with business colleges and schools (Roulac, 2002). The UK approach mostly focuses on the surveying approach to include courses in property law, valuation, planning, economics, management, building construction and information technology (Dasso & Woodward, 1980; Galuppo & Worzala, 2004). The third approach; the multi-disciplinary approach (Roulac, 2002) is practised mainly in continental Europe. Under this approach, real estate courses are organized in a diffused and heterogeneous manner with varying major themes of real estate investments, financial systems, economic evaluation, project management, appraisal, land economics, and information technology (Musil, 2005; Newell et al., 2004). Additionally, soft skills have been emphasized by the majority of real estate scholars (Ayodele et al., 2020; Butler et al., 1998; Poon, 2012; Weinstein & Worzala, 2008) to be very relevant for a real estate graduate given the conditions in which a real estate professional will operate. Other relevant skills argued for a real estate graduate are technological skills (Ahmed et al., 2014), hard skills, and fundamental skills (Butler et al., 1998; Saginor et al., 2014).

However, employers in several fields of real estate continue to complain that students are just graduating with degree certificates, which justifies that they have the subject matter expertise, but they cannot integrate the essential skills and knowledge with their subject knowledge to be fruitful at their workplaces (Azasu & Gibler, 2016). Post-COVID-19, real estate employers need real estate graduates with the relevant knowledge and skills to adjust to a rapidly changing work environment. COVID-19 led to a major change not only in the real estate industry but in all sectors of the economy. The way people work and live has greatly changed. Measures like countrywide lockdowns caused significant increases in operating costs and, a decline in rent collection which led to a decline in demand, net operating income and investment value (Tanrıvermiş, 2020). In developed countries, high streets lost their business role, and became centres of amenities and

window-shopping destinations, enticing customers to purchase online (Florida et al., 2021). In addition, there was a decline in the need for offices and co-working spaces which in turn drove down commercial rents and prompted proposals for adaptive reuse, including residential conversion (Florida et al., 2021). This, therefore, calls for a shift from the traditional knowledge and skills that were previously emphasized in classrooms to newer and advanced knowledge and skills that are reflective of this new environment. The adaption to new skills and knowledge to match the new world creates successful real estate decision practitioners who are equipped with concepts, techniques and skills that are fundamental for solving problems in today's world and in the future (Weinstein & Worzala, 2008).

This study sought to answer a research question as follows; what are the key knowledge and skills required from the graduates of the Bachelor of Real Estate Business Management (BREM) of Makerere University? The rest of the paper is arranged as follows: Section two provides a literature review of the paper, which includes the theoretical underpinning for the study, followed by a section on the conceptual review. Section three gives details about the methods employed for the study, Section four gives the findings and results, and the last section (Section five) concludes.

2. Literature review

This section discussed the theories and concepts relevant to the area of study with a view to laying a solid foundation for the understanding of key knowledge and skills required for real estate education.

2.1. Stakeholder theory

The stakeholder theory is discussed in this paper. It is adjudged to be more relevant to the discourse in this paper because it relates to the identification of needs and expectations of key stakeholders in sectors like real estate education. Stakeholder theory was developed by Edward R. Freeman in 1984 and provides an extensive framework for analyzing the interactions and relationships between organizations and their various stakeholders. The theory suggests that organizations must address the interests and needs of all stakeholders to achieve sustainable success. Stakeholders include people affected by or able to affect the organization's objectives. He further asserts that stakeholders of a corporation include management, customers, the local community, suppliers,

employees, and firm owners (Freeman et al., 2010). When it comes specifically to real estate, studies on stakeholder theory have been carried out mainly for real estate developments or projects due to their complexity in nature which affects several stakeholders (Caputo, 2013; Martinez & Olander, 2015; Sousa, 2012). However, stakeholder theory is seldom applied to the theme of real estate education. Applying stakeholder theory to the real estate education sector involves identifying and addressing the needs and expectations of key stakeholders to enhance the relevance and effectiveness of the curricula, in this case, the one of the Bachelor of Real Estate Business Management of Makerere University. In this context, key stakeholders include students, employers, Faculty and academic institutions, industry professions and associations and the community. Therefore, using the stakeholder theory as a guiding framework, the BREM program at Makerere University in Uganda could be designed to balance and integrate the diverse needs of its stakeholders and in the case of this paper, employers. This can be done through engaging with employers and industry professionals to ensure that the curriculum reflects current and future trends in the real estate sector.

2.2. Real estate education

Literature that is appropriate for the research theme is considerable. As real estate continues to evolve, some scholars have argued for the British approach, where land and survey knowledge is emphasized. Other scholars have emphasized the American approach where business knowledge is important, while others have emphasized the multi-disciplinary approach, with reference to a combination of both disciplines (Musil, 2005; Roulac, 2002). In addition, other scholars argue that the knowledge that real estate graduates acquire from university should be a response to the fluctuating trends in the industry permitting for substantial flexibility and incorporation with courses common to numerous academic disciplines in the social and physical sciences, humanities, land surveying and engineering (Nzioki et al., 2006). Moreover, all education should also display the market perspective in which it is conveyed. While countries characterized by mature real estate markets tend to place a strong emphasis on investment and finance, this is not the case for Africa (Mirembe & Viruly, 2018) which is mostly opaque (JLL, 2020), having an immature but developing property market. The knowledge and skills passed on to real estate graduates in Africa should be relevant given Africa's level of economic maturity.

2.3. Real estate body of knowledge

It has been argued that a comprehensive real estate curriculum rests on four key knowledge outcomes (Black et al., 1996). The four key knowledge areas include market analysis, finance, property development and the legal and public policy environment (Black et al., 1996). The importance of the four key knowledge outcomes has been supported by (Weinstein & Worzala, 2008); who mentions that real estate education ought to include topics of decision-making, financial and quantitative analysis, risk evaluation of real estate transactions, social responsibility, and ethics. The seven most important specific real estate research topics include; the impact of capital flows in and out of the property market (finance), land reform issues (physical and development), property taxation factors (finance), forecasting methodologies for markets (market analysis), computerization of land registries, returns and rents (physical and development environment), and securitization of real estate (finance) (Adewunmi & Olaleye, 2011). Also, Poon et al. (2011) suggest that the top five spheres of knowledge valued by employers are professional practice and ethics, property law, property valuation, customer care and landlord and tenant law.

Saginor et al. (2014) also identify areas of quantitative and financial analysis, understanding rental markets, and analytical problem solving which are significant for graduates of real estate. Adama et al. (2018) also investigated the competency requirements for real estate practice in Nigeria and their findings indicated that property management, property valuation and real estate agency were ranked the top three key knowledge areas by the Estate Surveying and Valuation (ESV) firms in both Abuja and Lagos. Lastly, there is a suggestion that the body of technical and fundamental knowledge and reasoning in real estate needs to include corporate real estate, facilities management, valuation, investment, finance, construction technology and development (Azasu & Gibler, 2016); in order be pertinent to the changing global real estate trends. All the above scholars seem to agree on the four key knowledge areas of financial, market, legal and public policy, and the physical and development environments.

2.4. Real estate skills for graduates

Apart from the knowledge acquired by real estate graduates, there is a need for skills that will enable professionals to survive in the working environment. The majority of the scholars have divided the skills required by a real estate graduate into four categories: that is soft skills such as communication, presentation, writing, client care and professional practice and ethics (Adama et al., 2018; Ayodele et al., 2020; Butler et al., 1998; Poon, 2012; Weinstein & Worzala, 2008). Technological skills include reading, understanding and interpreting blueprints, plans and drawings, computer expertise in construction technology and software, knowing sustainable construction, knowing project scheduling, estimates and project closeout and handover procedures (Ahmed et al., 2014). Fundamental skills like analytical skills, problem-solving skills, quantitative/financial analysis and lastly hard skills (Butler et al., 1998; Saginor et al., 2014).

Soft skills such as critical thinking, problem-solving skills, written and oral interpersonal communication, negotiation skills, teamwork, effective leadership, advanced technology, flexibility to change and engagement in lifelong learning skills are key skills for any real estate graduate (Weinstein & Worzala, 2008). Similarly, Poon et al. (2011), suggest that professional attitude, capability and commitment to revise professional knowledge, interpersonal skills, enthusiasm and capability to work as a team are the top five skills and attributes rated by employers. In addition, Poon (2012) emphasizes soft skills as the fundamental employability skills for graduates. The above authors majorly focused on soft skills leaving out hard skills.

Furthermore, the need for technological skills is vital for a real estate graduate. Technology software like CoStar Data, GIS programs, ARGUS and skills have been stressed to be a lifelong learner to handle changes and inherent uncertainties in the industry of real estate (Weinstein & Worzala, 2008). The need for technology software is further supported by (Saginor et al., 2014) who assert that financial modelling using EXCEL, and ARGUS are precise skills or tools a real estate graduate may be requested to use when employed.

Real estate graduates also need skills in research and discovery coupled with system thinking which is largely lacking in real estate graduates in the developing world (Azasu & Gibler, 2016). This is to enable them to discover new knowledge in the changing world of real estate as well as

evaluate why things happen the way they do and why people behave the way they do. Graduates of real estate programmes should also have a clear understanding of how real estate participants and partners fit into the process that ensures community living, work and play (Galuppo & Worzala, 2004).

However, with the outbreak of COVID-19, there have been many changes in the way people live and work. However, the existing literature has not suggested any new knowledge or skills that should be added to real estate education for graduates, mostly in developing countries. The reviewed studies above largely entail the curriculum of real estate programmes both in developed countries (Ahmed et al., 2014; Butler et al., 1998; Dasso & Woodward, 1980; Galuppo & Worzala, 2004; Weinstein & Worzala, 2008) and developing countries (Azasu & Gibler, 2016; Chikafalimani, 2013; Mirembe & Viruly, 2018). They provide courses, in key fundamental areas that will equip real estate graduates with the relevant knowledge and skills for the work environment after their degree programmes. Other studies have focused on the knowledge and skills employers of real estate graduates require from them after their degree (Adama et al., 2018; Ayodele et al., 2020; Poon, 2012). Furthermore, other studies look at the effects of COVID-19 on the real estate sector (Nanda et al., 2021; Tanrıvermiş, 2020). This study adds to the existing knowledge on real estate education that addresses the knowledge and skills that real estate graduates should be equipped with for the industry in developing countries, particularly in Sub-Saharan Africa. For example, this is the first study to be conducted in Uganda. This study is also qualitative in nature since it used the interview method to get responses from the employers of the real estate graduates. The aim of this study is to examine new knowledge and skills employers expect from real estate graduates post-COVID-19.

3. Research methodology

Past studies that have been conducted in the area of real estate education have mainly used internet searches (Chikafalimani, 2010; Kampamba et al., 2017), document analysis (Chikafalimani & Reddy, 2014; Nzioki et al., 2006), mixed methods (Poon et al., 2011), survey method (Chikafalimani, 2013), to mention but a few. In this study, qualitative methods were applied to answer the research question. This study adopted a constructivist approach which suggests that meaning is hidden and must be brought to the surface through deep reflection through an

interactive dialogue between the researcher and participant (Ponterotto, 2005). In addition, the study uses an interpretivism paradigm (Amaratunga et al., 2002) because it is linked with the constructivism approach that allows participants to share their own experiences and issues (Goldkuhl, 2012).

The study began with a pilot study to address the issue of reliability (Miles & Huberman, 1994). The results of the pilot were used to refine the interview protocol (Morse et al., 2002) and were also included in the analysis. The interviews were conducted using Zoom meetings from June to October 2020. This is the period when the COVID-19 Pandemic had just started, and Standard Operating procedures had to be followed. Therefore, we did not have any face-to-face interviews. We solely relied on semi-structured interviews with individual respondents. This method allowed the interviewees to easily voice their opinions and provide as much information as possible while we controlled the process (Turner, 2010). Interviews are considered extremely efficient when collecting data because they provide deep information about the respondents' experiences and perspectives on a topic at hand (Eisenhardt & Graebner, 2007; Turner, 2010). The researchers ensured that the respondent was given authorisation to use an audio recorder. Before that, the respondent was asked to sign a consent form. Ten interviews were conducted, and audio recorded. The data were collected in English and using interviews and secondary information. At the end of all the interview meetings, we had ten respondents in total who took part in the interviews. This number was considered sufficient because theoretical saturation was attained after there was no more new information and the interviewees' responses became repetitive (Johnson, 2015).

The study used purposive sampling. Respondents were selected if they were operating in the property industry in Uganda. Respondents included real estate consultants (realtors, surveyors, brokers, property developers, institutional investors) who had employed Bachelor of Real Estate Business Management (BREM) students in the previous years. Since these employers employ BREM alumni, they understand what skills are needed to make them better. Data was organised and then transcribed by the researchers after every interview. Transcriptions were checked for accuracy before sending one of them to the respondent and a peer for review or assessment and confirmation. This process significantly improved construct validity (Gibbert et al., 2008). The researchers were acquainted with the data by reading throughout the transcript a few times with

the data corpus, while also writing down initial thoughts and feelings (Maguire & Delahunt, 2017). Data was backed up by external devices like Google Drive and Dropbox to preserve protected soft copies of the work in case of any unexpected challenges. Coding was done after transcribing each interview, then another interview could be taken on. Data was coded using NVivo 12, a computer-aided qualitative data analysis software program known as CAQDAS. Firstly, fewer data codes were created by just detecting and listening to qualitative data. After that, other codes were developed with the assistance of CAQDAS. The addition of codes was done till the content of the cases was well represented by the set of nodes. As the coding progressed, the scale at which codes were created declined. The codes were in close connection with the terms they represented (Miles & Huberman, 1994). In the end, the study had a total of sixty-seven codes which was sufficient (Saldaña, 2021). The codes were revised, and the arrangement was added to them by including prefixes or changing their names with more abstract or conceptual terms. In some instances, descriptive classifications were joined. The produced list of sub-categories was categorized under higher-order headings to enable the list to collapse into similar or dissimilar broader groups of higher order. The process above was followed by searching for themes. Lastly, after the themes had been developed, the final analysis and discussion were done.

4. Results and discussions

The real estate employers of the BREM students of Makerere University passionately expressed their opinions on issues of key knowledge and skills for real estate graduates, during the interviews. Knowledge and skills that were previously not needed in the real estate industry will need to come into play. This therefore means that the preparation of real estate graduates for the field will also have to change in some cases. Some key knowledge and skills will have to be emphasized much more than previously to get a graduate who is well-grounded and answers the cries of employers. Table 1 below shows key respondent's information.

Table 1: Information on research respondents

Respondents ID	Academic Qualification	Position in the Firm	Years of Experience
BS	MSRE	CEO	20
BT	BSC	MANAGER	10
IG	MSRE	Commissioner	12
JR	BSC	CEO	13
KF	Post Graduate Diploma	HR	5
LK	LLA	MANAGER	5
MJ	BSC	CEO	15
MS	BSC	CEO	12
MU	MS	CEO	10
VA	BSC	CEO	13

4.1. Key knowledge expected from a graduate of the BREM program

Employers of BREM students had a significant amount of knowledge that they wanted the graduates to have and acquire before they joined the industry. For example, knowledge such as accounting and finance, real estate brokerage, facility management, building inspections and monitoring, ethics, investment knowledge, policy environment, real estate valuation, principles of real estate, legal aspects, property development, tenancy systems, marketing, health and well-being knowledge, geographic information system, risk management and sustainability. However, the knowledge that was emphasized most included:

4.1.1. Real estate valuation

Estimating the value of real estate is necessary for several reasons, such as investment analysis, acquiring financing for the project or house, sales listing, insurance of property and taxation. For most people, real estate valuation is very necessary when determining the asking or purchase price of a piece of real property. According to the real estate consultants interviewed, every real estate graduate needs to leave the university when they have knowledge of real estate valuation which others call real estate appraisal. These arguments were pointed out by respondents LK and IG:

LK

"Someone should have basic knowledge about being able to assess value in real estate…"

IG

… "*Should be able to carry out analyses/appraisals*…."

4.1.2. Legal aspects

Real Estate Transactions involve a significant amount of documentation at different stages. For example, writing down contractual agreements between the parties. Therefore, a real estate graduate is expected by employers to have some basic knowledge of business law, contract law, property law, land law, etc. This was well articulated by the respondent responses below:

JR

"…*Then knowledge about the law; they will need to know the law, especially the laws that apply to real estate and maybe property and land in particular so that they can do things within the confines of the law."*

4.1.3. Financial understanding

The fact that real estate development needs large amounts of capital, its financing can rarely be based on one's savings. Henceforth, there is a need for real estate consultants to know and understand other sources of financing. These can include commercial loans, mortgage financing, joint ventures, equity and debt financing, sale-leaseback financing, and the sale of securities (Ezimuo et al., 2014; Mwathi & Karanja, 2017). Respondents emphasized the importance of a real estate graduate coming out of university with this financial understanding as illustrated in one of the statements below:

MS

"…they must have a clear capital structuring of that project when you are looking at interacting with other consultants that come in on the project…"

4.1.4. Principles of Real Estate

The employers of BREM graduates advised that graduates should gain an understanding of the basic principles of real estate which will later be needed in the industry. Principles of real estate knowledge entail being able to comprehend the fundamentals as well as an extensive breadth of attributes about real estate development and management. It also entails realizing the multi-disciplinary nature of the real estate industry and thereby learning to integrate other topics with real estate development and management, ability to comprehend matters in real estate development and management in Uganda and having confidence in taking tasks in development, management and usage of real estate as well as guaranteeing the highest and the best use of properties (Ariyawansa, 2016). Below are statements from a respondent regarding knowledge of principles of real estate to be known by the BREM graduates:

LK

"They need to know the basic principles of real estate, they need to know what constitutes real estate, I mean what does it include and how is it validated?"

4.1.5 Understanding of Market Trends

Understanding the ever-changing real estate markets is vital to real estate graduates. For example, in the aftermath of COVID-19, employers would expect graduates of the BREM programme to understand what the real estate market in Uganda looks like on the regional and global scene; to have an indication of what is happening in other markets and not specifically in Uganda alone. This was elaborated by the respondent's statement below as they responded to the question of what knowledge is needed by a real estate graduate of BREM:

MU

"They should have a mindset of how a business perspective of real estate is, what they think the direction of the industry is. I mean they should have the knowledge that the industry is moving in this direction. For example, if you consider the current environment, a real estate professional should be able to have the skills to determine the dynamics. They should be able to use specific pointers or enablers in the industry to know the direction of the industry."

4.1.6. Information technology

Although there have been several changes in the property sector in the last few decades because of urbanization and digitalization, the COVID-19 pandemic appears to have had a big impact on several changes in the industry. Before the pandemic, the real estate industry was on the path to digitizing processes and creating digitally-enabled options for many of their services. However, with the coming of COVID-19, the speed at which the digitization process happened was brought fast forward. One would say that what would have been established in a period of 10 years all happened within a shorter time (months). For example, workplaces and classrooms transitioned to remote, shopping to delivery and social life played out largely over digital media (Florida et al., 2021). We saw the coming of virtual conference rooms such as Zoom meetings, Microsoft Teams, and Hangouts; normalizing home offices in many countries. Using virtual technology for viewings as well as using augmented and virtual reality to enhance the user experience has been witnessed among players in residential real estate. Therefore, employers in Uganda's real estate industry emphasize the worth of ICT skills for BREM graduates so they can cope with the changing world trends. This is evidenced in the following respondents' statements:

LK

"So, can we give virtual tours, for example? Can we work more online, do they have to be more technology savvy, do we have to market more online, can you close a deal online, how possible is that? So, they need to embrace technology…,"

4.1.7. Health and well-being

Understanding and applying occupational health and safety is very important for the BREM graduates, in the post covid era. BREM graduates should think beyond the "business-as-usual" way of doing things as pointed out by the following respondents:

LK

"…maybe we want to educate people about why health should now be a priority area in the development and planning of real estate. Health will influence management and include just normal health and safety. Why do people touch doorknobs all the time? There are germs; are we going to introduce smart doors? Those ones that open on their own. We have them already actually

but are we going to promote their use? It is just something to think about. But more importantly, it is health in real estate."

4.2 Skills expected from a graduate of the BREM program

Among the skills that BREM graduates need to survive in the current world are: analytical skills, communication skills, coordination skills, interpersonal skills, marketing skills, leadership skills, management skills, negotiation and persuasion, presentation skills, research skills, writing skills, and teamwork, as discussed below:

4.2.1 Communication skills

Individuals, especially students, have a lot of ideas. The biggest challenge arises in how to pass on these ideas to the next person or whoever they would benefit. This is called having communication skills. Important to evaluate under communication skills: Do the students/graduates communicate well, in terms of written and spoken? Are they able to pass on the knowledge to get a transaction going? Communication skills are explained below by respondent BT when asked about the skills required by the employers of real estate graduates:

BT

"…You need people who are going to be confident, they can communicate what exactly they have in mind. Most of them have knowledge but are not able to present as they would wish to or as a client would want to receive it. Communication skills…"

4.2.2. Presentation skills

Employers argued that much as communication skills are vital for a graduate of real estate, presentation skills should not be ignored. Presentation skills involve public speaking, standing in front of people and talking to them while constructing sentences out of your brain. It also involves how you present yourself to your audience. This may even entail how you dress up for a task. How audible you are to your audience will show your level of confidence in the subject matter that you are presenting, eye contact and nonverbal communication inclusive matter. The above was well articulated by respondent VA during the Zoom interview when he was asked about the necessary skills for a real estate graduate:

VA

"Number 2 is presentation skills. If today if you asked everyone who has finished that program their nightmare in the field is one, to convince a landlord to give them a property to manage. Nightmare. Why? Presentation skills. The guy has a building, but to meet him and explain to him what management all is about and convince him to give you that property to manage."

4.2.3. Research skills

Research Skills in real estate would refer to the competence to search for, locate, extract, organize, evaluate, and use or present information that is relevant to the real estate sector. In this study, employers emphasized the importance of BREM graduates having research skills. This will involve the ability to analyze certain issues and aspects in the industry, evaluate them in relation to the industry and apply the acquired information for their good, as one respondent below elucidated:

LK

"Then I expect them to have the ability to research because the world is now interconnected. They can't leave here, and we say this is what it has always been, and this is what we are going to do. They should have the ability to research, so research skills are very important. The soft skills are marketing and the like. They should have those as well. They should have a little insight into each and everything regarding real estate."

5. Conclusion

The results from this study are not very different from what previous scholars concluded but rather broaden the knowledge from an emerging country's perspective. This study emphasizes the importance of knowledge of real estate valuation, financial understanding, principles of real estate and knowledge of the legal aspects of real estate as suggested by Black et al. (1996), and Poon et al. (2011). Different from the existing literature, and well-knowing that the real estate players in Uganda usually will not engage in market research before a major project, the study brings in new knowledge skills like a general understanding of the market trends, hence the research skills. Also, this new suggested skill probably could be a result of the changing world and the fourth industrial

revolution where real estate is now about data or being knowledgeable. The other knowledge aspect that arose out of this study is the knowledge about the health and well-being of people in the industry. We suppose that this can be explained by the fact that COVID-19 brought about a lot of questions regarding health, and social distancing, to mention but a few. Further still, health and well-being can be tied to the social sustainability conversation where, as real estate employees, there is a need to be aware and considerate about occupants' health (the ones who are going to use your buildings), hence such topics as ergonomics in property and facility management. More still, this study's results do not emphasize the knowledge of ethics among real estate professionals which the previous scholars have well-articulated (Weinstein & Worzala, 2008).

Among the skills that this study emphasized are communication, presentation, IT, and research just like previous literature had mentioned (Ayodele et al., 2020; Butler et al., 1998; Poon, 2012). The employers argued that with the current realities of COVID-19 and its aftermath, knowledge, and skills such as health and well-being, IT and research skills are being adjudged as more important given the changing world and the new normal. Important to note is that while the real estate industry was already embracing technology pre-covid, the COVID situation accelerated this move. Internet penetration and widespread availability of 4G and 5G mobile networks have provided a massive boost (Nanda et al., 2021). Technology advancements such as virtual conference rooms, virtual tours, and Artificial Intelligence (AI), to mention but a few that would have been regularly used in developing countries, were introduced within a space of months in the year 2020. Such technology software is vital in real estate operations of property management, investment, valuation, portfolios, budgeting, virtual property, and locations which real estate students should be conversant with. It is therefore very important that our real estate graduates are at the frontline of all these new technologies in the industry. A university degree in real estate alone may no longer guarantee a job placement until the graduate has that additional knowledge and skills.

References

Adama, J., Olaleye, A., & Ibuoye, A. (2018). *Competency Requirements for Real Estate Practice: the Nigerian Experience*.

Adewunmi, Y., & Olaleye, A. (2011). Real estate research directions and priorities for Nigerian institutions. *Journal of Real Estate Practice and Education*, *14*(2), 125-140.

Ahmed, S. M., Yaris, C., Farooqui, R. U., & Saqib, M. (2014). Key attributes and skills for curriculum improvement for undergraduate construction management programs. *International Journal of Construction Education and Research*, *10*(4), 240-254.

Amaratunga, D., Baldry, D., Sarshar, M., & Newton, R. (2002). Quantitative and qualitative research in the built environment: application of "mixed" research approach. *Work study*, *51*(1), 17-31.

Ariyawansa, R. G. (2016). Management of Real Estate: Principles of Real Estate Development & Management. *Department of Estate Management and Valuation, University Sri Jayewardenepura–World Bank HETC/QIG project*.

Ayodele, T. O., Oladokun, T. T., & Kajimo-Shakantu, K. (2020). Employability skills of real estate graduates in Nigeria: a skill gap analysis. *Journal of Facilities Management*, *18*(3), 297-323.

Azasu, S., & Gibler, K. M. (2016). The CDIO model for real estate curriculum development. *Journal of real estate literature*, *24*(2), 287-308.

Black, R., Carn, N., Diaz, J., & Rabianski, J. (1996). The role of the American real estate society in defining and promulgating the study of real property. *Journal of Real Estate Research*, *12*(2), 183-193.

Butler, J., Guntermann, K., & Wolverton, M. (1998). Integrating the real estate curriculum. *Journal of Real Estate Practice and Education*, *1*(1), 51-66.

Caputo, A. (2013). Systemic stakeholders' management for real estate development projects. *Global Business and Management Research: An International Journal*.

Chikafalimani. (2010). Elements of a Successful Masters Real Estate Program in South Africa: A Literature Survey. https://www.irbnet.de/daten/iconda/CIB_DC22779.pdf

Chikafalimani, S. (2013). Curriculum guideline for masters real estate education in South Africa. *Academic Journal of Interdisciplinary Studies*, *2*(3), 397-402.

Chikafalimani, S. H., & Reddy, G. (2014). Integrating property industry in masters real estate education in Africa: approaches and initiatives. *Mediterranean Journal of Social Sciences*, *5*(20), 340.

Dasso, J., & Woodward, L. (1980). Real estate education: past, present and future—the search for a discipline. *Real Estate Economics*, *8*(4), 404-416.

Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases: Opportunities and challenges. *Academy of management journal*, *50*(1), 25-32.

Ezimuo, P., Onyejiaka, C., & Emoh, F. (2014). Sources of real estate finance and their impact on property development in Nigeria: A case study of mortgage institutions in Lagos metropolis. *British Journal of Environmental Research*, *2*(2), 35-58.

Florida, R., Rodríguez-Pose, A., & Storper, M. (2021). Cities in a post-COVID world. *Urban Studies (Edinburgh, Scotland)*.

Freeman, R. E., Harrison, J. S., Wicks, A. C., Parmar, B. L., & De Colle, S. (2010). Stakeholder theory: The state of the art.

Galuppo, L., & Worzala, E. (2004). A study into the important elements of a masters degree in real estate. *Journal of Real Estate Practice and Education*, *7*(1), 25-42.

Gibbert, M., Ruigrok, W., & Wicki, B. (2008). What passes as a rigorous case study? *Strategic management journal*, *29*(13), 1465-1474.

Goldkuhl, G. (2012). Pragmatism vs interpretivism in qualitative information systems research. *European journal of information systems*, *21*, 135-146.

JLL, L. (2020). Global Real Estate Transparency Index, 2020. In: Transparency, Digitization, Decarbonisation.

Johnson, J. S. (2015). Qualitative sales research: An exposition of grounded theory. *Journal of Personal Selling & Sales Management*, *35*(3), 262-273.

Kampamba, J., Tembo, E., & Nkwae, B. (2017). An evaluation of the relevance of real estate curricula in Botswana. *Property Management*, *35*(3), 275-305.

Maguire, M., & Delahunt, B. (2017). Doing a thematic analysis: A practical, step-by-step guide for learning and teaching scholars. *All Ireland Journal of Higher Education*, *9*(3).

Martinez, C., & Olander, S. (2015). Stakeholder participation for sustainable property development. *Procedia Economics and Finance*, *21*, 57-63.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*. sage.

Mirembe, R., & Viruly, F. (2018). Real Estate Knowledge and the Development of a Real Estate Curricula for African Universities. *Journal of African Real Estate Research*, *3*(2), 9-17.

Morse, J. M., Barrett, M., Mayan, M., Olson, K., & Spiers, J. (2002). Verification strategies for establishing reliability and validity in qualitative research. *International journal of qualitative methods*, *1*(2), 13-22.

Musil, T. (2005). Integrating business school curricular resources into real estate practitioner professional development. *Journal of Real Estate Practice and Education*, *8*(1), 133-149.

Mwathi, J., & Karanja, J. M. (2017). The effect of financing sources on real estate development in Kenya. *International Journal of Finance and Accounting*, *2*(2), 43-62.

Nanda, A., Xu, Y., & Zhang, F. (2021). How would the COVID-19 pandemic reshape retail real estate and high streets through acceleration of E-commerce and digitalization? *Journal of Urban Management*, *10*(2), 110-124.

Newell, G., Worzala, E., McAllister, P., & Schulte, K.-W. (2004). An international perspective on real estate research priorities. *Journal of Real Estate Portfolio Management*, *10*(3), 161-170.

Nzioki, N., Kariuki, C., & Murigu, J. (2006). Education and training in valuation, land management and housing in Kenya. FIG Conference, Munich,

Ponterotto, J. (2005). Foundational elements of qualitative methodology. *Journal of Counseling Psychology*, *52*(2), 126-136.

Poon, J. (2012). Real estate graduates' employability skills: the perspective of human resource managers of surveying firms. *Property management*, *30*(5), 416-434.

Poon, J., Hoxley, M., & Fuchs, W. (2011). Real estate education: an investigation of multiple stakeholders. *Property Management*, *29*(5), 468-487.

Roulac, S. E. (2002). Requisite knowledge for effective property involvements in the global context. In *Real Estate Education Throughout the World: Past, Present and Future* (pp. 3-24). Springer.

Saginor, J., Weinstein, M., & Worzala, E. (2014). Graduate real estate education: A survey of programs after the great recession. *Journal of Real Estate Practice and Education*, *17*(2), 87-109.

Saldaña, J. (2021). The coding manual for qualitative researchers. *The coding manual for qualitative researchers*, 1-440.

Sousa, J. (2012). Stakeholder analysis for housing.

Tanrıvermiş, H. (2020). Possible impacts of COVID-19 outbreak on real estate sector and possible changes to adopt: A situation analysis and general assessment on Turkish perspective. *Journal of Urban Management*, *9*(3), 263-269.

Turner, D. W. (2010). Qualitative Interview Design: A Practical Guide for Novice Investigators Investigators. The Qualitative Report, 15(3), 754-760. . https://doi.org/10.46743/2160-3715/2010.1178

Weinstein, M., & Worzala, E. (2008). Graduate real estate programs: an analysis of the past and present and trends for the future. *Journal of real estate literature*, *16*(3), 385-414.

Acknowledgement

We acknowledge the financial support from the Faculty of Commerce-Research Fund, Makerere University Business School.

Journal of African Real Estate Research
Volume 9, Issue 2
www.journals.uct.ac.za/index.php/JARER/

Buy versus Rent Decision of Office Space among Public Corporations in Ghana

Anthony Owusu-Ansah[1*] (https://orcid.org/0009-0005-6740-9876), Jonathan Zinzi Ayitey[2] (https://orcid.org/0000-0002-3843-2541) and Eric P. Tudzi[3] (https://orcid.org/0000-0002-9347-9043)
[1 2 3] Department of Land Economy, Kwame Nkrumah University of Science and Technology

To cite this article: Owusu-Ansah, Ayitey and Tudzi (2024) Buy versus Rent Decision of Office Space among Public Corporations in Ghana. *Journal of African Real Estate Research,* 9(2), pp. 21-54. DOI: https://doi.org/10.15641/jarer.v9i2.1407

Abstract

The primary focus of this study is to assess whether it is more beneficial for public corporations in Ghana to rent or buy office space for their operations. Economic analysis has been carried out in this study to support the decision to either rent or buy office space. The study was carried out through in-depth data mining of all the rented properties of one public corporation in Ghana over the period 2014 to 2019. Based on the information gathered, and drawing inspiration from the NPV investment appraisal technique, the present value of the cost of each of the options was analysed and compared to choose the best option. The paper found among other things that the company's rented space from 2014 to 2019 grew by 68.5% and at the same time rental value increased by over 200%. The present value analysis however reveals that it is more expensive to rent than to buy and this questions why decision makers of this public corporation still increased their rental space over the period. Using a public corporation from Ghana, this paper has extended the discussion on the lease versus buy decision by actually assessing the option that adds more value to the shareholders' wealth instead of just examining the determinants of the lease versus buy decision. A study of this nature in the context of Ghana is notably non-existent.

Keywords: *Rent (lease), buy, office space, Ghana, present value*

*Corresponding author's email address: aowusu-ansah@knust.edu.gh

©2021 The Author(s). Published by UCT Library. This is an open-access article under the CC BY 4.0 license. https://creativecommons.org/licenses/by/4

1. Introduction

Corporate real estate (CRE) supports a company's business functions and represents the user's needs (CoreNet Global, 2015). The selection of space for a company's business is very important but the processes involved are complex (Rothe et al., 2015; Gibler and Lindholm, 2012). One of the decisions to make in this process is whether to lease (rent) or buy the space. Buying and renting are both means of satisfying one's office spatial needs. While buying confers exclusive ownership rights over a determined period, renting gives the right to occupy developed property over a specified period. Literature on whether to rent or buy is longstanding yet inconclusive. While studies including Crowley and Li (2016), and Baum and Wulff (2003) have strongly rated buying over renting, others such as Di, Belsky and Liu (2007) found evidence in favour of renting.

The ability to exercise exclusive ownership rights over any parcel of real property is historically considered to confer high social status in society (Abdulai and Owusu-Ansah, 2014). This ideal trend has been handed down from generation to generation. Ownership rights are believed to confer an incorporeal sense of pride and prestige (Heikkila, 2000). It is well established that ownership of property provides tenurial security coupled with the ability to renovate, and also has pecuniary benefits in the form of increased wealth, a hedge against future rent increases and the ability to leverage (Abdulai and Owusu-Ansah, 2014). This school of thought considers renting as an inferior choice with mantras such as 'rent money is dead money' and 'stop paying off someone else's mortgage'.

Renting a property on the other hand provides an opportunity for portfolio diversification. It allows prospective buyers to invest the avoided one-off costs of buying and other incidental outgoing into other assets. In order words, renters argued that ownership ties a large portion of wealth in one asset whereas renters can hold a more diversified portfolio and better manage inherent risks.

When deciding whether to lease or buy properties for the use of a company, the CRE team should be able to understand clearly the strategic and financial requirements of the organisation in the acquisition process (Zhao and Sing, 2016). A lot of factors need to be considered when deciding to either rent or buy. These factors may include the economic, legal and environmental factors, the costs associated with property acquisition, market trends and the timeframe within which the property is needed (Tajani et al., 2020).

To ensure efficiency and customer satisfaction, the case study public corporation has put in its strategic plan to increase its spatial need. One of the main strategies to meet this spatial need was to create modern office infrastructure to meet its mission statement. The alternative means was to rent office space in situations where the company was unable to build a new office building. The company has consistently made critical investments to acquire office spaces across designated districts. While some of these offices were rented, others were wholly owned. However, it is unclear whether owning an office complex is superior to renting from an economic perspective.

Several studies have been conducted on the subject of lease (rent) versus buy decisions (Beracha and Johnson, 2012; Beracha et al., 2012; Brown et al., 2011; Fox and Tulip, 2014; Hill and Syed, 2012). However, most of these studies have been limited to the countries of the Global North including Australia, the United Kingdom and the Americas. Most of these studies have also been limited to the determinants of leasing and have identified factors such as the nature of the company (whether it is closely held or not), management compensation, tax, the market power of the lessor, the useful life of the asset after the lease, the speciality of the asset, the lessee's bonds covenants, etc as the factors that determine the buy v. lease decision (Duke et al., 2002; Deloof and Verschueren, 2007; Graham et al., 1998; Lasfer and Levis, 1998, Smith and Wakeman, 1985). Despite the identification of these factors in the literature, we support the argument by Morais (2013) that the ultimate decision to lease or to buy must be able to meet the shareholders' goal of maximizing their wealth.

In Ghana and other African countries, studies that have been conducted on corporate real estate are limited to the role that corporate real estate plays in the organisation's corporate strategy (see Boakye-Agyeman et al., 2022; Ntene et al., 2020; Boakye-Agyeman and Bugri, 2019). The decision to buy or rent (lease) is largely left unexplained. The decision as to whether to buy (build) or rent (lease) should be anchored on a reliable and or empirical basis and must have scientific underpinning since it hinges on the prudent allocation of scarce institutional resources. This paper aims to address this gap by examining the best option to acquire office spaces for public institutions in Ghana with this company as the case study. Even though the study is limited to only one public institution in Ghana, the methodology and analysis done in this study can be applied to other public institutions in Ghana and beyond.

The rest of the study is structured as follows. The next section reviews the literature relevant to the study. The resource allocation theory and buying and renting decisions are discussed in the section. Also, the determinants of leasing such as taxes, size of the firm, management compensation, nature of the assets etc are all discussed in this section. In section 3, the research methodology is explained. The penultimate section presents and discusses the empirical results and section 5 concludes and summarises the paper with the policy implications discussed.

2. Literature Review

This section reviews the literature that is relevant to the study. In subsection 2.1, the resource allocation theory is discussed. It continues to discuss leasing and the determinants to lease or buy in subsections 2.2 and 2.3 respectively.

