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Key Attributes Affecting the Rental Value of Green Commercial Office Buildings in Kuala Lumpur, Malaysia

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Abstract: In Malaysia commercial office buildings, sustainable buildings encourage people, especially local and multinational companies, to rent and occupy the business's spaces. There is some question raised among industry players on whether there are any differences in terms of the rental value of green and non-green commercial office buildings. Based on a previous study revealed that green commercial office buildings indicate higher rental value and it varies to location, the property market might have disfigured due to economic factors. Moreover, other study shows that the certification, locational, building characteristics and lease form have strong impacts on the rental value. So, this research aims to compare the difference in rental value of green and non-green commercial office buildings and to identify the key attributes affecting the rental value of green commercial office buildings in Malaysia. This research was conducted in Kuala Lumpur and the quantitative method approach was used in this research. For the first objective, document review was used meanwhile for the second objective survey method was selected with 90 respondent's involvement. The data will be analyzed by using Microsoft Excel 2013 software and the result shows that green commercial office buildings rental resulted higher than non-green commercial office buildings with the key attributes such as lease form, lease term, gross rent of the building, occupancy rate, competitor, building age, building classification, number of building story, building location and building size. The findings of this study are given benefits to the industry players, stakeholders, as well as for green policymakers.

Keywords: Green Commercial Office, Green Building Rental Value, None Green Building Rental Value

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1. Introduction

Green building is a fast and effective approach in which, it will protect the environment by reducing greenhouse emissions and reducing the rate of use of major energy resources (Popescu et al., 2009). Key attributes of commercial office building push tenant's willingness to pay high rents to occupy space for various types of business purposes due to the abundant benefits of it compared to its counterpart.

1.1 Research Background

The environmental awareness due to the greenhouse effect greatly influenced people in stimulates higher demand for sustainable or green building within real estate sector especially in multiracial country Malaysia. To response for this awareness, the assistance of Malaysian group of architects and engineers, Green Building Index (GBI) system was established in 2009 and is first rating system designed to preserve and save the environment thus, create a better comfort for building occupants. GBI simply comprises of six (6) main assessment criteria namely Energy Efficiency, Indoor Environmental Quality, Sustainable Site Planning & Management, Material & Resources, Water Efficiency, and Innovation. Each building will be granted platinum, gold, silver or certified based status on accumulated points on six main assessment criteria upon inspection (Green Building Index 2018). Of this rating tool system, industry players will be indirectly triggered promoting and raising understanding of sustainable development. However, as stated by Ellis, the companies do recognize the necessity for increased environmental concern and green building in a study done by (Ellis, C.R. 2009).

In recent years, the advantages of green building have been deeply promoted. Studies shows that green building can provide owners, developers and occupiers with a wide variety of subsidies and tax benefits (Fuerst & McAllister, 2011). In the context of operating costs, green buildings tend to reduce the cost of energy usage. The reduction of energy usage of green building project between 20-35 percent (Goering, 2009). Leadership in Energy and Environmental Design (LEED) certified buildings were proven to lower the operating cost nearly 10 percent and therefore reducing the expenses of energy costs by 30 percent (Choi, 2009). Apart from that, green building index certified buildings increased the productivity of employees by reducing staff absenteeism. (Fuerst & McAllister, 2011; Miller et al, 2009).

In addition, there is mutual agreement the sustainable buildings are more effective, have lower operational and maintenance costs, provide better comfort and are more marketable for occupantsthan conventional buildings, have less risk potential and have a lower negative effect on the environment (GBCA, 2009; Katz et al. 2003; RICS, 2005). Ellison, Sayce, & Smith (2007) and McNamara (2008) shared the view that buildings which failed to adopt sustainability features will begin to lag in terms of rental growth resulting in opposing yield movements. In Malaysia, due to the legislation and policies implemented by the government, green building has become a focus in this field, especially in the commercial sector.

Meanwhile, there are industry players raised some question especially in property sector on whether there is any difference in terms of rental value between green and non-green commercial office building and what is the key attributes that affecting the rental value of green commercial office building and in Kuala Lumpur, Malaysia. This study is important to be conducted because of the demand of spaces for business purposes comparing to other types of the property. Although in Valuation and Property Services Department (VPSD) in recent, the property market report declared there is over supply of commercial office building in Kuala Lumpur and then the demand for office spaces always there to accommodate various type of business. Therefore, need to undertake the questions raised by the industry players are crucial especially in the green matters and the benefits.

