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Factors That Drive the Determinants of Commercial Property Value from the Property Professional's Perspective

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Abstract The stipulation for commercial property in the Malaysia property market has shown notable growth and potentially gives a major impact to global property portfolios. The objective of this research is to identify the sets of commercial property value attributes in the context of Malaysia property market and to analyse valuers' professional perspective on the level of significance for each commercial property value attributes in determining commercial property value in Malaysia. This research is needed as it will inform existing and prospective real estate stakeholders, investors, and including facility managers of the major determinants in valuing their commercial property investments. Secondly, the determinants will be a tool for valuers and researchers in determining property value. Quantitative methodology is adopted where a set of determinant were generated from previous literature studies on the factors that influence commercial property value. The determinants are then distributed through surveys to Registered Valuers and professionals' in the real estate fields' in Malaysia to confirm the variables taken to value commercial property. The data has been analyzed using the Statistical Package of the Social Sciences (SPSS) 25.0 software to rank the attributes in establishing their mean scores (MS) and to conduct the reliability test (Cronbach's Alpha) of the data collected in SPSS to find the COV. The results shows that the agglomeration economics are more favourable to explain the locational and neighbourhood determinants, where distance and spread of commercial property for economic efficiency is highly significance for commercial property value. Whilst the physical building, design and material forms the most determinants for structural attributes, adopted by Registered Valuers in Malaysia in determining commercial

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property value.

Keywords: Commercial property, Property Value Determinants, Location, Neighbourhood, Structure

1. Introduction

Commercial real estate is property that is used exclusively for business purposes and is leased out to provide a workspace rather than a living space. Commercial real estate provides venues for companies to carry out daily operations and cater to customers' need conveniently. Identification of the determinants that influence the property value plays an important role in property valuation. Wong et al. (2002) mentioned that property attributes are classified into three classes, namely, location attributes (access to social and economic facilities), structural traits (floor area, floor height, etc.) and neighborhood characteristics (neighborhood quality). These attributes are important as it is highly significant in property value's formation. The purpose of this research is to fill the gap in the knowledge of commercial real estate studies. The determinant of commercial property value is important to be review as it would help investors and current stakeholder to know their property worth.

1.1 Research Background

Identification of the determinants that influence the property value plays an important role in property valuation. Wong et al. (2002) mentioned that property attributes are classified into three classes which are location attributes, structural traits and neighbourhood characteristics. These attributes are important as it is highly significant in property value's formation but does other types of property attributes consistency in line with the attributes for the commercial property value.

Moreover, commercial property market, as any other market, is composed of a whole range of subjective valuations, each of which may be regularly changing (Chan & Abidoye, 2019). Only a valuer which were registered with The Board of Valuers, Appraisers, Estate Agents & Property Manager can practice valuation in Malaysia. Their opinions are valid and were considered in determining the market value of a real estate property. Thus the role of a registered valuer as the group of professionals in the real estate valuation field is important in this research. A real estate professional is often sought to appraise the value of an interest in a property. Thus, the valuer have to analyses the value and during their exercise there are the many characteristics of the subject property which were also synonyms to determinants of the property value that are needed to be considered (Chan & Abidoye, 2019; Sabina, Trojanek et.al, 2014).

1.2 Problem Statements

The value of a real estate property is influenced by several independent attributes (Gwamna, Yusoff, & Ismail, 2015). With abundance of studies being done by other researchers, there are a necessity to seek for the determinant that influence the commercial property value in the perspective of local valuers. It is needed in order to understand the local commercial property market. The impact of different attributes on property values is perceived differently by the different stakeholders because of the heterogeneous nature of real estate properties (Abidoye & Chan, 2016). Thus, a foresight study in determining which and what is the highest attributes influencing the method used to value commercial property is needed. Moreover, a simple mathematical calculation does not define valuation (Millington, 2014). Therefore, there is a need for valuers' perspective on the commercial

property determinant is essential as they are the value-based professional's in determining the properties' worth (Sabina & Trojanek, 2014).