2.1. Resource Allocation

The literature on the processes of allocating resources of an organisation started in the 1960s when researchers sought to identify accurate ways of making investment decisions instead of just the traditional capital budgeting techniques (Maritan and Lee, 2017; Haka, 2006). The allocation of resources in an organisation, whether a private or public organisation, is essential in helping the organisation achieve its goals (Maritan and Lee, 2017). According to Chandler (1962: 13), the business strategy of organisations does not only include the determination of organizational goals but also includes the "allocation of resources necessary for carrying out these goals". The allocation of resources is therefore an important part of an organizational strategic plan and hence the need for a "resource budget" (Ansoff, 1965: 218). Public Sector Agencies (PSAs) require office spaces for further production of goods and services. However, these PSAs are resource-limited and thus unable to keep their balance sheets in a balanced state. Any form of capital required for physical infrastructural engineering is limited, be they debt or equity (short-term or long-term, common stock) or retained earnings, accounts payable or notes payable. Thus, when confronted with resource constraints for office property development, an appropriate scientific decision module is key to aid the selection of a project which is economically acceptable. Simkins (2003) argues that, in cases of contending needs, management must identify needs that will contribute most to profits and, consequently, to the value (or wealth) of the company. Ullah and Sepasgozar (2020) investigated the key post-purchase regret factors of property owners and renters in the USA

since 2010. The authors found that the regret levels of real estate consumers are very high. The consumers identified complicated buy-sell process, lack of accuracy of information, housing costs, house size, mortgages, agents, inspections, and emotional decision-making are key reasons for regret. These factors could serve as relevant warning signs for any investor or space user who needs property space Ullah and Sepasgozar (2020) and can inform one's decision to either buy or rent property space.

Lind and Lundström (2010) summarized the important factors that determine the choice between owning and leasing to include the following: (i) How easy it is for the business to raise capital; (ii) The proficiency in property management, including different access to market information; (iii) How well principal-agent problems in leasing can be handled (iv) The accounting and tax benefits of owning or leasing (v) How good the business is in disposing of assets; (vi) The size of the transactions costs for leasing vs owning

Some of these factors are discussed below.

2.2. Property buying

Property-Buying is a form of tenure where a person, called the owner-occupier owns the property in which they live be they a house, apartment or office property. They are constructed by the owner with the intent to occupy. It confers exclusive proprietary and jurisdiction rights to the owner. The owner is responsible for the payment of any rates and taxes that arise. In this paper, ownership is defined as the right to have exclusive possession over an office property over a defined period. There are two main benefits of ownership namely, an investment and consumption good (Ullah and Sepasgozar, 2020; Hutchison, 1994). On the consumption side ownership is beneficial as it affords utility in the form of shelter and space to function and achieve the organizational objectives. There might be non-financial psychic benefits, such as freedom to renovate and security of tenure. However, these benefits of buying are not considered in this paper.

On the investment side, ownership possesses streams of dividends in terms of equity and capital appreciation (Tajani et al., 2020). Ownership allows for monthly payments to go towards building equity instead of the landlords. More importantly, purchasing a property can also be a solid investment with a high return on investment through property appreciation, value creation (a.k.a "sweat equity") and rental income (Fisher and Brueggeman, 2018). Unless cash purchases are

made, the investment will also be leveraged, magnifying your returns by putting 100% of the property's value to work with only a 10%-20% down payment.

Reed and Greenhalgh (2002) provide the following summary of the benefits of owning a property in general (whether an office or residential) (i) There is eventual debt-free ownership after all loan repayments have been paid, with the property owners acquiring perpetual freehold ownership of the property; (ii) Ability to alter the space in any manner at the discretion of the owner, although meeting the local council's requirements. This can take many forms from painting to extensive renovations, being designed to suit the owner's circumstances and tastes without requiring the consent of others; (iii) Intangible sense of pride in space ownership (Heikkila, 2000); (iv) Hedge against inflation – an investment in property will usually keep abreast of inflation, causing a gradual but regular overall increase in the capital value of the property (Waxman, 2000).

The cost of buying a property includes one-off costs and ongoing costs. The key one-off costs are the cost of land, construction costs or buying and stamp duty. In Ghana, stamp duties are levied by the State and collected and accounted for by the Lands Commission in accordance with the Stamp Duty Act 2005 (Act, 689). Stamp duties are typically progressive taxes at Ad Valeorem. Act 689 imposes 1% on the transfer of property. Other costs are conveyancing fees (and other legal costs) and valuation fees.

Ongoing costs include local government rates, maintenance and building insurance. The Local Government rates are imposed and collected by the respective Metropolitan, Municipal and District Assembly in whose jurisdiction the properties reside in accordance with relevant provisions of the Local Governance Act, 2016 (Act 936). Average rates impost across the greater Accra Metropolitan area approximates 0.036% of properties rateable value. Fox and Tulip (2014) estimate that landlords spend 6.3 per cent of gross annual rental income on repairs and maintenance. Data analysed resulted in 25% of rental value annually. The share of building insurance premiums is based on the value of property prices coupled with its risk profile. The average rate of insurance on similar properties of the company is 0.22% of building cost and the same is adopted.

2.3. Property renting (leasing)

Renting is a contract where payment or consideration is made for the temporary use of a property or space in a property owned by another over a specified period (Fisher and Brueggeman, 2018; Chris and Somefun, 2007). Leases of land emerged as a form of property; leases of personal property were regarded as a special type of bailment in most common law countries (Bridge, 2015). This is split ownership where the landlord maintains legal ownership and the tenant has equitable ownership. The main benefits of renting (leasing) a property include the following (i) Renting entails minimal capital expenditure as rent is paid periodically: on a weekly, fortnightly or monthly basis, and does not require a large monetary commitment such as a deposit to be amassed. It is based on a 'pay as you earn' principle; (ii) Fixed rent over an agreed period offers a degree of certainty and is not subject to fluctuations compared to other expenses, such as interest rate rises, etc; (iii) No entry/exit fees – as opposed to purchasing a property where there is a myriad of fees attached including stamp duty, solicitor's fees, loan application and processing fees, building inspection fees, etc. However, there are no such fees attached to a rental agreement, with the exception of a bond that normally equates to four weeks' rent and is completely refundable at the end of the lease if the premises are maintained in a reasonable state; (iv) There is a higher level of mobility as tenants are free to move out of the property when business objectives change. (v) Certain ongoing expenses are paid by the landlord that would otherwise be the responsibility of a property owner, such as statutory rates, etc; and (vi) No capital maintenance costs are paid by the tenant, as all such costs are borne by the landlord; No possibility of 'negative equity', which commonly occurs after a downturn in the housing market (Lind and Lundstrom, 2010; Hutchison, 1994). In a depressed property market, the tenant remains unaffected and may even benefit if alternative investments are with negatively correlated assets.

2.4. Determinants of renting (leasing) vs buying

Studies such as Tajani et al (2020) have examined limited real estate development in different areas across the world and recommend leasing as an alternative to individuals and firms. Many companies use leases as a means of financing the activities of the firm. The leasing objectives may be different from the buying objectives. Authors such as Grenadier (1996, 1995) believe that leases provide greater flexibility to the lessee because the lease transactions contain such embedded options. The ultimate decision to lease or to buy, however, must be able to meet the shareholders'

goal of maximizing their wealth (Fisher and Brueggeman, 2018; Morais, 2013).

Myers et al. (1976) developed a theoretical lease-buy decision model and concluded that leasing is a substitute for debt financing. Other authors like Yan (2006), Beattie et al. (2000), Lasfer and Levis (1998) have also examined whether leases can be used as an alternative financing source and agreed with the conclusion drawn by Myers et al (1976). For Yan (2006) and Beattie et al. (2000), although there is a substitute effect as suggested by Myers et al. (1976), its magnitude is less than a full trade-off because according to them, some risk sharing occurs between the lessee and the lessor. Yan (2006) noted that companies (i) that do not pay dividends (more asymmetric information), (ii) that have more investment opportunities (higher agency costs from underinvestment) or (iii) with higher marginal tax rates (transferring tax shields is less valuable) are able to substitute more. In examining the relationship between lease and debt for SMEs in Belgium, Deloof et al. (2007) also found results that support the substitution theory.

Even though leases may serve as an alternative for debt financing as demonstrated above, the overall empirical evidence is mixed. Authors like Kang and Long (2001), Adams and Hardwick (1998), Bathala and Mukherjee (1995) and Branson (1995) found leases to be a complement to debt and not a substitute as indicated by other authors. Kang and Long (2001) found that companies with high levels of regular debt also have higher levels of leases. Leases are more frequently used by companies that have financial constraints (Eisfeldt and Rampini, 2008).

The determinants of leasing (both operating and financial) have been well discussed in the literature. The determinants of operating leases have been examined by studies such as Duke et al. (2002), Graham et al. (1998), Sharpe and Nguyen (1995) etc. and studies such as Deloof and Verschuren (2007), Lasfer and Levis (1998) have also examined the determinants of financial leases. In all these, tax motivation has been identified as the main reason for leasing in the literature (see Morais, 2013). The determinants of leases include (2.4.1) the nature of the assets (2.4.2) taxes (2.4.3) ownership structure (2.4.4) industry (2.4.5) management compensation (2.4.6) size and (2.4.7) leverage and financial constraints (Morais, 2013).

2.4.1. The nature of assets

Asset specificity is a great determinant of capital structure (Owusu-Ansah and Abdulai, 2012). In determining the use and intensity of leases also, the nature of assets plays a key role. Graham et

al. (1998) and Sharpe and Nguyen (1995) found that there is a negative relationship between leases and asset specificity. This is the case because fixed assets can be transferred easily and so are readily available on the market. In general, companies tend to lease assets that are less specific and have a more general purpose. It is therefore not surprising that previous studies have found that manufacturing companies' levels of leasing are lower than mining and transportation industries whose assets are not specific to their respective companies (see Krishnan and Moyer, 1994). Gavazza (2010) also found that more liquid assets are more likely to be leased and so concluded that the liquidity of assets affects the lease decision.

2.4.2. Taxes

According to the literature, a company that is not in a fully tax-paying position should buy the asset so that the depreciation of the asset can lead to a lower tax deduction rate as compared to leasing the asset. The reason is that the company in this case can deduct both the interest payment and the depreciation tax shield and so lower its tax payments (Lasfer and Levis, 1998; Graham et al., 1998, Sharpe and Nguyen, 1995). Miller and Upton (1976) demonstrated that unless companies face different tax rates, they do not care about leasing or buying an asset. In examining whether low-tax rate companies lease more than high-tax-rate companies or not, Graham et al. (1998) found that when the tax rate for a company is high, leasing intensity decreases. That is, companies with low tax rates tend to lease more.

2.4.3. Ownership structure

Debt and leases expose the owners of companies to financial risk (Hillier et al., 2020). However, when assets are leased for a period which is shorter than the economic life of the asset, the lessor will bear most of the obsolescence risk. Flath (1980) therefore argues that companies that are more closely held should have more lease contracts. Also, as found by Mehran et al. (1999), companies whose CEOs have larger ownership stakes tend to use more leases so that their obsolescence and other asset-specific risks can be reduced.

2.4.4. Industry

Even though the study by Ang and Peterson (1984) showed the irrelevance of the type of industry in determining whether to lease or to buy, other literature shows that some industries tend to lease more than others. Finucane (1988) for instance showed that companies in industries like retailing

and air transport used more leases than other industries. Among other things, he identified asset specificity, availability of assets as collateral, rate of asset obsolescence, debt capacity and managerial tax rate as the reasons for this. Gosman and Hanson (2000) also concluded that airlines and retail stores use more leases. Service and utilities companies have also been identified to use more leases and companies in the construction industry use fewer leases (Adams and Hardwick, 1998).

2.4.5. Management Compensation

The compensation paid to managers is largely based on accounting measures and as rational managers, they would do anything possible to make sure that the accounting measure target is achieved so that they can maximise their compensation (Hillier et al., 2020). Generally, companies tend to use leases more frequently when the compensation of managers is based on accounting measures (Smith and Wakeman, 1985). The reason is that buying the asset will alter the firm's balance sheet greatly and may affect the other measures to the detriment of the managers' compensation. El-Gazzar (1986) found a positive and significant relationship between management compensation plans and the use of operating leases and concluded that companies who base their compensation plans on accounting measures are more likely to choose operating leases over finance leases or buying. The study by Robicheaux and Fu (2008) showed that companies with more incentive compensation and more outside directors are more likely to use leases in order to reduce agency costs.

2.4.6. Size

Studies that have examined the relationship between the size of a company and the lease-buy decision have produced mixed results. While Adams and Hardwick (1998), Graham et al. (1998) and Sharpe and Nguyen (1995) found a negative relationship between size and leasing, other studies like Deloof and Verschueren (2007) and Lasfer and Levis (1998) showed a positive relationship. Most studies that examine the determinants of leasing include the size of the firm for several reasons as identified by Morais (2013). Among the reasons are that (i) the size of the firm affects the costs of borrowing and obtaining other external funds. Smaller companies' cost of borrowing is generally higher than bigger companies due to asymmetric information issues (Hillier et al., 2020; Graham et al., 1998). Therefore, instead of lending to smaller companies, the lessor may prefer to lease so that the uncertainty surrounding their claims can be reduced. In general, the

intensity of leasing is expected to be higher for smaller companies than it is for larger companies, all other things being equal. (ii) the size of the company is also related to the diversification and how well the company can redeploy assets internally. Generally, larger companies can diversify more than smaller companies and these diversification possibilities help the larger firms to lease more (Mehran et al., 1999). (iii) Some studies have also used total sales as a measure of size. These authors believe that in general, larger firms can generate more sales than smaller firms, all other things being equal. Adams and Hardwick (1998) found that small companies tend to lease more than large companies and that as the company increases in size (sales), the percentage of leasing tends to decline.

2.4.7. Leverage and financial constraints

Leverage is an important variable that is included in most studies that examine the determinants of leasing. Most of the studies have established a positive relationship between leverage and leasing (Eisfeldt and Rampini, 2008; Sharpe and Nguyen, 1995). When a company is highly geared, its debt capacity reduces and so the company is more likely to lease than to buy. As argued by Eisfeldt and Rampini (2008), leases provide creditors with more security and priority when the company goes into bankruptcy. It is therefore seen as an effective way to reduce moral hazard and adverse selection problems. Companies with financial ratios that are closer to the limits of covenants tend to prefer operating leases to financial leases or buying (El-Gazzar et al., 1986).

It is clear from this section that the lease versus buy decision is a complex one and several factors have been identified in the literature as the determinants of this decision. However, since the goal of the firm is to maximise the shareholders' wealth, the decision to lease or buy must also contribute to the shareholders' wealth maximization goal (Hillier et al., 2020).

3. Research Methodology

In this paper, we investigate the rent versus buy decision with one of Ghana's public corporations as the case study. The quantitative research methodology is employed for this analysis. This involves the use of descriptive statistics measures such as the mean, and standard deviation as well as the use of the net present value (NPV) approach to determine whether it is cheaper for the case study company to rent or buy. The public company used for this analysis (named company X) has an office in all the sixteen regional capitals in Ghana and has some offices in different

metropolitan, municipal and district offices. Because the data provided by the company was given on the condition of anonymity and confidentiality, the name of the company and its detailed description are left out in this study. The company has been named X above to make the study real. Even though the company name is left out, the analysis done in this paper is still useful even without the name of the company.

The creation of a conducive office is a top priority in the company's Strategic plan. The move has resulted in increasing operational offices to 217 nationwide. Some of the offices are however rented. Out of the 40 offices the company operates in Greater Accra for instance, 25 of them are rented. The rented space accounts for approximately 15,587 square meters out of a total of space approximately 23,108 square meters. Additional space rented to augment the company's head operation in Accra is approximately 5,500 square meters at an average rental rate of GH₵127 [1]per square meter.

Previous studies have examined the determinants of leasing by employing several econometric models (Yan, 2006; Kang and Long, 2001; Deloof and Verschueren, 2007; Mehran et al., 1999; Adams and Hardwick, 1998; Graham et al., 1998; Lasfer and Levis, 1998; Sharpe and Nguyen, 1995). We argue in this paper that, even though the econometric models to identify the determinants of leasing are important, they do not help to appreciate as to which of the decisions help to contribute to the goal of the firm, which is to maximise the shareholders' wealth. We employ the net present value (NPV), an investment appraisal technique to investigate whether it is beneficial to rent or buy office property for a public corporation head office operation from an economic perspective.

Even though there are other several investment appraisal techniques such as the payback period, internal rate of returns, profitability index, accounting rate of returns etc, the NPV is theoretically superior to the other investment appraisal techniques (Hillier et al., 2020). A lot of studies have also confirmed the empirical superiority of the NPV as compared to the other investment appraisal techniques and hence it's widely applied in practice. In Canada, the work of Bennouna et al. (2010) shows that about 58% of chief financial officers (CFOs) employ the NPV in their decision-making. About 61% of CFOs in Sweden (Daunfeldt and Hartwig, 2014), 74% in Sweden, Norway and

[1] Exchange rate of $1 = GH₵6.04010 as at 31st August 2021

Denmark (Horn et al., 2015), 89% in China (Hermes et al., 2007), 50% in India (Verma et al., 2009), 72% in Latin America (Masquieira et al., 2012), 81% in Brazil (Mendes et al., 2014). Even though the work of Addico et al. (2022) has shown that CFOs in Ghana prefer the payback period to the NPV, obviously because of its simplicity, among all the techniques, it is only the NPV that provides exactly how many managerial decisions on investments adds to the value of the shareholders' wealth which is in line with the firm's goal of maximizing the shareholders' wealth. Therefore, the NPV is used as the main analytical technique in determining whether the company should rent (lease) or buy its office spaces.

We obtained data on monthly rental values and other incidental outgoings from 2014 to 2019 from the Estate Unit of company X. This period of data is employed because we have data consistently available for the period. This data helped to assess the NPV of renting. Also, development cost, estimated annual maintenance cost, service charges and other incidental outgoing were collected to assess the NPV of buying. The Monetary Time Series of the Bank of Ghana also provided data on average inflation, and exchange rate, for the period 2014 to 2019.

Given that the useful life of building purchases could be up to 30 years and even beyond, depending on the condition of the building, we used the historical figures between 2014 and 2019, to project the rental values for the next 30 years. This helped us to calculate the present value (PV) of the future rentals to be paid at an appropriate discount rate. The present value of the cost of buying is also estimated using the development cost, maintenance cost, service charges and other incidental outgoings obtained from the historical information between 2014 and 2019. The decision rule is that buying is a better option than renting if the present value of the cost of buying is less than the present value of the cost of renting a property with the same characteristics and locational details. That is, accept buying if PV (cost of buying) < PV (cost of renting) and vice versa. When the PV of the cost of buying is less than the PV of the cost of renting, it means that the net advantage to leasing (NAL) is negative and so the company should not lease but should rather buy.

Given that company X as a public institution is prohibited from debt financing regimes such as mortgages, we assume that the company would do a 100% outright purchase.

The paper derived the PV of buying by discounting the cost of one-off buying after adjusting for the resale value after the 30 years at an estimated 30-year Eurobond coupon rate of 8.627% plus a

market growth rate of 1.5% and a risk premium of 3%. This resulted in the annualized discount rate of 13.127% and the same was adopted. The one-off cost of buying included the buying cost plus stamp duty fee, brokerage fees, conveyancing and other legal costs. The property after purchase is estimated to appreciate at the average inflationary rate from 2014 to 2019 which is estimated at 14% per annum.

NPV of renting is also estimated by discounting rent payable for comparable property (Buying Scenario). Here net floor area of the comparable property is multiplied by the rental rate per square meter to derive Gross Rent Value (GRV). Similar to the buying scenario, rent payable is estimated to increase concerning the annual depreciation rate of the Cedi against the USD. Average annual rates of 11% from 2014 to 2019 were estimated. The paper adopted the annual rented floor area as a proxy to measure the rate at which the company rented properties from 2014 to 2019.

The data is modelled into an Excel spreadsheet and the decision rule is made with the aid of a what-if analysis tool.

4. Presentation and analysis of results

The main aim of the paper is to assess whether it is appropriate for public corporations in Ghana to buy or rent office space for operations by using company X as a case study. To achieve this aim, this section began by comparing the ratio of ownership to rented offices in regional lines. It proceeded with the presentation and analysis of the sequence of rentals from 2014 to 2019 and concluded by adopting NPV analysis in an Excel spreadsheet to perform the Rent versus Buy decision and finally subjected the result to the decision rule.

4.1 Ownership v Rental Office Spaces

Company X operates in 212 offices throughout the country. Out of the 212 operational offices, 141 (67%) are wholly owned while 71 (33%) are rented. The company like many other public institutions in Ghana is resource-constrained and thus must make acquisition decisions on sound empirical footing.

Figure 1 shows the regional distribution of ownership and rental offices as of the end of 2019. It is important to note that offices are still organized into 10 regions instead of 16 regions to ensure consistency of data. The figure shows that Greater Accra has the highest number of rental

properties (25 properties) followed by Western (9 properties) and Volta Region (6 properties). This implies that the company's expenditure on rental in Greater Accra is relatively high as rental values in Accra, Tema, Kumasi and Takoradi are relatively higher than the other regional capitals in Ghana (Owusu-Ansah and Asante, 2021) and rental offices in Accra are mostly indexed to the United State Dollar. This notwithstanding, it is unclear whether ownership would be more beneficial. Volta Region, on the other hand, recorded the highest number of owned offices (26 properties), followed by Western Region (23 properties) and then Brong-Ahafo Region (19 properties).

In Table 1, the regional expenditure on rent for the year 2019 is presented. The table shows that the company's expenditure on rent amounts to GH₵11,272,213.34 for 2019 and about 86.75% of this is expended on rentals in Greater Accra alone. This is not surprising given that the Greater Accra Region has the highest number of rental properties and rental values in the Region are in general higher than that of the other regions as indicated above.

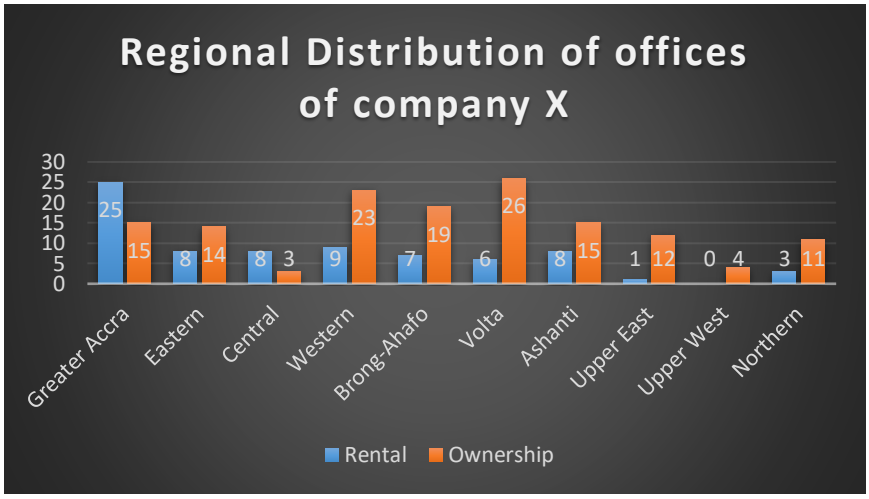


Figure 1: Regional Distribution of Properties

Source: Field Data, (2021)

The data further indicated that, out of the rent expenditure for Accra, the company's head office Extension which occupies approximately 5500 square meters recorded 68% of rent expenditure while the remaining 20 offices recorded 32% of rent expenditure allocated for Accra.

Table 1: Regional Rental Analysis of Company X

Region	Rent Per annum GH₵	Region	Rent Per annum GH₵
Greater Accra	9,779,734	Brong-Ahafo	51,600
Central	403,631	Volta	30,636
Western	396,180	Eastern	378,844
Ashanti	141,588	Upper West	28,800
Northern	61,200		
Total	**GH₵ 11,272,213.34**		

Source: Field Data, (2021)

4.2 Trend analysis of rental office spaces

Trend analysis of the rate at which the company rented offices in Accra from 2014 to 2019 is carried out and the results are presented in Figure 2. In doing this, the annual floor area rented over the years is plotted and the objective of the trend analysis is to ascertain the rate at which the company rented properties from 2014 to 2019. The figure revealed a consistent increase in rented spaces from 2014 to 2018 and nose-dived in 2019.

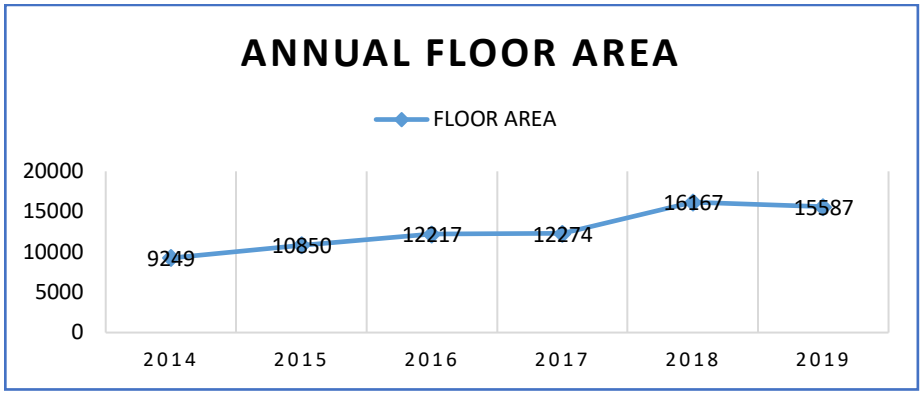


Figure 3: Annual Floor area of company X

Source: Field Data, 2021

Cumulatively, rented spaces stood at 9,249m^2, 10,850m^2, 12,274m^2, 16,167m^2 and 15,587m^2 for the years 2014, 2015, 2016, 2017, 2018 and 2019 respectively. The rented floor area has been on the ascendency every year between 2014 to 2018, rising from 9,249m^2 in 2014 to about 16,167m^2 in 2018. However, there is a little drop in the floor area between 2018 and 2019. It is instructive to note that the Accra head office alone occupies an area of 5,500 square meters which is approximately 35.29% of the total rental space of 15,587 square meters. As of now, we still do not know the factors that management consider in deciding whether to own or rent their even though the literature has identified several of these factors (see Morais, 2013; Gavazza, 2010; Duke et al., 2002). The available data do not lend itself to such studies to be conducted.

We do a trend analysis of rent paid from 2014 to 2019 and the results are presented in Figure 3. It is clear from the figure that the general increase in rent paid over the five-year period has not been uniform. While there has been a gentle rise in annual rent between 2014 to 2017, the period between 2017 and 2018 saw a dramatic increase in annual rental payments. The figure shows that, the cumulative increase in rent from 2014 to 2019 amounts to 272%. This translates to an average increment of approximately 54% annually.

The highest year-on-year rent growth rate of 83% was recorded in 2018 while the least year-on-year recorded growth rate of 5% was experienced in 2017. Further interrogation of the data for the 5% growth revealed that the majority of the rent paid covered a two-year term from 2016 to 2017. It should be noted that the high annual rental growth may be partly due to the depreciating nature

of the Ghana Cedi. Most of the rents are indexed in US dollars but paid in Ghana Cedis. Therefore, anytime the Ghana Cedi depreciates, tenants pay more.

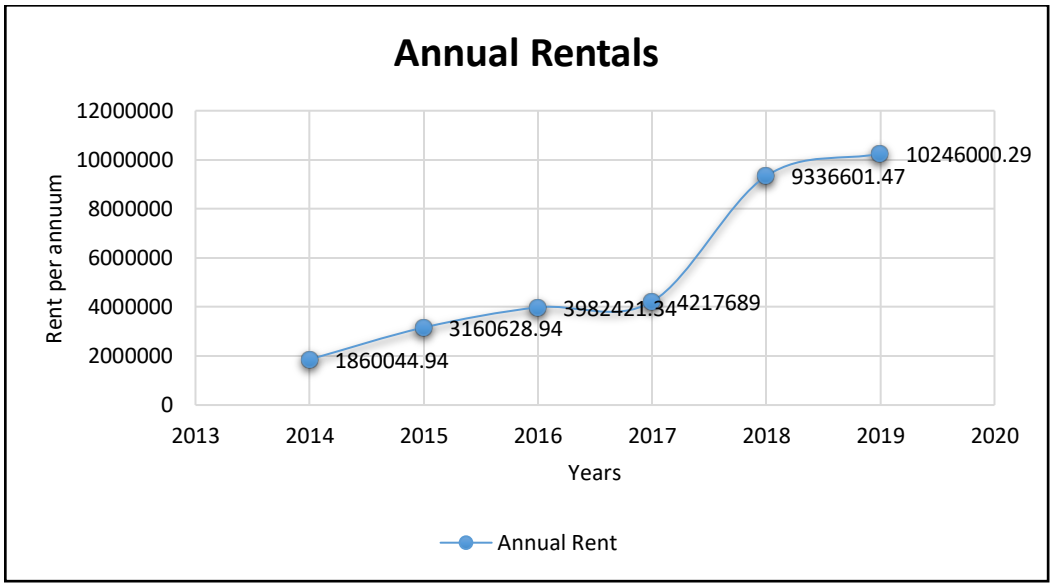


Figure 4: Annual Rental Values of Company X

Source: Field Data, (2019)

4.3 NPV analysis of Rent v Buy decision

Several factors would be considered before the decision to rent or buy (Duke et al., 2002) as already identified in the literature (even though such determinants are not empirically explored in this paper). However, the ultimate decision that will be taken to either buy or rent should be able to maximise the wealth of the shareholders (Hiller et al., 2020) as already discussed in the literature. There is therefore the need to conduct the NPV analysis to satisfy the objective of whether it is better to rent or buy office property for the company's head office operations. The decision rule as stated earlier is that, accept to rent if the PV of the cost of renting is less than the PV of the cost of buying and vice versa (Hiller et al., 2020). Table 2 presents the assumptions made in carrying out the NPV analysis.

Table 2: Assumptions underlying the rent v. buy scenarios

PURCHASING SCENARIO		**RENTING SCENARIO**	
Office Price (GH¢)	38,000,000.00	Gross Rent (GH¢)	7,207,200.00
Interest Rate/Annum	14%	Inflation	14%
Term (years)	30.00	Annual Rent Tax (Commercial)	15%
Annual Property Rate	0.04%		
Annual Maintenance Cost	5%		
Property Appreciation	14%		
Annual Insurance Cost	75,000.00		

Tables 3 to 5 in the appendix present the NPV analysis of buy versus rent decisions. The analysis yielded PV of GH¢141,824,721.30 and GH¢147,108,908.82 for buying and renting respectively over the 30-year period. As already indicated, the PV amount for the rental option is the series of periodic anticipated costs (rent) and the maintenance thereof that the company is expected to meet (pay) over the 30-year period discounted at an appropriate discount rate to the present value. The PV of buying included initial purchase cost and annual maintenance thereof over the 30-year period. The present value of the cost of buying is thus less than the present value of the cost of renting. It should be noted that the resale value after the 30-year period is not factored into the analysis. When that is estimated and factored, then the present value of the cost of buying will be far less than the present value of the cost of renting. It is therefore economically viable for the company to buy their office spaces rather than rent in Accra.

5. Discussion

The allocation of resources in an organisation is essential in helping the organisation achieve its goals (Maritan and Lee, 2017). A lot of factors are considered before organisations decide whether to rent or buy an office space for their operations. As discussed in the literature, factors such as the nature of the asset (Gavazza, 2010; Graham et al., 1998; Sharpe and Nguyen, 1995); taxes (Lasfer and Levis, 1998); ownership structure (Mehran et al., 1999); type of industry and branding required (Gosman and Hanson, 2000); management compensation (Robicheaux and Fu, 2008); size of the firm (Morais, 2013) and leverage and financial constraints (Eisfeldt and Rampini, 2008) are the main determinants of buying versus the leasing.

Due to the nature of real estate for office space, the majority of the factors identified may favour leasing over renting. Real estate as an asset is not specific and may not be necessary for the company to buy it, company X is a large company with branches in all the administrative regions in Ghana so the company may not be able to buy the space for all the offices due to the capital intensive nature of real estate (Wijburg and Waldron, 2020), and hence may prefer renting. The managers, because of their own compensation benefits may prefer renting so that cash can be freed up for other activities for which they will benefit directly. Lastly, due to financial constraints, and the fact that the public company cannot borrow up to the setting limit, renting may be the best alternative (Graham et al., 1998). Among the factors, it is only taxes and branding that favour the buying decision. Larger trends in society suggest that leasing will continue to expand at the expense of ownership (Merrill, 2020). Leasing as already discussed, encompasses the acquisition of assets for limited periods of time, and ownership entails the permanent acquisition of assets. According to Merrill (2020), leasing is an attractive method of financing the acquisition of assets, especially for persons who have limited capital or would like to conserve their capital and cash flows for other purposes. Leasing also helps to minimize the risks that either lessees or lessors will bear for owning assets; although leasing also creates risks, various lease modifications have been developed to manage these derivative risks. By dividing the rights to an asset between lessor and lessee, leasing permits the parties to specialize in different functions and to solve various impediments to contracting that would be difficult to overcome among separate owners. A review analysis by Lind and Lundström (2010) also provided enough evidence to support the argument that the public sector needs to rent instead of own.

Even though most of the factors identified in the literature favour the rent decision, the NPV analysis conducted in this study favours the buying decision. That is, managers should not only consider the qualitative factors but pay attention to the quantitative factors as well. Since the goal of the firm is to maximize the shareholder's wealth (Hiller et al., 2020), the decision by the NPV analysis that buying is a better option than renting cannot be ignored.

6. Conclusion

Even though the determinants of the rent versus buy decision are well documented in the literature, we argue that since the goal of the firm is to maximise the wealth of the shareholders (Hillier et al., 2020), the ultimate decision to rent or buy an office space should be based on the one that helps to contribute positively to the wealth of the shareholders. Therefore, empirical analysis of the cost of renting versus buying should be done before such a decision can be taken rather than only depending on the factors that have been identified in the literature. In this study, we have empirically analysed the rent versus buy decision using data from company X, a public institution in Ghana. The study was carried out through in-depth data mining of all rented properties of this public corporation in Ghana, company X, and the data was modelled via Microsoft Excel. Among other things, the study found that rent paid for offices in Accra alone accounts for 86.75% of total rent expenditure; the company's head offices extensions occupy a rented floor area of 5500 square meters and account for 68% share of rent expenditure in Accra and rented space has been increasing over the period. The analysis also reveals that the net advantage to leasing (NAL) is negative. That is, managers pay more for leasing than for buying and so it is economically viable for the company to buy office space for its activities in Accra rather than renting.

It is important to note that this analysis was done with the headquarters in Accra as the case study. The option may not hold in office spaces in frontier stations and hinterlands where rental values are very low. However, the methodology and analysis done in this study will form the foundation for further research to be done in these areas to ascertain rent versus buying decisions.

References

Abdulai, R.T. and Owusu-Ansah, A. (2014). Land information management and landed property ownership security: Evidence from the state-sponsored court system. *Habitat International*, 42, pp. 131-137.

Adams, M. and Hardwick, P. (1998), "*An analysis of corporate donations: United Kingdom evidence*", Journal of Management Studies, 35(5), pp. 641-654

Addico, N., Amewu. G. and Owusu-Ansah, A. (2022). The use of investment decision techniques and tools in practice in a frontier market: Evidence from Ghana. *Managerial and Decision Economics*. 43(6), pp. 1748-1763

Ang, J. and Peterson, P.P. (1984), "The leasing puzzle", *Journal of Finance*, 39, pp. 1055–65.

Ansoff, H. I. 1965. *Corporate strategy*. New York: McGraw-Hill.

Bathala, C.T.; Mukherjee, T.K. (1995): A Survey of Leasing in Small Firms, Journal of Small Business Finance, ISSN 1057-2287, JAI Press, Greenwich, CT, 4(2/3), pp. 113-127

Baum, S. and Wulff, M., (2003). *Housing aspirations of Australian households*. Melbourne: Australian Housing and Urban Research Institute, Queensland Research Centre and Swinburne-Monash Research Centre.

Beattie, V.A., Goodacre, A. and Thomson, S. (2000), "Operating leases and the assessment of lease-debt substitutability", *Journal of Banking and Finance*, 24, pp. 427–470.

Bennouna, K., Meredith, G.G. and Marchant, T. (2010), 'Improved capital budgeting decision making: Evidence from Canada', Management Decision, 48(2), pp. 225-247

Beracha, E. and Johnson, K. (2012). *Lessons from Over 30 Years of Buy versus Rent Decisions: is The American Dream Always Wise*?' *Real Estate Economics*, 40, 217–247.

Beracha, E., Seiler, M. and Johnson, K. (2012). The Rent versus Buy Decision: Investigating the Needed Property Appreciation Rates to be Indifferent between Renting and Buying Property. *Journal of Real Estate Practice and Education*, 15, 71–87.

Boakye-Agyeman, N.A. and Bugri, J.T. (2019), "Strategic corporate real estate management practice in Ghana", *Property Management*, 37(3), pp. 432-449.

Boakye-Agyeman, N.A., Bugri, J.T. and Gyamfi-Yeboah, F. (2022), "Challenges of strategic corporate real estate management in Ghana", *Property Management*, 40(2), pp. 265-284.

Branson, B.C. (1995): "An empirical examination of the leasing puzzle", *Quarterly Journal of Business and Economics*, 34 (3), pp. 3-18.

Bridge, M. 2015. *Personal Property Law*, 4th ed. Oxford: Oxford University Press.

Brown, R., Brown, R., O 'Connor, I., Schwann, G. and Scott, C. (2011). The Other Side of Housing Affordability: The User Cost of Housing in Australia. *Economic Record*, pp. 87, 558–574.

Brueggeman, W.B. and Fisher, J.D. (2018) "*Real estate finance and investment*," McGraw Hill, New York.

Chandler, A. D. 1962. *Strategy and structure: Chapters in the history of American enterprise*. Cambridge, MA: MIT Press.

Chris, A. O., & Somefun, A. O. (2007).The effects of facilities provision on rental values of Residential properties in Ikeja: Logos State, *Journal of Land Use and Development Studies*, 3, pp. 61-67

CoreNet Global (2015). *CoreNet Global Academic Challenge*. Assessed from los-angeles-academic-challenge-brief-(pdf).pdf (corenetglobal.org) on 20th February, 2023.

Crowley, D. and Li, S.M., (2016). An NPV Analysis of Buying versus Renting for Prospective Australian First Home Buyers. *Economic Record*, *92*(299), pp.606-630.

Sven-Olov Daunfeldt, Fredrik Hartwig(2014) What Determines the Use of Capital Budgeting Methods? Evidence from Swedish Listed Companies. *Journal of Finance and Economics.* 2(4), pp. 101-112

Deloof, M., Lagaert, I. and Verschueren, I. (2007). Leases and debt: Complements or substitutes? Evidence from Belgian SMEs. *Journal of Small Business Management*, 45 (4) , pp. 491-500

Di, Z.X., Belsky, E. and Liu, X., 2007. Do homeowners achieve more household wealth in the long run? *Journal of Housing Economics*, *16*(3-4), pp.274-290.

Duke, J., Franz, D., Hunt, H. and Toy, D. (2002), "Firm-specific determinants of off-balance sheet leasing: a test of the Smith/Wakeman model", *Journal of Business and Management*, 8(4), pp. 335-354.

El-Gazzar, S., Lilien, S. and Pastena, V. (1986), "Accounting for leases by lessees", *Journal of Accounting and Economics*, 8(3), pp. 217-237.