1.2 Problem Statements

According to the Halim (2012), revealed that the rental value of the green commercial office building in Malaysia is higher RM0.50 to RM2.25 compared to the non-green building according to the property locations and also higher rental growth around RM0.50 to RM1.00 per sq. ft. In this research it is clearly shows that the difference between the green office building and non-green building in term of rental value. There need to re-investigate all over again the property market sector might have reformed due to demand and supply. Nevertheless, the researcher also face the difficulties to obtain the data and to achieved the result because it is the earliest stage and further research need to be conducted to gain more information about the rental value of both green and non-green office buildings. This constraint considered as limited study on this field will also eventually open gate to carry out to invest in green building.

Based on the previous study, there is critically discussed on the key attributes that affecting the rental value of green commercial office building in Kuala Lumpur. As claimed by Kim, S., Lim, B. T., & Kim, J. (2017) was identified several attributes such as certification, locational, building characteristics and lease contract features had strong impact towards rental by using the meta-analysis, the analysis conducted green office building in Malaysia and outside Malaysia. There is less study conducted in this area and needs to achieve more research. In accordance, this study aims to identify the key attributes affecting the rental value of green commercial office building and to compare the difference in rental value of green and non-green office buildings in Kuala Lumpur, Malaysia

1.3 Research Questions

This study was conducted to answer the following research questions:

(i) Is there any difference in rental value of green and non-green commercial office buildings in Kuala Lumpur, Malaysia?
(ii) What are the key attributes affecting the rental value of green commercial office buildings in Kuala Lumpur, Malaysia?

1.4 Research Objectives

Following that, the main objectives of this study are as follows:

(i) To compare the difference between rentals value of green and non-green commercial officebuilding in Kuala Lumpur, Malaysia.
(ii) To identify the key attributes affecting the rental value of green commercial office buildings inKuala Lumpur, Malaysia.

1.5 Scope of the Study

The research study covers of Kuala Lumpur as this area has high concentrations of the tertiary services, business, and many of the office buildings, especially the green buildings. Therefore, to achieve the first objective of study, document review method will be adopted by reviewing and evaluating the rental data in a form of electronic to draw findings. For the second objective, survey method will be applied with targeted respondents such as valuers or appraisers, property manager, facility manager and others in real estate profession.

1.6 Significance of the Study

This study will provide at acceptable range of result for the questions raised in this study on whether there is any significance different in terms of rental value of green and non-green commercial office buildings and to identify the key attributes affecting the rental value of green commercial office building in Malaysia. Moreover, this study will be very much beneficial to industry players, stakeholders, as well as for green policy makers.

2. Literature Review

2.1 Definition of Sustainable Building

In macro-level there are interaction or relation to the broader environment, there has been considerable in definition of "sustainability" and "sustainable development". Both of this term have inclined to be used indiscriminately and interchangeably but it still the same concept (Gallie, 1956). The term "sustainable growth" in green building carries several terms in the real estate sector, such as "green building" adopted by the United States, "sustainable green building" adopted by both United Kingdom and Australia, "sustainable design" and "sustainable construction" are the same or similar due to the lack of real definition precision (Mansfield, 2009; Sayce, Sundberg, & Clements, 2010).

The term has also been used in interchangeably in practice to used "green features" in the property development. Sustainable development has significant in some countries as it is used to solvethe global challenges of poverty, inequality, hunger, and environmental degradation. However, in Malaysia, the term sustainable development has different definitions and can be defined as activities that can contribute to more environmentally friendly and environmentally responsible decision- making and behaviour that can help converse the environment and maintain its natural resources for present and future generations. (Rahim, 2011).

2.2 Green Rating Tools

The World Green Building Council (WGBC) serves as the largest international association that affecting the green building business. The goal of the organizations is to traverse nations through market-driven medium to transform sustainable and green developments of old practices, and to promote the green building industry through the existence of rating system.