1.3 Research Questions

- (i) What variables that will influenced commercial property value?
- (ii) What is the property valuer's professional perspective in determining level of significance of a commercial property value determinant in Malaysia?

1.4 Research Objectives

- (i) To identify the sets of commercial property value attributes in the context of Malaysian property market.
- (ii) To analyse valuers' professional perspective on the level of significance of each commercial property value attributes in determining commercial property value in Malaysia.

1.5 Significance of the Study

This study benefited the Registered Valuers, Property Investors, Stakeholders, and academia in terms of the understanding of commercial property determinants and how this evolution will help their decision in commercial property value. Furthermore, it is significant to the end users such as property buyer, sellers, estate agents, and students to understand the commercial property value.

1.6 Scope of the Study

This study is focusing on the practitioner in Malaysia property sector or has the credibility in the field, registered with the Board of Valuers, Appraisers and Estate Agents and Property Managers (BOVAEP). Their perspective and experience will then help to determine the determinants taken into valuing commercial property.

2. Literature Review

In this section, a review of previous research regarding commercial property concept, its determinant and challenges in valuing commercial property is examined.

2.1 Commercial Real Estate

According to Conti and Harris (2013) commercial real estate includes apartment buildings, offices, warehouse, retail center, hotels, resorts and land development. However, Michael Ball, Colin Lizieri and MacGregor, (1998) denotes that commercial property is generally divided into broad sectors which includes offices, shops and industrial property. In his research, the commercial real estate market is categorised broadly related to sectors of employment. Furthermore, in understanding the economic for commercial real estate, the demand and supply of the commercial property shows the significant attributes to determining the commercial property value (Mehrhoff, J (2017); M. Margaretha and N. Anastasia (2015). Where the mix of service and industrial activity alters over time and is reflected in levels of demand for particular types of property, whilst in urban markets, there are spatial variations in demand (M. Margaretha, N. Anastasia (2015); Ball et al (1998); Boon, F.N. and Higgins, D. (2007).

2.2 Commercial Real Estate Trends

To grabs a better understanding on the commercial real estate trends, Ball and Lizieri (2009) states that there is a connection between demand and supply of commercial property and commercial

property investment. The commercial property market is centered on investment construct with transaction participants basing their decisions on return possibilities . As stated by Boon and Higgins (2007), rental value is a key parameter for measuring real property performance which therefore includes the commercial property market. According to Ballet al, (1998) rent plays important role as the price mechanism that balances supply and demand in four interlinked markets which are:

1. The user market.
2. The development market.
3. The financial asset market.
4. The land market.

From the previous literature examined, the demand and supply of the commercial property can be indicated by sectoral activity levels. Thus, growth of business services employment, the mix of service and industrial activity is reflected in the levels of demand for particular types of property (Ball et al, (1998). Furthermore, other attributes does influence the commercial property market such as in infrastructure investment (Ball and Nanda, 2013).

2.3 Commercial Real Estate Determinant

Determinants of property value are important as it shows why does a land value worth that much. According to Gwamna et al (2015) major determinant factors of land use and property values fall within the classification of structural, locational and neighbourhood attributes. This statement was also supported by (Abidoeye & Chan, 2016) (Figure 1) to explain simply on the attributes that contributes to the property determinants in commercial property valuation.