Eisfeldt, A. and Rampini, A. (2009), "Leasing, ability to repossess, and debt capacity", R*eview of Financial Studies,* 22(4), pp.1621-1657.

Finucane, T.J. (1988), "Some empirical evidence on the use of financial leases", *Journal of Financial Research*, 11(4), pp. 321-333

Flath, D. (1980). "The Economics of Short-Term Leasing," *Economic Inquiry, Western Economic Association International*, 18(2), pp. 247-259.

Fox, R. and Tulip, P. (2014). *Is Housing Overvalued*?', Reserve Bank of Australia, Research Discussion Paper, DRP 2014-06.

Gibler, K.M. and Lindholm, A.-L. (2012), "A test of corporate real estate strategies and operating decisions in support of core business strategies", *Journal of Property Research*, 29(1), pp. 25-48.

Gavazza, A. (2010), "Asset liquidity and financial contracts: evidence from aircraft leases", *Journal of Financial Economics*, 95(1), pp. 62-84.

Gosman, M. and Hanson, E. (2000), "The impact of leasing on lenders' evaluation of firms' debt levels", *Commercial Lending Review*, 15(3), pp. 53-60.

Graham, J.R., Lemmon, M.L. and Schallheim, J.S. (1998), "Debt, leases, taxes and the endogeneity of corporate tax status", *Journal of Finance*, 53, pp. 131–62.

Grenadier, S. (1995), "Valuing lease contracts: a real-options approach", *Journal of Financial Economics*, 38(3), pp. 297-331.

Grenadier, S. (1996), "Leasing and credit risk", *Journal of Financial Economics*, 42(3), pp. 333-364.

Haka, S. 2006. A review of the literature on capital budgeting and investment appraisal: Past, present, and future musings. In C. S. Chapman, A. G. Hopwood, & M. D. Shields (Eds.), *Handbook of management accounting research*: 697-728, Boston: Elsevier

Heikkila, E.J., (2000). *The economics of planning*. Rutgers University Center for Urban.

Hermes, N., Smid, P., & Yao, L. (2007). Capital budgeting practices: A comparative study of the Netherlands and China. *International Business Review*, 16, 630–654. https://doi.org/10.1016/j.ibusrev.2007.05.002

Hill, R. and Syed, I. (2012). *Hedonic Price-Rent Ratios, User Cost, and Departures from Equilibrium in the Housing Market*. UNSW Australian School of Business Research Paper No. 2012-45.

Hillier, D., Ross, S.A., Westerfield, R.W., Jaffe, J. and Jordan, B.D. (2020) *Corporate Finance*, McGraw Hill, New York.

Horn, A., Kjærland, F., Molnár, P., & Steen, B. W. (2015). The use of real option theory in Scandinavia's largest companies. *International Review of Financial Analysis*, 41, pp. 74–81. https://doi.org/10.1016/j.irfa.2015.05.026

Maquieira, P. C., Preve, A. L., & Sarria-Allende, V. (2012). Theory and practice of corporate finance: Evidence and distinctive features in Latin America. *Emerging Markets Review*, 13(2), pp. 118–148. https://doi.org/10.1016/j.ememar.2011.11.001

Hutchison, N.E. (1994). *Housing as an investment? Journal of Property Finance*. 5(2), pp.47-61.

Kang, S. and Long, M. (2001), "The fixed payment financing decision: to borrow or lease", *Review of Financial Economics*, 10(1), pp. 41-55.

Krishnan, V.S. and Moyer, R.C. (1994), "Bankruptcy costs and the financial leasing decision", *Financial Management*, 23, pp. 31–42.

Lasfer, M. and Levis, M. (1998), "The determinants of the leasing decision of small and large companies", *European Financial Management*, 4(2), pp. 159-184.

Lind, H., & Lundström, S. (2010). Owning vs leasing of real properties in the Swedish public sector. *Journal of Corporate Real Estate*, 12(3), pp. 175-184.

Maritan C. A., Lee G. K. (2017). Bringing a resource and capability lens to resource allocation. *Journal of Management*, 43, pp. 2609–2619

Mehran, H., Taggart, R.A. and Yermack, D. (1999), "CEO ownership, leasing, and debt financing", *Financial Management*, 28(2), pp. 5-14

Mendes da Silva, W., & Saito, R. (2014). Stock exchange listing induces sophistication of capital budgeting. *Revista de Administraçao de Empresas*, 54(5), 560–574. https://doi.org/10.1590/S0034-759020140509

Merrill, Thomas W., The Economics of Leasing (2020). *Journal of Legal Analysis*, 12, pp. 221-272

Miller, Merton H. & Charles W. Upton (1976). Leasing, Buying, and the Cost of Capital Services. *Journal of Finance*, pp. 31, 761–786.

Morais, A. I. (2013), "Why companies choose to lease instead of buy? Insights from academic literature", Academia, *Revista Latinoamericana de Administración*, 26(3), pp. 432-446.

Myers, S., Dill, D. and Bautista, A. (1976), "Valuation of financial lease contracts", *Journal of Finance*, 31, pp. 799–819.

Ntene, T., Azasu, S. and Owusu-Ansah, A., (2020). Corporate real estate and corporate strategy alignment in South Africa, *Journal of Corporate Real Estate*, 22(3), pp. 181-196

Owusu-Ansah, A. and Abdulai, R T. (2012) A comparative analysis of corporate capital structure policies in real estate and other industries in Sweden, *Current Politics and Economics of Europe,* 23(3-4) pp. 259-285

Reed, R. & Greenhalgh, E. 2002. *The Changing Nature of the Rent VS. Buy decision and implications for the housing market*. In AsRES/AREUEA, ed. Seoul, Korea: Joint International Conference, pp. 1–16.

Robicheaux, S.H., Fu, X. and Ligon, J.A. (2008), "*Lease financing and corporate governance*", Financial Review, 43(3), pp. 403-437

Rothe, P., Heywood, C., Christersson, M. and Sarasoja, A.-L. (2015), Office relocation management in Finland – challenges and service opportunities, *Property Management*, 33(4), pp. 348-436.

Sharpe, S.A. and Nguyen, H.H. (1995), "Capital market imperfections and the incentive to lease", *Journal of Financial Economics*, 39, pp. 271–94.

Smith, C.W. and Wakeman, L.M. (1985), "Determinants of corporate leasing policy",
Journal of Finance, 40, pp. 895–908.

Simkins, B. (2003). *Case Studies in corporate finance: cost of capital teaching note*. [Internet URL: http://www2.bus.okstate.edu/fin/ simkins/ Materials/cost_of_capital.pdf]

The Economist. 2020. *Special Report: Housing*. The Economist (18 January 2020).

Tajani, F., Morano, P., Salvo, F. and De Ruggiero, M. (2020), "An evaluation model for an effective risk assessment in the rent to-buy property market", *Property Management*, 38(1), pp. 124-141.

Ullah, F., & Sepasgozar, S.M. (2020). Key Factors Influencing Purchase or Rent Decisions in Smart Real Estate Investments: A System Dynamics Approach Using Online Forum Thread Data. *Sustainability*, 12(11), pp. 4382; https://doi.org/10.3390/su12114382

Verma, S., Gupta, S., & Batra, R. (2009). A Survey of Capital Budgeting Practices in Corporate India. *The Journal of Business Perspective*, 13(3), pp. 1–17. https://doi.org/10.1177/097226290901300301

Waxman, P. (2000). *Investing in Residential Property*, Wrightbooks Pty Ltd, Victoria, Australia.

Wijburg, G. and Waldron, R. (2020) Financialised privatisation, affordable housing and institutional investment: the case of England Critical. *Housing Analysis*, 7(1), pp. 114-129.

Zhao, D., & Sing, T. F. (2016). Corporate real estate ownership and productivity uncertainty. *Real Estate Economics*, 44(2), pp. 521-547.

Yan, A. (2006), "Leasing and debt financing: substitutes or complements*?*", *Journal of Financial and Quantitative Analysis*, 41(3), pp. 709-731

APPENDIX

Table 3: Present value of the rent scenario

Rent Scenario		
Period (Years)	Gross Rent	Discounted Gross Rent
0		
1	7,207,200.00	6,370,892.89
2	7,999,992.00	6,251,108.14
3	8,879,991.12	6,133,575.57
4	9,856,790.14	6,018,252.84
5	10,941,037.06	5,905,098.38
6	12,144,551.14	5,794,071.45
7	13,480,451.76	5,685,132.02
8	14,963,301.45	5,578,240.87
9	16,609,264.61	5,473,359.47
10	18,436,283.72	5,370,450.03
11	20,464,274.93	5,269,475.49
12	22,715,345.17	5,170,399.46
13	25,214,033.14	5,073,186.24
14	27,987,576.79	4,977,800.81
15	31,066,210.23	4,884,208.81
16	34,483,493.36	4,792,376.51
17	38,276,677.63	4,702,270.84
18	42,487,112.17	4,613,859.32
19	47,160,694.51	4,527,110.10
20	52,348,370.90	4,441,991.93

21	58,106,691.70	4,358,474.14
22	64,498,427.79	4,276,526.65
23	71,593,254.85	4,196,119.91
24	79,468,512.88	4,117,224.98
25	88,210,049.30	4,039,813.42
26	97,913,154.72	3,963,857.35
27	108,683,601.74	3,889,329.38
28	120,638,797.93	3,816,202.69
29	133,909,065.70	3,744,450.91
30	148,639,062.93	3,674,048.21
Present value of rent		**147,108,908.82**

Table 4: Present value of the buy scenario

						Buy Scenario			
(Yrs)	Cost of Buying	Property Rate	Rent Tax @15%	Periodic Maintenance	Insurance	Capital Appr.	Capital Appr.	Net Appr.	NPV (Buy)
0	38,000,000								
1		13,680.00	1,081,080.00	360,360.00	75,000.00	38,000,000.00			
2		15,595.20	1,199,998.80	399,999.60	85,500.00	43,320,000.00	5,320,000.00	3,618,906.40	2,827,774.74
3		17,778.53	1,331,998.67	443,999.56	97,470.00	49,384,800.00	6,064,800.00	4,173,553.25	2,882,751.11
4		20,267.52	1,478,518.52	492,839.51	111,115.80	56,298,672.00	6,913,872.00	4,811,130.65	2,937,528.37
5		23,104.97	1,641,155.56	547,051.85	126,672.01	64,180,486.08	7,881,814.08	5,543,829.68	2,992,116.70
6		26,339.67	1,821,682.67	607,227.56	144,406.09	73,165,754.13	8,985,268.05	6,385,612.06	3,046,526.14
7		30,027.23	2,022,067.76	674,022.59	164,622.95	83,408,959.71	10,243,205.58	7,352,465.05	3,100,766.60
8		34,231.04	2,244,495.22	748,165.07	187,670.16	95,086,214.07	11,677,254.36	8,462,692.87	3,154,847.84
9		39,023.38	2,491,389.69	830,463.23	213,943.98	108,398,284.04	13,312,069.97	9,737,249.68	3,208,779.50
10		44,486.66	2,765,442.56	921,814.19	243,896.14	123,574,043.80	15,175,759.77	11,200,120.23	3,262,571.08
11		50,714.79	3,069,641.24	1,023,213.75	278,041.60	140,874,409.94	17,300,366.13	12,878,754.76	3,316,231.96
12		57,814.86	3,407,301.78	1,135,767.26	316,967.42	160,596,827.33	19,722,417.39	14,804,566.08	3,369,771.39
13		65,908.94	3,782,104.97	1,260,701.66	361,342.86	183,080,383.15	22,483,555.83	17,013,497.40	3,423,198.52
14		75,136.19	4,198,136.52	1,399,378.84	411,930.86	208,711,636.79	25,631,253.64	19,546,671.23	3,476,522.34

15		85,655.26	4,659,931.54	1,553,310.51	469,601.18	237,931,265.95	29,219,629.15	22,451,130.67	3,529,751.76
16		97,646.99	5,172,524.00	1,724,174.67	535,345.35	271,241,643.18	33,310,377.23	25,780,686.22	3,582,895.56
17		111,317.57	5,741,501.64	1,913,833.88	610,293.70	309,215,473.22	37,973,830.05	29,596,883.25	3,635,962.41
18		126,902.03	6,373,066.83	2,124,355.61	695,734.81	352,505,639.48	43,290,166.25	33,970,106.97	3,688,960.88
19		144,668.31	7,074,104.18	2,358,034.73	793,137.69	401,856,429.00	49,350,789.53	38,980,844.62	3,741,899.42
20		164,921.88	7,852,255.64	2,617,418.55	904,176.97	458,116,329.06	56,259,900.06	44,721,127.04	3,794,786.39
21		188,010.94	8,716,003.76	2,905,334.59	1,030,761.74	522,252,615.13	64,136,286.07	51,296,175.05	3,847,630.04
22		214,332.47	9,674,764.17	3,224,921.39	1,175,068.38	595,367,981.25	73,115,366.12	58,826,279.70	3,900,438.53
23		244,339.02	10,738,988.23	3,579,662.74	1,339,577.96	678,719,498.62	83,351,517.37	67,448,949.43	3,953,219.90
24		278,546.48	11,920,276.93	3,973,425.64	1,527,118.87	773,740,228.43	95,020,729.81	77,321,361.88	4,005,982.13
25		317,542.99	13,231,507.39	4,410,502.46	1,740,915.51	882,063,860.41	108,323,631.98	88,623,163.62	4,058,733.09
26		361,999.01	14,686,973.21	4,895,657.74	1,984,643.69	1,005,552,800.87	123,488,940.46	101,559,666.82	4,111,480.55
27		412,678.87	16,302,540.26	5,434,180.09	2,262,493.80	1,146,330,192.99	140,777,392.12	116,365,499.10	4,164,232.21
28		470,453.91	18,095,819.69	6,031,939.90	2,579,242.93	1,306,816,420.01	160,486,227.02	133,308,770.59	4,216,995.67
29		536,317.46	20,086,359.86	6,695,453.29	2,940,336.95	1,489,770,718.81	182,954,298.80	152,695,831.26	4,269,778.46
30		611,401.90	22,295,859.44	7,431,953.15	3,351,984.12	1,698,338,619.44	208,567,900.63	174,876,702.03	4,322,588.03
	Present Value of Buy								**141,824,721.30**

Table 5: The net advantage to leasing (NAL) results

DECISION RULE	
Net Present Value (Buy)	141,824,721.30
Net Present Value (Rent)	147,108,908.82
NAL	**-5,284,187.52**

Journal of African Real Estate Research
Volume 9, Issue 2
www.journals.uct.ac.za/index.php/JARER/

Property Supply, Economic Factors and House Prices in Nairobi Kenya

Dan Chirchir[1*] (https://orcid.org/0000-0003-0049-7566), Mirie Mwangi[2] (https://orcid.org/ 0000-0002-5947-4468) and Cyrus Iraya[3] (https://orcid.org/ 0009-0007-2883-3580)

[1 2 3] University of Nairobi

To cite this article: Chirchir, Mwangi and Iraya (2024) Property Supply, Economic Factors and House Prices in Nairobi Kenya. *Journal of African Real Estate Research,* 9(2), pp.55-86. DOI: https://doi.org/10.15641/jarer.v9i2.1457

Abstract

Residential real estate is an important asset class for both institutional and individual investors. The housing bubble in the US led to a global financial crisis in 2007 – 2008. As such, understanding the factors that influence property prices is central to the investment process and portfolio management. The objective of the paper was to first construct a Nairobi house price index and then determine the relationship among economic factors, property supply, and house prices. The study period was ten years (2011 Q1 to 2020 Q4). Autoregressive Distributed Lag (ARDL) model was adopted to estimate long-run and short-run relationships. The Nairobi real estate price index was developed using a hedonic model based on the data collected on actual selling prices and characteristics of a sample of houses in Nairobi spanning ten years. The paper finds that GDP and inflation have significant positive long-run effects on house prices. Property supply has a significant negative long-run effect on real estate prices. However, interest rates do not have a significant effect on house prices. In the short run, however, GDP had a significant negative effect on prices. The speed of adjustments towards the equilibrium relationship was 71.9%. The real estate market seems to be efficient despite its illiquid nature. The paper contributes to knowledge by including property supply, a departure from past studies. The findings may have implications for investors, banks, regulators of securities and policymakers. The government of Kenya may be motivated to commission an official house price index.

Keywords: *ARDL, ECM, Cointegration, Hedonic*

*Corresponding author's email address: dchirchir@uonbi.ac.ke

©2024 The Author(s). Published by UCT Library. This is an open-access article under the CC BY 4.0 license. https://creativecommons.org/licenses/by/4

1. Introduction

Real estate price is an important variable central to the investment process. Investors use prices to make investment decisions including buying or selling. Family-owned houses constitute a major part of household wealth. Many factors may influence house prices. Such factors may include economic factors, property characteristics, and property supply. Economic factors are likely to influence demand for houses thus affecting prices. Household income is an indicator of the ability to pay and may therefore affect property prices (Cameron, Muellbauer & Murphy, 2006). The GDP growth rate is expected to affect positively housing prices due to increased economic activity and demand. Inflation tends to have mixed effects (Zhou, 2021, Kibunyi et al., 2017; Quan 1999). An increase in interest rates may reduce house prices due to increased discount rates used in valuation. High interest rates may also slow down new supply and if demand does not fall, prices may surge. Therefore, the effect of interest rates on property prices may be uncertain. The effect of economic factors on prices may be dependent on the state of property supply in the market. Increased demand with constrained supply is likely to increase property prices (Paradkar, 2013). Property supply has been measured using building permits, approved building plans, new units completed, and financing costs amongst others (Sorina, 2014; Breedon & Joyce, 1993). The availability of financing affects the supply of properties in the market and in turn the real estate price. The relationship between these individual factors on residential real estate prices and the interplay amongst them in price determination may be significant to different parties that monitor residential real estate prices.

The valuation and pricing models have evolved all working toward robust models. The different approaches include the traditional valuation methods in finance such as discounted cash flow (DCF) techniques. Others include hedonic pricing models (Zhou, 2021; Sirmans, Macpherson & Zietz, 2005). Repeat sales models are based on the prices of houses that have been sold more than once which is an attractive way of monitoring price changes (Case & Shiller, 1990). On the other hand, atheoretical models attempt to predict prices by leveraging the statistical properties of time series data (Al-Marwani, 2014; Keith, 2007). Hedonic models and repeat sales models are useful in the development of house price indices that track prices. Most markets globally have developed housing price indices that track the market prices (Al-Marwani, 2014). The market is inherently heterogeneous and illiquid hence there are no quick gains in a unified pricing model.

This study focuses on the residential market in Nairobi. Nairobi is the capital city of the Republic of Kenya. Non-residential market in Nairobi accounts on average for 15% of new developments both in units and value while residential is 85% (Kenya National Bureau of Statistics, 2020). The significant size of the residential market explains the need for this study. Over the last ten years (2010 Q2 – 2020 Q1) the average house prices have gone up by about 70% and rent by 73% (HassConsult, 2020). Nairobi is a renters' market with about 90.7% of households renting (Kenya National Bureau of Statistics, 2019). Individual investors provide 87% of rental houses and 5% by the government. Therefore, the Nairobi market is dominated by individual real estate investors with the government as a small player. However, the government is leading the way in the affordable housing market where 500,000 houses are set to be built (Amwayi, 2018). The house prices in relation to the current market structure that is a private investor driven juxtaposed with intervention by the government on the affordable segment are unclear to investors. It is still not clear in literature how the confluence of all these fundamental factors affects house prices.

Investors' returns namely rental yield and capital gains are predicated on changes in house prices. However, there are problems relating to how these prices are characterised in the first place and secondly the understanding of their determinants. Specifically, previous studies in Nairobi have been based mainly on asking prices and indices that use median or average house prices (Mwololo, 2014; Makena, 2012). The resulting price changes do not account for the changing characteristics of houses. The paper addresses this gap by adopting the hedonic model to estimate pure price changes based on actual transaction prices controlling for house characteristics. It is these characteristics-adjusted prices, developed into a price index that is used to determine relationships with other key house price drivers such as economic factors and property supply. In the process enriching the empirical evidence.

Capozza, Hendershott and Mack (2004) assert that property markets are dynamic, and the pricing models and determinants are unique to specific markets. The market products are heterogeneous. There are contradicting findings on the effect of inflation with certain studies indicating positive while others negative effects (Zhou, 2021, Kibunyi et al., 2017; Quan 1999). Several studies have been done in Kenya on factors affecting house prices. Kibunyi et. al. (2017) found economic factors, except inflation to be positively related to real estate prices. Mwololo (2014) examined the relationship between lending rates and residential real estate prices while Makena (2012) studied economic factors and house prices in Nairobi. Past local

studies have not focused on the interplay of economic factors and property supply in influencing house prices. The focus has been mainly on economic factors which may not adequately explain price changes. The infusion of supply in the pricing model may increase, cancel out or reduce the effect of economic factors on house prices. This is important to investors keen on maximising real estate returns. Regulators and governments are also interested in understanding policy implications for the real estate market. Governments are likely to intervene on the property supply side to address socioeconomic issues such as affordable housing. The paper has two objectives. The first is to construct a Nairobi house price index using a hedonic model that operationalises house prices. The second objective is to determine the effect of property supply and economic factors on house prices.

The findings of the study will benefit theory, practice, and policy formulation. The empirical findings of this study will contribute to the body of knowledge on determinants of housing prices beyond the current state of play. The outcome of this study will help practitioners and investors when making investment decisions and in portfolio management. Policymakers and regulators in National and Local governments may also benefit from the study.

2. Literature review

2.1. Theoretical Framework

The study was anchored on broad theories that can be used to explain the changes in house prices. These include the hedonic model, stock-flow model, efficient market hypothesis (EMH), financial accelerator mechanism and life-cycle theory of savings. The hedonic pricing model provides a framework for pricing property characteristics such as size, house type, location, green space, presence of basement, and availability of amenities. It helps in controlling for quality bias in property pricing. The hedonic models were first developed by Lancaster (1966) and thereafter Kain and Quigley (1970) were the pioneers in applying to real estate. In their study, they included neighbourhood characteristics and distance to downtown. Sirmans, Macpherson and Zietz (2005) reviewed several studies that used a hedonic model in pricing houses and found mixed findings on how house characteristics affect house prices in different contexts. This paper leverages on hedonic model in operationalising house prices.

There are other approaches to developing real estate price indices besides hedonic (Hill, 2011). Firstly, a price index may be constructed using the average or median house prices of a sample of houses in a certain period relative to a previous or base period. This is simple to implement. However, it fails to account for changing quality characteristics of the properties. Secondly,

repeat sales methods are used to develop house price indices. This method uses data on houses that have been sold more than once. However, the method is considered inefficient since it leaves out a lot of data on houses not sold more than once.

Stock-flow models attempt to explain the flow of money and different stocks of assets within an economy, they provide an accounting framework. Caverzasi and Godin (2015) developed the models further into integrated stock-flow consistent models. Keith (2007) described the movement in real estate prices based on the stock-flow model. The underlying principle is the law of demand and supply. The model describes how durable stock such as real estate moves up and down over time and the effect on the price. Demand for real estate is characterised by among others economic factors such as GDP, inflation, household income etc. The movement in prices through cycles is caused by a mismatch in demand and supply due to the elasticity of supply (Paradkar, 2013).

EMH postulates that market prices reflect all the available information regarding a particular asset (Fama, 1965). The degree of efficiency depends on the speed with which markets incorporate information in pricing. This is key when studying the influence of fundamental factors such as demand and supply on property prices. EMH assumes investors are rational. Behavioural finance is attributed to Kahneman (1979) who debunked the rational approach to decision-making by investors. De Bondt (2002) developed this further by explaining asset price bubble psychology and its implications. This paper looks at the effect of fundamental factors namely economic, and property supply on house prices. It is expected that an increase in demand factors and a reduction in supply will have a positive effect on residential real estate prices. The absence of strong influence by the fundamental factors may be an indication of market inefficiency.

The financial accelerator mechanism can be used to explain how monetary policy affects investment decisions in housing. Bernanke and Gertler (1995) sought to explain the transmission mechanism of monetary policy through the balance sheet channel and bank lending channel. For example, an increase in policy rates may erode the balance sheet of a household thus affecting the capacity to pay mortgage deposits and monthly repayments. The increase in interest rates will increase the mortgage burden measured by the ratio of household income to mortgage payments. The effect of monetary policy is also accelerated by the business cycle and the financial position of the specific households. As such, tightening of monetary

policy may dampen demand for housing by households while accommodative monetary policy may spur housing demand and price.

The life cycle theory of savings credited to Modigliani also provides a framework for understanding the impact of economic factors on house prices (Deaton, 2005). Households are motivated to save for future spending, especially during retirement. As such, young people will save more, and older people will spend more during retirement. The aggregate savings rate affects credit which in turn affects demand for houses. The savings rate is an increasing function of population and national income. Therefore, the demand in the housing market, a predicate of a nation's wealth, is moderated by the life cycle of savings.

2.2. Empirical Review

Sorina (2014) studied the real estate market in Spain and Germany. The number of construction permits issued, and mortgage credit positively influenced house prices. The macroeconomic variables did not have a direct effect on prices, but they affected the supply-side variables namely the amount of credit and new construction permits issued. Breedon and Joyce (1993) reported that the effect of mortgage availability on house prices in the UK was mediated by investments in new houses. Demography and disposable income also had a significant effect on prices. Saks (2008) researched the impact of regulation on property supply in the US. The impact was higher on land prices relative to new houses supplied. The study focused mainly on supply without considering the interplay of economic factors. Similar findings were reported in Glaeser, Gyourko, and Saiz (2008).

Li, Razali, Fereidouni and Adnan (2018) examined the effect of macroeconomic variables on house prices in Beijing, Shanghai and Tianjin. They concluded that GDP, inflation, disposable income and interest rates were key in explaining changes in house prices in China.

Nneji, Brooks and Ward (2013) found that house prices did not significantly respond to changing macroeconomic variables during the crash regime in the US. The findings underscore the cyclicality of the residential market with policy implications, especially on monetary policy interventions. Leung and Ng (2019) studied the US market confirming the importance of cycles and regimes. They found that the effect of macroeconomic variables on house prices reduced after the global financial crisis of 2008. They specifically found that GDP and inflation were positively associated with house prices while trade surplus and unemployment negatively

affected house prices. However, the correlation between macro-finance variables and house prices increased. They found that the stock market and federal funds rate positively correlate with house prices while term rate and external finance premium negatively correlate with house prices.

Al-Marwani (2014) modelled property prices in England. Change in income had a significant effect on prices but only in flats. Taxes, inflation, and changes in employment did not affect prices across property types. The study did not consider property supply factors. Sivitanides (2018) reported that GDP and population had a long-run run effect on house prices in London, UK. However, property supply measured by the housing completion series and cost construction series negatively affected house prices.

Cameron, Muellbauer and Murphy (2006) found that interest rates, demographics and income had a significant relationship with house prices. Zietz, Sirmans and Smersh (2008) studied single-family home sales in Florida, US. They found that home prices were significantly influenced by the size, location, and age of the homes. Apergis (2003) found that inflation and employment rates positively affected house prices in Greece. However, interest rates exerted a negative effect on house prices due to high financial costs.

Lekhuleni and Ndlovu (2023) reported that GDP, exchange rate, affordability household debt-disposable income ratio, foreign direct investment and producer price index had long-run positive effects on house prices in South Africa. On the other hand, share prices and mortgage rates exhibited long-run negative effects on house prices. Habanabakize and Dickason's (2022) findings indicate that inflation and interest rates positively affect house prices while political risk and rent negatively affect prices in South Africa.

Okey (2023) concluded that interest rates and prices of oil sector products negatively affected house prices in Nigeria. Interestingly, mortgage credit did not significantly affect house prices. Oyetunji and Olowofeso (2016) found that exchange rates significantly affected house prices in Lagos, Nigeria. Interest rates, GDP and inflation were positively correlated with house prices but statistically insignificant. The results were replicated for flats, detached houses and duplexes.

Musa, Yahaya and Nuhu, (2020) found a strong positive correlation between inflation, exchange rate and house prices in Abuja, Nigeria. GDP, crude oil prices, and household income

exhibited a positive but weak correlation. Interest rates were found to have a weak negative association with house prices.

Kibunyi et. al. (2017) investigated the possibility of bubbles in the real estate market in Kenya. They found no evidence of bubbles in Kenya. Besides, GDP, lending rates, diaspora remittances, cost and loans were found to positively affect house prices. However, inflation negatively affected house prices. However, Quan (1999) had contradictory findings on inflation. Context differences may explain the mixed findings.

Mwololo (2014) found that lending rates had a significant negative impact on the prices in Kenya. The study also established that GDP, unemployment, and inflation had a positive influence on house prices. Makena (2012) concluded that the level of money supply significantly influenced real estate prices in Nairobi. The other variables studied included interest rate, inflation, population growth, and employment growth; all were significant. The effect of property supply was not considered.

In summary, most of the papers focused on the effect of economic variables on house prices in isolation of the property supply. There is a need for evidence of the interplay of economic factors, property supply and prices. The local studies operationalised property prices using the same single price index published in Kenya. There is a gap in the use of property prices that is adjusted for house characteristics. Besides, there are mixed findings in relation to inflation and interest rates.

3. Methodology of research

3.1.Design, Population and Data Collection

Research design is the blueprint of the study that links the empirical data to the study's research questions and finally to its conclusion (Yin, 2009). The study used a quantitative descriptive design in which the secondary data was analysed, and the research hypothesis tested. The research targeted the Nairobi residential real estate market. The period of study was ten years with quarterly data between 2011 and 2020. House prices were operationalised by a housing price index. The hedonic price model was used to estimate the average house price changes controlling for house characteristics. Data used in the construction of the housing price index included house selling price, house size, location, number of bedrooms, and house type. Data was collected for a sample of houses that were sold in the ten years under study. Data sources included commercial banks, real estate developers and agents in Nairobi. The total number of

house purchase transactions in Nairobi over the ten-year period is not readily available in both government and private publications. However, on average 10,896 new units were released into the market annually between 2016 and 2020 (Kenya National Bureau of Statistics, 2020). This number does not capture the sale of existing houses but is indicative of market activity. Besides, most of the units sold are identical and are sold at the same time hence a fraction of the total number is representative. Therefore, purposive sampling was suitable in this case since the researcher was not in control of all the data available and required judgment in determining the number of sale transactions per bank and real estate agent (Cooper & Schindler, 2011). The sample size was set at a minimum of 20 houses sold in each quarter over the ten years totalling 840 houses.

Besides, quarterly data on inflation, GDP, value of approved plans and interest rates was collected. Property supply has been measured using building permits, approved building plans, new units completed, and financing costs amongst others (Sorina, 2014). This study operationalised property supply through a pipeline of new residential houses in Nairobi. This was measured by the value of the approved building plans obtained from the Nairobi City County Government. Economic indicators variables were obtained from the Kenya National Bureau of Statistics.

3.2.Data Analysis

The Nairobi house price index was constructed using a hedonic model. The key variants of the hedonic model include a time-dummy method, imputation methods and characteristics methods (Hill, 2011). Time-dummy method utilises time dummy variables used to estimate the price index by exponentiating coefficients of dummy time variables. The method is simple though it revises the index when new periods are added. This may be problematic, especially in the construction of official price indices but poses no problem for academic purposes. The problem is overcome through the adjustment-period method. Imputation methods use imputed house prices for houses that are not available in both periods of estimating the index. The method overcomes the temporal fixity problem. The characteristics method is similar as it uses the imputed prices. The difference is that the index is calculated using the prices of a hypothetical house. The weakness of this method is in the use of a hypothetical house which may be non-existence or unrepresentative of available houses. This paper used the time-dummy method specified as follows:

$$Ln\ Price_{it} = \propto\ + \beta_1 Ln\ Size_i + \beta_2\ Hse\ Type_i + \beta_3 Location_i + \beta_4 Bedroom_i + \sum_{t=2}^{T} \theta_{it} D_{it} + e_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots .. [1]$$

Where:

$Ln\ Price_{it}$ = Log of the price of house i

Size = Area measured in square feet

Hse Type = Takes the value of 1 if Apartments and 0 if the standalone house

Location = Takes value of 1 if the house is in an upmarket area and 0 if located elsewhere

Bedroom = Number of bedrooms

D_{it} = The dummy variables for time denoting the quarters in the study period

it = error term

The index was derived from the exponents of the coefficients of the dummy time variables for the 40 quarters under study.

We now embark on the analytical model relating to the second objective of the paper. GDP was measured by the quarterly real growth rate in aggregate economic output in Kenya. Inflation was measured by the quarterly consumer price index in Kenya. The interest rate was operationalised by the average commercial bank's lending rate. Property supply was proxied by the value of the approved house plans obtained from the Nairobi County Government.

Diagnostic tests were carried out to ensure the data series did not violate any of the assumptions of classical ordinary least squares and other models. In addition, interventions and implications of any violations were also discussed. Diagnostic tests included stationarity tests, serial dependence tests, heteroscedasticity tests and multicollinearity tests.

Breusch Godfrey's LM test for autocorrelation was used to detect serial dependence. Serial dependence problems may be addressed through variable transformation and an introduction of dummy variables amongst others. The Breusch-Pagan test was used to detect heteroscedasticity. The presence of a heteroscedasticity problem may be treated by transforming variables. Multicollinearity was tested using variance inflation factors (VIF). Multicollinearity problems may be treated through variable transformation or the removal of

certain variables. Jarque-Bera test was used to test for normality. Non-normality may be treated by removing outliers, introducing dummy variables, or transforming variables. Besides, normality could be assumed if the sample is large by invoking the central limit theory (Brooks, 2019).

Stationarity was tested using Augmented Dickey-Fuller and Phillips-Perron unit root tests. If the test results indicate mixed stationarity, the use of static ordinary least squares regression may not be suitable as it would potentially lead to spurious inferences (Granger & Newbold, 1974; Nkoro & Uko, 2016). Therefore, the literature proposes a dynamic model that factors in lagged variables of both the dependent and independent variables. The study will therefore adopt the Autoregressive Distributed Lag Model (ARDL). ARDL will be specified and implemented in hypothesis testing. This will be a specification of an error correction model to test long-run and short-run relationships depending on the outcome of the cointegration test. ARDL has several advantages including its suitability in the presence of mixed stationarity and efficiency with small samples (Kripfganz & Schneider, 2020). ARDL model is specified as follows:

$$y_t = C_0 + \sum_{i=1}^{p} \emptyset i \, y_{t-i} + \sum_{i=0}^{q} \beta'_i \, X_{t-i} + u_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots [2]$$

The value of the dependent variable is determined by its lagged values and the lagged values of the independent variables. Dynamic models such as ARDL as opposed to static models such as OLS provide a framework for modelling inertia. For instance, past values of approved building plans are likely to affect the current house prices.

ARDL model was implemented in five steps. The first was to select an optimal number of lags. Bayesian Information Criterion (BIC) was used since it provides parsimonious results (Kripfganz & Schneider, 2020). The second was to test the model's overall significance using F-test. The third was the cointegration test to determine the existence of a long-run relationship using the Bounds cointegration test (Pesaran, Shin, & Smith, 2001). The fourth was to implement an error correction model (ECM) to determine both the long-run and short-run relationships between the dependent and independent variables. The ECM is generally specified as follows:

$$\Delta y_t = C_0 + \sum_{i=1}^{p} \emptyset i \, \Delta y_{t-i} + \sum_{i=0}^{q} \beta'_i \, \Delta X_{t-i} + ECT_{t-1} + u_t \ldots\ldots\ldots\ldots\ldots\ldots [3]$$

Where ECT is the error correction term being the residuals from the estimated long-run model.

Lastly, post-estimation tests were done to confirm the validity of the outcome of the hypothesis tested. The post-estimation tests included heteroskedasticity, autocorrelation, normality, and parameter stability.

4. Results

The residential property price index was constructed using data collected for 1,073 houses for the ten-year period under study against a minimum sample size target of 840. The description of the house data collected is as follows.

Table 1: Descriptive Statistics for House Data

Description	**Statistic**
Number of houses	1,073
Minimum Price (Kenya Shilling)	1,600,000
Maximum Price (Kenya Shilling)	150,000,000
Mean Price (Kenya Shilling)	19,527,840
Number of Houses in Upmarket Areas	521
Number of Houses Located in Low-Market Areas	552
Number of Apartments	684
Number of non-apartments	389
Minimum Surface Area (Square Feet)	215
Maximum Surface Area (Square Feet)	8,167
Mean Surface Area (Square Feet)	1,883
Minimum Number of Bedrooms	1
Maximum Number of Bedrooms	7
Mean Number of Bedrooms	3.1

Source: Field survey (2023)

The minimum house price was Kenya Shilling (KSH) 1.6 million and the maximum KSH 150 million with the average price being KSH 19.5 million. The data on the location of houses

indicated that 521 houses out of 1,073 were in upper-middle and high-end locations. While the remaining 552 were in lower-middle and low-end locations.

The data on the types of houses indicated that 684 houses out of 1,073 were apartments while the remaining 389 were non-apartments. Non-apartments include bungalows, maisonettes, and other stand-alone houses. The prevalence of apartments reflects the pattern in Nairobi due to limited land for development. The minimum number of bedrooms was one and the maximum seven with the average being 3.1. The minimum house size as measured by the built surface area was 215 sq. ft. and the maximum 8,167 sq. ft. with the average size being 1,883 sq. ft.

The results of the pooled regression analysis based on the hedonic model are summarised in Table 2.

Table 2: Regression results for price index

Price	**Coef.**	**St. Err.**	**t-value**	**p-value**	**[95% Conf**	**Interval]**	**Sig**
Size	.72	.037	19.42	0	.647	.793	***
House Type	-.114	.031	-3.68	0	-.174	-.053	***
Location	.613	.026	23.14	0	.561	.665	***
Bedroom	.171	.019	8.91	0	.133	.208	***
Constant	10.274	.252	40.81	0	9.78	10.768	***
Mean dependent var		16.381	SD dependent var			0.855	
R-squared		0.821	Number of obs			1073	
F-test		104.425	Prob > F			0.000	
Akaike crit. (AIC)		956.213	Bayesian crit. (BIC)			1185.211	

*** *p<.01, ** p<.05, * p<.1*

Source: Author (2023)

The overall model was significant based on the F-test. House size, location and the number of bedrooms had significant and positive effects on house prices. While house type had a significant negative effect on house prices. Therefore, the fitted hedonic model was suitable for deriving the price index.

The results indicate that a 1% increase in the house surface area will result in a 0.72% increase in house price. Also, apartments were on average priced 10.8% below stand-alone houses such as bungalows, maisonettes etc. Houses located in upmarket areas were on average sold at a

premium of 84.6%. Finally, an additional bedroom would result in a house price increase of 18.6% on average in Nairobi.