The recognized and well-established green rating tools across countries are as follow:

i. Green Building Index (GBI), Malaysia
ii. Building Research Establishment Environmental Assessment Method (BREEAM), UnitedKingdom
iii. Leadership in Energy and Environmental Design (LEED) United States of America
iv. Green Star, Australia/New Zealand

The assessment criteria outlined create by the developers of the Green Building Rating System (GBRS) and some of the rating system criteria may look slightly different from the others. This is probably because the rating tool system was developed on the basis of the environmental suitability and location that defined its existence by Bowman et al (2008); Pits and Jackson (2008); Miller et al (2008); Eichholtz et at (2009); Lowe (2007); Buttimer and Ott (2010). While there is a variation in building assessment, the main concept of establishment is very clear in achieving the goal of the sustainable development growth.

2.3 Benefits of Green Building

Green or sustainable building has set a massive demand and supply curve across the countries over the past few years to fight over global issues leading to green rating system being developed. Green buildings usually lead to enhanced safety, convenience and efficiency for workers and students with more natural light and better air quality. Some of the many benefits consist of low energy consumption, low operating cost, enhanced worker productivity, provides subsidies and tax to stakeholders, reduced absenteeism and take fewer sick days, high retention of tenants and decreased regulatory risks, decreased depreciation, low vacancy rate, improved quality of indoor air and decreased consumption of water.

Therefore, there are several industry and research organizations are attempting to measure the benefits of green building construction to look out the significant of cost savings through employee productivity increases, reductions in health and safety costs, and savings from electricity, repair, and operating costs- the need for more detailed data is widely recognized (Fowler, 2004). According to study done by Fuerst & McAllister (2011), green building able to provide subsidies and tax benefits to owners, developers, and occupiers. Goering (2009) study indicates 20-35 % of low energy consumption for green building project. Meanwhile, study done by Choi (2009) proves low operating cost of 10 % and reduction by 30 % for expenses of energy costs for LEED certified buildings. Watson (2009) study highlights the consumption of 25 % less energy usage than the comparable buildings. Furthermore, GBI certified buildings enhanced the worker productivity resulting in reducedthe staff absenteeism (Fuerst & McAllister 2011; Miller, 2009).

Due to numerous advantages that relative to the conventional buildings, the effect of the benefits can be clearly seen in representing the property demand or rental price. It is understandable that in recent times, the green market has slowly taken over the property sector due to the operating costs and to provide better comfort for the occupants of buildings.

2.4 Concept of Rent

In the context of the IVS (International Valuation Standards) Section 40, defined basis of value-Market Rent. Defined by market rent as the approximate sum in respect on the valuation date between a willing lessor and a willing lessee, an interest in real estate will be leased on reasonable lease terms in an arm's length agreement, after proper marketing and where each stakeholder has acted knowledgeably, prudently and without compulsion. When valuing a lease or interest generated by a lease, market rent may be used as a value basis. In such cases, consideration should be given to the contract rent and where this varies to the contract rent.

(a) Studies on Rental Value of Green Commercial Office Building

The preliminary construction costs can be higher for green compared to non-green buildings, and the owner or developers can expect that some rental benefits reward. This section shows that the overall researchers' findings on rental price and its attributes in different occasions. As a general finding, we can say that higher rental and premium green fetch compared to non-green and green attributes is the main function in affecting the rental

(b) Attributes of Green Commercial Office Building

Figure 1 shows that the green commercial office building attributes for rental value found by previous researchers which could probably differentiate between non-green commercial office buildings and affecting the rental value of green commercial office buildings as well. For example, when we examined the above graph, it reveals that the attributes of green certification stand out highest, with a frequency of 35 compared to others. It shows that green labelled buildingmay be the key factor affecting the green certified buildings rental price. Other characteristics thatrefer to non-green commercial buildings are also the key considerations such as building age F=31, size F=28, storey number F=24, and frequency class 23 determine the rental value of green commercial office buildings.

Therefore, as shown in Figure 1, the attribute frequency for the lease form is 19 which suggests a direct effect on the rental value. Wiley et al. (2010) analyzed the impact of 10 forms of lease on rental prices and found that with Energy Star and LEED certification, such lease will possibly raise the rental price of green buildings in the USA. These studies have shown that the green buildings are typically bigger, younger, taller, and better performing, so higher rental rates than their non-green commercial office buildings could easily be managed.