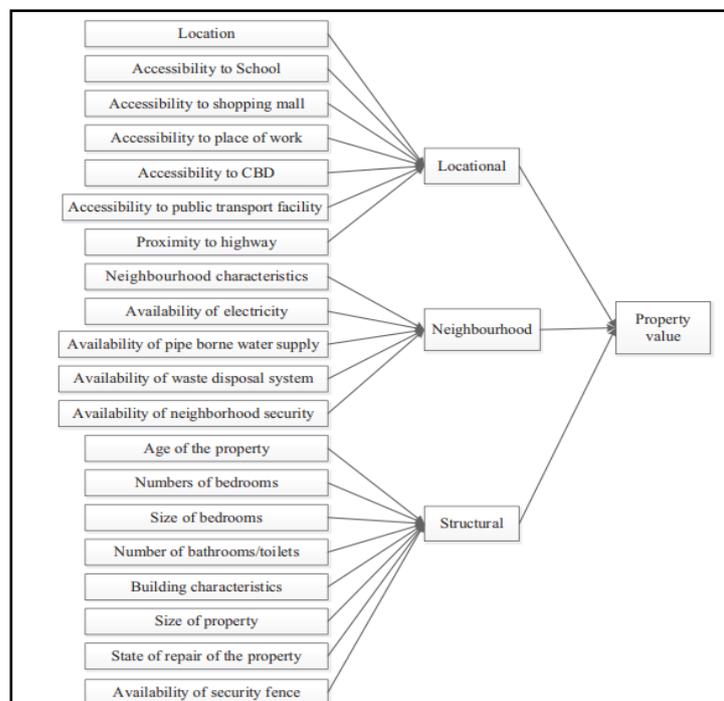


Figure 1: Determinant for property value (Adapted from Abidoeye & Chan, 2016)

To generate these attributes, researcher such Margaretha & Anastasia (2016) and Gwamna et al., (2015) refers to the concept of “Willingness To Pay” (WTP). The concept of WTP to maintain or

achieve utility is very relevant to land use and property value analyses, since what really determines land use is the interest of consumer or investor in such land. The investor interest on the land would consequently create demand which sustains property values. Other attributes derives from the previous research in identifying the determinants for commercial property value is shown in Appendix A.

(a) Locational Attributes

Transport cost models suggest that the attractiveness of urban locations, and hence spatial variation in demand for space, depends upon accessibility. For the purpose of agglomeration, transportation infrastructure would give benefit to the commercial property value (Yu, H., Pang, H., & Zhang, M. (2017); Mike Wrigley, 2001).

According to Oni, Ajibola, Iroham & A.Akinjare (2014) accessibility have significant impacts on commercial property. From the research done, they agree on the importance of road accessibility that have great impact over the property value. However, they did not refuse on the attributes of neighbourhood and structural in reflecting the commercial property value. Presence of occupational demand to occupy space by renting are associated with the spread of industries in an area which lead to locational decisions by firms. (Michael Ball, Colin Lizieri, 2009)

Moreover, although the rise of demand on green and sustainable commercial property in Malaysia are not momentous, it still attracts demand among the local's investor. A study done by Mohammed et al., (2016) showed that locational factor motivates the investor's decision for the demand of green and sustainable commercial property.

(b) Neighbourhood Attributes

The neighbourhood sense of security is one of factors that influence buyer to pay for commercial property (Abidoye & Chan, 2016). Statement on the neighbourhood factors as one of the variables in determining property value are agreed by authors such Abidoye & Chan, (2016), Komisarov, V., Kauškalė, L., & Lepkova, N. (2016); Gwamna et al., (2015); Mike Wrigley, (2001). The rental growth associates with the idstance also plays a major role in determining the commercial property value (Bellman, L., & Öhman, P. (2016); N. B., & Nuhu, J. I., 2014) associated with the risk especially in assessing the rate of return for commercial property (Razali, M. N., (2014); Michael Ball and Anupam Nanda, 2013).

(c) Structural Attributes

According to M. Margaretha & N. Anastasia (2015), from their research on WTP of investors, building finishing quality, and view of the property gave significant impact to investor's WTP. Efficiency of energy consumption in a commercial property were also being considered in the price comparisons. Property with a premium labelled energy consumption are rated as lower risk and there is presence of demand to pay these kinds of property above the average rent (Parkinson, 2009).

Furthermore, the size and numbers of habitable room in a property appeared more often in a study of determinant of property value done in the Lagos, Metropolis (Abidoye & Chan, 2016). The demand of space in the commercial real estate are perfectly in line with the structural attributes. Thus, it shows how the characteristic of a building affect the value (M. Margaretha, N. Anastasia (2015); Ball et al (1998); Boon, F.N. and Higgins, D. (2007)).