The house price index was derived based on the exponents of the coefficients of the dummy time variables for the 40 quarters under study. The resulting index is depicted in Figure 1. It shows the residential real estate prices over the years from 2011 Q1 to 2020 Q4. Prices were on an upward trajectory between 2017 and 2019 with a drop in 2020 possibly due to covid -19.

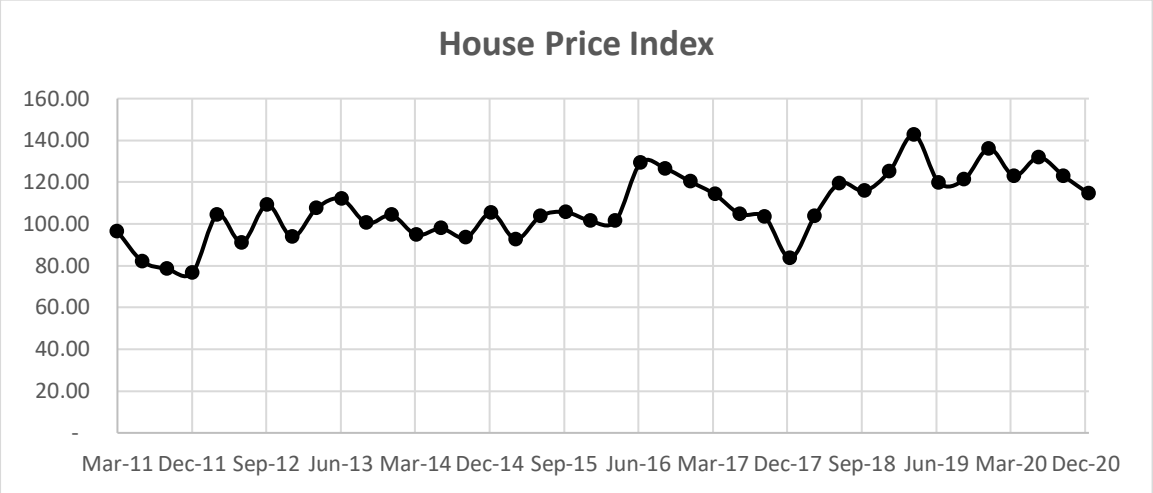


Figure 1: Residential real estate price index
Source: Field survey (2023)

Therefore, the paper's first objective of constructing the house price index was achieved. The constructed price index was used as the dependent variable in addressing the paper's second objective.

We now embark on the second objective of the paper which was to establish the effect of property supply and economic factors (GDP, Interest rates and Inflation) on house prices. The following is a summary of descriptive statistics.

Table 3: Descriptive Statistics – Economic and Property Supply Data

Variables	Obs	Mean	Std. Dev.	Min	Max	Skew.	Kurt.	JB (Pr)
GDP (%)	40	4.7	2.3	-4.1	7.6	-2.672	10.873	.000
Value of Approved Plans in Nairobi (KSH billions)	40	33.885	11.227	8.339	59.99	-.209	2.698	.8018
Inflation Index (Quarterly CPI)	40	167.157	29.769	114.62	219.01	.058	1.781	.2866
Interest (%)	40	15.2	2.5	11.9	20.2	.333	1.938	.2702

Source: Kenya National Bureau of Statistics (2021)

The real GDP growth rate peaked at 7.6% with the lowest rate at negative 4.1%. The negative growth rate of 4.1% was in the second quarter of 2020 owing to COVID-19. The mean quarterly real GDP growth rate was 4.7%. The following is a trend analysis of GDP.

Figure 2: GDP Trend Analysis

Source: Kenya National Bureau of Statistics (2021)

Property supply was operationalised by the value of building plans approved each quarter by Nairobi City County. This indicated the ongoing developments that are likely to affect residential real estate prices. The following is a trend analysis of property supply.

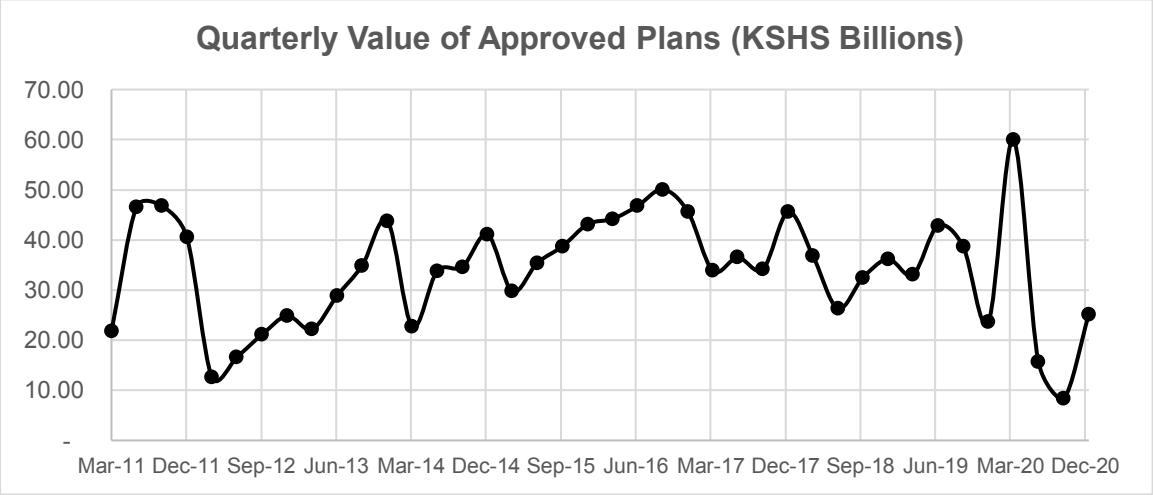


Figure 3: Property Supply Trend Analysis

Source: Nairobi City County Government (2021)

The minimum value approved during the study period was KSH 8.339 billion while the maximum was KSH 59.991 billion. The mean value was KSH 33.88 billion. The Jarque-Bera (JB) normality test indicates normality (p-0.8018>0.05).

Inflation was measured by the consumer price index in Kenya over the study period. The CPI was rebased to 100 in February 2019. However, for the purpose of the study, the CPI was extended using the actual growth rates in the revised index. This was to forestall the appearance of structural breaks in the time series data. The inflation index minimum value was 114.6 and the maximum was 219. The JB normality test indicates normality (p-0.2866>0.05). The following is a trend analysis of inflation.

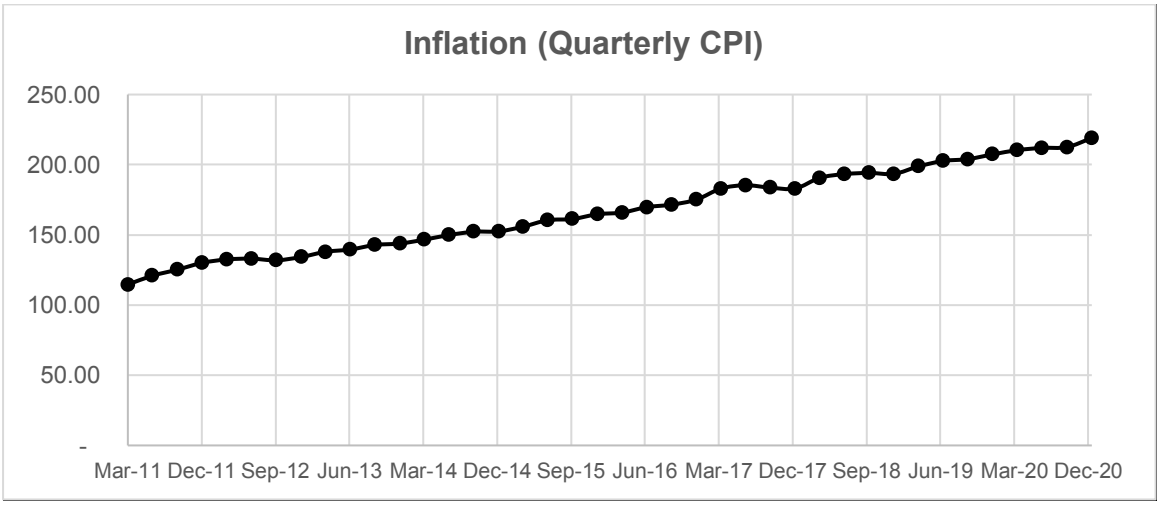


Figure 4: Inflation Trend Analysis

Source: Kenya National Bureau of Statistics (2021)

Average lending rates by commercial banks in Kenya reached a high of 20.2% in June 2012 and a low of 11.9% in September 2020. The average interest rate was 15.2%. The interest rates in Kenya have been stable. The JB test also supports normal distribution (p-0.2702>0.05). The following is a trend analysis of interest rates.

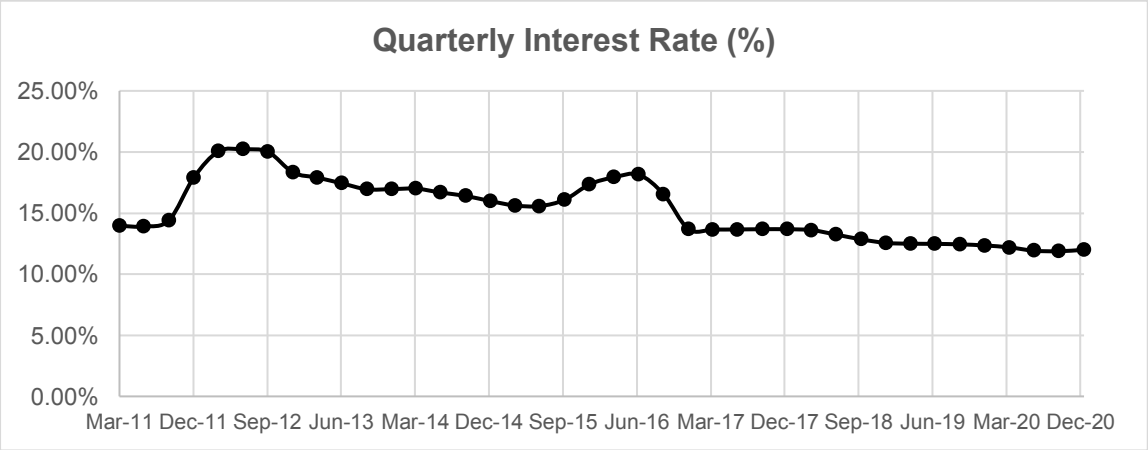


Figure 5: Interest Rate Trend Analysis

Source: Kenya National Bureau of Statistics (2021)

Diagnostic tests were carried out to ensure the data series did not violate any of the assumptions of classical ordinary least squares and other models. The data set passed autocorrelation, heteroscedasticity, normality and multicollinearity tests as depicted in Table 4 and Table 5.

Table 4: Diagnostic test results

Test	Method	Statistic	Prob
Autocorrelation	Breusch Godfrey LM test	2.62	0.6232
Heteroscedasticity	Breusch-Pagan test	22.80	0.2985
Normality	Jarque-Bera	0.24	0.8854

Source: Author (2023)

Table 5: Multicollinearity test

Variable	VIF
Inflation Index	2.592
Interest	2.448
GDP	1.833
LN Value of Approved Plans	1.516
Mean VIF	2.097

Source: Author (2023)

The Augmented Dickey-Fuller and Phillips-Perron unit root tests were used to test for stationarity with outcomes depicted in Table 6 and Table 7 respectively.

Table 6: Stationarity test (Augmented Dickey-Fuller)

Variable	Test statistic	P-value	I (0)	Test statistic	P-value	I (1)
Price Index	-2.162	0.220		-5.517	0.000	✔
Interest	-2.014	0.281		-4.019	0.001	✔
GDP	-3.077	0.028	✔			
Value of Approved Plans	-3.451	0.009	✔			
Inflation Index	0.157	0.969		-6.56	0.000	✔

Source: Author (2023)

Table 7: Stationarity test (Philips-Perron)

Variable	Test statistic	P-value	I (0)	Test statistic	P-value	I (1)
Price Index	-2.564	0.101		-9.012	0.000	✔
Interest	-1.207	0.671		-3.577	0.006	✔
GDP	-3.276	0.016	✔			
Value of Approved Plans	-4.286	0.001	✔			
Inflation Index	-0.326	0.922		-5.910	0.000	✔

Source: Author (2023)

GDP and log of the value of approved plans were stationary at levels [(I (0)]. On the other hand, the price index, interest, and inflation index were not stationary at levels. However, the series became stationary at first difference [1 (1)]. The stationarity test resulted in mixed stationarity. The study therefore adopted the ARDL model. The ARDL model was implemented in five steps and the results are presented as follows. The ARDL optimal lags were determined as (1 1 0 0 0) using BIC as shown in Table 8.

Table 8: Optimal lags selection

Model	N	ll (null)	ll (model)	Df	BIC
.	36	-145.1738	-127.8625	7	280.8096
Price Index					1
GDP					1
Inflation Index					0
Interest					0
LN of Value of Approved Plans					0

Source: Author (2023)

The ARDL (1,1,0,0,0) was specified as follows:

$$PriceIndex_t = C_0 + \emptyset PriceIndex_{t-1} + \beta_1 GDP_t + \beta_2 GDP_{t-1} + \beta_3 InflationIndex_t + \beta_4 Interest_t + \beta_5 Ln\ ValueofApprovedPlans_t + u_t \ldots\ldots\ldots \quad [4]$$

The ARDL was run to test for the model's goodness of fit. Table 9 summarises the result.

Table 9: Model summary

ARDL (1,1,0,0,0) regression

Sample: 2011q2 thru 2020q4

Source	SS	df	MS			
Model	6720.25703	6	1120.04284	Number of obs.	=	39
Residual	2730.17149	32	85.317859	F (6, 32)	=	13.13
Total	**9450.42852**	**38**	**248.695487**	Prob > F	=	0.0000
				R-squared	=	0.7111
				Adj. R-squared	=	0.6569
				Root MSE	=	9.2368

Source: Author (2023)

The model was significant (F=13.13; p<0.05). Therefore, the specified ARDL (1,1,0,0,0) model was suitable for further analysis.

The next step was to determine whether the long-run relationship among the variables exists using a bounds test for cointegration specified as follows:

$$\Delta PriceIndex_t = C_0 + \emptyset \Delta PriceIndex_{t-1} + \beta_1 \Delta GDP_t + \delta_1 PriceIndex_{t-1} + \delta_2 GDP_{t-1} + \delta_3 InflationIndex_{t-1} + \delta_4 Interest_{t-1} + \delta_5 LNValueofApprovedPlans_{t-1} + u_t \ \ldots\ldots [5]$$

The terms with β and ∅ are coefficients associated with the differenced variables, and they indicate short-run relationships. While δ indicates the long-run relationships. The null hypothesis is no cointegration. Table 10 provides a summary of the cointegration test results.

Table 10: Cointegration test

Pesaran, Shin, and Smith (2001) bounds test

H0: no level relationship F = 8.129

Case 3 t = -5.152

Finite sample (4 variables, 39 observations, 1 short-run coefficient)

Kripfganz and Schneider (2020) critical values and approximate p-values

	5%		**p-value**	
	I (0)	**I (1)**	**I (0)**	**I (1)**
F	3.236	4.587	0.000	0.002
t	-2.909	-4.074	0.000	0.006

	5%
Decision	**. r**

Source: Author (2023)

The null hypothesis of no cointegration was rejected at a 5% significance level given the F, t, and p values hence house prices have a long-run relationship with property supply and economic factors. Therefore, the following error correction model (ECM) was specified to determine the significance of the long-run relationships:

$$\Delta PriceIndex_t = C_0 + \emptyset \Delta PriceIndex_{t-1} + \beta_1 \Delta GDP_t + \delta ECT_{t-1} + u_t \ldots . [6]$$

The ECM was run to test for overall model significance. Table 11 summarises the result:

Table 11: ECM model summary

ARDL (1,1,0,0,0) regression

Sample: 2011q2 thru 2020q4

Source	**SS**	**df**	**MS**			
Model	3473.33566	6	578.889277	Number of obs	=	39
Residual	2730.17149	32	85.317859	F (6, 32)	=	6.79
Total	**6203.50715**	**38**	**163.250188**	Prob > F	=	0.0001
				R-squared	=	0.5599
				Adj R-squared	=	0.4774
				Root MSE	=	9.2368

Source: Author (2023)

The model was significant ($F=6.79$; $p<0.05$). As such, it was found suitable to estimate the relationship among property supply, economic factors and house prices. ECM was then implemented, and the output summary is in Table 12.

Table 12: ECM Regression results

ARDL (1,1,0,0,0) regression

Sample: 2011q2 thru 2020q4 Number of obs = 39

R-squared = 0.5599

Adj R-squared = 0.4774

Log likelihood = -138.18548 Root MSE = 9.2368

D. Price Index	**Coefficient**	**Std. err.**	**T**	**P>t**
ADJ				
Price Index				
L1.	-0.719	0.140	-5.150	0.000
LR				
GDP	484.340	176.530	2.740	0.010
Inflation Index	0.706	0.145	4.880	0.000
Interest	242.373	163.963	1.480	0.149
LN Value of Approved Plans	-18.722	8.042	-2.330	0.026
SR				
GDP				
D1.	-221.910	92.540	-2.400	0.022
_cons	88.785	66.075	1.340	0.188

Source: Author (2023)

The results indicate that economic factors and property supply explain 55.99% of the variation in house prices. Inflation and GDP have a positive significant effect on house prices while the value of approved plans has a negative effect. However, interest rates had no significant long-run effect ($p>0.05$) on house prices.

The adjustment factor of negative 0.719 is significant ($t= -5.15$; $p<0.05$). This indicates that 71.9% of the deviations from the long-run equilibrium in a particular quarter will be corrected in the subsequent period. The high speed of adjustment may point to the efficiency of the housing market as it experiences correction from shocks. This tends to agree with the stock-flow model and EMH.

In the short run, changes in GDP ($t = -2.40$; $p<0.05$) have a significant effect on prices. A 1% increase in GDP will lead to a 2.21% decline in real estate prices in the short run. This seems out of step with the theoretically expected relationship.

The validity of the outcome of the hypothesis test was subject to post-estimation tests. The model passed the four tests as shown in Table 13, Figure 6 and Figure 7. Specifically, there was no autocorrelation and heteroscedasticity on the fitted model. The errors were also normally distributed.

Table 13: Summary of post-estimation tests

Test	**Method**	**Statistic**	**Prob**
Autocorrelation	Breusch Godfrey LM test	4.021	0.4032
Heteroscedasticity	Breusch-Pagan test	30.33	0.2994
Normality	Jarque-Bera	0.395	0.8206

Source: Author (2023)

The fitted model assumes that the estimated parameters will remain stable over time. Cumulative sum (Cusum) and Cumulative sum of squares (CUSUMSQ) tests for parameter stability were used (Brooks, 2019). The fitted model was found to be stable as shown in Figure 6 and Figure 7.

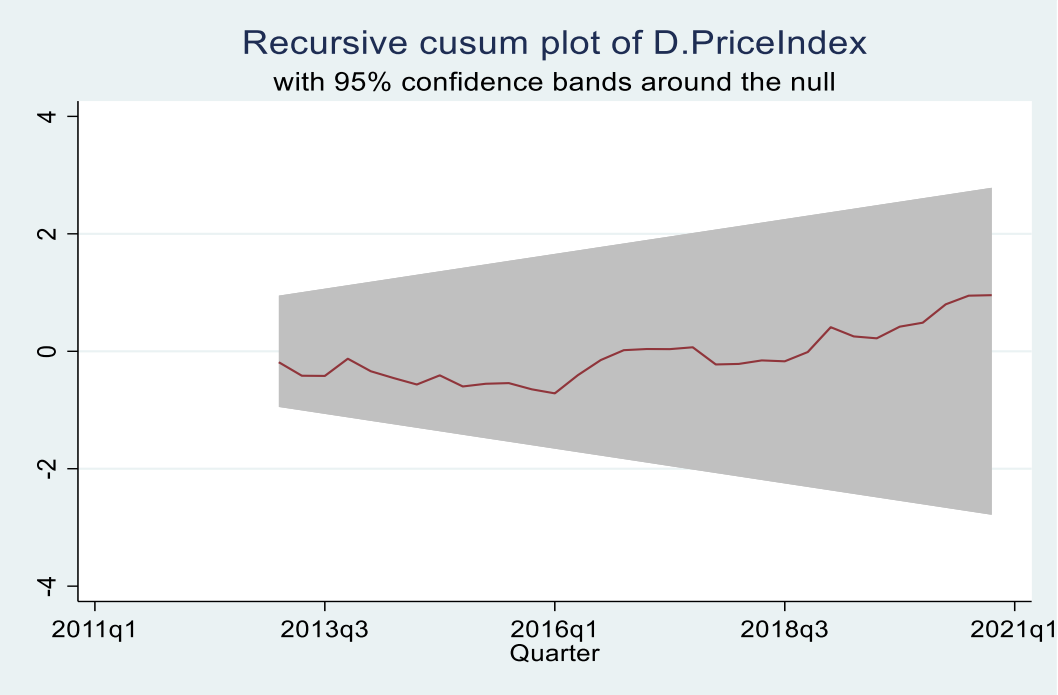


Figure 6: Recursive CUSUM plot

Source: Author (2023)

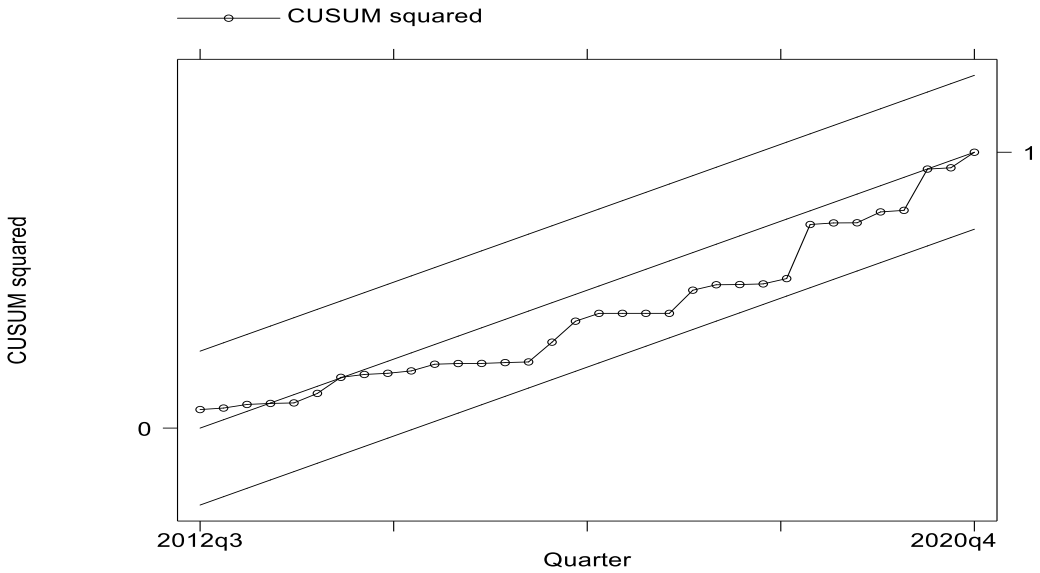


Figure 7: CUSUMSQ plot

Source: Author (2023)

5. Discussion and conclusion

The first objective was to construct the Nairobi house price index. This was achieved using the hedonic model based on data collected on actual selling prices and house characteristics. Apartments were on average priced 10.8% below the stand-alone houses indicating investors' preference. Houses located in upmarket areas were on average sold at a premium of 84.6%. The price premiums established in this study seem in tandem with the growth in construction and the purchases in upper middle and wealthy segments of Nairobi's property market. The price premium also reveals the strong preference for a suitable location in the decision-making process of real estate investors.

House surface area, location and number of bedrooms had significant and positive effects on house prices. House type had a significant negative effect on house prices. This agreed with Zietz, Sirmans and Smersh (2008) who studied single-family home sales in Florida, US. They found that home prices were significantly influenced by the size, location, and age of the homes. Zhou (2021) found that the effect of size on house prices was mixed in China depending on the location. The findings relating to house type were different from what was reported by Dubin (1998) who studied Baltimore, US and found no effect. While the findings of this study on the effect of the number of bedrooms concur with the literature, Zheng (2014) found no effect in Singapore. The construction of the index was a departure from the previous studies in Kenya which relied on one published property index. The resulting price index was used as the dependent variable in the model used to address the second objective of the current study.

The second objective was to establish the effect of economic factors and property supply on house prices. The selected economic factors were GDP, inflation, and interest rates. Property supply was proxied by the value of approved building plans. Residential real estate prices were measured by the price index. The results indicated that GDP had a positive and significant long-run effect on residential real estate prices. This agrees with the theory. Also, the findings are like those of past local studies (Kibunyi et. al. 2017; Makena, 2012). The findings are also in agreement with regional and international studies (Li, Razali, Fereidouni & Adnan, 2018; Sivitanides, 2018; Lekhuleni & Ndlovu, 2023; Leung & Ng, 2019).

Inflation also had a significant positive long-run effect on real estate prices. This agreed with the findings of Quan (1999), Habanabakize and Dickason (2022), and Apergis (2003). However, the finding was different from Al-Marwani (2014) who studied the UK market and

found no significant effect. Whereas Njoroge (2018) and Kibunyi et. al. (2017) found that inflation negatively affected real estate prices.

The effect of interest rates on real estate prices was negative but statistically insignificant. The finding differed with Kibunyi et. al. (2017), Habanabakize and Dickason (2022), and Njoroge (2018) who reported a positive significant effect. Keith (2007), Lekhuleni and Ndlovu (2023), and Mwololo (2014) reported negative effects. The mixed findings in relation to inflation and interest rates continue to persist. High interest rates may increase the opportunity cost of funds thus reducing house prices. Alternatively, high interest rates may constrain property supply thus increasing house prices. Therefore, the mixed results seem to depend on the net effect obtained in different study contexts.

Property supply had a significant negative long-run effect on residential real estate prices. This conforms to the stock-flow model (Paradkar, 2013; Keith, 2007; Keynes, 1936). The finding agrees with Glaeser, Gyourko and Saiz (2008) who studied the US market and Sivitanides (2018) who studied the property market in London, UK. However, Belke and Keil (2018) reported that the supply of newly constructed houses had a positive effect on house prices in Germany. This could be an indication of excess demand, not an increase in supply. The mixed findings underscore the importance of studying demand and supply factors together to determine the overall effect.

6. Contributions, recommendations and limitations

The paper developed the house price index for Nairobi and showed its importance in monitoring residential real estate prices. Kenya does not have an official government house price index and as such this paper underscores the importance of having an official price index in Kenya that tracks house prices.

The study tested the short-run and long-run relationships among the variables of interest which expands knowledge. GDP had a negative and significant short-run effect on real estate prices. This seemed to negate the stock-flow model anchored on the law of demand and lending support to behavioural finance. However, the speed of adjustment towards equilibrium was high at 71.9% meaning any deviations from the equilibrium relationship are corrected within two quarters. This lends support to the standard theory as espoused the in stock-flow model and EMH. Therefore, house prices are influenced by economic factors and property supply as opposed to the random evolution of prices.

The study found that the market players have a strong preference for location and house type as demonstrated by the premium paid for upmarket locations and stand-alone houses. Also, price indexes can be used as benchmarks for portfolio performance attribution and the creation of new products such as index funds. Policymakers in National and County governments may also find a basis for formulating policy on property taxes from the study findings. Currently, property taxes are based on old valuation rolls. County governments can adjust house values by the amount of the price index and then apply the property tax rate. Banks and mortgage providers will find the study outcome useful in pricing mortgage loans. This can be done through risk premium adjustments informed by the volatility of the real estate market measured by the index akin to the concept of notching in the credit rating market. The performance of the mortgage loans and real estate collateral held is closely tied to the performance of the real estate sector as captured by the price index. Regulators such as the Insurance Regulatory Authority, Retirement Benefits Authority, Capital Markets Authority, and Central Bank of Kenya may tailor investment and prudential guidelines for their licensees to the study findings. Any vulnerabilities and weaknesses in the real estate sector as evidenced by the index, supply and economic factors may call for adjustment in investment guidelines issued.

However, the study had a couple of limitations. In developing the real estate price index using a hedonic model, the study used only four characteristics namely size (measured by built surface area), location, house type and number of bedrooms. The study balanced the need for more attributes versus data availability hence the choice of fewer but key attributes. Government bodies can create a robust database for the property market that can expand future studies.

The study focused on the residential property market in Nairobi, Kenya. However, generalisations of the findings of the study to the country, region or in Africa should be cautioned. Besides, the study was limited to the residential real estate market. As such other property markets such as office space, retail, warehouses, hotels, etc. were not part of the study. In addition, the study was limited to the chosen variables in the study. There are other economic variables that were not included such as household income, employment rate, exchange rate etc. Also, additional indicators of property supply and investor characteristics may be of interest to future research as guided by theory or practice.

7. Non-technical summary

The objective of the paper was to first construct a Nairobi house price index and then determine the relationship among economic factors, property supply, and house prices. The Nairobi real estate price index was developed using actual selling prices and characteristics of a sample of houses in Nairobi spanning ten years. The paper finds that as the economy grows, and inflation rises so do house prices. On the other hand, as more houses are supplied in the market, house prices decline. Changes in borrowing rates did not affect changes in house prices mainly because the interest rates have remained stable over the years. The findings may have implications for investors, banks, regulators of securities and policymakers. The government of Kenya may be motivated to commission an official house price index.

References

Al-Marwani, H. (2014). Modelling and Forecasting Property Types Price Changes and Correlations Within the City of Manchester, UK. *Studies in Business and Economics*, *18*(2), 5-15.

Amwayi, B. (2018). *Big Four Agenda: Affordable Housing*. (NCA Quarterly), Nairobi

Apergis, N. (2003). Housing prices and macroeconomic factors: prospects within the European Monetary Union. International Real Estate Review, *6*(1), 63-74.

Belke, A., & Keil, J. (2018). Fundamental Determinants of Real Estate Prices: A Panel Study of German Regions. *International Advances in Economic Research*, *24*(1), 25–45.

Bernanke, B. S. and Gertler, M. (1995). Inside the black box: the credit channel of monetary policy transmission. *Journal of Economic Perspectives*, *9*(4), 27-48.

Breedon, F. J., & Joyce, M. A. S. (1993). *House prices, arrears, and possessions: a three-equation model for the UK* [Working paper series No. 14]. Bank of England

Brooks, C. (2019). *Introductory Econometrics for Finance* (4th ed.). Cambridge: Cambridge University Press.

Cameron, G., Muellbauer, J. & Murphy, A. (2006). *Was there a British house price bubble? Evidence from a regional panel* [Discussion paper No. 5619]. CEPR

Capozza, D. R., Hendershott, P. H., & Mack, C. (2004). Anatomy of price dynamics in illiquid markets: analysis and evidence from local housing markets. *Real Estate Economica*, *32*, 1–32

Case, K. E., & Shiller, R. J. (1990). Returns and risk on real estate and other investments: More evidence, *Journal of Real Estate Portfolio Management*, *8* (3), 265-279.

Caverzasi, E. & Godin, A. (2015). Post-Keynesian stock-flow-consistent modelling: a survey. *Cambridge Journal of Economics*, *39* (1), 157–187.

Cooper, D. & Schindler, P. (2011). *Business Research Methods* (11th Ed.). McGraw Hill, Boston.

Deaton, A. (2005). Franco Modigliani and the Life Cycle Theory of Consumption, presented at the Convegno Internazionale Franco Modigliani, Academia Nazionale dei Lincei, Rome, 17-18 February.

De Bondt, W. (2002). *Bubble Psychology. In Asset Price Bubbles: The Implications for Monetary, Regulatory, and International Policies.* The MIT Press, Cambridge, London, England

Dubin, R. A. (1998). Predicting House Prices Using Multiple Listings Data. *Journal of Real Estate Finance & Economics*, *17*(1), 35–59.

Fama, E. (1965). The Behaviour of Stock Market Prices. *Journal of Business*, *38*, 34-105.

Glaeser, E. L., & Gyourko, J. (2006). *Housing dynamics* [Working paper No. 12787]. National Bureau of Economic Research.

Granger, C.W.J., & Paul N., P. (1974). Spurious Regressions in Econometrics. *Journal of Econometrics*, *2* (2): 111-120

Habanabakize, Thomas & Dickason, Zandri. (2022). Political risk and macroeconomic effect of housing prices in South Africa Political risk and macroeconomic effect of housing prices in South Africa. *Cogent Economics & Finance*. 10. 10.1080/23322039.2022.2054525.

Hill, R. (2011). *Hedonic Price Indexes for Housing* [OECD Statistics Working Papers, No. 2011/01]. OECD Publishing, Paris, https://doi.org/10.1787/5kghzxpt6g6f-en.

Kahneman, D. & Tversky, A. (1979). Prospect Theory: An Analysis of Decision under Risk. *Econometrica*, *47* (2), 263-292.

Kain, J. F., & Quigley, J. M. (1970). Measuring the value of house quality. *Journal of the American Statistical Association*, *65* (330), 532-548.

Keith, C. L. (2007). Beyond DCF Analysis in Real Estate Financial Modelling: Probabilistic Evaluation of Real Estate Ventures, MSc. thesis, Centre for Real Estate, MIT

Kenya National Bureau of Statistics (2020), *Economic Survey*. KNBS, *183-187*

Kenya National Bureau of Statistics (2019). *Kenya Population and Housing Census: Distribution of Population by Socio-Economic Characteristics* (Vol IV). KNBS

Kibunyi, D., Ndiritu, S. W., Carcel, H., & Gil-Alana, L. (2017). Real estate prices in Kenya: Is there a bubble? *Journal of Housing and the Built Environment*, 32.

Kripfganz, S., & Schneider, D.C. (2020). Response Surface Regressions for Critical Value Bounds and Approximate P-values in Equilibrium Correction Models1. *Oxford Bulletin of Economics and Statistics, 82*, 1456-1481.

Lancaster, K. (1966). A New Approach to Consumer Theory. *Journal of Political Economy*, *74*, 132-157.

Lekhuleni, T.I. & Ndlovu, G. (2023). The dynamic effect of macroeconomic factors on housing prices: Evidence from South Africa. *PLOS ONE*, 18(11)

Leung, C. K. Y., & Ng, C. Y. J. (2019). Macroeconomic aspects of housing. In Oxford research encyclopaedia of economics and finance.

Li, Z., Razali, M. N., Gholipour Fereidouni, H., & Mohd. Adnan, Y. (2018). Macroeconomic index effect on house prices in China. *International Journal of Housing Markets and Analysis*, *11*(3), 453-475.

Makena, J. S. (2012). *Determinants of Residential Real Estate Prices in Nairobi* [Unpublished thesis, MSc. Finance]. University of Nairobi

Musa, A. A., Yahaya, B. Y., & Nuhu, R. S. (2020). The Effect of Macroeconomic Variables on Housing Price in Nigeria. *Journal of Management Sciences*, *2*(*2*), 329-336

Mwololo, M. (2014). *Effect of Macroeconomic Variables on Prices of Residential Real Estate Properties in Kenya* [Unpublished MSc. in Finance thesis]. University of Nairobi.

Njoroge, D.K., (2018). Effect of Market Fundamental Variables on Residential Property Prices in Kenya. *International Journal of Social Sciences and Information Technology*, 4 (2), 41 – 51.

Nkoro, E., & Uko, A.K. (2016). Autoregressive Distributed Lag (ARDL) cointegration technique: application and interpretation. *Journal of Statistical and Econometric Methods, 5*, 1-3.

Nneji, O., Brooks, C., & Ward, C. W. (2013). House price dynamics and their reaction to macroeconomic changes. *Economic Modelling*, 32, 172-178.

Okay, Paul. (2023). Drivers of Nigeria's real house prices: long-run analysis and short-run dynamics. *International Journal of Housing Markets and Analysis*.

Oyetunji, A. & Olowofeso, E. (2016). Assessing the Impact of Selected Macroeconomic Variables in the Determinants of Sustainable Residential Housing Prices in Lagos. *Ethiopian Journal of Environmental Studies & Management*. 9, 405-411.

Paradkar, S. (2013). *Risk-adjusted asset valuation using a probabilistic approach with optimized asking rents and resale timing options*. Massachusetts Institute of Technology.

Pesaran, M. H., Y. Shin, and R. Smith (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics, 16*(3), 289–326

Quan, D. C., & Titman, S. (1999). Do Real Estate Prices and Stock Prices Move Together? An International Analysis. *Real Estate Economics*, *27* (2), 183–207.

Saks, R. E. (2008). Job creation and housing construction: Constraints on metropolitan area employment growth. *Journal of Urban Economics, 64*, 178-195.

Sirmans, G. S., Macpherson, D. A., & Zietz, E. N. (2005). The Composition of Hedonic Pricing Models. *Journal of Real Estate Literature*, *13*(1), 3–43.

Sivitanides, P. S. (2018). Macroeconomic drivers of London house prices. *Journal of Property Investment & Finance*, *36*(6), 539-551.

Sorina V. (2014). *Identifying factors impacting property values* (working paper). Bucharest University of Economic Studies

Yin, R.K. (2009). *Case Study Research, Design and Methods* (4th ed.). Sage Publications, Thousand Oaks

Zheng, M. (2014). *An Empirical Evaluation of OLS Hedonic Pricing Regression on Singapore Private Housing Market* [Unpublished Master of Science Thesis in Real Estate Management]. KTH Royal Institute of Technology, Sweden.

Zhou, J. (2021). Factors Affecting the Residential Real Estate Prices in China. *UTCC International Journal of Business & Economics*, *13*(2), 133–154.

Zietz, J., Sirmans, G. S., & Smersh, G. T. (2008). The Impact of Inflation on Home Prices and the Valuation of Housing Characteristics Across the Price Distribution. *Journal of Housing Research*, *17*(2), 119–138.

Journal of African Real Estate Research
Volume 9, Issue 2
www.journals.uct.ac.za/index.php/JARER/

Service quality attributes and students' loyalty in influencing housing choice in South Africa

Mthobisi Nhlabathi[1*] (https://orcid.org/0000-0003-4747-8565).

[1 2] University of Johannesburg

To cite this article: Nhlabathi (2024) Service quality attributes and students' loyalty in influencing housing choice in South Africa**.** *Journal of African Real Estate Research,* 9(2), pp. 87-107. DOI: https://doi.org/10.15641/jarer.v92.1462

Abstract

Student accommodation has been lauded as an important aspect of a student's university experience, supporting the performance of a student during their university tenure. Using the service quality model (SERVQUAL), the study investigates the impact of service quality attributes (reliability, assurance, responsiveness, empathy, and tangibility) on student loyalty to student housing. The study took a positivist and quantitative approach to address the research aim and objective. A survey questionnaire was administered online to a student population in June-July 2022 in Johannesburg, South Africa. The survey constructs were measured on a 5-point Likert scale, with 1 being strongly disagree and 5 being strongly agree. A total of 542 responses were analysed using structural equation modelling (SEM). The results showed that reliability, empathy, and tangibility positively influenced student loyalty, while assurance and responsiveness had a negative effect. For student housing managers and owners, these findings suggest the need to prioritize providing reliable service to the students, staff members who show care towards student needs, and good quality facilities. The findings also showed that assurance and responsiveness were not relevant to these respondents, which could be further investigated in future studies. For the service quality literature, these findings provided an emerging economy perspective, specifically in South Africa. Specifically, this looks at the student housing market. Future research studies can examine the rejected hypotheses from a different context such as new graduates, and senior citizens.