On the other hand, the employments attribute that reported frequency of 13 out of 30 mentioned attributes. Reichardt et al. (2012) & Eichholtz et al. (2013) take the view that levels of job growth

impact the rental premium of green certified buildings. This is consistent with the analysis of the occupational attribute being the proxy for green building demand (Jones, 1995). Employment growth rates and the development and analysis of office buildings may affect the rental premium for green buildings has been shown to have a positive direct effect on the rental premium of green buildings, while the rental premium of green buildings has been greatly moderated by the level of stock available on the market.

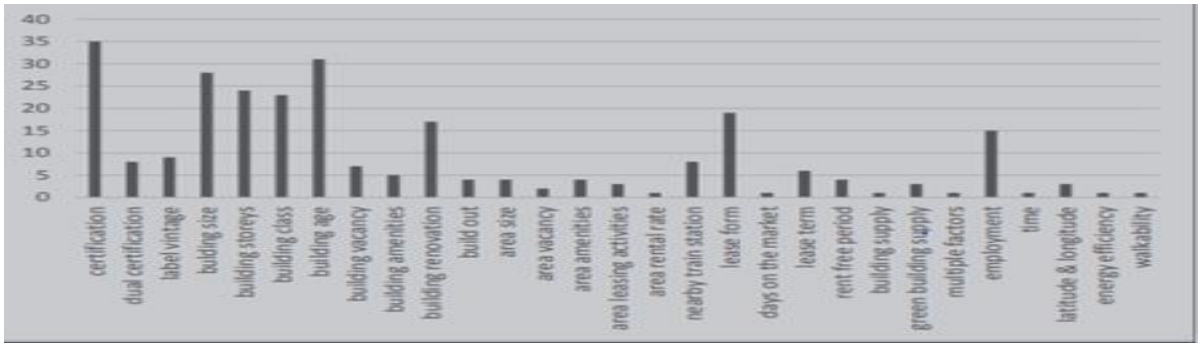

Figure 1: Identified attributes for the rental premium of green commercial office buildings (Kimet *et al.*, 2017)

Despite the findings in the literature, there is no clear cut on the green office market in Malaysia because most of the attributes recruited by Kim (2017) are outside the country. Therefore, the quantification of this problem needs analysis. Therefore, the listed green office attributes will be used as a basis for this study to check the potential key green attributes affecting the green office market rental value in Johor Bahru, Malaysia.

2.5 Factors Affecting the Rental of Green Commercial Office Building

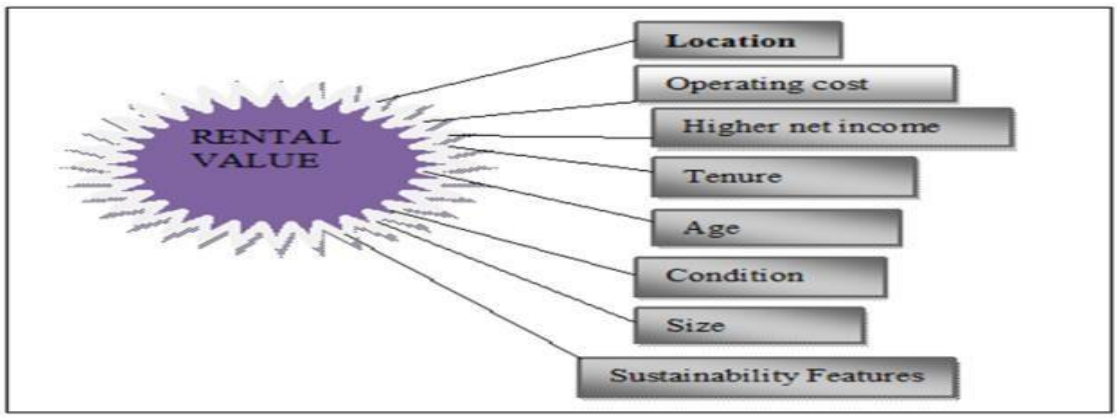

Figure 2: Factors affecting the rental value of green commercial buildings (Elaine, 2013)

According to Elaine (2013), determined factors are considered significant in the valuation of green commercial property and can refer to the market value obtained or the rental value of the property.