2.4 Challenges in Valuing Commercial Real Estate

Previous literature research shows that there are challenges in valuing commercial real estate mostly on finding the real data and application of data gathering in determining the commercial property value (Żróbek et.al., 2014). Furthermore, when the valuer's perception differs in terms of technical knowhow as well as the interpretation of data and value makes the difference between the professional's perspectives on commercial property value (Bellman & Öhman, 2016) and (Chan & Abidoeye, 2019).

3. Research Methodology

To assess the determinants attributes for commercial property valuation from the property valuer's perspective, a quantitative research methodology was adopted. An online survey was distributed to 360 probable respondents but managed to receive only 118 feedback from the professionals.

3.1 Research Design

The research consists of several process in order to achieve the research objectives. Firstly, problem statement has to be identified to see the direction of the research's objectives and scope of studies. On the second phase, readings through broad literature reviews related have to be made to support the research and as a based or prove that the attributes existed in the first place. On the third and fourth stage, data collection and data analysis was made to obtain results of research. Finally, conclusion and recommendation can be produced from the research made.

3.2 Data Collection

A review of previous research on the aspect of commercial property value and their determinants is presented through massive literature review. The review on the past studies was done to show property value determinants in commercial property. Earlier research works are presented with the author name, year of published, issues, and determinant occurrence being showed in the table which have been included in the appendix as Table 1 (see Appendix A).

From the determinant that have been generated, a set of questionnaire survey has been distributed among random professional real estate appointment that met the qualification to be one. The questionnaire was scale with Likert-scale as shown by Table 2 below.

Table 1: Likert-scale

1	2	3	4
Highly Significant	Significant	Insignificant	Highly Insignificant

By considering the range of samples of the valuers in Malaysia, those valuers that met the selection criteria were randomly sampled. Table 2 shows the information that have been obtained from Puspha Malasamy, the Operation Manager of Board of Valuer, Appraiser, Estate Agent and Property Manager (BOVAEP) on the total registered and active member with the board.

**Table 2: Professional's that are registered and still active under BOVAEP
(P.Malasamy, personal communication, November 18, 2019)**

No.	Position registered with the board	Total numbers
1	Appraiser	16
2	Valuer	1006
3	Estate Agent	2136
4	Property Manager	2480

Total population	5638
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3.3 Data Analysis

The data collected were analyzed using the Statistical Package of the Social Sciences (SPSS) 25.0 software to rank the attributes in establishing their mean scores (MS) and to conduct the reliability test (Cronbach's Alpha, α) of the data collected. The MS were estimated using the formula in Equation 1:

$$MS = \frac{5n_5 + 4n_4 + 3n_3 + 2n_2 + 1n_1}{N}$$

The coefficient of variation (COV) of each variable was calculated. COV is the measure of standard deviation as a percentage of the mean, and it expresses the relative variability of valuers' responses of each variable. The COV was computed using the formula in Equation 2:

$$COV = \frac{S}{\bar{X}} \times 100\%$$

The output is explained in descriptive analysis to determine whether the attributes generated from the past literature affect level of variables adopted by qualified Registered Valuer in valuing commercial property in Malaysia.

4. Data Analysis and Results

A number of sample size is chosen to run the survey. Out of 5638 total population of registered and active professional's in the real estate field, 360 were randomly choose to answer the online questionnaire. The response rate of the respondent is shown in Table 3.

Table 3: Response rate

Population	Sample size	Questionnaires distributed	Questionnaires answered	Response rate (%)
5638	360	360	118	32.78

4.1 Demographic

The frequency of respondent that answered the online questionnaires can be identify by their professional appointment which are shown on Figure 2. Respondent that work as a property valuer turns out to be the highest at 41 (34.7%). 36 (30.5%) of respondent were titled as Registered Valuer. The third highest group that responded to the online survey was Probationary Valuer which are 19 (16%). 8 (6.8%) and 13 (11%) of the respondent are Property Consultant and Property Manager respectively. Lastly, 1 (0.8%) work as a property advisor.