Keywords: *Student accommodation, student housing, residence, SERVQUAL, loyalty, South Africa.*

*Corresponding author's email address: mthobisin@uj.ac.za

©2024 The Author(s). Published by UCT Library. This is an open-access article under the CC BY 4.0 license. https://creativecommons.org/licenses/by/4

1. Introduction

Student housing plays a critical role in a student's journey during their studies, thus facilitating their learning process (Eke, Aigbaboa and Thwala, 2015). Student housing refers to rooms provided to students staying either within or outside university premises (South African Department of Higher Education, 2011). Such classification is further referred to as on-campus (within premises) and off-campus (outside university premises). The latter is normally provided by private residential property suppliers and managed in partnership with the institution in question. Other researchers have defined student housing as college housing, halls of residence, and campus apartments (Sawyerr and Yusof, 2013; Abramson, 2010; La Roche et al., 2010; Wiens, 2010).

Besides providing a place to stay for students, student housing plays an important role in providing a conducive environment for living, learning, social, growth and development (Najib et al., 2011; Riker and Decoster, 2008). Generally, quality student housing helps students improve their well-being (Reed and Mills, 2007; Sirgy et al., 2005). There have been concerns regarding poor student housing quality (e.g., inadequate housing facilities like showers and stoves, and limited space on campus residences) in South Africa, some of which have resulted in student protests countrywide (Nhlabathi, 2021; Mzileni, 2018). As the quality of student housing influences the performance of students in their studies (Sanni-Anibire and Hassanain, 2016), students and student representative bodies (SRCs) have been raising their concerns about the state of student housing at various institutions in South Africa (Sikhwari, 2020).

Recently, students in Braamfontein, Johannesburg have protested due to, among other issues, the lack of quality accommodation for students (Sithole, 2023). The demand for accommodation also comes with other challenges, such as providing good quality dwellings, as legislated for in the 2015 Policy on the Minimum Norms and Standards for Student Housing at Public Universities (Tshazi, 2020). Some universities were found to be in contravention of the policy (such as having poor quality infrastructure, limited spaces, and inadequate communal areas), e.g. Walter Sisulu University's Phulo and KGB residences (Tshazi, 2020).

With universities seeing an increase in enrolment figures, there has been an increased demand for student accommodation, including in South Africa (Gbadegesin et al., 2021). To help address the increase in student enrolment and demand for accommodation, numerous student housing providers have entered the market, competing with tertiary institutions. An example of such a provider is SouthPoint, which has student housing properties in Johannesburg,

Tshwane, Durban, Gqeberha, and Cape Town, in locations closer to various academic institutions (Southpoint, 2023). This provides students with alternatives in the market, thus testing their preference and loyalty levels towards accommodation provided by their respective institutions (Eke et al., 2015).

Shortage of accommodation is not the only problem, but also the quality of the current and future accommodation is important for students' university experience (Mavunga, 2019; Cordes et al., 2019; Ibrahim et al., 2018). The quality of service offered by student housing is an important factor. To remain relevant and appealing to all students, institutions would need to understand the impact of the service quality attributes in shaping students' current and intended loyalty to a residence (Cordes et al., 2019; Sanni-Anibire and Hassanain, 2016), which is the primary goal of this study. Thus, this study seeks to examine the influence of service quality dimensions on student loyalty to student housing.

2. Literature review, hypotheses and conceptual model

2.1. Service quality dimensions and student housing

Service quality has been defined as the gap between consumer service expectations and consumer perceptions of how well their expectations were met by the service delivered (Ali et al., 2021). This includes the gap between customer perceptions of the quality gained and their expectations of the service (Chahal and Kumari, 2012).

Students need affordable, secure, and safe housing as a basic need during their academic journey (Ghani and Suleiman, 2016). Quality is an important aspect influencing the choice of housing, which includes both the tangible (e.g., facilities) and intangible (e.g., interaction, reliability, assurance, and empathy) aspects of student housing (Mtshali, 2019; Simpeh and Akinlolu, 2018; Mhlanga, 2018). Extant research has found that students were not satisfied with student housing attributes like bedrooms, common rooms, and bathrooms in Malaysia and Nigeria (Sawyerr and Yusof, 2013; Amole, 2009). In contrast, other researchers found the opposite in different parts of the world (Najib, 2011; Schenke, 2008; Hassanain, 2008). In Norway, low housing standards were one of the main problems (including high rent, unfavourable contract terms, limited available housing and housing proximity) associated with private student housing (Thomsen and Eikemo, 2010; Brattbakk and Medby, 2004). For instance, 36% of the students in Norway reported that they had very little living space in their student housing (Statistics Norway 2006b). In Sweden, students mentioned that they were satisfied with their student housing, using housing attributes such as kitchen facilities,

cleanliness, room size, and rent, as measures of their overall satisfaction (Gong and Söderberg, 2024).

In South Africa, nearly 65% of the 287507-bed capacity provided by universities goes to NSFAS students, where they stay mainly in accredited housing and the monthly rental is standardized (DHET, 2020; University Student Housing Survey, 2019; Najib et al., 2012). In this case, the monthly rental is not a significant factor in determining residential choices for such students, but rather the quality aspects of the residence (Nimako et al., 2013; Voss, 2003). Thus, service quality has become an important aspect influencing students' choice, satisfaction and loyalty (Price et al., 2003; Najib et al., 2012). According to the service quality model suggested by Parasuraman et al (2019), the common dimensions used are reliability, assurance, tangibility, empathy, and responsiveness.

2.2. Hypothesis

The study seeks to investigate the influence of service quality dimensions on student loyalty to student housing, as hypothesized below.

2.2.1. Reliability

Parasuraman et al. (2019) define reliability as the degree to which a promised service is accurate and consistent. In student housing, security is one of the important factors measuring reliability, as perceived risks towards student housing can deter students from staying in such housing (Ngcece, 2018). This was confirmed in a study on the University of KwaZulu Natal's student accommodation where students said they could not continue staying in their rooms for fear of housebreaking and theft, and the residence's inability to provide a safe environment for the students (Ngcece, 2018). In this case, the student housing was not reliable in terms of providing students with a safe living and learning environment. For students to remain loyal to an accommodation, the latter should prove to be a reliable place to stay (Price et al., 2003; Najib et al., 2012).

2.2.2. Assurance

Parasuraman et al. (2019) defined assurance as a service provider's degree of knowledge, courtesy, and the ability to provide customers with trust and confidence in their service. This refers to the extent to which the staff personnel in an organization provide service professionally and competently (Luke and Heyns, 2020). In the student housing context, students are likely to have high service quality perceptions towards a residence whose staff

personnel provide them with individualized service, thus fulfilling their unique needs (Sebokedi, 2009). Thus, their service quality perceptions can lead to loyalty towards the housing (Price et al., 2003; Najib et al., 2012).

2.2.3. Responsiveness

Responsiveness is a dimension directly linked to the performance of the staff personnel of an organization (Parasuraman et al., 2019). The concept refers to the willingness of service providers to assist and deliver quick service to clients (Mtshali, 2019; Parasuraman et al., 2019). Furthermore, the organization's personnel must be willing to offer clients information about when and what services will be provided (Stiglingh, 2010; Berry et al., 1988**)**. In student housing, the residence staff should be willing to listen to and address student queries on space availability, types of rooms available, dwelling options (single rooms, sharing, etc.) and other related queries. This could be through different communication channels (in person, telephone, digital platforms, etc.). Such responsiveness can lead to students' willingness to continue staying in the same residence for longer because the service meets or exceeds their expectations (Najib, Yusof and Sani, 2012).

2.2.4. Empathy

Empathy refers to a customized service that customers receive from an organization, through its staff personnel (Parasuraman et al., 1985). The staff personnel are expected to be caring towards customers while providing a service, which in turn influences consumer perceptions about the organization or brand (Mhlanga, 2018). Customer satisfaction plays an important role in influencing customer perceptions, thus leading toward loyalty to an organization (Grönroos, 1982). This is supported by extant literature in which customer satisfaction is deemed a predecessor of customer loyalty (patronage or word-of-mouth) and an outcome of good service quality (Bennett and Ruddle-Thiele, 2004).

The student housing sector is no different, with students (customers) having certain levels of service quality expectations when deciding on a place to stay during their studies. This is also true for students who have the choice between staying at their current or alternative residence, all based on their perception and satisfaction with their current residence (Radder and Han, 2009, p. 115). Students who are satisfied with and have a positive attitude towards a residence are likely to develop loyalty towards such a residence, based on the service quality model (Parasuraman et al., 1985).

2.2.5. Tangibility

Tangibility has been defined as the level or degree of appropriateness of the physical attributes of a brand, such as facilities, equipment, staff appearance, building and so on (Parasuraman et al., 2019; 1985). This attribute focuses on the tangible aspects of a brand. Within the student housing context, tangibility refers to the quality of the building, the furniture, and the facilities (washroom, leisure, support and all other facilities). It also entails the physical appearance of the staff members, such as their dress code, presence of security personnel, cleanliness of the property, and so on. Literature has found tangible aspects of accommodation such as bathrooms, bedrooms, study rooms, kitchens, and laundry spaces as critical facilities (Simpeh and Akinlolu, 2018). Radder and Han (2011) further found that students who were satisfied with good quality tangible amenities offered by a student accommodation would likely remain loyal towards that accommodation.

Based on the discussion of the service quality attribute above, the following hypotheses were derived:

H1-5: Service quality dimensions (reliability, assurance, responsiveness, empathy and tangibility) have a positive influence on student loyalty towards student housing.

2.2.6. Student Loyalty

Loyalty is an important aspect of business performance, as the concept refers to continued patronage towards a brand (Tjiptono et al., 2012) as well as leading to positive word of mouth from loyal customers (Devi and Yasa, 2021). This suggests that loyal customers are more likely to make repeat purchases of the same product or products from the same brand. From a student housing perspective, this refers to students returning to the same residence every year during their student tenure). It also suggests that loyal customers have a higher chance of speaking positively about the brand to their close allies such as friends, family, colleagues, and so on. This suggests that students can spread positive word of mouth or recommend their residence to other students. Literature on the rental housing market defines loyalty as the duration of a tenant's stay at a particular residence or property (Nhlabathi, 2021; Amole, 2009). It also refers to a tenant's willingness and voluntary act of speaking positively about a particular property (Devi and Yasa, 2021). This suggests that when students are satisfied with the quality of service they receive from their residence, they are more likely to remain loyal to the residence (Campagna, 2016; Najib et al., 2011).

2.3.Proposed conceptual model

As outlined in the literature review, this study utilizes the model developed by Parasuraman et al. (2019) where five dimensions were used to test their relationship with loyalty and the extent to which each dimension or dimensions displays an association with how students perceive the quality of housing stock in influencing their choice of accommodation.

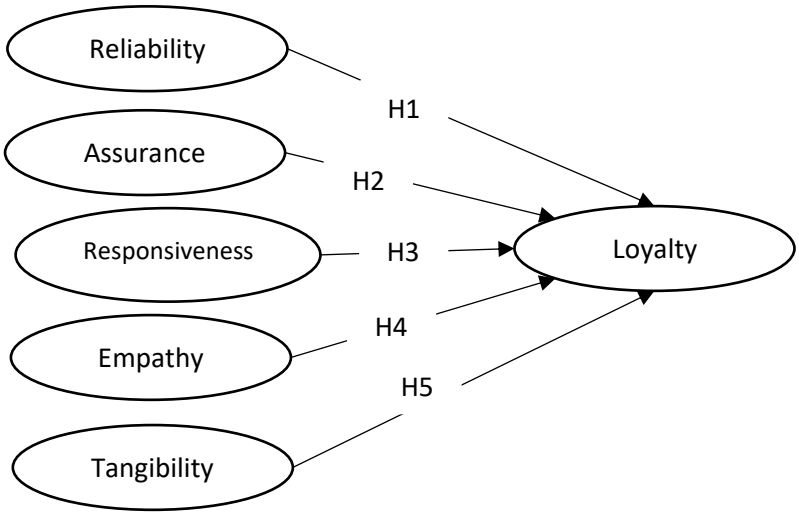


Figure 1: Proposed Conceptual Model

3. Research Methodology and Design Measurement

This study took a positivist research paradigm, using a quantitative design to collect data and analyse it to test hypotheses based on an existing theory (Maduku, 2015). A multi-item measurement scale adopted from extant literature was used to measure each construct in the study (Nhlabathi, 2021; Amole 2009). Each item of the study constructs was measured using a 5-point Likert scale (from 1 = strongly disagree to 5 = strongly agree).

3.1. Sampling and data collection

A pilot test was conducted involving 30 respondents (i.e., students in the Johannesburg area accessed through non-probability convenience sampling). Students who were not staying at any residence (e.g., those who stayed at home) during the 2022 academic year were excluded from the study. Respondents volunteered to be included in the sample through self-selection.

Using the final version of the research instrument, a total of 542 (out of 600) usable responses (i.e., 90% response rate) were collected between July-June 2022, using a 20-minute-long online survey designed on Google Forms and the link to the survey was distributed through social media platforms such as Facebook and Twitter. The sample comprised respondents accessed

through convenience sampling technique, aged 18-40, registered at any university in Johannesburg, staying within the Johannesburg area in 2022. A screening question was included asking respondents if they lived in Johannesburg and were students at one of the universities around Johannesburg. The first part of the questionnaire included screening questions, a consent form, ethical considerations and demographic information. The rest of the questionnaire covered the main constructs of the study.

3.2. Data analysis

Data analysis was conducted in two phases. The first phase was descriptive statistics, using SPSS (See Table 1). The second phase conducted a structural equation modelling (SEM), using AMOS to test the hypotheses for the study (See Table 2).

3.2.1. Common Method Analysis

Harman's one-factor was used to assess the impact of the common method variance in the data. This technique helps in ascertaining whether a single construct accounted for most of the correlation in the relationship between predictor and outcome variables (Nhlabathi, 2021). From the analysis of all items and factors, the eigenvalue extracted was 29,253. This showed that no single factor accounted for more than 50% of the variance in the data. Based on these findings, it can be concluded that no serious problem was posed by common variance in the study.

Table 1: Descriptive statistics

Respondent characteristics		Frequency and percentage
Gender	Male	275 (50,7%)
	Female	264 (48,7%)
	Other	3 (0,6%)
Age	18-25	341 (62,9%)
	26-30	158 (29,2%)
	31-35	41 (7,6%)
	36-40	2 (0,4%)
Level of education	Year 1-3	311 (57,4%)
	Year 4/Advanced Diploma	119 (21,9%)
	Year 5/Honours	92 (17%)
	Master's and PhD	20 (3,7%)
Province of origin	Gauteng (GP)	260 (48%)
	Mpumalanga (MP)	58 (10,7%)
	KwaZulu Natal (KZN)	44 (8,1%)
	Free State (FS)	25 (4,6%)
	Northwest (NW)	35 (6,5%)
	Limpopo (L)	54 (10%)
	Eastern Cape (EC)	52 (9,6%)
	Western Cape (WC)	9 (1,7%)
	Northern Cape (NC)	4 (0,7%)
	Other	1 (0,2%)
Preferred residence	On-campus	147 (27%)
	Off-campus	199 (37%)
	Off-campus not accredited	196 (36%)
Preferred rent	Up to R2k	71 (13,1%)
	R2001-R2500 (USD122-153)	127 (23,4%)
	R2501-R3000 (USD153-183)	172 (31,7%)
	R3001-R3500 (USD183-214)	112 (20,7%)
	R3500+ (USD214+)	58 (10,7%)
Distance from campus	Less than 5km/5min	396 (73,1%)
	5km-15km/5min-15min	96 (17,7%)
	15km-25km/15min-25min	42 (7,7%)
	25km-35km/25min-35min	5 (0,9%)
	35km+/35min+	3 (0,6)

Source: Data analysis

3.2.2. Measurement model analysis

The quality of the measurement model was determined through reliability and validity testing. When testing for the reliability of the measurement scale model, composite reliability (CR), Cronbach's alpha and the average value extracted (AVE) (Hair et al., 2020; Nasution et al.,

2020). The set thresholds used to confirm reliability are greater than 0.5 (AVE) and 0.7 (CR and Cronbach's alpha) (Hair et al., 2021). Convergent validity of the measurement instrument was also tested using standardized factor loadings (significant and above 0.708), composite reliability (>/= 0.7) and AVE (>0.5), with the thresholds as indicated (Hair et al., 2020).

The initial analysis showed that at least one item was deleted for each construct to improve the factor loadings, as they loaded below the 0.708 threshold, after which the model was re-run. The original number of items per construct is indicated in brackets. The results of reliability and validity testing are shown in Table 2. Based on the results, all factor loadings met the required threshold, but only H5 had a significant p-value ($p<0.001$). The CR also met the required threshold of 0.7 and above. The AVE values for all, but one (Tangibles – 0.468), constructs were above the stipulated 0.5 threshold. Besides the AVE for Tangibles being below the 0.5 threshold, literature suggested that convergent validity can be confirmed if the composite reliability for the same construct is above 0.6 (Huang et al, 2013), which is the case for Tangibles (CR=0.778).

Table 2: Reliability and Convergent Validity

Constructs	Items	Factor loadings	P-value	Cronbach's Alpha	CR	(AVE)	Final items
Reliability	R3	0,803		0,833	0,805	0,580	3 (5)
	R4	0,686					
	R5	0,791					
Assurance	A2	0,741		0,852	0,860	0,605	4 (5)
	A3	0,808					
	A4	0,773					
	A5	0,788					
Responsiveness	I2	0,717		0,822	0,802	0,503	4 (5)
	I3	0,698					
	I4	0,751					
	I5	0,668					
Empathy	E2	0,753		0,826	0,814	0,594	3 (4)
	E3	0,793					
	E4	0,765					
Tangibles	T1	0,670		0,836	0,778	0,468	4 (6)
	T3	0,684					
	T4	0,710					
	T5	0,671					
Loyalty	LOY1	0,858		0,889	0,854	0,597	4 (5)
	LOY2	0,835					
	LOY3	0,664					
	LOY5	0,718					

Source: Data analysis

Discriminant validity testing was conducted through the heterotrait- monotrait ratio of correlations (HTMT) where HTMT estimated values below 0.85 or even 0.9 confirm the discriminant validity of constructs (Henseler et al., 2015). Table 3 shows that discriminant validity was confirmed as all values were below the threshold of 0.85 or 0.9.

Table 3: Discriminant validity (HTMT)

	Empathy	Loyalty	Tangibles	Responsiveness	Assurance	Reliability
Empathy	**1**					
Loyalty	0.17	**1**				
Tangibles	0.19	0.29	**1**			
Responsiveness	0.81	0.14	0.83	**1**		
Assurance	0.69	0.13	0.67	0.77	**1**	
Reliability	0.67	0.23	0.51	0.50	0.62	**1**

Source: Data analysis

3.2.3. The goodness of fit testing

Extant literature suggests conducting a test of goodness of fit, to assess the structural model for fitness, using the commonly recommended guidelines as follows: Chi-squared/degrees of freedom of below 3; TLI over 0.9; RMSEA of 0.05-0.06 and CFI over 0.95 (Scherer et al., 2019; Hayes, et al., 2017). Table 4 shows the fit indices, thresholds, results, and decisions. Although Hair et al (2014) suggested a CMIN/DF cut-off value of 3, other authors suggested that a CMIN/DF value between 3 and 5 is acceptable (Danish et al., 2015), and can be used to confirm model fit in SEM.

Table 4: Model fitness test statistics

Fit Indicator	Threshold adapted from Hair et al. (2014: 579-580)	Initial measurement model	Final measurement model
CMIN/DF (Chi-square/degree of freedom)	Below 3 (good) From 3 to 5 (acceptable) Over 5 (bad)	4.586	3.095
RMSEA (Root Mean Square Error of Approximation)	Below 0.05 (good) From 0.06 to 0.1 (acceptable) Over 0.1 (bad)	0.081	0.062
CFI (Comparative Fit Index)	Below 0.90 (bad) Over 0.90 (good)	0.893	0.926
TLI (Tucker Lewis Index)	Below 0.80 (bad) From 0.80 to 0.90 (acceptable) Over 0.90 (good)	0.870	0.911

Source: Nhlabathi et al (2022)

3.3. Hypothesis testing

The variance inflation factors (VIF) were used to test for any threat of collinearity between exogenous variables, using the suggested threshold of 3 as the maximum value for the VIF (Nhlabathi, 2021). For this study, all VIF values were below 3, thus confirming the lack of critical issues associated with collinearity.

The standardized regression weights (factor loadings), t-values, and significance levels (p-values) were used to test the hypothesized relationships between constructs in the structural model. The results are shown in Table 5 and discussed in the next section.

Table 5: Standardized weights and hypotheses conclusion

			Hypotheses	Estimate	p-value	Estimate
Loyalty	<---	Reliability	H1	.137	.005	Accept
Loyalty	<---	Assurance	H2	-.063	.182	Reject
Loyalty	<---	Responsiveness	H3	-.088	.076	Reject
Loyalty	<---	Empathy	H4	.047	.326	Accept
Loyalty	<---	Tangibles	H5	.306	***	Accept

4. Discussion of results and conclusion

This study aimed to investigate the impact of service quality attributes on student loyalty to their student housing. The hypotheses developed based on extant literature suggested a positive relationship between service quality and student loyalty to their student housing. Based on the data analysis, it was confirmed that reliability (H1), empathy (H4) and tangibility (H5) positively influence loyalty to student housing while assurance (H2) and responsiveness (H3) have a negative impact. The outcome of H1 corroborated findings from extant literature in various industries which found a similar relationship between reliability and loyalty (Najib, et al., 2012; Price et al., 2003). This suggests that students would be loyal to student housing which they perceived as reliable. Students will be loyal to their student housing if they consistently receive the quality of service as promised.

The outcomes of H2 and H3 suggested that assurance and responsiveness were not important factors in predicting student loyalty toward student housing. The outcome H2 (assurance and loyalty) confirmed findings by Ramzi and Mohamed (2010) whose study showed a positive and significant relationship between all the other four service quality dimensions (reliability, responsiveness, tangibility, and empathy) and loyalty, except for assurance.

However, this was against the hypothesized relationship (H2) as well as the findings from previous studies which showed that students would be loyal to student housing which assured them of quality living conditions. The outcome of H3 confirmed the findings by Akpan, Amoozegar, and Begum (2022) which found responsiveness to have a negative influence on customer loyalty to a mobile network. These findings indicated that students are more concerned with getting reliable service, empathetic personnel and student housing that is in good condition, instead of prioritizing responsiveness.

The outcome of H4 suggested that student housing with staff personnel who showed high levels of care towards students is likely to create and strengthen the level of student loyalty towards the housing. For instance, security personnel who show that they put the safety of the student at the centre of their work will positively influence the loyalty decisions of students. This is in line with extant literature (Mhlanga, 2018). As for H5, the hypothesized relationship between tangibility and loyalty was confirmed, in line with findings from extant literature (Simpeh and Akinlolu, 2018). These findings suggested that students would be loyal to a residence that offered quality facilities concerning bathrooms, bedrooms, study rooms, kitchen, and laundry spaces (Simpeh and Akinlolu, 2018).

The study aims to investigate the service quality attributes that influence student loyalty to student housing in South Africa. This study explores how different aspects of service quality affect students' loyalty to their housing accommodation. The study adopts a positivist research paradigm and utilizes a quantitative research design. Data were collected through an online survey distributed via social media platforms. The questionnaire was structured with a 5-point Likert scale to measure the constructs, and a pilot test was conducted to refine the questionnaire. The final sample consisted of 542 usable responses from students in Johannesburg, South Africa. Among the housing factors examined, reliability, empathy, and tangibility notably influenced student loyalty. The findings suggested that students particularly appreciate consistent service, empathetic staff interactions, and well-maintained facilities. Conversely, attributes like assurance and responsiveness did not show significant impacts on loyalty, suggesting students prioritize tangible and empathetic factors in their housing choices. These findings emphasise the importance for housing providers to prioritize reliable service delivery, genuine student care, and high-quality physical amenities to cultivate strong student loyalty.

These findings also demonstrate the relevance of the servqual model to the student housing market, especially from an emerging market perspective. Moving forward, further research could delve into additional factors shaping housing preferences and loyalty across diverse student populations and contexts (e.g., a different market like new graduates). Ultimately, improving the quality of student housing can significantly enhance students' university experiences, contributing to their overall academic and personal growth.

The study was limited to the Johannesburg area, surveying students who stayed at a student housing without differentiating between the types of housing (e.g., on-campus, off-campus, etc.). These limitations raise potential future research to expand the scope of the study such as covering other provinces in South Africa, using additional factors (e.g., customer satisfaction as a mediator and demographics as moderators) to measure loyalty. The expansion of the research can also look at other housing markets such as new graduates.

5. Implications and recommendations

The findings of the current study had implications for both management (managers, owners, developers, etc.) in the student housing sector as well as for literature on real estate marketing, specifically, the student housing market. For the management, the hypotheses that were confirmed highlight those service quality attributes that students care most about (reliability, empathy and tangibility), which play an important role during their decision-making process. When making their strategic plans, the management should always keep these service quality attributes in mind so that students can remain loyal to the residence during their studies.

From an academic perspective, the outcomes showed that the service quality attributes are also applicable to the student housing market. This has shown a different application of the servqual model, particularly from a South African student housing point of view. It would be interesting to investigate the rejected hypotheses under a different context and conditions such as newly qualified graduates, and non-student accommodation.

From the limitations of the study, future studies can be developed. Some of the main limitations include the application of the servqual model within the student housing market, only focusing on the South African market. The focus was also on the entire market in general, without splitting these into institution-owned or controlled properties, privately owned. Also, no split was made between on-campus and off-campus properties. Based on this, future studies can investigate the application of this model by focusing on other African countries, splitting the market by type of student housing, and looking at the role of demographics on loyalty. Future

studies can also focus on the broader rental housing market, including new graduates, senior citizens, etc. Furthermore, future studies can add more constructs to the model such as a mediator (customer satisfaction) and moderators (demographics of the students). In conclusion, the findings of the study suggest that the service quality model is relevant in investigating the influence of service on student loyalty toward student housing.

References

Abramson, P. (2010). Green and growing: Sustainability and amenities are increasing in new residence hall projects. Living on Campus, 20-30.

Akpan, C. F., Amoozegar, A., & Begum, M. (2022). Analysis of customer satisfaction as the mediator between reliability, responsiveness, assurance and customer loyalty among mobile phone users in Nigeria's telecommunication industry. Journal of Pharmaceutical Negative Results, 1650-1657.

Ali, B. J., Gardi, B., Othman, B. J., Ahmed, S. A., Ismael, N. B., Hamza, P. A., ... & Anwar, G. (2021). Hotel service quality: The impact of service quality on customer satisfaction in hospitality. International Journal of Engineering, Business and Management, 5(3), 14-28.

Amoah, C., Bamfo-Agyei, E., & Simpeh, F. (2022, August). Tertiary students' accommodation affordability in Ghana. In Applied Research Conference in Africa (pp. 689-697). Cham: Springer International Publishing.

Amole, D. (2009). Residential satisfaction in students' housing. Journal of Environmental Psychology, 29(1), 76-85.

Bennett, R., & Rundle-Thiele, S. (2004). Customer satisfaction should not be the only goal. Journal of Services Marketing, 18(7), 514-523.

Bondinuba, F. K., Nimako, S. G., & Karley, N. K. (2013). Developing student housing quality scale in higher institutions of learning: A factor analysis approach. Urban Studies Research, 2013.

Brattbakk, I., & Hansen, T. (2004). Post-war large housing estates in Norway. Journal of Housing and the Built Environment, 19(3), 311–332.

Calvert, P. J., & Hernon, P. (1997). Surveying service quality within university libraries. Journal of Academic Librarianship, 23(5), 408-415.

Chahal, H., & Kumari, N. (2012). Service quality and performance in the public healthcare sector. Health Marketing Quarterly, 29(3), 181-205.

Danish, R. Q., Khalid Khan, M., Shahid, A. U., Raza, I., & Humayon, A. A. (2015). Effect of intrinsic rewards on task performance of employees: Mediating role of motivation. International Journal of Organizational Leadership, 4, 33-46.

Devi, A. A. D. T., & Yasa, N. N. K. (2021). The role of customer satisfaction in mediating the influence of service quality and perceived value on brand loyalty. International Research Journal of Management, IT and Social Sciences, 8(3), 315-328.

Eke, C., Aigbavboa, C., & Thwala, W. (2015). An exploratory study of the causes of failure in construction small businesses: A case of the Johannesburg construction industry, South Africa. In ICCREM 2015 (pp. 1055-1062).

Gbadegesin, J. T., Komolafe, M. O., Gbadegesin, T. F., & Omotoso, K. O. (2021). Off-campus student housing satisfaction indicators and the drivers: From student perspectives to policy re-awakening in governance. Journal of Human Behavior in the Social Environment, 31(7), 889-915.

Ghani, Z. A., Suleiman, N., & Malaysia, H. O. (2016). Theoretical underpinning for understanding student housing. International Journal of Scientific and Research Publications, 6(2), 89-99.

Hair Jr, J. F., Howard, M. C., & Nitzl, C. (2020). Assessing measurement model quality in PLS-SEM using confirmatory composite analysis. Journal of Business Research, 109, 101-110.

Hassanain, M.A. (2008), "On the performance evaluation of sustainable student housing facilities", Journal of Facilities Management, Vol. 6 No. 3, pp. 212-225.

Hayes, A. F., & Rockwood, N. J. (2017). Regression-based statistical mediation and moderation analysis in clinical research: Observations, recommendations, and implementation. Behaviour Research and Therapy, 98, 39-57.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modelling. Journal of the Academy of Marketing Science, 43, 115-135.

Hlatshwayo, M. (2023). South Africa enters the second wave of xenophobic violence: The rise of anti-immigrant organisations in South Africa. Politikon, 50(1), 1-17.

Huang, C. C., Wang, Y. M., Wu, T. W., & Wang, P. A. (2013). An empirical analysis of the antecedents and performance consequences of using the Moodle platform. International Journal of Information and Education Technology, 3(2), 217-221.

Ibrahim, A., Musonda, I., & Ibrahim, K. (2018). Challenges of student housing provision through public private partnership. Journal of Humanities and Social Science, 26(6), 9-16.

La Roche, C. R., Flanigan, M. A., & Copeland Jr, P. K. (2010). Student housing: Trends, preferences and needs. Contemporary Issues in Education Research (CIER), 3(10), 45-50.

Luke, R., & Heyns, G. J. (2020). An analysis of the quality of public transport in Johannesburg, South Africa using an adapted SERVQUAL model. Transportation Research Procedia, 48, 3562-3576.

Maduku, D. K. (2015). Determinants of mobile marketing adoption among SMEs in South Africa. University of Johannesburg (South Africa).

Mavunga, G. (2019). #FeesMustFall protests in South Africa: A critical realist analysis of selected newspaper articles. Journal of Student Affairs in Africa, 7(1), 81-99.

Mhlanga, O. (2018). Customer experiences and return patronage in airport hotels: Evidence from OR Tambo International Airport, South Africa. Acta Commercii, 18(1), 1-11.

Mtshali, M. M. Z. (2019). Measuring service quality, customer satisfaction and brand equity at a selected fitness club in Pietermaritzburg (Doctoral dissertation). University of KwaZulu-Natal.

Mzileni, P. M. (2019). The living and learning experiences of Nelson Mandela University students residing in off-campus residence accommodation (Master's dissertation, Nelson Mandela University).

Najib, N.U.M., Yusof, N. and Abidin, N.Z. (2011a), "Student residential satisfaction in research universities", Journal of Facilities Management, Vol. 9 No. 3, pp. 200-212.

Najib, N.U.M., Yusof, N. and Osman, Z. (2011b), "Measuring satisfaction with student housing facilities", American Journal of Engineering and Applied Sciences, Vol. 4 No. 1, pp. 52-60.

Najib, N. U. M., & Sani, N. M. (2012). The effects of students' socio-physical backgrounds onto satisfaction with student housing facilities. Procedia-Social and Behavioral Sciences, 62, 64-74.

Nasution, M. I., Fahmi, M., & Prayogi, M. A. (2020, March). The quality of small and medium enterprises performance using the structural equation model-part least square (SEM-PLS). In Journal of Physics: Conference Series (Vol. 1477, No. 5, p. 052052). IOP Publishing.

Nazarpour, M.-T., & Norouzian-Maleki, S. (2021). A comparative study of satisfaction evaluation between students of mid-rise and high-rise student housing. Facilities, 39(7/8), 508–524.

Ngcece, S. (2018). An investigative study on the perceptions of University of KwaZulu-Natal Risk Management Services (RMS) on campus safety (Doctoral dissertation).

Nhlabathi, M. (2021). Dimensions of students' satisfaction with residential housing and its impact on their loyalty: A South African study. Real Estate Management and Valuation, 29(4), 53-66.

Nhlabathi, M., Mgiba, F. M., & Ligaraba, N. (2022). Social media marketing attributes, Sandton's rental market brand image, and the millennials' rental preference: An empirical study. Real Estate Management and Valuation, 30(1), 34-52.

Ning, Y., & Chen, J. (2016). Improving residential satisfaction of university dormitories through post-occupancy evaluation in China: A socio-technical system approach. Sustainability, 8(10), 1

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. Journal of Marketing, 49(4), 41-50.

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perc. Journal of Retailing, 64(1), 12.

Price, I. F., Matzdorf, F., Smith, L., & Agahi, H. (2003). The impact of facilities on student choice of university. Facilities, 21(10), 212-222.

Radder, L., & Han, X. (2009). Service quality of on-campus student housing: A South African experience. International Business and Economics Research Journal (IBER), 8(11).

Ramzi, M., & Mohamed, B. (2010). Customer loyalty and the impacts of service quality: The case of five-star hotels in Jordan. International Journal of Economics and Management Engineering, 4(7), 1702-1708.

Reed, R., & Mills, A. (2007). Identifying the drivers behind housing preferences of first-time owners. Property Management, 25(3), 225-241.

Riker, H. C., & DeCoster, D. A. (2008). The educational role in college student housing. Journal of College and University Student Housing, 35(2).

Sanni-Anibire, M. O., & Hassanain, M. A. (2016). Quality assessment of student housing facilities through post-occupancy evaluation. Architectural Engineering and Design Management, 12(5), 367-380.

Schenke, J. (2008). “Purdue students prefer to go solo”, College Planning and Management, Vol. 11 No. 6, pp. 62-64.

Scherer, R., Siddiq, F., & Tondeur, J. (2019). The technology acceptance model (TAM): A meta-analytic structural equation modeling approach to explaining teachers’ adoption of digital technology in education. Computers and Education, 128, 13-35.

Sebokedi, Z. L. (2009). Student housing registration and placement inefficiencies at a South African University (Doctoral dissertation, Cape Peninsula University of Technology).

Sikhwari, T. D., Dama, N. G., Gadisi, A. M., & Matodzi, T. C. (2020). A comparative study of the academic performance of resident and non-resident students at a rural South African university. Journal of Student Affairs in Africa, 8(1), 1-12.

Simpeh, F., & Shakantu, W. (2020). An on-campus university student accommodation model. Journal of Facilities Management, 18(3), 213-229.

Sirgy, M. J., Grzeskowiak, S., & Su, C. (2005). Explaining housing preference and choice: The role of self-congruity and functional congruity. Journal of Housing and the Built Environment, 20, 329-347.

Sithole, S. (2023). Wits students intensify protest over lack of accommodation, financial exclusion, accessed on 30 July 2024 from Wits students intensify protest over lack of accommodation, financial exclusion (iol.co.za).

Stiglingh, M. (2009). Developing a model to evaluate the quality of the services rendered by the South African Revenue Service (Doctoral dissertation, University of Pretoria).

Thomsen, J., & Eikemo, T. A. (2010). Aspects of student housing satisfaction: a quantitative study. Journal of Housing and the Built Environment, 25, 273-293.

Toyin Sawyerr, P., & Yusof, N. A. (2013). Student satisfaction with hostel facilities in Nigerian polytechnics. Journal of Facilities Management, 11(4), 306-322.

Tshazi, Q. N. (2021). Quality university education is at risk because of the crisis in student accommodation. Daily Maverick.

Tshazi, Z. B., & Civilcharran, S. (2021). Predicting multi-generational technology adoption practices in a South African context: Millennials vs. Generation X. In Perspectives on ICT4D and Socio-Economic Growth Opportunities in Developing Countries (pp. 1-30). IGI Global.

Voss, K. E., Spangenberg, E. R., & Grohmann, B. (2003). Measuring the hedonic and utilitarian dimensions of consumer attitude. Journal of Marketing Research, 40(3), 310-320.

Wiens, J. (2010). Furniture evolution. College Planning and Management, 13(3).

Journal of African Real Estate Research
Volume 9, Issue 2
www.journals.uct.ac.za/index.php/JARER/

Towards real estate investment trust implementation and operationalisation: readiness of real estate investment trust connected parties in Uganda.

Ronald Kaweesi[1*] (https://orcid.org/0000-0001-9618-2002), Samuel HP Chikafalimani[2] (https://orcid.org/0000-0002-3555-2206) , Moses Musinguzi[3] (https://orcid.org/0009-0008-1455-2590)

[1] Department of Construction Economics and Management, School of Built Environment, College of Engineering, Design, Art and Technology (CEDAT), Makerere University
[2] Department of Construction Management & Quantity Surveying, Durban University of Technology
[3] Department of Geomatics and Land Management, School of Built Environment, College of Engineering, Design, Art and Technology (CEDAT), Makerere University

To cite this article: Kaweesi, Chikafalimani and Musinguzi (2024) Towards real estate investment trust implementation and operationalisation: readiness of real estate investment trust connected parties in Uganda**.** *Journal of African Real Estate Research,* 9(2), pp. 108-139. DOI: https://doi.org/10.15641/jarer.v9i2.1533

Abstract

Despite several developing economies enacting Real Estate Investment Trust (REIT) regulations, REITs are still underutilised as alternative vehicle to address real estate financing challenges. In Uganda, limited research on the application of REIT towards financing real estate further complicates this situation. This study addresses crucial research gaps concerning REIT applications in developing nations, with Uganda as a focal point. The study investigates the readiness of REIT connected parties towards the implementation and operationalisation of REIT in Uganda. Through theorising REIT application and employing a qualitative phenomenological research design, the study describes the readiness of connected parties through their lived practice and experiences. Data collection was conducted by interviewing a purposively selected sample of potential REIT connected parties that comprised valuers, investment bankers, lawyers, accountants and financial experts based on their involvement in the finance and investment sector. Knowledge, Skills and Abilities (KSA) themes were deduced from the Activity Theory while sub-themes were extracted through thematic analysis. We find significant knowledge and skilling gaps related to basic and conventional operation of REIT among connected parties. We also find limited experience of connected parties towards operation of REIT. Our study proposes awareness and structured interventions from the line regulators to fast-track REIT readiness. Lastly, the study contributes valuable insights into REIT application adoption in developing

countries, offering theoretical and practical implications for real estate financing.