For the last 25 years, this study on variables affecting the rental value of commercial office buildings has been very common (Hendershott, MacGregor, and Tse, 2002). According to Miceli and Sirmans (1999), a longer rental contract period helps property managers minimize the risk of turnover because long-term tenants will be paying less than short-term tenants. However, Barker (2003) claims that higher rents should be paid for long-term tenants since they are likely to have a demand that is less elastic than short-term tenants.

3. Research Methodology

There are several criteria that can be use as methodology to solve the problem of the research. In other words, it is an analysis of how scientific research is conducted by (Kothari, 2004). Research methodology can also be defined as a technique in which researchers set out to describe, evaluate and predict their work's phenomena (Rajasekar, Philominathan, & Chinnathambi 2013). The stage of data collection and the way to interpret the data collected are explained clearly in this chapter.

3.1 Research Process

Research process of this study will be shown in a form of flow chart illustrated in Figure 3.

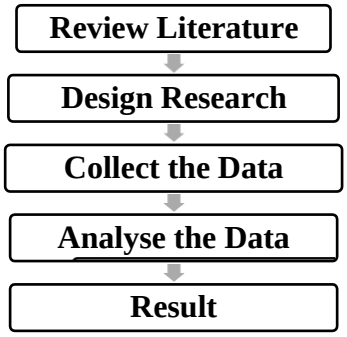

Figure 3: Flowchart of the research process

3.2 Research Flow Chart

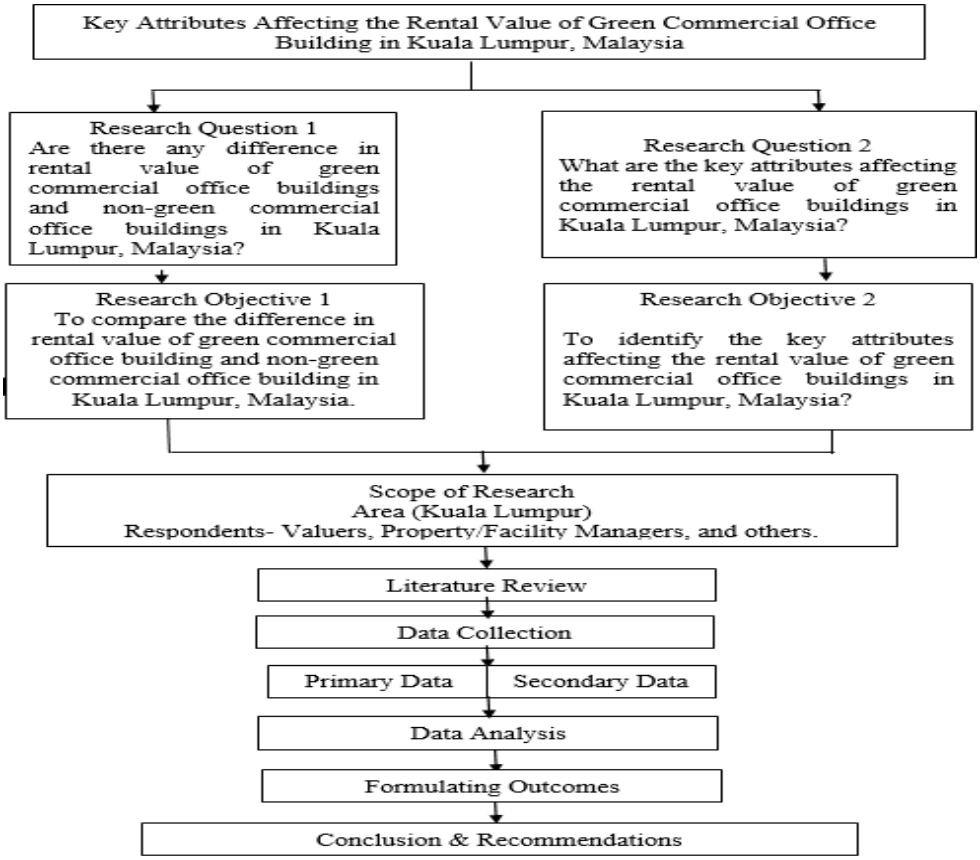

Figure 4: Flow chart of research

3.3 Research Approach

To this study, quantitative approach was adopted to achieve the objectives of this study. To achieve first objective of study, document review method will be used to obtain the rental value data in electronic form. After that, to achieve the second objective of this study, quantitative approach was adopted due to nature of the question. The primary basis for the use of quantitative research is the detection, prediction or examination of relationships, the explanation of current circumstances or the study of potential impacts on particular outcomes (CRQ, 2015a).