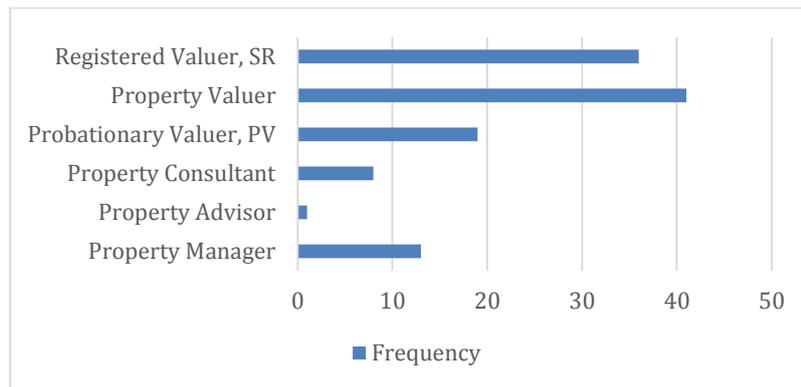


Figure 2: Respondent professional appointment in their organization or property company

4.2 Reliability Test

The reliability test result was shown in Table 5, Reliability Test Analysis Table. α shown on the table reflect the value of Cronbach’s Alpha, \bar{x} is the mean value, S is the standard deviation and COV is the coefficient of variation in percent.

Table 5: Reliability test analysis table

	α	\bar{x}	S	COV (%)
Locational	0.899	3.23	0.53	16.44
Neighbourhood	0.830	3.12	0.51	16.39
Structural	0.906	3.11	0.47	15.36

The average mean for each factor listed under each attributes achieve the value above 3.00 which reflects the majority answers of the respondent as “significant”. The standard deviation value which are low (less than 1) showed that most of the respondent’s answers are close to the average. The low value of coefficient of variation indicates that the data are less variable and have a high stability.

4.2.1 Locational Attributes

Based on Table 5, the factors that influence the locational attributes were measured using a 7 point Likert-scale (N=7) with an ($\alpha=.899$). The α value shows good level of consistency between the factors. The mean scores show agglomeration as the highest significant value among the respondents are align with the previous research which shows that the spread of industry influence the occupational growth of a location which would also increase the demand for occupancy in a location. Distance towards the city centre and CBD are classified as the second of the most significant among other factor’s listed, this is also related to the numbers of companies and investors that would likely invest to location that are beneficial for their business growth and sustainability (Ball & Lizeri, 2009)

4.2.2 Neighbourhood Attributes

Based on Table 5, the factors that influence the neighbourhood attributes were measured using a 6 point Likert-scale (N=6) with an ($\alpha=.830$). The α value shows good level of consistency between the factors. The economic efficiency in allocating optimal resources is listed as the most significant factors, it resonates investors needs to reduce cost of production for any types of business and investment related to the possessions (Ball & Lizeri, 2009; Komisarov et al., 2016) Available transaction information on property falls on the second most significant factors, this is because investors would put their trust to invest and willingness to pay based on the value that are supported with previous transaction history that are available (Ball & Lizeri, 2009) Neighbourhood sense of

security level's became the third most significant among the factor as it shows that valuers in Malaysia agrees that the commercial property value are affected by the way potential client's see the neighborhood state of being free from any threat of security.

4.2.3 Structural Attributes

Based on Table 5, the factors that influence the structural attributes were measured using an 8 point Likert-scale (N=8) with an ($\alpha=.906$). The α value shows an excellent level of consistency between the factors.

Added-value that are affected by the building physical structure was ranked as the highest significant factor which linked to previous study by Margaretha & Anastasia, (2016) Element such as building finishing quality, building materials and designs are often the first thing that would caught potential client's eye. Green Building Index (GBI) and energy consumption efficiency falls on the second most significant factors. To be able to achieve the merit needed for GBI, the building would have to follow a guideline to be able to put the property among the green and as an energy consumption efficiency. Although the demand of green commercial property in Malaysia are not high, but the idea that green commercial building helps to reduce operating cost of a property attracts investors in this field. (Onuha et al., 2016)

5. Discussion and Conclusion

To conclude the research, the first objectives for this study has been obtained which a set of attributes that influence the commercial property value determinant was generated using a collection of previous literatures that revolves around the topics. While for the second objectives it was found that majority of the respondent from the real estate professional's which are active and registered with BOVAEP agree that the factors listed for each attributes are significant to the commercial property value determinant in Malaysia market.