Keywords: *Collective Investment Scheme, REIT, Connected Parties, Agricultural financing*

*Corresponding author's email address: ronald.kaweesi@mak.ac.ug

©2024 The Author(s). Published by UCT Library. This is an open-access article under the CC BY 4.0 license. https://creativecommons.org/licenses/by/4

1. Introduction

Real Estate plays an important part role in driving economic growth, the inter-dependent relationship between the financial economy and real estate sectors has intensified boom-bust dynamics within property markets (Waldron, 2018). At a macro level, real-estate public policy initiatives are cautiously applied given the complex relationships observed between the state macro economy, real estate economy, and housing market (Bates et al., 2015). According to the Financial Year 2024/2025 Uganda Budget Speech, there was improved performance of the Ugandan economy on account of higher growth in all sectors including services, agriculture, and industry estimated to grow at 6.6%, 5.1%, and 5.8%, respectively. This growth was reflected in the growth of the different real estate asset classes. For instance, the impressive growth in the service sector was attributed to a strong recovery in retail and wholesale trade, tourism and communication all-encompassing real estate activities (MoFPED, 2024). According to the Ministry of Lands, Housing and Urban Development, (2016) investment in real estate has the potential to generate revenue through taxes on building materials, revenues from premiums, rental or property taxes and other fees.

However, the challenge of real estate financing is faced in all real estate asset classes from traditional commercial and residential real estate to untraditional/specialised real estate such as agriculture and infrastructure. Development of real estate requires significant capital that developers and entrepreneurs are not always able to raise alone but requires credit financing and leverage. For traditional real estate asset classes such as residential, the National Housing Policy (2016) articulates that investment in the housing sector has been minimal over the years leading to inadequate housing both in rural and urban areas with urban areas having the extra burden of inadequate quantity leading to overcrowding, creation of slums and informal settlements. According to Smart & Lee, (2003), neglect of real estate is a serious limitation to the financialisation of any economy as housing wealth is more significant than other forms of equity for most citizens. Housing finance options to facilitate the demand and supply of housing are limited due to the narrow and underdeveloped finance markets in the country calling for an efficient, effective and well-structured housing finance mechanism for the development of the residential real estate asset class (Dixon et al., 2008).

In the case of non-traditional real estate assets such as agricultural real estate involved in production, capital is required as a factor of production to realise their highest and best use (Kan et al., 2022). According to Elahi et al.(2022) specialised real estate such as agricultural

real estate with scaled operation requires the flow and reallocation of production factors such as capital to achieve the purpose of large-scale and intensive production. Thus, the a need for capital financing alongside other factors of production (Collier & Dercon, 2014). Financing of non-traditional asset classes is also traditionally challenging for financial institutions due to their inherent risks (Kessy, 2022). For example, financing for agricultural production remains a subject of both national interest and frustration in developing countries and emerging markets (Onyiriuba et al., 2020). Though, there have been efforts by the Ugandan government to improve financing towards agricultural real estate through traditional financing avenues, such as subsiding credit facilities offered by Private Financial Institutions (PFIs) and Saving and Credit Cooperatives organisations (SACCOS), Warehouse receipting among other initiatives, the proposed avenues dissociate public and private capital and are characterised with accessibility challenges as they are limited to established commercial players with significant agricultural real estate holdings (Havemann et al., 2020; Nakiwala et al., 2022; Ssessanga, 2020). The same financing challenge is also evident in the public infrastructure as real estate (Mello & Sutherland, 2015; Walter, 2016).

Additionally, the capital and real estate markets of Uganda similar to many developing countries, despite evolving over the last years, are still generally underdeveloped and characterised by limited securitisation and financial structuring instruments for transferring and spreading risk for illiquid assets such as the real estate asset (Sejjaaka, 2014). Globally, REIT regimes owe their existence to the United States of America's Real Estate Investment Trust Act of 1960, a financial tax regulation that fuelled the development of public real estate markets, set a standard for reducing investment risk and amplified the transparency of the investment industry (Brounen & de Koning, 2012). A REIT definition has not been altered since then as an entity that owns, operates, acquires, develops and manages real estate assets and provides related services. It qualifies for special tax treatment, and its shares might be publicly traded similarly to other stocks (Corgel et al., 1995). The special tax treatment is supposed to attract investors to invest in large, diversified portfolios of real estate combined with the liquidity of the public markets (Brounen & de Koning, 2012). REITs` principal business is the management of income-generating real estate properties and loans, thereby acting as an investment tool to spread the risk of asset ownership and create a flow of funds from investors to the underlying real estate asset (Chan et al., 2002). REIT frameworks offer securitisation which involves the pooling and packaging of homogeneous illiquid financial assets, such as real estate, into marketable securities that can be sold to investors, thereby

providing low-cost capital to the asset owners (Schwarcz, 2009). Therefore, REITs are Special Purpose Vehicles (SPVs) that transfer risk and represent an ownership interest in or secured by a segregated income-producing pool of assets (Corgel et al., 1995; Haslam et al., 2015). REITs have steadily grown in size and importance, gaining traction from global investors due to their advantages towards performance in a diversified portfolio, provision of low-cost capital and access to global real estate markets (Sun et al., 2015). However, despite their advantages, acceptability and adoption in low-developing countries is still limited (Olusegun, 2016).

In worst-case scenarios, developing countries such as Uganda have not registered or listed any REIT for several years after enacting the REIT legal framework (Ssessanga, 2020). There have been attempts to assess the application of REIT in Uganda, but limited studies have assessed the readiness of REIT-connected parties in terms of possessing the necessary tools, rules and norms towards REIT implementation and operationalisation. Ssessanga (2020) limits his study to the perception, risks, benefits and challenges of REIT faced by institutional investors in Uganda, limiting his study to institutional investors as security holders while ignoring other connected parties essential for REIT implementation. Lipson, (2013) defines a basic securitisation structure to include originators, Special Purpose Entity (SPE) and investors while Delivorias (2015) argues that the securitisation structure comprises originators and facilitators among other players. In relation, this study refers to the REIT structure set out by the Ugandan Collective Investment Scheme (Real Estate Investment Trust) Regulations 2017. The regulation structures REIT facilitators as REIT "connected parties" to include REIT manager, valuer, trustee, holder of REIT securities, director or senior executive, officer or associate. The Ugandan Capital Markets Authority (CMA) introduced the Collective Investment Scheme (Real Estate Investment Trust) Regulations 2017 as a regulation to guide the formation and operation of REITs. However, since the introduction of the regulation, there is still no registered REIT in the Uganda real estate market, whose economy comprises diverse real estate asset classes in need of financing (Mawejje & Munyambonera, 2017; Nilsson, 2017). The inadequacy and challenge of real estate financing coupled with the absence of any registered or structured REIT in the Ugandan market to transfer and spread real estate risk motivates the importance of investigating the readiness of REIT-connected parties towards REIT implementation and operationalization as a tool for real estate financing. Similarly, global REIT reports such as EPRA annual REIT survey and NAREIT have never assessed the readiness and applicability of REIT in Uganda. The unknown readiness and applicability of REIT as an alternative towards real estate financing in Uganda portends a danger to the growth

and development of REIT in Uganda. This is one research gap that the study intends to fill by investigating the readiness of REIT-connected parties towards REIT implementation and operationalisation in Uganda. By investigating the readiness of connected parties, the study contributes to the necessity of inquiry towards the application of REIT not only in Uganda but also in similar developing economies.

2. Theoretical perspective

Financing and investment generally face increasing uncertainty and change in a highly competitive environment characterized by strict regulations, technology, globalization and volatility of customers` preferences largely transforming from a descriptive, institutional field of study to a science full of theoretical thrusts (Warue et al., 2018). The dynamics are such that real estate financing as a component of finance practised under conditions of uncertainty which necessitates the development of theoretical frameworks capable of coping with complex and dynamic spatial-temporal and social dynamics in financing and investment (Adamides, 2023; Kamanga et al., 2019). Such theoretical developments require a departure from the traditional dichotomies originating in the objective/subjective divide, which inhibit the understanding of learning and knowledge creation that are simultaneous and interdependent with practice (Adamides, 2023; Sannino, 2011). Activity theory has been employed to assess the readiness of tools in different fields such as education (Yang & Bernat, 2012), Innovations (Karanasios, 2018; Sun, 2016), Technology (Adamides, 2023; Nadiri, 1970), Business (Kamanga et al., 2019) and finance (Lakay & Mlambo, 2022).

In this study, activity theory is employed to assess the readiness of REIT-connected parties given that real estate financing and investment as a constituent of the financial sector is a multi-levelled process involving multi-level changes in the underlying financial systems. Financial systems are intellectual conceptualizations that include generative and operational processes. Therefore, studying real estate financing and investment processes requires a holistic unit of analysis that considers transformations that take place simultaneously, considering the different mediating financial tools and artefacts proposed by the community of stakeholders. In this study of real estate financing and investment processes, Activity Theory is used as an up-front explanation and transformative-advocacy lens for assessing and guiding policy interventions such as REIT readiness in practice while considering the socio-cultural context of human behaviour (Bai & Henesey, 2012). For this study, Activity theory considers the interactions between connected parties as individuals, organizations and social groups with their context

(culture, norms, rules, values, technologies, artefacts, and power structures) as the basic unit of related social systems (Adamides, 2023). Activity Theory shifts the focus of the unit of analysis from the individual or group to the broader "activity" itself, relying on the transformative interaction between the connected parties ("subjects") and the REIT for real estate financing ("objects") (Marocco & Talamo, 2022).

Activity Theory has evolved from the first generation developed by Lev Semyonovich Vygotsky comprising interaction between subjects, objects and activity to the second generation also known as the "*Activity Theory Model* which that was expanded by Engeström by further adding three elements of complexity (rules/norms, community, rules and norms and division of labour) as crucial elements of an activity system (Karanasios, 2018; Marocco & Talamo, 2022). The third-generation Activity Theory addressed the challenges of developing conceptual tools for understanding dialogue, multiple perspectives and networks of interacting activity systems (Engeström, 2001). Third-generation activity systems include at least two interacting activity systems such as the real estate system and the financing system as shown in *Figure 1.* In this study, we focus on Engeström's third-generation "interactivity system".

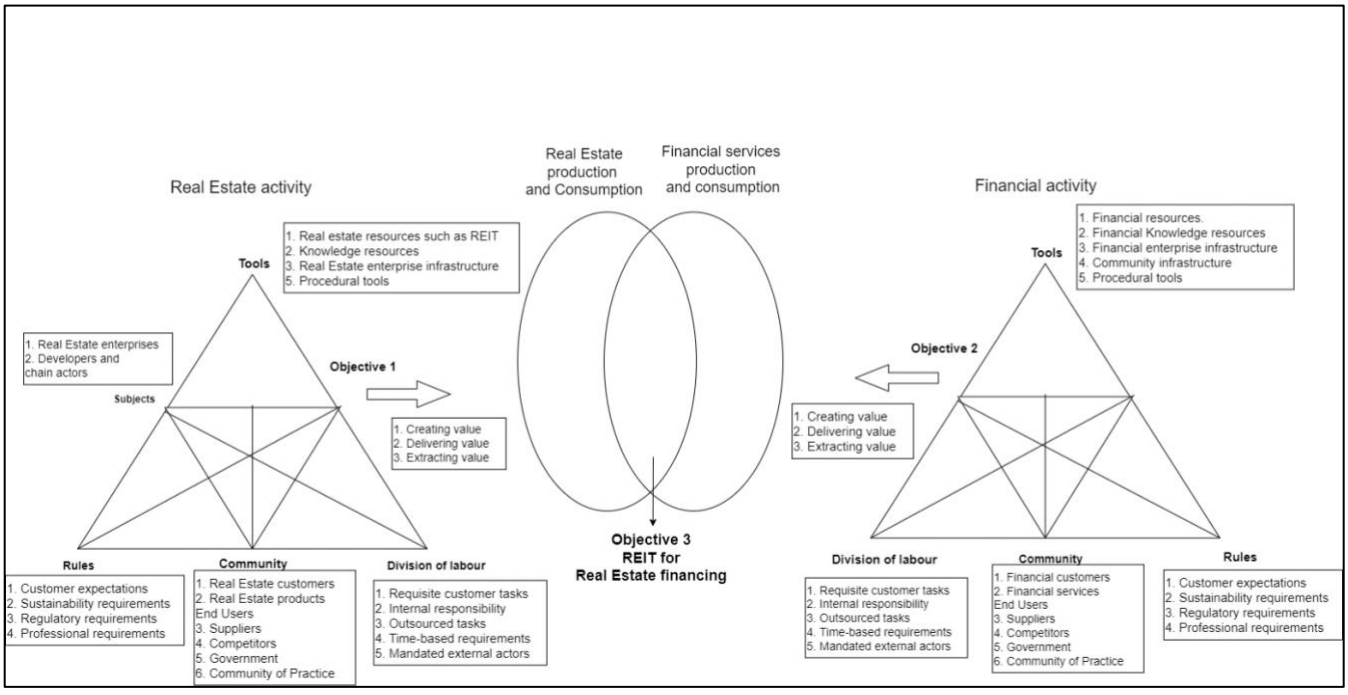


Figure. 1: Third-generation Activity Theory indicating conceptual links to REIT for Real Estate Financing

Source: (Authors own, 2024).

According to Activity Theory in this study, connected parties (subjects) engage in purposeful activities with objectives to satisfy their established needs and for survival (Engeström, 1999). Connected parties are collective subjects involved in a collective activity of REIT operationalization and implementation, while for individual activities such as Trustee services, accounting and valuation, there are individual subjects such as Lawyers, Accountants and Valuers respectively. Each subject is a free agent with their own goals and ideas, making it hard to predict their behaviour. The objective of facilitating real estate financing motivates the subject actors to carry out their roles in the activity of REIT for real estate financing. Activeness is essential because it accounts for human actions through the use of tools/instruments that are means/artefacts by which the activity of real estate financing is carried out (or mediated) (Engeström, 2009). Transformation of the objective is only possible through historically developed means, the transformation process leads to the formation of the subject`s identity regarding a specific activity. Rules are cultural norms, formal or informal rules, regulations, and institutions governing the performance of the activity (e.g., standards, regulations and guidelines). Community denotes the various stakeholders in this case (connected parties) of the activity (real estate financing), and division of labour signifies who is responsible for what, who does what, and how roles and power hierarchies are organized, as the procedures and processes for carrying out the activity of REIT for real estate financing.

In this study, Activity Theory holds that knowledge and skills are “tools” while abilities are “norms/rules” of connected parties (“community”). This analytical framework helps to influence and explain the REIT readiness of connected parties, by determining whether connected parties are able to conduct and execute their (“objective”) of implementing and operationalising REIT for real estate financing as defined by their different roles (“division of labour”). In this study, we extend real estate financing and investment research by theorising and conceptualising the implementation and operationalisation of REIT as a tool for real estate financing in Uganda and similar developing economies as shown in Figure 1.

With reference to the theoretical underpinning, the readiness of REIT-connected parties towards the “activity” of implementing and operationalising REIT is generally defined by the activity “tools” comprising knowledge and skills, and activity “rules/norms” comprising the abilities. Connected parties are part of the activity “community” with given roles (“division of labour”) towards REIT implementation and operationalisation. Connected parties in this study

are defined by section 3 of the Collective Investment Scheme (Real Estate Investment Trusts) Regulations, 2017 to include:

(a) REIT manager;
(b) valuer appointed to undertake a valuation of the scheme;
(c) Trustees
(d) Substantial holders of REIT securities in the scheme;
(e) Director, a senior executive or an officer of any person referred to in (a), (b) or (c) above;
(f) Associate of any person referred to in (d) and (e) above;
(g) A controlling entity, a holding company, a subsidiary or an associated company of any person referred to in (a) to (d) above.

3. Methodology

The overarching methodology for this study is qualitative through a phenomenological approach describing the readiness of connected parties through their lived experiences. The phenomenological approach is the type of inquiry best suited for REIT readiness research for connected parties as it is important to understand their common or shared experiences of their readiness phenomenon. The phenomenon study focuses on describing what all participants have in common as they experience a phenomenon and reducing their individual experiences with it to a description of the universal essence (Casey, 2000b; Creswell, 2012). A phenomenological study provides a descriptive passage that discusses the essence of the experience of participants incorporating "what" they have experienced and "how" they experienced it (Burton, 2000; Casey, 2000a; Creswell, 2012). The phenomenological study provided both the textual and structural descriptions of what connected parties experience and how they experience it in terms of knowledge, skilling and abilities towards REIT readiness

A qualitative research design was used in this study to investigate and attain a greater and deeper understanding of phenomena within real-life settings (Patton, 2001). Creswell, (2012) argues that in order to conduct thorough qualitative research, a unit of analysis must be defined, and this unit of analysis should be pitched in the form of a research question. Therefore, for this study, the research question was: *What is the readiness of REIT-connected parties towards facilitating REIT for real estate financing in Uganda? Therefore,*

the phenomenon (object of human experience) is REIT readiness, and the unit of analysis is connected parties in Uganda.

The target population for the study was REIT-connected parties. The mentioned connected parties are the actors and professionals created by the legal framework (Collective Investment Scheme (REIT) 2017 Regulations), to implement and facilitate REIT operations in Uganda. Connected parties are required to possess the professional knowledge, skills and competence required to execute their function towards the operationalisation of a REIT. The target population of connected parties was sampled purposively based on their involvement in the finance and investment industry where REIT is used as a vehicle for financing and investment. The sampling frame comprised potential connected parties who are licensed, certified, or registered by the different line regulators in 2023. Lists of the licensed potential connected parties were obtained from the line regulators in October 2023. The regulators list informed the target population from which a purposively selected sample was obtained as presented in Table 1 below.

Table 1: Functional areas of connected parties, target and sample population

No	Functional Area	REIT Function/ Role	Regulator	otential Connected arties	arget opulation	Sample Population	Particip ant ID
1	Finance and Investment	Potential Trustees	Capital Market Authority (CMA)	Licensed Financial advisors,	30	3	A1, A2, A3,
2	Finance and Investment	Potential Trustees, Potential holders of REIT securities	Bank of Uganda (BOU)	Commercial Banks	25	4	B1, B2, B3, B4
3	Valuation and Property Management	Valuers, Potential REIT Managers, Property Managers	Institute of Surveyors of Uganda (ISU)	Valuation Surveyors and property managers	130	6	C1, C2, C3, C4, C5, C6
4	Finance Investment	Potential Trustees, Potential holders of REIT securities	Insurance Regulatory Authority (IRA)	Insurance Companies	28	6	D1, D2, D3, D4, D5, D6
5	Legal	Potential Trustees, Potential REIT Managers	Uganda Law Society (ULS)	Lawyers and Advocates	Over 2000 Licensed advocate s	6	E1, E2, E3, E4, E5, E6
6	Accounting	Potential REIT Managers	Institute of Certified Public Accountant s Uganda (ICPAU)	Accountant s	150 Firms	6	F1, F2, F3, F4, F5, F6,

Source: Authors` compilation

3.1. Data collection and analysis

With the research approach and sampling technique in mind, data collection was conducted by interviewing the sampled population of potential REIT-connected parties who are expected to have experienced the readiness phenomenon. Data collection consisted of in-depth interviews and focus group discussions with the sampled potential REIT-connected parties as the participants, These included valuers, investment bankers, lawyers, accountants and financial experts as indicated in table 1. Participants were asked questions regarding their (1) Knowledge, (2) Skills and (3) Abilities (KSA) - deduced themes from the activity

theory. The KSA interview guide was defined by the initial review of literature that was conducted prior to data collection. The interview guide contained the 3 KSA sections and 29 questions that inquired about the knowledge, skills and abilities (KSA) of the connected party as an individual and less of a community given the different professional specialisations. Conducting individual interviews facilitated objective responses by providing opportunities for self-reflection and discussions related to experiences in the finance and investment activity system where REIT financing is centred. A focus group discussion was conducted with a group of valuers to assess their REIT readiness.

Semi-structured interviews were conducted with different categories of connected parties (valuers, investment bankers, lawyers, accountant and financial experts indicated in table 1) giving more room and flexibility to each respondent's unique background, circumstances, and perspectives while also enabling the interviewer to address topics of relevance to the research (Ploll et al., 2022). The pre-defined KSA categories deduced from the theoretical framework were not designed to restrict the participants but rather to facilitate the expression of the readiness phenomenon and experience.

All interviews and the focus group discussion were transcribed. To ensure the anonymity of all participants, identifying information, such as names and places, was replaced with Participant IDs as shown in Table 1; thus, creating a pseudonymisation of the transcripts.

The transcribed raw data (interview notes and group discussion transcripts) were analysed using thematic analysis. First, the nodes for the thematic analysis were conducted deductively by reference to the theoretical framework to obtain the KSA themes followed by an analysis of 48 child nodes that were ultimately amalgamated into 8 sub-themes (second-order concepts) in NVivo. Table 2 shows the breakdown of the themes. Collectively, these main themes offer a comprehensive understanding of the viewpoints held by connected parties, shedding light on the KSA factors that define their REIT readiness.

KSA themes	Subthemes (Second-order concepts)	Initial Codes (first-order concept)
Knowledge	REIT regulation	Investing in real estate
		Units for real estate
		unification of real estate
		Capital Markets Authority regulation
		Trusts of real estate
		Diversification for investor
		REIT regulation
		Trust deed
		Roles
		Guidelines
	Securitisation	Secured lending
		Equities
		Securitised products
		Securitisation contract
		Floating and diluting equities
		Corporate governance
	Tax advantage	Auditing
		Accounting
		Tax consideration
		Management Accounting
	Risk transfer and risk shift	Capital mobilisation
		Publicly listed
		Diversify
		Portfolio risk
Skill	Investment management	Portfolio management
		Asset management
		Estates management
	Performance measurement and evaluation	Return measurement
		Return attribution
		Risk measurement
		Technical competencies
		Conventional analysis
		Non-conventional analysis
		Investment analysis
Abilities	Previous similar assignments	Trustee roles
		Valuation assignments
		Property management
		Security holding
	Training and experience	Continuous Professional Development (CPD)
		CFA
		CIPM
		Charter
		Investment and finance pathway
		Chartered fellows
		Capacity and experience
		Traded securitised products
		Tax advisory

Table 2: Summary of KSA themes and subthemes.

Source: Authors` compilation.

Methodological rigour was attained through the application of verification and validation through literature searches, adhering to the phenomenological method, bracketing past experiences, keeping field notes, using an adequate sample, identification of negative cases,

and interviewing until saturation of data was achieved. Validation was accomplished through the use of multiple methods of data collection (interviews and focus group discussion), and data analysis and coding were also cross-checked by more experienced researchers.

4. Results

The transcription of the conducted interviews for this study resulted in 32 transcripts; out of which 48 significant statements were extracted. Participants were predominately investor analyst (68%) and potential investors/security holders (32%) operating as registered businesses. The average age bracket of participants was 41-50 years old, Majority of the participants were designated as managers/assistant managers (77%), Director (13%), and Partners (10%). Despite over 85% of the participants possessing masters` degrees, 70% do not possess real estate related training. 57% of the investor analyst participants possess additional professional certification in their line of practice. All participants possessed over 10 years of work experience. The 31 transcripts from the participants together with 1 transcript from the line regulator were arranged to formulate meanings from the KSA factors that resulted into different sub-themes as indicated in the results.

4.1. Knowledge of REIT

Participants described their knowledge of REIT based on their awareness of existing legal mandate of REIT application and implementation in Uganda, securitisation as a basis for REIT application, knowledge of the required training and skills for REIT application and implementation, advantages and disadvantages of REIT as well as the role of REIT to real estate financing.

4.1.1 REIT regulation

Focusing on the existing knowledge of REIT for real estate financing, the majority of the respondents across the different categories expressed limited knowledge of the REIT regulation. Responding spontaneously, REIT was described as “a tool for investing in real estate”, “Trust for real estate”, and “Investment tool for real estate” A sense of REIT as a tool to seek exposure to real estate was evident in the description of REIT among connected parties in finance and investment sector. “It is used for diversification and accessing real estate assets” stated an investment advisor A1. Another accountant F3 stated, “REIT is a trust for investing in real estate for high-net-worth investors”.

A sense of limited knowledge of REIT conceptualisation was evident among potential REIT

trustees. A2 stated, “We have limited involvement and exposure in the real estate sector for our client’s investment structuring”. However, A1 articulated his role as potential trustee and manager towards REIT operation stating “According to the REIT regulation, I am authorised to perform a number of roles as an investment manager, for other roles I can outsource”.

Valuers C2 and C3 highlighted the general features of REIT despite expressing limited awareness of the REIT regulation. Valuer C1 stated “I know a REIT but am not familiar with the existing REIT regulation” while Valuer C2 stated, “The REIT regulation is new and I am not sure whether it changes anything regarding how REITs operations generally”.

Legal practitioner E3 defined the general operations of REIT stating “It is formed to help investors invest in real estate, REITs are trusts with special tax considerations and special structuring. In Uganda, the regulation articulates what a REIT is in terms of structure, formation, term and assets to be invested in”. E5 stated Although, REITs are structured under the trust deed, I have personal concerns regarding Schedule 6 fees that are higher than some practice certificate fees”.

4.1.2. Securitisation

Potential institutional security holders highlighted their participation in the securitisation market from both the buying and selling sides B2 stating, “We advise listed entities as they are some of our biggest clients however, they are hardly interested in acquiring equities”. A similar account is exhibited by similar respondent B4 who stated “Our investment arm is not yet active in Uganda to acquire securitised products for our customers though we advise them”.

Contrary to commercial banks, insurance firms highlighted more knowledge and involvement in securitisation outside the real estate asset class. D2 states, “We of course invest some premiums in equities according to the IRA guidelines, however, not yet in REIT securities or real estate”. D5 stated “We have securitised products and have invested in them but not yet securitised tangible assets such as real estate”.

Despite real estate-related studies and training, potential valuers and real estate managers expressed limited and lack of basic knowledge of securitisation which is a basis of REIT operation. C1 stated, “I relate it to secured lending”. Admittedly, C2 stated “I have no idea”. C5 stated, “creating securities from investment though am not aware of the different types of securitisation”. C6 stated, “I know securitisation involves creating securities but I need

to research more about its application in real estate in practice".

Legal-related connected parties E2 and E5 highlighted how they have provided legal advice on securitisation contracts in the finance and investment sector. E2 stated, "We have advised on the legality of creating equity securities through securitisation, floating and diluting equities for a financial institution". E5 stated, "As company secretary, we know securitisation from a corporate governance perspective not really sure how it applies real estate unless they are companies". E3 and E1 expressed how securitisation is out of their scope of practice. E3 stated, "These are areas we outsource to Chartered colleagues especially or our other fellows in the finance and investment areas".

4.1.3 Tax Advantage

Valuers C3, who is also a potential REIT Manager recognised the tax advantage of REIT as an investment vehicle as stated in the excerpt below:

> *"REIT tax advantages serve at the corporate level as investment security to investors, though it is a double-edged sword as it limits funds available for growth of the REIT since over 90% of total returns need to be given out as dividends to investors".*

A similar account of REIT tax advantage knowledge was expressed by Valuers C4 and C5.

Despite demonstrating reliable tax knowledge as tax advisors, accountants as potential REIT managers, expressed limited REIT taxation structuring in Uganda as none of them has yet audited or advised a REIT before. F4 stated, "Management of trusts in terms of accounting is similar, so REIT would also be subjected to the same accounting principles of trusts". F5 stated, "Despite not accounting for a single REIT, I believe the accounting standards established for trusts cater for REITs". F6 who already holds managerial positions stated "Tax laws in each jurisdiction keep changing and taxation of trusts like REIT need to be legally backed I however doubt if there is a significant change from other trust laws in terms of management and taxation".

4.1.4 Risk transfer and risk shift

Potential REIT managers and Trustees from the finance and investment segment expressed investment-related knowledge on risk transfer and risk shift. A1 stated, "REIT as a trust is for transferring and shifting ownership risk from real estate to third parties with securities in the trust". B1 stated, "Through risk transfer, the trust entity raises finances most probably

for developers in real estate".

The following two excerpts from potential REIT security holders D1 and D2 respectively illustrate the adequacy of REIT-related knowledge on risk transfer and risk shifting:

> *"The challenge is real estate financing requires sustainable private capital mobilisation that REITs provide on a large scale especially if they are publicly listed. All real estate assets can mobilise funding through securitisation. However, the rate of return will be of concern to us as institutional investors holding REIT securities. We collect premiums that need to be invested and paid back with reasonable returns".*

And

> *"Investment through REIT will help investors diversify their portfolios from risk associated with other assets. However, the market and performance of REITs if implemented needs to be attractive to encourage significant holdings in such investments".*

4.2. Skills for REIT application and implementation

In this theme, connected parties focused on their skilling to implement and facilitate REIT operations. While there have been awareness campaigns for REIT under the line regulator, skilling and training of stakeholders is still limited.

4.2.1 Investment Management

Despite their training in real estate, valuers exhibited limited skilling in investment management compared to other connected parties whose training is skewed towards finance and investment. Valuer C4 described his investment management training as limited to "investment valuation method and general investment appraisals for private and public investment projects". C5 articulated "I have brief knowledge of portfolio management from university education but haven't practiced it anywhere in real estate". A sense of limited competence in understanding REIT operation was evident in the explanations of a potential REIT Manager C1 who stated "REIT management tasks are similar to property management tasks".

A potential trustee from the legal functional area E3 stated "I have managed estate trusts but not really managed securities trusts as a trustee". Table 3 shows selected examples of

significant statements from the different connected parties and their formulated meanings in relation to the investment management subtheme.

Table 3: Selected significant statements of connected parties and their formulated meaning in relation to the investment management sub-theme.

Significant Statement	***Formulated meaning***
(E4) In Uganda, the Trustees Act Cap 164 (1954) provides general concepts regarding the creation of trusts and the roles and responsibilities of a trustee in regard to investments. The terms of the trust relationship and the principles used by the trustee to manage the assets and distributions to the beneficiaries are outlined in the Trust deed. The same functionality of managing a trust cuts across all trusts and as lawyers, we can do that.	Practitioners from the legal segment as connected parties have the training needed to manage trusts including securities trusts such as REIT.
(B1) Unless it is the big investment banks, this bank and most Ugandan banks still lack the internal capacity to run a fully functioning investment arm. The existing investment arm is limited lending to the government through investing in bonds, apart from custodian services there is limited value we can give to the private sector in terms of investment management.	Commercial banks are focused on the custodian role as they are easier to run as opposed to investment banking which demands more complex functionalities. Also, their return requirement and risk expectations are complex to be met by investments such as REITs as securities holders.
(C1) Unless a valuer has elevated to also do law on top of the valuation training, the role of trustee should be limited to practitioners in legal practice.	Without legal training, it is difficult to conduct trustee functions for REIT.
(C2) Training and competence to manage entities such as REITs require management skills for REIT managers and this is an open position as long one has management training and skilling.	Skills to operate as a REIT Manager is open to all areas as long as the connected party demonstrates management training and skills.
(A3) Institutional investors have the internal capacity to manage REIT and act as REIT trustees. This is demonstrated globally in the investment sector. Unfortunately, the scope of investment operations in Uganda is limited. This forces them to rather outsource essential investment advisory services and focus on a niche they have competence.	Institutional investors, as securities holders, prefer to outsource skills externally. Internal sourcing requires the need for more skilled personnel and competencies to monitor the performance of their investments thus higher costs.

Source: Authors` compilation

4.2.2 Performance measurement and evaluation

Performance assessment skills using conventional and unconventional approaches are vital requirements for evaluating and advising on investment vehicles such as REITs. Investment Advisor A1 highlights the needed technical competencies to manage and monitor investment vehicles. He states "Investment assessment especially measurement and evaluation to meet the investors' needs is critical to ensure smooth running of investments vehicles such as REIT". A2 articulates how training in these areas is not available in the conventional education system of many practitioners by stating "Leave alone the basic risk and return assessments, investors especially institutional investors want forecasts, event analysis, risk and return attributions yet these are not available in our conventional training and skilling".

Interestingly, respondents with real estate-related training from the valuation functional area highlighted the need to gain more experience in conducting performance measurement and assessment for real estate assets to better serve investors. C1 stated, "From your explanation, we need more training on business valuations because, in REIT operation, real estate is conducted to be an investment and a business". C3 stated, "Return and risk assessment for investments seems to be a specialised assessment, something I would be glad to outsource".

Institutional potential securities holders from banking, insurance and pension funds leverage their ability to build internal capacity for investment performance measurement and evaluation. B2 stated, "We have the internal capacity, at least globally to assess investments through our investment management arm". D3 a pension fund respondent stated "We have empowered the internal team to conduct any types of investment analysis needed before we make decisions to invest in any fund such REIT so; REIT managers should also have good investment reporting to attract us as institutional investors".

4.3. Abilities towards REIT application and implementation

In this cluster, respondents focused on their capabilities associated with facilitating and implementing REIT. Descriptions of their abilities are consistent and drawn from a variety of experiences, such as acting as a trustee, valuer, security holder, conducting previous similar assignments and managing real estate-related businesses.

4.3.1 Previous similar assignments

The ability to implement and facilitate REIT operations is influenced by the ability to conduct previous similar assignments. A potential trustee, E,3 stated "I have executed a similar trustee role in estate planning as a company and I know under the trust law, the roles and functions do not differ". This previous experience creates the capacity to manage trusts for different entities including REITs. A similar account is provided by other connected parties from the legal fraternity. E4 citing Section 1 of the Trustees Incorporation Act, 1939 states "The Trust regulation is clear on how trustees should manage trusts such as REIT, we currently act as trustees for different entities based on these guidelines". E1, states "We have registered trustees for different entities as corporate bodies with powers". Though trustees play an important role in retirement plans, unit trusts, charities and estate planning, the regulator highlights that the abilities and competence to operate as trustees for estate planning are not necessarily the same for securities trusts.

Valuer C5, with over ten years of experience in the valuation of real estate, described his encounters with different valuation tasks by stating, "Valuation has taken me places where I did not expect; I have managed to even learn a lot of other asset valuation by practising and engaging in Continuous Professional Development (CPD) to upgrade my abilities to conduct valuations". A valuer/property manager (C3) states "We are managing a broad portfolio of real estate assets around Greater Kampala, therefore property management for a REIT or REIT Management is something we can deliver on". An investment management consultant A1 who manages private investments and properties on a small scale around Kampala, stated, "Although the roles of REIT manager are outlined in the regulation, management principles applied in all entities are generally applicable to REIT management".

4.3.2 Training and experience

Extensive capabilities through training and experience were evident among potential REIT Managers from the financial and investment segment. A1 stated, "As a Charter (Chartered Financial Analyst) I have the capacity to conduct investment management for different clients including REIT". A similar account was exhibited by A2 stating "Additional training and getting chartered in the investment and financial pathway exposes one to non-conventional approaches and methods of analysing and advising on investments such as

REIT". Further training in specialised finance and investment programmes improves the abilities of connected parties towards facilitating the operationalisation of investment vehicles such as REITs. A confirmatory statement from the investment securities regulator in the finance and investment segment states, "Currently, the market has enough chartered fellows to run REIT investments", reaffirming the availability of abilities to implement and facilitate REIT operations.

Potential securities holders from the finance and investment functional areas highlighted the importance of experience in trading and holding securities. D5 dealing in securitised products stated, "We have built capacity and experience in trading securitised products, if a REIT has a good prospectus we can trade their securities". B2 stated "REIT is a regulated business with equity holding, at one point it would require leverage given the leveraging ratios you mentioned. We possess tested experience to offer lending and advisory to listed entities such as REITs".

Connected parties from the different practitioners such as lawyers, valuers and accountants related their experience in their areas of practice but highlighted limitations in training related to REIT. C1 stated "We have experience in conducting valuation for all asset classes, therefore, we can value all REIT assets if assigned valuation tasks. But the other functions you mentioned, (*referring to investment management*) seem to be technical and we would require further training in that area". Legal practitioner E3 stated "We specialised in litigations and disputes in the financial sector, given this experience we can advise REIT and their investors on legal matters preferably". While accountant F4 stated, "My area is accounting and tax advisory for any entity, but since I have not done work for a REIT before, I may need to do more reading and gain training on their operations".

5. Discussion

From the literature review, the assessment of REIT readiness of connected parties involves assessing their knowledge, skills and abilities as the required tools, norms and rules to execute their functions towards implementing and operationalising REIT for the real estate financing objective. The study findings support Wilson's (2008) argument that Activity Theory connotes the study of human behaviour towards achieving a given objective. The results of this study confirm the association between Activity Theory and REIT readiness assessment of connected parties. This finding is further supported by the empirical work of Sun (2016) who hypothesized relationships between user, tool, task-related factors and the

dependent variables. An interesting finding is the existing knowledge, skill, and ability gaps among the different connected parties. There is limited knowledge regarding REIT operation and implementation among the connected parties despite the existing regulatory framework since 2017.

The study findings agree with the argument that real estate investment is related to the general economic activity and prosperity of a particular country. The study found that the abilities of the connected parties, that define their practice norms, are limited due to the low levels of economic activity in the country, which translates to the low levels of investment activity in the real estate sector. This finding is also in agreement with prior studies of real estate markets' activities in similar developing countries where real estate markets are defined by low levels of transparency (Anim-Odame, 2016; Anim-Odame, 2021), limited transaction volumes and liquidity (Hammond, 2006) as well as limited finance sophistication and investable market (Cheng et al., 2006).

The limited exposure to concepts such as securitisation by connected parties who possess real estate training confirms limitations in REIT-related education and training. This finding is consistent with Mun's (2002) argument that valuers need to take on more assignments in finance and accounting, portfolio management, investment performance measurement and appraisals besides the conventional valuation assessment of real estate as an asset class. Exposure to the mentioned fields will help connected parties with training in real estate-related securitisation to risk transfer and risk shift in the real estate sector. This is also consistent with Wesonga et al.'s (2022) findings that identified and explained the skilling and training gaps of valuers in Uganda.

The results of this study further support the argument of Chan et al. (2002) that institutional investor's behaviour and norms have a significant impact on REIT operation and performance. These results are also consistent with later observations in the study by Lantushenko & Nelling (2022) that suggest that REITs exhibit stronger growth when they experience more volatility in institutional ownership. A similar account is argued by Das, Freybote & Marcato (2015) suggesting that poor perception of REITs by institutional investors adversely affects their growth. Decision-making and performance of REITs are mostly driven by institutions that hold highly diversified portfolios. This argument is supported by Huerta, Ngo & Pyles (2021) study that suggests that institutional investors` sentiments have a significant influence on REIT operations and performance. At a localised level, Ssessanga`s (2020) study revealed the low-risk tolerance of institutional investors in

Uganda. The result is consistent with the finding of limited interest by institutional investors as potential securities holders in REIT.