3.4 Data Collection Method

Document review was used for the first objective to collect rental value data from the Valuation and Property Services Department, Kuala Lumpur (VPSD KL). The obtained rental data was starting period from year 2018 to 2020. For the second objective, survey in a form of questionnaire was distributed to targeted respondents. Purposive sampling technique was used to distribute questionnaire for targeted respondents. Theory of Krecjie & Morgan (1970) was applied to determine the sampling from total population. There are 90 of 92 respondents participated in this survey.

The collected data was analysed using of Microsoft Excel 2013 software. Simple descriptive statistics analysis was used to analyse the obtained data for both objectives.

4. Data Analysis and Results

4.1 To Compare the Difference in Rental Value of Green and Non-Green Commercial Office Buildings in Kuala Lumpur, Malaysia

Rental data for commercial office buildings was obtained from JPPK, KL in a form of electronic data from year 2018 to 2020. The valid rental data found was only 125 from 160 within the time frame. In order to compare the differences between green and non-green, total average rental value of lettable area (RM/Monthly) off both types was buildings was used as a medium to draw findings. First the filtration involves determining whether or not it is an office building before categorizing it into the green and non-green office buildings in a tabulated form. Some of the data had to be filtered anyway due to insufficient information. The official website of the Green Building Index was used as the main source to identify the green certified buildings. After that, to determine the average rental value in per square metre for green and non-green buildings by using formula to determine the mean as shown below in Figure 5.

Number (N) = ∑ Average rental of lettable area of green/non-green commercial office buildings

$$\text{Mean} = \frac{\sum \square\square\square\square\square\square\square\square \ \square\square\square\square\square\square\square \ \square\square\square\square\square \ \square\square \ \square\square\square\square\square\square\square\square \ \square\square\square\square \ \square\square \ \square\square\square\square\square \ \square\square \ \square\square\square\text{–}\square\square\square\square\square}{\sum \square\square\square\square\square \ \square\square\square\square\square \ \square\square \ \square\square\square\text{–}\square\square\square\square\square \ \square\square\square\square\square\square\square\square\square\square \ \square\square\square\square\square\square\square \ \square\square\square\square\square\square\square\square\square\square}$$

Figure 5: Formula to calculate average rental value

Table 1: The summary of average rental value for green commercial office buildings (VPSD KL, 2020)

No.	Name of Green Building	No. of Rental Agreement	Percentage (%)	Average Rental Value (RM/Sq.M)
1.	Menara Binjai	5	10.2	84.78
2.	Tower A Vertical Business Suite Bangsar	5	10.2	45.44
3.	Tower B Vertical Business Suite Bangsar	5	10.2	57.79
4.	Menara Citibank	4	8.2	62.96
5.	Vista Tower	3	6.1	60.23
6.	Menara Cimb	3	6.1	78.50
7.	Menara Shell	3	6.1	77.44
8.	Menara Hap Seng 2	2	4.1	53.88
9.	Plaza Sentral	2	4.1	34.99
10.	Tower 3 Bangsar South	2	4.1	56.50
11.	Tower 9 Horizon Bangsar	2	4.1	58.10
12.	Tower 2 Petronas	2	4.1	2,496.32
13.	Menara Q Sentral	2	4.1	56.20
14.	Tower 3 Petronas	1	2.1	162.75
15.	Menara 1 Sentrum	1	2.1	79.65
16.	Menara Am Met Life	1	2.1	32.08
17.	Naza Tower	1	2.1	57.80
18.	Menara IMC	1	2.1	77.53
19.	1 Sentral	1	2.1	531.98
20.	Platinum Sentral	1	2.1	532.80
21.	Menara Keck Seng	1	2.1	51.62
22.	Menara Pavilion	1	2.1	88.24
	TOTAL	**49**	**100%**	**4,837.58**
∑ Average Rental Value of Per Sq.M of 22 green commercial officebuildings				**4,837.58**
Average Rental Per Sq.M of Green commercial Office Buildings in Kuala Lumpur, Malaysia				**219.89**

Table 2: The summary of average rental value for non-green commercial office buildings (VPSD, 2020)