For further research, it is advised to run the research in smaller population size by choosing professionals' respondent from a specific state only to obtain a more accurate sampling respondents and to have a better time utilization in obtaining their response to the questionnaire distributed. By choosing a smaller population, it is more reasonable to run the survey by interviewing the respondents individually and gather a more comprehensive knowledge on the respondent's perspective of the factors that influence the commercial property value determinant.

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Appendix A

Table 1: Literature matrix

	(Michael Ball, Colin Lizieri, and Mac Gregor (1998))	(Margaretha & Anastasia, (2015))	(Onuh et al., (2016))	(Oladokun, 2017)	(Parkinson, 2009)	(Mike Wrigley, 2001)	(Abidoye & Chan, 2016)	(Gwamna et al., 2015)	(Oniet al., 2014)	(Horowitz et al., (2007))	(Yu, Pang, & Zhang, 2017)	(Komisarov, Kauškale, & Lepkova, 2016)	(Wibisono, Kwanda, & Anastasia, 2017)	(Soo, 2019)	(Azmin, (2006))
Locational Attributes															
Accessibility						√			√	√					
Agglomeration	√					√									
Distance towards the city center										√					
Accessibility's benefits enjoyed by the resident											√				
Spread of industries	√											√		√	
Different location attracts different kinds of investors			√											√	
Central Business District (CBD)	√									√				√	
Neighborhood Attributes															
View of the neighborhood		√											√		
Economic efficiency in allocating optimal resources	√											√			

Table 1 (Continued)

Amount of available information on neighborhood property transaction	√														
Neighborhood sense of security level						√	√	√					√		
Neighborhood landscape element													√		
Types of schools on the neighborhood										√					
Structural Attributes															
Building finishing quality		√		√											√
Defect prior to climate change				√											√
Energy consumption efficiency			√	√	√										
Premium labelled energy consumption				√	√										
Green Building Index (GBI)			√		√										
The size and number of habitable room							√							√	
Square-foot increase in the floor area							√							√	
Added-value by the building physical structure		√					√								