The strategic move towards REIT for real estate can enhance access to real estate finance and investment, improve land use, and position Uganda as a proactive player in the global financial and investment market. Despite being classified as a less developed country, Uganda`s consideration of REIT adoption is crucial for achieving sustainable development goals, addressing real estate financial challenges, and ensuring sustainable land management practices.

6. Conclusion

Leveraging the theoretical framework, we discovered and assessed the most important factors influencing connected parties' REIT readiness. Our results confirm that limited REIT implementation and operationalisation activity tools, rules and norms deter connected parties` readiness. The study provides information to enhance the understanding of REIT implementation and operationalisation in a localised real estate market. Future research may build on the framework presented in this study to further assess the REIT readiness of the different actors within the different jurisdictions.

The study set out to assess the readiness of REIT-connected parties towards REIT for real estate financing. The study argues that the application of REIT is not to be credited to market economic factors alone, but also to the readiness of the different stakeholders involved in the application of REIT. Inquiry about REIT-connected parties' readiness is necessary; for the assessment of the applicability of REIT for financing real estate. Due to the fact that connected parties' readiness varies widely among the different connected parties, a holistic approach towards REIT readiness is a necessity for REIT application and implementation.

Through considering REIT application for real estate financing as a unit of analysis, the study concludes that knowledge, skills and abilities are the basis for assessing connected parties' REIT readiness. Thus, the study contributes to the growing body of literature on real estate financing theoretically and empirically. This study sets that deliberately structured education and training of connected parties will no doubt improve the exposure of connected parties to the operations and line roles in REIT operation and implementation thereby fostering the growth of REITs in Uganda.

7. Implications to policy and practice

The findings of the study suggest that addressing the tools, norms and rules of connected parties' readiness impacts the implementation and operationalisation of REIT in Uganda. In general, the study addresses the essential elements of REIT for real estate financing activity by leveraging the activity theory and suggests a framework for assessing and structuring interventions towards improving the REIT readiness of connected parties. Although the study suggests that the burden of ensuring the REIT readiness of connected parties lies with the line regulators to ensure interventions in the training and education of the respective connected parties, the Capital Market Authority of Uganda should take responsibility beyond license and regulating players to building REIT dedicated capacity with regards to capital market operations among connected parties.

The study also suggests that REIT-centred training and skilling is the responsibility of the line professional regulators. The training and education of connected parties need to be reviewed through a curriculum where structured investment and finance courses are understudied. The study further suggests a dedicated REIT Management Programme structured either through an already existing programme or as a dedicated programme under the Capital Markets Authority.

The principal theoretical implication of the study is that tools, norms and rules translated to knowledge, skills and abilities of connected parties in real estate financing activity. These reflect their readiness to influence REIT applications in real estate finance. The study poses important questions for further research; such as how to address the conflicting professional requirements and standards for REIT readiness among the different connected parties. What are also the recommended professional practices and standards with respect to REIT? Further research combining readiness and structured REIT requirements is also essential to investigate whether REIT application and implementation could be used as a deliberate policy to attract private sector capital towards real estate financing.

References

Adamides, E. D. (2023). Activity theory for understanding and managing system innovations. *International Journal of Innovation Studies*, *7*(2), 127–141. https://doi.org/10.1016/j.ijis.2022.12.001

Anim-Odame, W. (2016). Developing Real Estate Markets in Sub-Sahara Africa: The Fundamentals. *Real Estate Finance*, *Volume 33*, 26–32.

Anim-Odame, W. K. (2021). *The Real Estate Market in Ghana: An Emerging Market in Sub-Saharan Africa*. Routledge. https://doi.org/10.1201/9781003130475

Bai, G., & Henesey, L. (2012). Coping with System Sustainability: A Sociocybernetics Model for Social-Economic System Architecture. *Systems Research and Behavioral Science*, *29*(3), 263–273. https://doi.org/10.1002/sres.1134

Bank of Uganda. (2011). *Agricultural Finance Year Book 2011* (Bank of Uganda and the Plan for Modernisation of Agriculture Secretariat). Bank of Uganda.

Bates, L. J., Giaccotto, C., & Santerre, R. E. (2015). Is the Real Estate Sector More Responsive to Economy-Wide or Housing Market Conditions? An Exploratory Analysis. *The Journal of Real Estate Finance and Economics*, *51*(4), 541–554. https://doi.org/10.1007/s11146-014-9491-y

Brounen, D., & de Koning, S. (2012). 50 Years of Real Estate Investment Trusts: An International Examination of the Rise and Performance of REITs. *Journal of Real Estate Literature*, *20*(2), 197–223. https://doi.org/10.1080/10835547.2014.12090324

Burton, C. R. (2000). Living with stroke: A phenomenological study. *Journal of Advanced Nursing*, *32*(2), 301–309. https://doi.org/10.1046/j.1365-2648.2000.01477.x

Casey, E. S. (2000a). *Imagining, Second Edition: A Phenomenological Study*. Indiana University Press.

Casey, E. S. (2000b). *Remembering, Second Edition: A Phenomenological Study*. Indiana University Press.

Chan, S. H., Erickson, J., & Wang, and K. (2002). *Real Estate Investment Trusts: Structure, Performance, and Investment Opportunities*. Oxford University Press.

Cheng, L., McGreal, S., & Webb, J. (2006). Perception of Real Estate Investment Opportunities in Central/South America and Africa. *Journal of Real Estate Portfolio Management*, *12*(3), 261–276. https://doi.org/10.1080/10835547.2006.12089743

Collier, P., & Dercon, S. (2014). African Agriculture in 50 Years: Smallholders in a Rapidly Changing World? *World Development*, *63*, 92–101. https://doi.org/10.1016/j.worlddev.2013.10.001

Corgel, J. B., Mcintosh, W., & Ott, Steven. H. (1995). Real Estate Investment Trusts: A Review of the Financial Economics Literature. *Journal of Real Estate Literature*, *3*(1), 13–43. https://www.jstor.org/stable/44103282

Creswell, J. W. (2012). *Qualitative Inquiry and Research Design: Choosing Among Five Approaches* (Third edition). SAGE Publications, Inc.

Das, P. K., Freybote, J., & Marcato, G. (2015). An Investigation into Sentiment-Induced Institutional Trading Behavior and Asset Pricing in the REIT Market. *The Journal of Real Estate Finance and Economics*, *51*(2), 160–189. https://doi.org/10.1007/s11146-014-9490-z

Delivorias, A. (2015, October). *Understanding Securitisation*. EuropeanParliamentaryy Research Service (EPRS).

Dixon, T., Thompson, B., McAllister, P., Marston, A., & Snow, J. (2008). *Real Estate and the New Economy: The Impact of Information and Communications Technology*. John Wiley & Sons.

Elahi, E., Khalid, Z., Tauni, M. Z., Zhang, H., & Lirong, X. (2022). Extreme weather events risk to crop-production and the adaptation of innovative management strategies to mitigate the risk: A retrospective survey of rural Punjab, Pakistan. *Technovation*, *117*, 102255. https://doi.org/10.1016/j.technovation.2021.102255

Engeström, R. (2009). Who is Acting in an Activity System? In A. Sannino, H. Daniels, & K. D. Gutierrez (Eds.), *Learning and Expanding with Activity Theory* (p. 257). Cambridge University Press.

Engeström, Y. (1999). Activity theory and individual and social transformation. In R.-L. Punamäki, R. Miettinen, & Y. Engeström (Eds.), *Perspectives on Activity Theory* (pp. 19–38). Cambridge University Press. https://doi.org/10.1017/CBO9780511812774.003

Engeström, Y. (2001). Expansive Learning at Work: Toward an activity theoretical reconceptualization. *Journal of Education and Work*, *14*(1), 133–156. https://doi.org/10.1080/13639080020028747

Hammond, F. N. (2006). *The economic impacts of sub-Saharan Africa urban real estate policies*. https://wlv.openrepository.com/handle/2436/90759

Haslam, C., Nick, T., Anderssson, T., & Gleadle, P. (2015). Real Estate Investment Trusts (REITS): A new business model in the FTSE100. *Accounting Forum*, *39*(4), 239–248.

Havemann, T., Negra, C., & Werneck, F. (2020). Blended finance for agriculture: Exploring the constraints and possibilities of combining financial instruments for sustainable transitions. *Agriculture and Human Values*, *37*(4), 1281–1292.

https://doi.org/10.1007/s10460-020-10131-8

Huerta, D., Ngo, T., & Pyles, M. (2021). Institutional ownership and REIT acquisitions. *Applied Economics*, *53*(36), 1–22. https://doi.org/10.1080/00036846.2021.1897514

IFC. (2011). *Scaling Up Access to Finance for Agricultural SMEs Policy Review and Recommendations: Policy review and recommendations*. International Finance Corporation.

Kamanga, R., Alexander, P. T. M., & Kanobe, F. (2019). Activity TheorUseded as an Analytical Lens for Business Research. *Electronic Journal of Business Research Methods: EJBRM*, *17*(4), 212–228. https://doi.org/10.34190/JBRM.17.4.002

Kan, L., Liu, R., Su, F., & Bao, Y. (2022). Effect of Farmers' Perceptions of Sustainable Development Value on Their Willingness for Agricultural Land Secured Financing. *Sustainability*, *14*(10), Article 10. https://doi.org/10.3390/su14105984

Karanasios, S. (2018). Toward a unified view of technology and activity: The contribution of activity theory to information systems research. *Information Technology & People*, *31*(1), 134–155. https://doi.org/10.1108/ITP-04-2016-0074

Kessy, S. S. A. (2022). Risk Management Practices in Agricultural Financing in Developing Countries: Experience from Selected Commercial Banks in Tanzania. *Tanzanian Economic Review*, *11*(2), Article 2. https://journals.udsm.ac.tz/index.php/ter/article/view/4601

Lakay, D., & Mlambo, N. (2022). Activity Theory Analysis of RPA and Workforce in Financial Institutions. *European Conference on the Impact of Artificial Intelligence and Robotics*, *4*(1), Article 1. https://doi.org/10.34190/eciair.4.1.927

Lantushenko, V., & Nelling, E. (2022). Institutional Ownership Volatility and Investment Behavior of REITs. *International Real Estate Review*, *25*, 161–198. https://doi.org/10.53383/100339

Lipson, J. C. (2013). *Re: Defining Securitization* (SSRN Scholarly Paper No. 1996017). https://papers.ssrn.com/abstract=1996017

Marocco, S., & Talamo, A. (2022). The contribution of activity theory to modelling multi-actor decision-making: A focus on human capital investments. *Frontiers in Psychology*, *13*, 997062. https://doi.org/10.3389/fpsyg.2022.997062

Mawejje, J., & Munyambonera, E. (Eds.). (2017). *Financing Infrastructure Development In Uganda*. https://doi.org/10.22004/ag.econ.253562

Mello, L. de, & Sutherland, D. (2015). Financing infrastructure. In *Decentralization and Infrastructure in the Global Economy*. Routledge.

MoFPED. (2024). *Ministry of Finance, Planning and Economic Development | The Republic of Uganda*. Ministry Finance, Planning and Economic Development. https://budget.finance.go.ug/library/695

Ministry of Lands, Housing and Urban Development. (2016).Lands, Housing and Urban Development. | Sector Development Plan 2015/16 - 2019/20. https://mlhud.go.ug/wp-content/uploads/2015/10/LHUD-SDP-15.16-19.20.pdf

Mun, J. (2002). *Real Options Analysis: Tools and Techniques for Valuing Strategic Investments and Decisions*. John Wiley & Sons.

Nadiri, I. (1970). Some Approaches to the Theory and Measurement of Total Factor Productivity: A Survey. *Journal of Economic Literature*, *8*(4), 1137–1177. http://www.econ.nyu.edu/user/nadiri/pub11.pdf

Nakiwala, M., Mukiibi, S., & Kigundu, A. T. (2022). Mortgage Financing: Access, Knowledge, Attitudes and Challenges Experienced by Urban HousinDevelopersrs. *International Journal of Finance and Accounting*, *1*(1), Article 1. https://doi.org/10.37284/ijfa.1.1.1030

Nilsson, A. (2017). *Housing Finance in Kampala, Uganda: To Borrow or Not to Borrow*. https://urn.kb.se/resolve?urn=urn:nbn:se:kth:diva-202709

Olusegun, O. O. (2016). *Analysis of the performance and acceptance of ReaEstatete Investment Trusts (REITs) in Nigeria*. University of Malaysia.

Onyiriuba, L., Okoro, E. U. O., & Ibe, G. I. (2020). Strategic government policies on agricultural financing in African emerging markets. *Agricultural Finance Review*, *80*(4), 563–588. https://doi.org/10.1108/AFR-01-2020-0013

Patton, M. Q. (2001). *Qualitative Research & Evaluation Method* (3rd ed.). SAGE Publications, Inc.

Ploll, U., Arato, M., Börner, J., & Hartmann, M. (2022). Sustainable Innovations: A Qualitative Study on Farmers' Perceptions Driving the Diffusion of Beneficial Soil Microbes in Germany and the UK. *Sustainability*, *14*(10), Article 10. https://doi.org/10.3390/su14105749

Sannino, A. (2011). Activity theory as an activist and interventionist theory. *Theory & Psychology*, *21*(5), 571–597. https://doi.org/10.1177/0959354311417485

Schwarcz, S. (2009). The Future of Securitization. *Connecticut Law Review*, *41*, 1313–1325. https://scholarship.law.duke.edu/faculty_scholarship/2092

Sejjaaka, S. (2014). *Challenges to the growth of capital markets in underdeveloped markets: The case for Uganda*.

Smart, A., & Lee, J. (2003). Financialization and the Role of Real Estate in Hong Kong's Regime of Accumulation. *Economic Geography*, *79*(2), 153–171. https://doi.org/10.1111/j.1944-8287.2003.tb00206.x

Ssessanga, E. (2020). *The potential of Real Estate Investment Trust Scheme for local institutional investors in Uganda* [Undergraduate Dissertation]. Makerere University.

Sun, J. (2016). Tool choice in innovation diffusion: A human activity readiness theory. *Computers in Human Behavior*, *59*, 283–294. https://doi.org/10.1016/j.chb.2016.02.014

Sun, L., Titman, S. D., & Twite, G. J. (2015). REIT and Commercial Real Estate Returns: A Postmortem of the Financial Crisis. *Real Estate Economics*, *43*(1), 8–36. https://doi.org/10.1111/1540-6229.12055

Waldron, R. (2018). Capitalizing on the State: The political economy of Real Estate Investment Trusts and the 'Resolution' of the crisis. *Geoforum*, *90*, 206–218. https://doi.org/10.1016/j.geoforum.2018.02.014

Walter, I. (2016). *The Infrastructure Finance Challenge*. Open Book Publishers. https://doi.org/10.11647/OBP.0106

Warue, B. N., Charles, B. J., & Mwania, P. M. (2018). Theories in finance discipline: A critique of literature review. *The University Journal*, *1*(2), 113–146. https://doi.org/10.59952/tuj.v1i2.170

Wesonga, R., Kaweesi, R., Acheng, P., Kibwami, N., & Manga, M. (2022). Evaluation of the Education and Training of Valuation Surveyors in Uganda. *Journal of African Real Estate Research*, *7*, 79–94. https://doi.org/10.15641/jarer.v7i1.1141

Wilson, T. (2008). Activity theory in information seeking. *ARIST*, *42*, 119–161. https://doi.org/10.1002/aris.2008.1440420111

Yang, H., & Bernat, E. (2012). Innovating EFL Teaching of Reading: An Activity Theory Perspective on Chinese Teachers' Readiness to Adapt to Educational Reform. In T. Muller, S. Herder, J. Adamson, & P. S. Brown (Eds.), *Innovating EFL Teaching in Asia* (pp. 162–176). Palgrave Macmillan UK. https://doi.org/10.1057/9780230347823_13

Appendices

Appendix A

KNOWLEDGE, SKILLS AND ABILITIES (KSA) INTERVIEW GUIDE FOR CONNECTED PARTIES

RESEARCH TOPIC: Towards Real Estate Investment Trusts (REITs) for real estate financing: Readiness of connected parties in Uganda

INSTRUCTION: Simply fill or tick in the space provided to give your answer

Office	
Name of the interviewer (Optional)/Sector	
Interview Date	
Time (Start: End: Total Duration	

Section A: Respondents Profile

You have been identified as a stakeholder for the study. Please indicate your category ☐Investor ☐Investor Analyst ☐Financier ☐ Business/Commercial Lawyer ☐ Other Specify……	**Gender** ☐Male ☐Female	
Age ☐21-30 Years ☐31-40 Years ☐41-50 Years ☐ 51-60 Years ☐ Above 60	**Status/Rank/Designation** ☐Manager/Senior Manager ☐Assistant General Manager/GM ☐Director/Executive Director ☐ Partner/Head of Practice ☐ Specify……	**Education background** ☐Real Estate related studies and training ☐Non- Real Estate related studies and training ☐Real estate-related studies and training ☐ Real Estate related studies and training ☐ Specify……
Educational Qualification (Please	**Continuing Education**	**Working experience** ☐1-5 Years

the highest) ☐Higher Diploma/ Bachelor Degree ☐Master Degree ☐Doctorate ☐ Professional Qualification Certificate ☐Specify…… ……	☐ACCA ☐CFA ☐ MBA ☐ Other…… ……	☐6-10 Years ☐11-15 Years ☐ 16 -20 Years ☐ Above 20 Years

Section B: Knowledge

1) What is your understanding regarding a) securitisation b) risk transfer and risk spreading c) REITs, and d) Asset classes?

2) Do you know that you have a role to play as a connected party towards securitisation and REIT structuring? If yes, how?

3) What role does the Collective Investment Scheme (REIT) assign you or your firm towards REIT operation?

4) What are the differences and similarities between REITs and mutual funds? (Corporate tax)

5) REIT performance requires knowledge of both conventional and unconventional analysis, what are some of these conventional and unconventional analyses conducted to periodically report on REIT operations? (For Investment managers and valuers)

Section C: Skills

1) Do you have the skills to accomplish and carry out the assigned tasks as stipulated in the REIT regulation?

2) Have you conducted a similar task of (Trustee, Portfolio Manager, or Real Estate Manager, before? If so where and how?

3) Have you acquired additional training and skills to conduct the role assigned in REIT operations and management? How and from where?

4) Do you understand reporting of any of the REIT performance analysis techniques?

Section D: Abilities

1) You securitise real estate assets and other land-based investments.

2) Can you raise the minimum required threshold/licensing and payments needed to operate REITs?

3) Do you possess the capabilities and abilities to facilitate the operations and implementation of REIT towards real estate financing? (CFA/CIPM certification).
4) Have you done trustee, investment structuring, conventional and unconventional investment performance analysis before?

Thank you

Journal of African Real Estate Research
Volume 9, Issue 2
www.journals.uct.ac.za/index.php/JARER/

Green building certification in South Africa: evaluating adoption, greenwashing and location clusters trends.

Jonathan Damilola Oladeji*[1] (https://orcid.org/0000-0003-4073-0350) and Chioma Sylvia Okoro[2] (https://orcid.org/0000-0001-5377-6054)

[1 2] *Department of Finance and Investment Management, University of Johannesburg, South Africa.*

To cite this article: Oladeji and Okoro (2024) Green building certification in South Africa: evaluating adoption, greenwashing and location clusters trends**.** *Journal of African Real Estate Research,* 9(2), pp. 140-165. DOI: https://doi.org/10.15641/jarer.v9i2.1540

Abstract

Green building has become a global response to environmental concerns about the impact of buildings on the environment. However sparse information exists regarding associated risks of greenwashing in developing countries like South Africa. This study evaluated the Green Building Council of South Africa's green building certification growth trends including greenwashing and location clustering risk. This study adopts a quantitative descriptive analysis of the Green Building Council South Africa (GBCSA) certification archives. The researchers conducted a purposive sampling of 510 case studies from the archives based on uniform reporting styles. The data which spanned 12 years between 2011-2023 was analysed using Google spreadsheet and SPSS. The study found a significant growth in green certification in South Africa following the introduction of existing building ratings. The results also reveal that the growth is characterised by low demand for the highest rating levels and clustering in major cities. However, there was evidence of greater dispersion to smaller cities. The results are important to property stakeholders, investors, owners, and regulators in understanding how to mitigate greenwashing risks in developing green building markets.

Keywords: *Green certification, Case Studies, Green buildings, Green Building Certification, South Africa, Trends, Green Buildings, Existing Building.*

[1] Corresponding author's email address: joladeji@uj.ac.za

©2024 The Author(s). Published by UCT Library. This is an open-access article under the CC BY 4.0 license. https://creativecommons.org/licenses/by/4

1. Introduction

Environmental impacts like air pollution, water scarcity, rising sea levels, increased occurrence of extreme weather events and greenhouse gas (GHG) emissions are a growing concern towards achieving sustainable economic development globally (Du Plessis, Irurah, and Scholes, 2003). In the construction sector, green buildings and the concept of green affordable housing have been introduced as part of the sustainable development strategies by which carbon and GHG emissions can be reduced or controlled in the housing sector Liu *et al,* (2022). Green buildings achieve this by using smart innovative technology and building practices that reduce harm to humanity and the environment (Kurnaz, 2021) through energy savings, and water and material conservation. However, research (Addae-Dapaah and Chieh, 2011; Schoeman, 2018; Kurnaz, 2021) has shown that the confusion that often exists in the housing market on what can be considered a green building due to differing attributes that characterise green buildings necessitates certification. However, developers might tend to pursue the commercial or financial benefits of green certifications without implementing the best green practices. This is known as greenwashing.

Nygaard, (2023) described greenwashing through the theoretical framework of eco-opportunism as an obstacle that hinders achieving sustainability by using green promises deceitfully. Furthermore, while certifications have been designed to standardise and regulate this process of identifying green buildings, Nygaard, (2023) found that they might not always be sufficient. Therefore, greenwashing in housing as a form of eco-opportunism refers to capitalising on the growing demand for green buildings with hidden self-interest-seeking behaviour that undermines the transition toward sustainability through intentional deceit. This study argues that South Africa's Green Star rating provides critical information on greenwashing risks and opportunities for mitigation in developing green building markets across the African continent.

The green star rating tool recognises 1–6-star ratings.

- **1 Star** – *"On the journey to a better, greener building"*
- **2 Star** – *"On the journey to a better, greener building"*
- **3 Star** – *"Good Practice"*
- **4 Star** – *"Best Practice"*

- **5 Star** – *"South African Excellence"*
- **6 Star** – *"World Leadership"*

According to the GBCSA, green star rating tools are made up of the following focus areas: Existing building performance, New building & major refurbishments, Interiors , Sustainable urban precincts, Socio-economic category, Green Star Custom and Green Star Africa .The Green Star rating systems assign points in nine categories to assess a building or fit-out's total environmental impact. The greening certification rating system, which has been operational for about 16 years, is the platform by which South Africa's green revolution is executed in the property sector.

By exploring the data on green star certifications, recommendations can be made to stakeholders to address greenwashing risks in developing markets like South Africa.
Globally the demand for green buildings and certifications has continued to grow in response to the concerns for environmentally sustainable interventions. As Chegut, Eichholtz, and Kok (2014) reported, In the United Kingdom (UK), government and special interest groups have expanded their efforts to improve energy efficiency across the property sector in general over the last decade. In the London office market, BRE Environmental Assessment Method (BREEAM) certification led to a 19.7% increase in rents and a 14.7% increase in sales transactions compared to non-certified buildings in the same neighbourhood. Bond and Devine, (2016) also found in their investigation of the premium on Leadership in Energy and Environmental Design (LEED) certifications in the United States, that there is a 4% extra premium attached to green certification compared to mere claims of green action in building.

There's anecdotal evidence that the adoption of green building certification has also grown rapidly in South Africa. However, this growing awareness of the financial incentives and marketability that go with certification is known to drive greenwashing risks in green building markets (Addae-Dapaah and Chieh, 2011; Schoeman, 2018; Nygaard, 2023). According to Addae-Dapaah and Chieh, (2011), this growth in green building demand is accompanied by greenwashing trends including:

- Location clusters
- Growing demand despite confusion on what different certification tiers represent.

- Developers prioritise the lowest certification possible.

Recognising greenwashing in the market is particularly important as investment in the green building sector by banks, and international development finance institutions continues to grow (Nchofoung, Marilyn, and Monkam, 2023). Investors and stakeholders risk discovering that their financial commitments are not truly achieving sustainability objectives or the reduction of carbon emissions in the sector.

According to the Cape Business News, (2024), the International Finance Corporation (IFC) is providing a $250-million loan to FirstRand, for green buildings that include the affordable housing segment. This partnership will directly impact the growth of green-certified construction loans and home mortgages in South Africa. This would not only increase the market awareness and adoption of green building certification but could increase the risk of greenwashing. Therefore, it is important to not only study the trends and patterns in South Africa's green certification adoption but also to determine if developers pursue best practices instead of using the marketability of green buildings as a cover for greenwashing.

1.1.Research questions:

This study seeks to answer the question of whether the growth trends in South Africa's green building certification are vulnerable to greenwashing and location clustering risks. This would be achieved through the following sub-questions:

- What are the growth trends in market adoption of green building certification in South Africa?
- What's the difference between the proportion of basic level certifications to highest level certifications?
- Are there indications of location clustering in the geographical distribution of certifications?

1.2. Aims and objectives:

This study aims to determine if the growth trends in South Africa's green building certification are vulnerable to greenwashing and location clustering risks. This aim is achieved through the following objectives:

- Investigate the growth trends in market adoption of green building certification in South Africa.

- Compare the level of demand for basic to the highest level of certifications.
- Investigate location clustering trends in the geographical distribution of certifications.

2. Literature review

In their study, Hackenesch *et al.,* (2021) recommend investment in projects to increase energy efficiency in the building and construction sector. While other similar studies (Thornbush, 2016; Death, 2014) have acknowledged the importance of greening economies and transitioning to sustainable development for Europe and the United States, South Africa is also considered a top emitter. Therefore, the participation of South Africa in achieving a greener economy is critical to achieving sustainable development in Africa. Nisbet, (2009) reports that the United States, being one of the biggest emitters, should lead the charge in greening industries. Similarly, South Africa's heavy dependence on fossil fuel (coal) for energy-intensive development makes it one of the developing nations at par with the U.S. in emission levels.

South Africa's drive for a sustainable construction sector aligns with a global agenda which inspired the establishment of the Green Building Council South Africa (GBCSA) to regulate and promote green building practices through the green star certification (Agbajor and Mewomo 2024). The South African economy, and particularly the construction sector, is heavily dependent on fossil fuels for energy and this makes it one of the African countries with the highest carbon emissions (Moghayedi, Hübner, and Michell, 2023). Therefore, South Africa is a significant stakeholder in green building adoption in Africa. Consequently, Nisbet, (2009) identified the Green Building Council South Africa (GBCSA)'s launch of a green rating tool as an ideal strategy for South Africa to reduce energy consumption by 30% to 70% through green buildings.

On the one hand, Moghayedi, Hübner, and Michell, (2023) describe South Africa’s building regulatory efforts as aligning with sustainable development which involves developing a building in an eco-friendly manner that does not erode natural resources. On the other hand, Schoeman, (2018) states that while 60% of South Africa’s planned new buildings claimed to be green buildings the Green Star rating tool is susceptible to greenwashing. This literature review attempts to provide a synthesis of the existing body of research on green building certification and the associated greenwashing risk.

2.1.Green Building Certifications

Green certifications play a critical role in rewarding green development and unlocking finance for green buildings. Similar certification and rating systems have been adopted in the United States, Singapore, United Kingdom, Ghana, and across the globe (Addae-Dapaah and Chieh, 2011; Bond and Devine, 2016; Ampratwum et al., 2021; Ahmad, 2023) to standardise green building adoption. The certifications covered in this review include:

- British Research Establishment Environmental Assessment Method (BREEAM).
- Leadership in Energy and Environmental Design (LEED).
- Green Star Certification.

2.1.1. British Research Establishment Environmental Assessment Method (BREEAM)

According to Chegut, Eichholtz, and Kok, (2014), the UK was the first to introduce a private third-party assessment tool to measure a building's environmental impact. Furthermore, BREEAM and LEED are the two private frameworks that the UK market employs in defining the environmental information of buildings. Chegut, Eichholtz, and Kok, (2014) discovered that an important consideration for real estate and institutional investors is the need to make their portfolios green by reducing their carbon footprint. Similarly, renters in the UK demand green buildings to communicate their commitment to environmentally friendly business operations.

Therefore, while green building adoption has been strong in the UK there is still evidence of location clustering and financial premiums that drive greenwashing. Green building location clusters focus on major cities like London, Manchester, Bristol, and Leeds where profitability might be best achievable.

2.1.2. Leadership in Energy and Environmental Design (LEED)

In the United States, the LEED certification is the framework that guides the rating of green or sustainable buildings. Bond and Devine, (2016) associated the adoption of LEED green certification with evidence of rental premiums, renter demographics that prioritise environmental efficiency, possible operational cost reductions and energy savings. They also opined that the presence of a green premium creates significant concerns about greenwashing which results from property owners seeking profitability and market acceptability without making their property green. Furthermore, the study suggests that LEED location clusters in

U.S. urban areas might also indicate that green products fail to offer inclusivity benefits as they pursue maximum financial benefits.

2.1.3. Green Star Certification

The introduction of the Green Star certification in South Africa in 2008 has been designed as one of the strategies for rehabilitating the property development and construction sector. According to Schoeman, (2019), the South African Green Star environmental rating adopts a framework like the Green Star Australia grading system, with approval from the Australian Green Building Council. Although the system is primarily based on the Australian system, there are components of the Leadership in Energy and Environmental Design (LEED) from the USA and the British Research Establishment Environmental Assessment Method (BREEAM). According to the GBCSA, this standardized rating system, language and tools are valuable to property developers, banks, development financiers, owners, and occupants. It provides a clear process to assess the cost-benefit and lifetime value of greening strategies deployed throughout the lifecycle of a building.

Agbajor and Mewomo, (2024) describe green building certification and rating schemes as a complement to enacted standards and indispensable enablers including social, financial, and economic considerations that foster green building promotion. Additionally, they emphasise that certifications are important to combating the societal degradation caused by rapid urbanisation while also producing a safe environment. They form a significant part of efforts to adopt and develop long-lasting inventions that can bolster the sustainability of buildings and other civil infrastructure in the form of standards. Similar studies across the globe (Addae-Dapaah and Chieh, 2011; Windapo, 2014; Bond and Devine, 2016) have identified green building certification as a strategy for reducing energy consumption and carbon emissions of buildings. They recommend the use of green star ratings or similar certifications as interventions for making buildings more sustainable.

More so, without a standardised rating system, the industry runs the risk of greenwashing where it seems like the sector is greener, but it is not (Nygaard, 2023). Green star rating enables stakeholders to minimise the environmental impact of their developments as well as get recognized for their design initiatives (Nisbet, 2009; Moghayedi *et al.,* 2022; Moghayedi, Hübner, and Michell, 2023). However, as evidenced in the literature on the three certifications

reviewed above, green certification might not eliminate vulnerability to greenwashing and limited dispersion patterns in the adoption of green standards.

2.2. Green Building Certification Growth Trends

While some studies have investigated the value and premium attached to green certification (Rogerson and Sims, 2012; Rogerson, 2014; Ampratwum, Agyekum, Adinyira, and Duah, 2021), there is little empirical information in the literature regarding the trends for the adoption of green buildings and certifications in the South African property market since 2014.

In Ghana, Ampratwum *et al.,* (2021), noted that green certifications are still in the infancy stages with emerging trends in government and professional body participation. They note that there is a lack of clarity on how green certifications can be attained and subsequently proposed a 6-step framework. According to Addae-Dapaah, and Chieh, (2011), in the Singapore green residential market, there are four ratings which are Green Mark Certified (GMC), Green Mark Gold (GMG), Green Mark Gold Plus (GMGP), and Green Mark Platinum (GMPL). They also noted a poor understanding of the different certification levels and the tendency for developers to choose the lowest level of certification in a profit-seeking manner. Therefore, while clarity in the green building certification process might be an important adoption driver, a tendency to seek the lowest possible certification could be a strong greenwashing indicator in the market.

Also, in the U.S. Bond and Devine, (2016) evaluated the market premium associated with greenwashed projects against LEED-certified projects. They found that even though LEED certifications command almost double the premium on the rent value of greenwashed projects, there is also a premium for greenwashing a project. This means that the mere mention of green features without certification offers U.S. property owners financial benefits in terms of a premium on rent compared to non-green buildings. This situation creates a considerable risk for greenwashing. Therefore, it is critical to explore green growth trends from the lens of certification to understand the trends in adopting and standardising green projects in the South African property sector.

2.3.Greenwashing Risk in Green Certification Growth

Greenwashing happens when a company uses green certification to make a property or asset seem green or eco-friendly when it is not (Schoeman, 2018). Consequently, property developers and owners with the aid of green certification might prioritise the marketability benefits that green buildings attract with no real intentions to reduce their carbon footprint. For

example, in Singapore, Addae-Dapaah and Chieh, (2011) found that it is more profitable, for investors and developers to aim for the basic GMC rating. While getting green certification is a great step in making buildings green, an appetite for the most basic rating levels or mere use of the term in marketing is symptomatic of greenwashing and not in the best interest of sustainability as the highest tier rating is supposed to be the most energy efficient. The vulnerability of the construction and property industry to greenwashing has been established in the literature investigating certifications (Rogerson and Sims, 2012; Schoeman, 2019; Moghayedi *et al.,* 2022).

Particularly, Schoeman, (2019) explains that the vulnerability of green building businesses to greenwashing is also linked to the fact that numerous qualities define a green building. These features span from the types of materials used in the construction phase to the water and power usage to how the natural resources have been exploited to construct the green building. This multiplicity of what can be considered or rated as green gives rise to exploitative green practices that use minimal efforts to pass off products that are not sufficiently green as though they have adopted best practices. By exploring green building certification trends, this study provides insight into the green growth efforts in the South African property sector which can lay the foundation for exploring weaknesses, eliminating the lack of clarity and opportunities for standardising through green building certification growth.

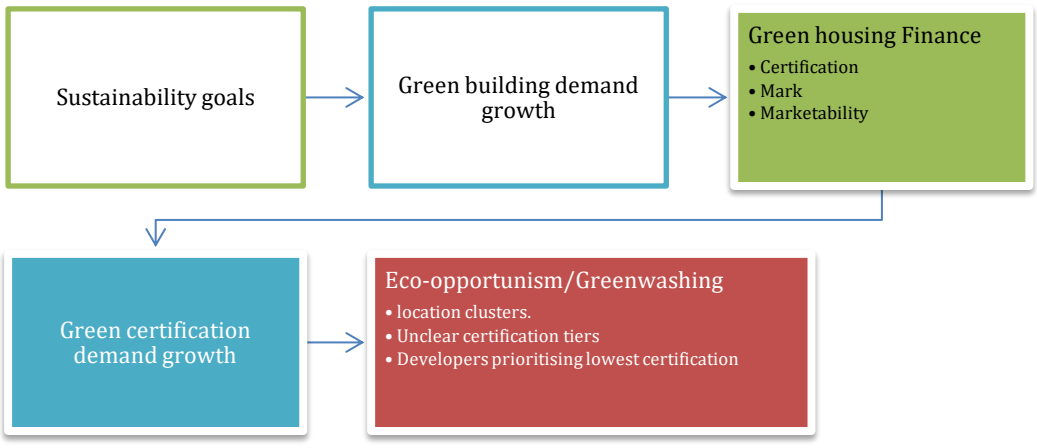


Figure 1: Illustration of the Greenwashing Process in Construction

Source: Author's work, (2024)

For example, Rogerson and Sims, (2012) found that the sample of urban hotels they investigated in Gauteng primarily implemented greening methods to increase earnings or improve public relations. Therefore, the commitment to green development for tourism projects, particularly hotels, did not include an interest in best practices. Furthermore, they note that despite the national government's understanding of the importance of greening in developing a more competitive low-carbon tourism industry, the existing voluntary nature of tourism enterprises implementing green building practices results in a complacent interest in greening.

2.4.Location Clustering in Green Building Growth Trends

Another huge risk that comes with greenwashing trends in the property industry is the tendency for green buildings to cluster within locations that are high-income or more economically well-off. For example, Rogerson, (2014), 6 years after the inception of the Green Star certification in South Africa, found that there were only fifty green buildings certified and that they were clustered in major cities like Johannesburg and Pretoria. They reported a lack of focus on existing buildings as a major challenge to the growth and dispersion of green buildings. Their study reported that the greatest individual clusters were found in Johannesburg, South Africa's business capital, which had seventeen green buildings. Pretoria, which is the administrative capital, had eleven structures. They also found that Cape Town and Durban were next in prominence, with nine and six green structures, respectively.

Notably, at the time of their study, these four cities represented 86% of the country's existing certified green buildings. Similarly, Rogerson, (2014), identified the risk of location clustering as a challenge to making green buildings inclusive. Location clustering happens when green and sustainable projects focus only on highly profitable locations and city hubs which might only be accessible to certain economic classes. Greenwashing in location clusters is a common indicator where only the most profitable locations adopt the rating system.

As a strategy to increase the growth and dispersion of certification, Aghimien and Aigbavboa, (2019) recommended introducing existing building certification. Other studies support the need to promote retrofitting of existing buildings and green upgrades as a viable approach to reducing carbon emissions and energy demands (Boshoff and Mey, 2020; Agbajor and Mewomo, 2024). Therefore, this study attempted to investigate green building certification growth trends and greenwashing risks in South Africa.

3. Methodology

This study sought to investigate growth trends in South Africa's green building certification and the patterns of greenwashing and location clustering risks in the market. This study deployed a quantitative method which can unearth empirical characteristics and trends of a population. This study agrees with Loeb *et al.,* (2017) that quantitative descriptive research has the potential to inform policy, practice, and research is even more significant, given the recent availability of large and complex datasets. According to Marshall and Jonker, (2010), Descriptive statistics also known as 'explorative statistics' in certain contexts is perfectly suited for collating and summarising quantitative data. These provide the needed context for explaining inferences or phenomena that might be identified in causal studies. This study provides the first comprehensive exploration of empirical data on South Africa's green building certification. While this limits the study's analysis and does not investigate the causal relationship between variables, it provides an in-depth exploration of the trends within the green certification market in South Africa.

Using data extracted from the GBCSA's certification database, the study takes a purposive sample of case study reports. 510 case studies are selected from the total database of 897 building certifications. The sample size was deemed to be valid considering previous similar research on South Africa's green certification (Rogerson, 2014) that has used even smaller sample sizes. The data collected spans between 2011 to 2023, and this is a sufficient period considering that the most recent study of the GBCSA rating tool was done in 2014.

A descriptive analysis characterizes the world or a phenomenon by identifying patterns in data to answer questions about who, what, where, when, and to what extent (Loeb et al., 2017). A descriptive analysis also provides the basis for understanding the population to determine what further inferential research can be done. This study visualizes the data using time series, bar charts, stacked bar charts, and other descriptive analyses in Google Spreadsheet and SPSS.

Stages	Process
1.	Collect 897 case study files from the Green Building Council South Africa website
2.	Extract quantitative data points from a sample of 510 cases.
3.	Exclude variables with incomplete data extraction.
4.	Code the certification categories into numeric data for ease of analysis.
5.	Organize data using pivot tables.
6.	Carry out descriptive analysis using Google spreadsheet and SPSS.

Table 1: Data analysis framework

4. Findings

While Rogerson (2014) noted about fifty green buildings in South Africa, this study found that there has been a 1694% jump to over 897 buildings. In this results and findings section, we provide further insights into this growth. This result indicates growing marketability and demand for green building certification, which can be interpreted as increasing demand for green buildings.

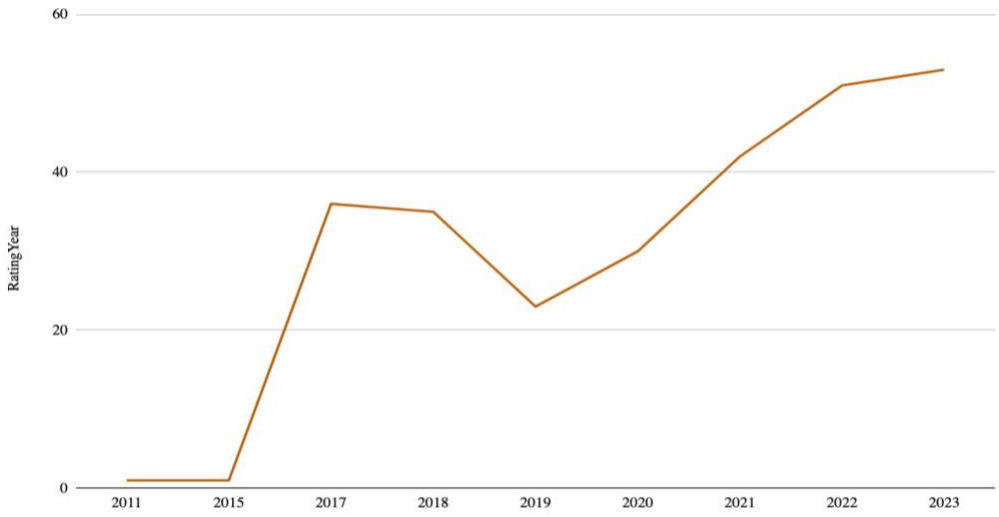


Figure 2: Line Chart of Green Certification by Year (Time Series 2011-2023)

Source: Author's work, (2024)

4.1.Market growth trends

In Figure 2, there is a huge leap in green building certifications between 2015-2017. Subsequently, the data shows no increases and then a significant drop between 2019 and 2020 (During the COVID-19 pandemic). However, the data then demonstrates a steady growth from 2020 onwards. Overall, the time series illustrates growth in green building certification numbers between 2011-2023. This data demonstrates that green building adoption through the certification process has grown in South Africa. This is indicative of a growing market appetite for green products in the property sector.

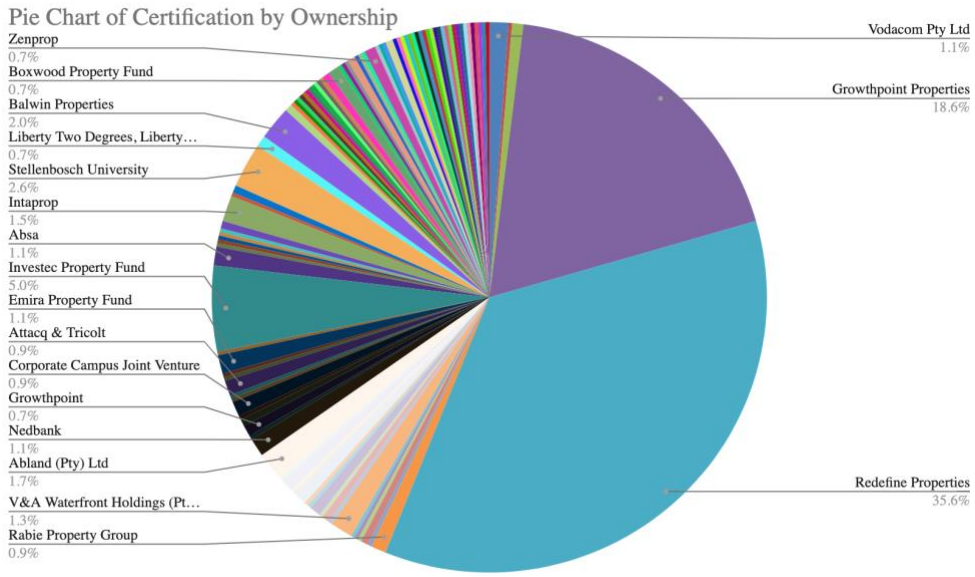


Figure 3: Ownership of Green Buildings

Source: Author's work, (2024)

Figure 3 illustrates the distribution of Green Building certificates by ownership. The top three owners of Green Building certificates include Redefine Properties (35.6%), Growthpoint Properties (18.6%), and Investec Property Fund (5.0%). There are other smaller owners with the smallest three being Stellenbosch University (0.7%), Zenprop (0.7%), and Boxwood Property Fund (0.7%). This data provides further evidence of a growing appetite for green building practices in real estate investment portfolios. Furthermore, it agrees with Chegut, Eichholtz, and Kok, (2014) that banking and commercial property investment are early adopters. This trend within each of these sectors could be explained by the strong financial sector, retail, and office markets in South Africa. It is interesting to note that educational

institutions also feature as early adopters of green buildings. These are pointers to the growing demand for green buildings in student residences and tertiary education facilities.

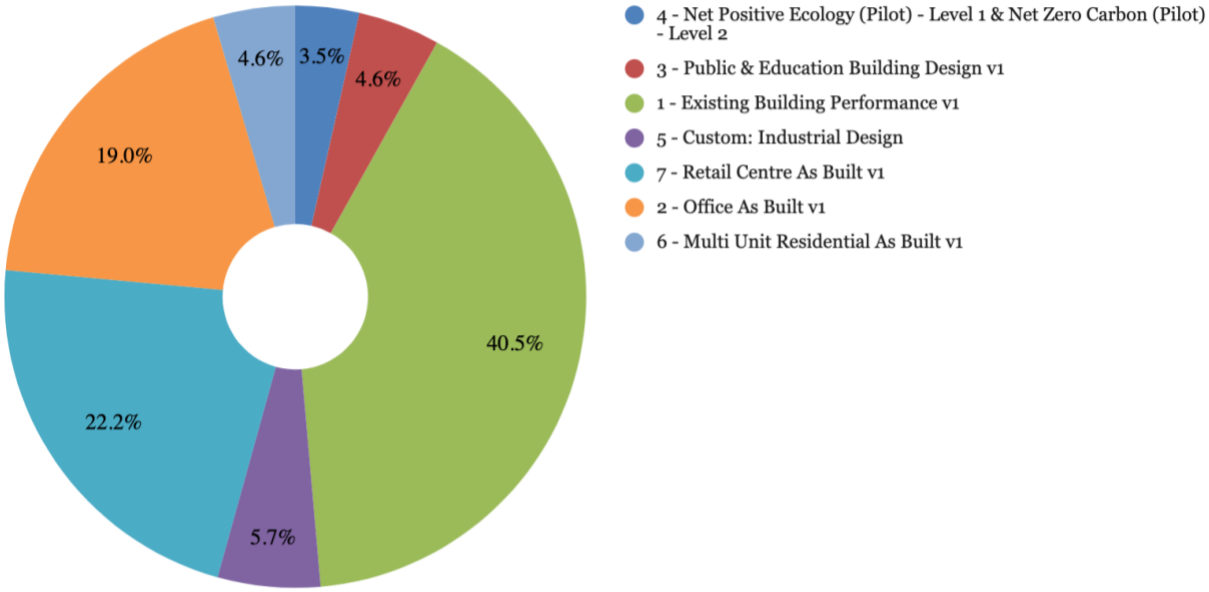
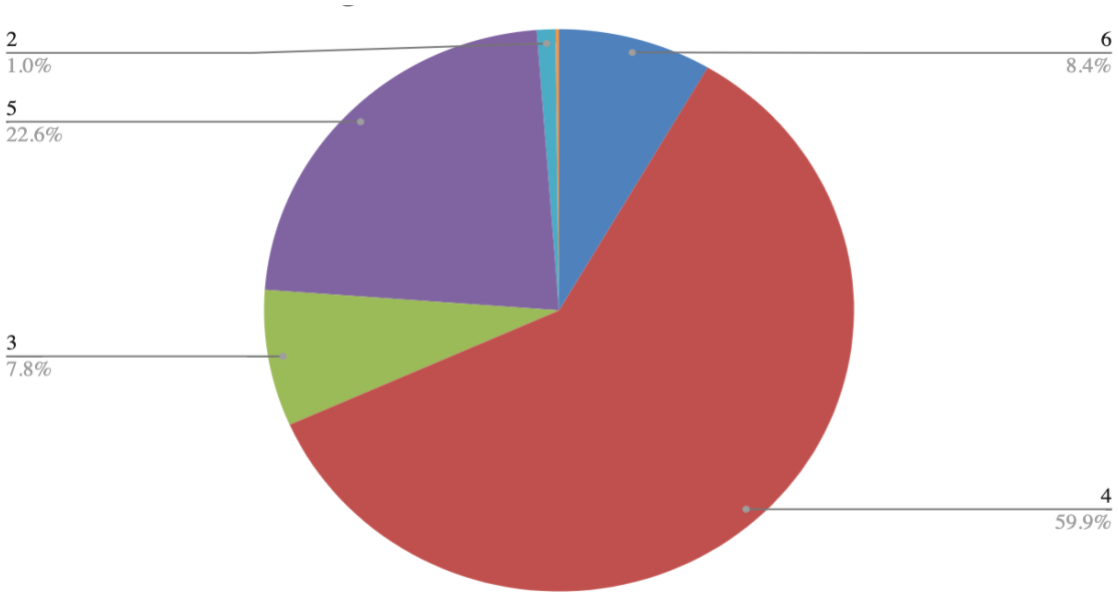


Figure 4: Donut Pie Chart of Rating Categories.
Source: Author's work, (2024)

As seen in Figure 4, there are 6 green star rating categories monitored by the GBCSA. The largest rating category is the Existing Building Performance v1 category (40.5%). This is followed by the Retail Centre as Built v1 category (22.2%), Office as Built v1 (19.0%), Custom: Industrial Design (5.7%), Multi-Unit Residential as Built v1 & Public and Education Building Design v1 (both 4.6%), and the Net Positive Ecology and Net Zero Carbon Pilots (3.5%). According to the result, the introduction of building retrofit or green building upgrades to existing buildings contributes to the growth of green building adoption. This means that while it might be more difficult to drive green building adoption for new buildings, upgrading existing buildings with green features might be more attractive to the market in South Africa.

4.2.Greenwashing risks



Star Rating:

1 – 1 Star Rating

2 – 2 Star Rating

3 – 3 Star Rating

4 – 4 Star Rating

5 – 5 Star Rating

6 – 6 Star Rating

Figure 5: Pie Chart of Star Rating Levels

Source: Author's work, (2024)

From the pie chart in Figure 5, 59.9% of the sample buildings are 4-star rated, 22.6% are 5-star rated, 8.4% are 6-star rated, 7.8% are 3-star rated, and 1.0% are 2-star rated. The largest star rating level in terms of frequency is the 4-star rating while the smallest is the 2-star rating. Below median rating (below 3-star) constitutes just 8.8% while above media rating (above 3-star) constitutes 90.9%. This data provides compelling evidence that green building demand by the majority commits to above-average standards. This contrasts with the situation in Ghana reported by Addae-Dapaah, and Chieh, (2011). However, the demand for the highest level of certification is small.

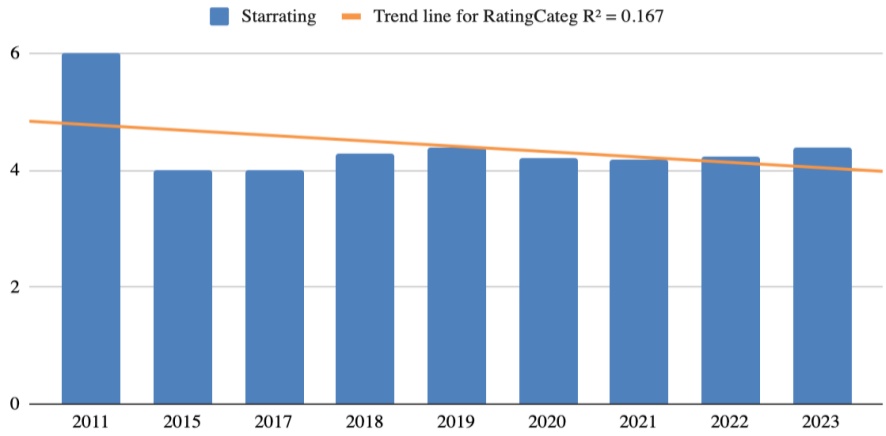
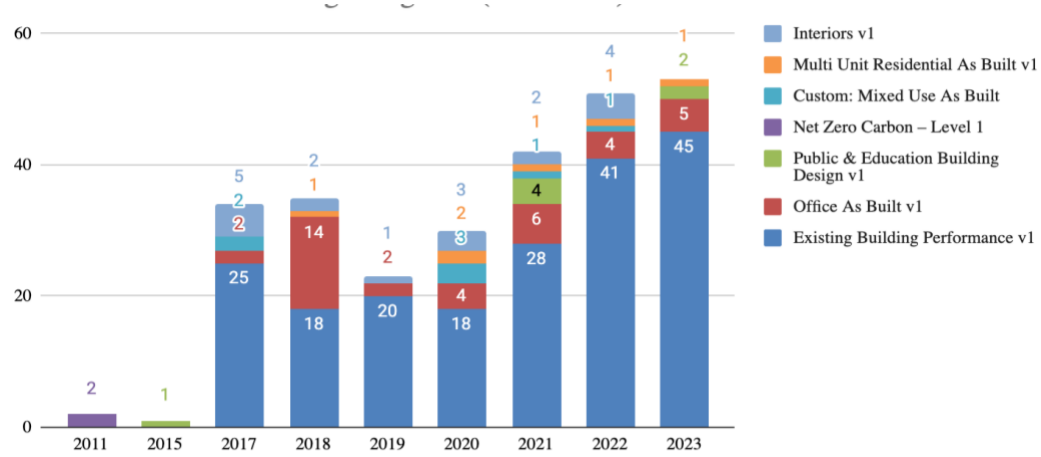


Figure 6: Star rating level bar chart 2011-2023

Source: Author's work, (2024)

As seen in Figure 6, the average star rating in 2011 was 6-star. However, this drops below the 4-star rating level in 2015 and 2017. The average star rating from 2018 onwards remains above the 4-star rating level. There are on average many green buildings that meet the best practices standard across the sample size between 2011-2023. However, at the initial stages of introducing the green building certification, there was a higher average 6-star rating. This average declined and later stabilised at slightly above 4-star. This indicates that over the years, there has been an even distribution of lower star ratings which lowered the average rating level. This is important to note as reasonable evidence of greenwashing practices accompanying growth in the market over time. It is also important to note that this coincides with the introduction of the existing building certification.

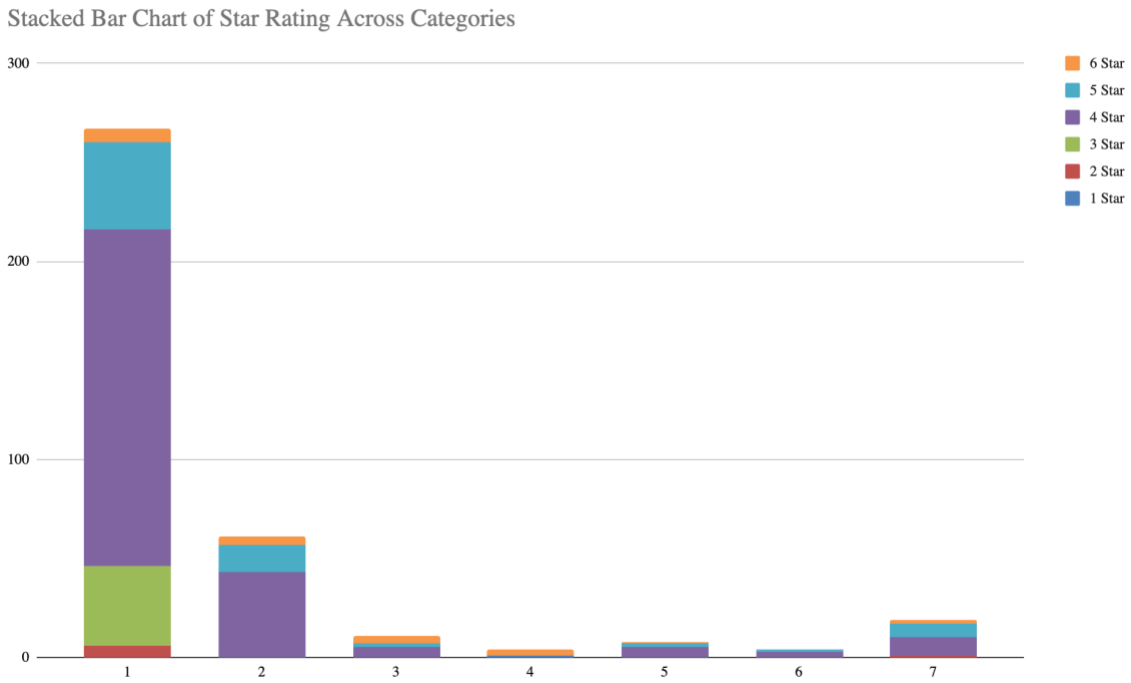


Y-axis – frequency, x-axis – year.

Figure 7: Stacked Bar Chart of Rating Categories Across Years

Source: Author's work, (2024)

In Figure 7, the Existing Building Performance v1 category represents a substantial proportion of the categories after 2015 and till 2023. The second largest category in many years was the Office as Built v1 category. However, the Office as Built v1 has had a major decrease since 2019 and has not grown significantly since then. Interiors v1 are larger in 2017 and 2022. This result illustrates that the growth in green building adoption is a result of green star rating for existing buildings rather than new buildings. Therefore, even markets where demand for new green buildings are low can still perform well in the retrofitting of existing buildings to promote green practices in the sector. However, this result further suggests that existing building certification increases the vulnerability to greenwashing.



y-axis – frequency, x-axis – rating category.

Category 1 - Existing Building Performance v1
Category 2 - Office As Built v1
Category 3 - Public & Education Building Design v1
Category 4 - Net Zero Carbon – Level 1
Category 5 - Custom: Mixed Use
Category 6 - Multi-Unit Residential As Built v1
Category 7 – Others

Figure 8: Stacked Bar Chart of Star Rating Across Categories

Source: Author's work, (2024)

In Figure 8, 4-star ratings represent a substantial proportion of all categories. Furthermore, category 1 (Existing Building Performance v1) has the highest proportion of 3-star, 4-star, and 5-star ratings. The 6-star rating is spread across all categories in small proportions. 2-star ratings are represented in Category 1 (Existing Building Performance v1) and Category 7 (Interiors v1). The only category with a 1-star rating is category 6 (Multi-unit Residential as Built v1). Most below-average ratings (less than 3-star) are found in the existing building category. This further supports the data in Figures 5 and 6 which suggest that greenwashing practices accompanied the growth of the green building adoption in South Africa. It also demonstrates that including the existing building category opened the market to a significant increase in demand for less than the mid-level rating (greenwashing risks).

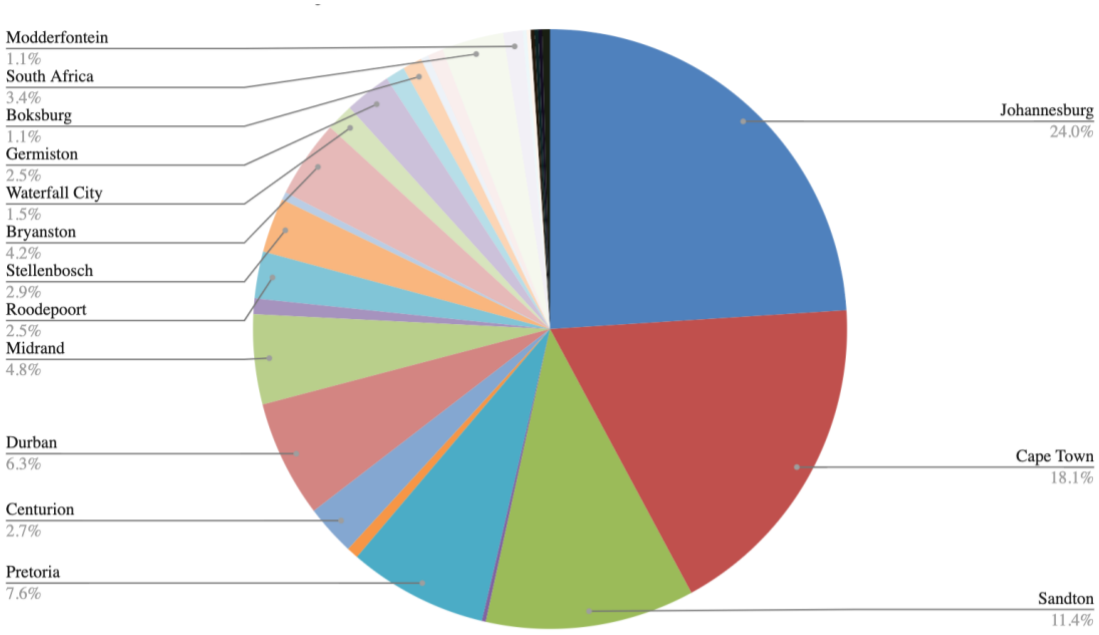


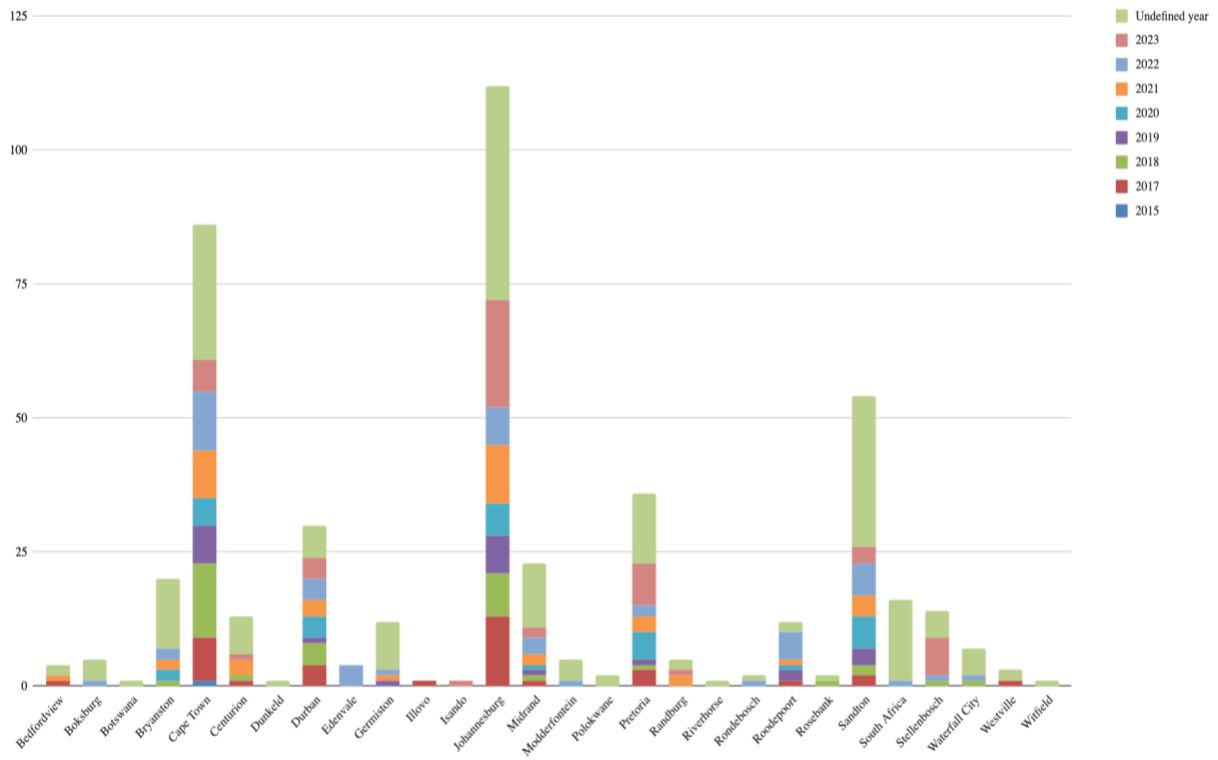
Figure 9: Pie Chart of Certification by Location

Source: Author's work, (2024)

4.3. Location clustering patterns

The distribution of green building certification in South Africa, as seen in Figure 9, includes several cities of varying sizes. The three top locations are Johannesburg (24%), Cape Town (18.1%), and Sandton (11.4%). However, more than fifteen cities are represented in the sample. Furthermore, three out of the nine provinces in South Africa are represented in the location chart. These provinces include Kwazulu Natal, Gauteng, and the Western Cape.

While location clustering effects can still be found in major cities, the green building market in South Africa has dispersed further into smaller cities like Ilovo, Polokwane, and Centurion. These results show that the Green Star rating system offers elements of inclusivity and extended reach outside urban hubs and city centres. It is possible to attribute this growing dispersion to the introduction of the existing building certification which constitutes the highest number of certifications as seen in Figure 5.



y-axis – frequency, x-axis – city.

Figure 10: Stacked Bar Chart of Certification Years (2011-2023) Organized by Location

Source: Author's work, (2024)

In Figure 10, stacked charts show the frequency of certifications per year in each city. The cities with the largest certifications have a greater percentage that was not defined by the year in which the certification was done. However, in 2023 all the top cities and some of the smaller cities like Ilovo and Isando have evidence of certifications. This is also the case for the years 2021 and 2022. This data demonstrates that over time South Africa's green building market has significantly dispersed. While this has not eliminated location clustering, it has extended green buildings to less expensive cities.

5. Discussion

In this section, the discussions set out the results of the data analysis in the previous section in alignment with the objectives, which are to:

- Investigate the growth trends in market adoption of green building certification in South Africa.
- Compare the level of demand for basic to the highest level of certifications.
- Investigate location clustering trends in the geographical distribution of certifications.

The analysis aimed to determine whether the growth trends in South Africa's green building certification demonstrate greenwashing and location clustering risks.

First, the analysis evaluates market growth trends in green building adoption across South Africa. The results demonstrate growth in the frequency of Green Star certification which is indicative of a positive market response to green building adoption between 2011-2023. Notably, there was a significant drop in certifications during the COVID-19 pandemic, influenced by increased concerns about sustainability during the economic growth of the real estate sector in that period. This suggests that the adoption of green strategies might become even more important to investors during and after an uncertain global crisis, pointing to a potential area for further empirical investigation. It is also interesting to note that the ownership of green buildings has become more diverse over the timeline investigated.

There's majority ownership among the top three real estate companies (Redefine Properties (35.6%), Growthpoint Properties (18.6%), and Investec Property Fund (5.0%)). However, there are several other smaller owners with the smallest three being Stellenbosch University (0.7%), Zenprop (0.7%), and Boxwood Property Fund (0.7%). The ownership has also grown to include

multiple sectors like government, financial services, retail, real estate, pension funds, and other private sector owners.

Second, the study evaluates the risks of greenwashing within the South African green building market. Most certified buildings fall within the 4-6 star rating category, indicating that most green buildings in South Africa adhere to some good green practices rather than merely meeting the minimum standards. However, the small proportion of the 6-star rating demonstrates a growth in greenwashing risk. This further confirms the concerns expressed by experts (Nisbet, 2009; Rogerson and Sims, 2012; Schoeman, 2019; and Moghayedi *et al.*, 2022) that the financial premiums that green buildings attract might introduce greenwashing practices in the property sector. While above mid-level (more than three stars) ratings were maintained, there was a significant drop which might indicate that there was increased demand for lower rating certificates. The introduction of existing building certification categories coincides with this drop, but further research is needed to establish causality.

Finally, the study examines the location clustering patterns within the green building market. The results show that South Africa's green building market has significantly dispersed. The patterns demonstrate that green building adoption has extended to less expensive cities and this demonstrates a decrease in location clustering. The findings also suggest a more balanced distribution of green building certifications across various cities, as evidenced by the certifications in both top cities and smaller cities. The results suggest the growing efforts to promote green buildings have increased reach and inclusive distribution across the country. This provides anecdotal evidence that introducing existing building certification can promote dispersion outside the most profitable cities and consequently reduce greenwashing risk.

6. Conclusion

This study sought to investigate the growth patterns and trends in Green Star certification as well as greenwashing risks. Extracting quantitative data from the GBCSA's archives, the study spanned 12 years between 2011 and 2023. First, the study concludes that there is a growing appetite for green buildings in the South African property market. Moreover, a more diverse ownership has evolved since the inception of the Green Star certification which suggests that certification promotes awareness and clarity around green buildings. Secondly, the study's investigation of greenwashing practices in the market concludes that introducing the existing

building certification coincides with a lower average rating star in demand. However, this average remains consistently above mid-level (3-star) which suggests that most green buildings are pursuing good practices. However, there's sufficient evidence to suggest that existing building certifications do not pursue the highest standards.

The study also concludes that the geographical distribution of green buildings has grown to include less expensive cities and as such a reduction in location clustering. It is possible to conclude that while introducing a green star rating for existing buildings could potentially increase the chances of greenwashing in the form of growth in demand for lower rating levels, it reduces location clustering and promotes inclusivity of green measures which have been previously critiqued as elitist and exclusionary towards the poor (Death, 2014).

It is implied through these findings that investment in green strategies is becoming more attractive to owners, investors, government institutions, and other property stakeholders in South Africa. The reach and distribution of greening efforts can be significantly multiplied with the further promotion of the existing building rating tools. Furthermore, the inclusion of several categories of rating ensures that multiple property types and diversified portfolios can benefit from greening strategies. These categorizations ensure that Commercial real estate practitioners advising on Environmental Sustainability and Governance (ESG) strategies can make further decisions regarding investors' needs for green compliance across their diverse portfolio assets.

7. Recommendations

- Developers who might be sceptical about new green buildings and the initial cost should be encouraged to test the impact of retrofitting and green upgrades on existing buildings. This would serve as a solid basis for investing in new green buildings.
- As a greenwashing mitigation approach, the highest rating levels should be encouraged for existing buildings.
- The GBCSA should increase awareness of the various star rating categories and levels to sensitise property owners and users on the benefits of achieving the best standards.
- Increased awareness of best practices and lifetime value to owners and users should complement promoting existing building ratings.

While the findings of this study are valuable for understanding the landscape of green buildings and certification, it is limited. The GBCSA does not collect the quantitative data in a form that would allow extensive inferential analysis. There's an opportunity for future studies to consider

the causal relationships between location clusters, star rating, and greenwashing. Moreover, the archives of case studies are reported in multiple layouts which makes it difficult to extract the quantitative data. Therefore, it is recommended that certifying bodies like the GBCSA should adopt a quantitative and empirical approach to the database. This would standardise the data and variables used in evaluating the growth, impact, or significance of select variables in the adoption of green buildings. The study also recommends for further areas of study, that research can be done to establish the relationship between adoption of green building certification and access to green building finance, specific impact of retrofitting on the geographical and ownership dispersion. Other similar studies can be conducted on the factors influencing the performance rating of green buildings, the impact of green certifications on rent premiums in major South African cities, and the impact of green building certification on existing building valuation.

References

Addae-Dapaah, K., & Chieh, S. J. (2011). Green Mark Certification: Does the Market Understand? *Journal of Sustainable Real Estate*, *3*(1), 162–191. https://doi.org/10.1080/10835547.2011.12091828

Agbajor, F. D., & Mewomo, M. C. (2024). Green Building Research in South Africa: A Scoping Review and Future Roadmaps. *Energy and Built Environment*, *5*(2), 316–335. https://doi.org/10.1016/j.enbenv.2022.11.001

Aghimien, D. O., & Aigbavboa, C. (2019). Will Existing Buildings in South Africa Ever Be Green? *School of Energy, Construction and Environment Faculty of Engineering, Environment and Computing*. *January*.

Ahmad, T. (2023). Innovation in Green Building Projects: An Exploratory Inquiry. *Buildings*, *13*(9). https://doi.org/10.3390/buildings13092359

Ampratwum, G., Agyekum, K., Adinyira, E., & Duah, D. (2021). A Framework for The Implementation of Green Certification of Buildings in Ghana. *International Journal of Construction Management*, *21*(12), 1263–1277. https://doi.org/10.1080/15623599.2019.1613207

Bond, S. A., & Devine, A. (2016). Certification Matters: Is Green Talk Cheap Talk? *Journal of Real Estate Finance and Economics*, *52*(2), 117–140. https://doi.org/10.1007/s11146-015-9499-y

Boshoff, B., & Mey, C. (2020). The Building Emission Reduction Potential of South African Residential Building Efficiency Tools – A Review. *Acta Structilia*, *27*(2), 151–185. https://doi.org/10.18820/24150487/as27i2.6

Cape Business News. (2024, June 20). IFC partners with FirstRand Bank to expand green building and affordable housing finance in South Africa. Https://Www.Cbn.Co.Za/Industry-News/Building-Construction-Infrastructure/Ifc-Partners-with-Firstrand-Bank-to-Expand-Green-Building-and-Affordable-Housing-Finance-in-South-Africa/.

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

Death, C. (2014). The Green Economy in South Africa: Global Discourses and Local Politics. *Politikon*, *41*(1), 1–22. https://doi.org/10.1080/02589346.2014.885668

Hackenesch, C., Högl, M., Knaepen, H., Iacobuta, G., & Asafu-Adjaye, J. (2021). Green Transitions in Africa-Europe Relations: What Role of the European Green Deal? *The European Think Tanks Group (ETTG)*. https://ettg.eu/wp-content/uploads/2021/04/ETTG-paper-22Green-Transitions-in-Africa-Europe-relations22-pdf.pdf

Jahanger, A., Balsalobre-Lorente, D., Samour, A., Joof, F., Ali, M., & Tursoy, T. (2022). Do Renewable Energy and the Real Estate Market Promote Environmental Quality in South Africa: Evidence from the Bootstrap ARDL Approach. *Sustainability (Switzerland)*, *14*(24). https://doi.org/10.3390/su142416466

Kaggwa, M., Savious, S., & Nhamo, G. (2013). *South Africa's Green Economy Transition: Implications for Reorienting the Economy Towards a Low-Carbon Growth Trajectory*. 1–20.

Kurnaz, A. (2021). Green Building Certificate Systems as a Greenwashing Strategy in Architecture. *Research Article Araştırma Makalesi Bartın University International Journal of Natural and Applied Sciences JONAS*, *1*, 4.

Loeb, S., Dynarski, S., Mcfarland, D., Morris, P., Reardon, S., & Reber, S. (2017). Descriptive Analysis in Education: A Guide for Researchers the National Center for Education Evaluation and Regional Assistance (NCEE) Conducts Unbiased Large-Scale Evaluations of Education Programs and Practices. *National Center for Education Evaluation and Regional Assistance*, *March* 1–53. http://ies.ed.gov/ncee/.

Liu, T., Chen, L., Yang, M., Sandanayake, M., Miao, P., Shi, Y., & Yap, P. S. (2022). Sustainability Considerations of Green Buildings: A Detailed Overview on Current Advancements and Future Considerations. *Sustainability (Switzerland)*, *14*(21), 1–23. https://doi.org/10.3390/su142114393

Marshall, G., & Jonker, L. (2010). An Introduction to Descriptive Statistics: A Review and Practical Guide. *Radiography*, *16*(4), e1–e7. https://doi.org/10.1016/j.radi.2010.01.001

Moghayedi, A., Le Jeune, K., Michell, K., & Massyn, M. (2022). An Investigation of The Impact of Green Methods and Technologies on the Environmental Sustainability of Supportive Educational Buildings, Case Study of UCT. *IOP Conference Series: Earth and Environmental Science*, *1101*(6). https://doi.org/10.1088/1755-1315/1101/6/062032

Moghayedi, A., Hübner, D., & Michell, K. (2023). Achieving Sustainability in South African Commercial Properties: The Impact of Innovative Technologies on Energy Consumption. *Facilities*, *41*(5–6), 321–336. https://doi.org/10.1108/F-06-2022-0089

Müller, J. J. (1997). A Greener South Africa? Environmentalism, Politics & The Future. *Politikon*, *24*(1), 106–119. https://doi.org/10.1080/02589349708705043

Nchofoung, T., Ofeh Marilyn Edoh, & Monkam, N. (2023). Green Finance, Green Innovation, and Industrial Development in Africa. *African Economic Conference*, *1998*, 1–29.

Nisbet, G. (2009). Building Green Thinking in South Africa. *Mantod Management Today*, *25*(8), 50–62.

Nygaard, A. (2023). Is sustainable certification's ability to combat greenwashing trustworthy? In *Frontiers in Sustainability* (Vol. 4). Frontiers Media S.A. https://doi.org/10.3389/frsus.2023.1188069

Rogerson, J. M. (2014). Green Commercial Property Development in Urban South Africa: Emerging Trends, Emerging Geographies. *Bulletin of Geography. Socio-Economic Series*, *26*(26), 233–246. https://doi.org/10.2478/bog-2014-0056

Rogerson, J. M., & Sims, S. R. (2012). The Greening of Urban Hotels in South Africa: Evidence from Gauteng. *Urban Forum*, 23(3), 391–407. https://doi.org/10.1007/s12132-012-9160-2

Schoeman, R. (2018). Greenwashing Exploring the Role of Green Building Rating. *Proceedings of the Biennial Conference of the Society of South African Geographers*, *October*.

Thornbush, M. (2016). Urban Greening for Low Carbon Cities—Introduction to the Special Issue. *AIMS Environmental Science*, *3*(1), 133–139. https://doi.org/10.3934/ENVIRONSCI.2016.1.133

Windapo, A. O. (2014). Examination of Green Building Drivers in the South African Construction Industry: Economics Versus Ecology. *Sustainability (Switzerland)*, *6*(9), 6088–6106. https://doi.org/10.3390/su6096088