References

- Abidoeye, R. B., & Chan, A. P. C. (2016). Critical determinants of residential property value: professionals' perspective. *Journal of Facilities Management*, 14(3), 283–300.
- Stein, L. (1994). Azmin, N. (2006). The Study of Problems Faced by Property Management in Managing the High Rise Condominium in Malaysia
- Bellman, L., & Öhman, P. (2016). Authorized property appraisers' perceptions of commercial property valuation. *Journal of Property Investment and Finance*, 34(3), 225–248.
- Chan, A. P. C., & Abidoeye, R. B. (2019). Advanced Property Valuation Techniques and Valuation Accuracy: Deciphering the Artificial Neural Network Technique. *RELAND: International Journal of Real Estate & Land Planning*, 2, 1–9.
- Devroe, R., & Ugent, G. (n.d.). How to enhance the external validity of survey experiments? A discussion on the basis of a research design on political gender stereotypes in Flanders. 1–24
- Gwamna, E. S., Yusoff, W. Z. W., & Ismail, M. F. (2015). Determinants of land use and property value. *Advanced Science Letters*, 21(5), 1150–1153.
- Horowitz, J. B., Keil, S. R., & Spector, L. C. (2007). Do Charter Schools Affect Property Values? Do Charter Schools Affect Property Values? John Horowitz, Associate Professor Stanley Keil , Associate Professor Lee Spector , Associate Professor Department of Economics The research was supported by a grant . (June 2014).
- Keiler, S., & Bundesbank, D. (2012). Commercial property prices: What should be measured? 1–14.
- Komisarov, V., Kauškale, L., & Lepkova, N. (2016). Positive Influencing Factors of Commercial Property Development: Case of Lithuania. *Baltic Journal of Real Estate Economics and Construction Management*, 4(1), 48–60.
- Anastasia, Njo and MARGARETHA, MELISA (2015) *Investors Willingness to Pay in Commercial Property*. The 3rd Indonesia International Conference on Finance , 19-12-2015 - 19-12-2015, Bali - Indonesia
- Mehrhoff, J (2017). *What is 'commercial property'?* , IFC-National Bank of Belgium Workshop on "Data needs and Statistics compilation for macroprudential analysis" Brussels, Belgium, 18-19 May 2017.
- Michael Ball and Anupam Nanda (2013), *Does Infrastructure Investment Stimulate Building Supply? The Case of the English Regions*. *Regional Studies*, Vol 48, 2014 – Issue 3: Finance, business property and urban and regional development.
- Michael Ball, Colin Lizieri, & Bryan D. MacGregor (1998), *The Economics of Commercial Property Markets*, Psychology Press, 1998.
- Mike Wrigley, P. W. (2001). Transport Policy and Property Values Mike. Proceedings of the 24th International Conference on Efficiency, Cost, Optimization, Simulation and Environmental Impact of Energy Systems, ECOS 2011.
- Oladokun, T. T. (2017). Effects of Climate Change on Commercial Properties in Lagos State. (January).
- Oni, A., Ajibola, M., Iroham, O., & Akinjare, O. (2014). Analysis of Accessibility Impact On Commercial Property Values In Ikeja, Nigeria. Retrieved from <http://eprints.covenantuniversity.edu.ng/id/eprint/6433>
- Onuha, I., Aliagha, G., Shahril, M., Kalu, I. U., Onyike, J., & Okehialam, S. (2016). Green and Sustainable Commercial Property Supply in Malaysia and Nigeria. *Geographical Review*, 107(3), 496–515.
- Parkinson, A. T. (2009). Sustainability in Energy and Buildings. *Sustainability in Energy and Buildings*, (May).
- Pearce, S. (2001). *The Property Investment Essentials*. (389684), 1–24.

- Randeniya, T., Ranasinghe, G., & Amarawickrama, S. (2017). A model to Estimate the Implicit Values of Housing Attributes by Applying the Hedonic Pricing Method. *International Journal of Built Environment and Sustainability*, 4(2), 113–120.
- Razali, M. N. (2014). Risk-Adjusted Performance of Malaysian Commercial Property. (July 2011).
- Sabina Żróbek, ewa kucharska-stasiak, maria trojanek, jerzy adamiczka, tomasz 59 budzynski, radoslaw cellmer, janusz dabrowski, elzbieta jasinska, edward preweda, natalia sajnog. (2014). *Current Problems of Valuation and Real Estate Management by Value*. (January 2016).
- N. B., & Nuhu, J. I. (2014). Determinants of Commercial Property Rental Growth in Minna, Nigeria. *LAÜ Sosyal Bilimler Dergisi*, 5(1), 60.
- Wibisono, N. S., Kwanda, T., & Anastasia, N. (2017). Analysis of Landscape Elements That Affect Property Value Based on the Perception of Housing Residents in Surabaya. *DIMENSI (Journal of Architecture and Built Environment)*, 44(1).
- Yu, H., Pang, H., & Zhang, M. (2017). Value-added effects of transit-oriented development: The impact of urban rail on commercial property values with consideration of spatial heterogeneity. *Papers in Regional Science*, 97(4), 1375– 1396.
- Boon, F.N. and Higgins, D. (2007), “Modelling the Commercial Property Market: An Empirical Study of the Singapore Office Market”, *Pacific Rim Property Research Journal*, 13(2): 176-193.
- Millington, A. (2014). *An introduction to property valuation* (5th ed., pp. 3-6). New York, USA: Routledge.
- Conti, P., & Harris, P. (2013). *Commercial real estate investing for dummies*. Hoboken, N.J.: John Wiley & Sons.
- Higgins, d. (2000). *The Determinants of Commercial Property Market Performance [Ebook]* (1st ed.). sydney: University of Technology Sydney. Retrieved from <https://www.researchgate.net>