No.	Name of Green Building	No. of Rental Agreement	Percentage %	Average Rental Value (RM/Sq.M)
1.	Northpoint Office	8	10.6	49.78
2.	Menara Atlan	5	6.6	359.03
3.	Boulevard Office	4	5.3	46.35
4.	Menara Olympia	4	5.3	49.95
5.	Solaris	4	5.3	40.07
6.	Velocity Mall	4	5.3	160.00
7.	Standard Chartered	3	3.9	7.70
8.	Plaza Mont Kiara	3	3.9	68.86
9.	Menara Dion	3	3.9	69.22
10.	Megan Avenue	2	2.6	32.43
11.	Menara Chan	2	2.6	81.45
12.	Plaza See Hoy Chan	2	2.6	134.09
13.	Menara Maxisegar	2	2.6	16.15
14.	Incubator	2	2.6	31.10
15.	UEM	2	2.6	83.96
16.	Central Plaza	2	2.6	63.51

17.	Menara Prestige	2	2.6	88.94
18.	Brem Mall	1	1.3	61.32
19.	Plaza 138	1	1.3	40.79
20.	Mutiara Bangsar	1	1.3	32.17
21.	Heritage House	1	1.3	38.75
22.	UOA	1	1.3	43.06
23.	Wisma Bumi Raya	1	1.3	146.42
24.	Prasarana Rapid	1	1.3	340.91
25.	Apex Tower	1	1.3	575.47
26.	Wisma Volkswagen	1	1.3	162.58
27.	Liberty	1	1.3	208.10
28.	Tune Hotel	1	1.3	19.11
29.	Menara AIA	1	1.3	64.59
30.	Menara UOA Bangsar	1	1.3	28.81
31.	ETIQA Tower	1	1.3	70.15
32.	Nu Tower	1	1.3	61.36
33.	Menara Sentral Vista	1	1.3	3.00
34.	Menara Daya Bumi	1	1.3	73.75
35.	RHB Tower	1	1.3	3.80
36.	Plaza Damas	1	1.3	33.33
37.	Mutiara Genting	1	1.3	15.63
38.	Wisma Goshen	1	1.3	29.75
39.	Takaful	1	1.3	3.40
	TOTAL	**76**	**10%**	3,438.84
∑ Average Rental Value of Per Sq.M of 39 lettable area Non-Green Commercial Office Buildings				**3,438.84**
Average Rental Per Sq.M of Non-Green commercial Office Buildings in Kuala Lumpur, Malaysia				**88.18**

The Table 1 shows there are total of 49 rental data from 22 green commercial office buildings meanwhile Table 2 shows there are 76 rental data from 39 for non-green commercial office buildings in Kuala Lumpur.

Table 3: Results of analysis of first objective

Category	Green Commercial Office Buildings (RM)	Non-Green Commercial Office Buildings (RM)
Average Rental Value	219.89	88.18
Standard Deviation	544.07	113.05

Therefore, we can conclude that the rental value for green commercial office buildings in Kuala Lumpur is higher than the non-green commercial office buildings. By using simple descriptive analysis to proven there is a significance difference in rental value of green and non-green commercial office buildings in Malaysia. The average rental value of green commercial office building is RM219.89 higher than RM88.18 for non-green commercial office buildings. According to the figure 5, standard deviation for both set data is higher than the average rental value.

4.2 To Identify the Key Attributes Affecting the Rental Value of Green Commercial Office Buildings in Kuala Lumpur, Malaysia

For the objective 2, the survey method was used to collect the data from targeted respondents through a questionnaire based on a purposeful sampling technique. The determination of complete population sampling was adopted from theory Krejcie & Morgan (1970). The total registered real estate firms are 120 and the suggested sample size set up by this theory is 92. However, there are only

90 out of 92 questionnaires were securely obtained. There are two sections in this questionnaire. The first sections are to seek details on the respondent's basic demographic profile and second section seeks an opinion on the key attributes affecting the rental value of green commercial office buildings in Kuala Lumpur, Malaysia. For second section using Likert scale questions to measure respondent's opinion and attitude. Lastly, mean score technique was used to obtain the final results. The green commercial office buildings key attributes such as lease form, lease term, gross rent of building, occupancy rate, competitor, building age, building classification, number of building storey, building location and building size.

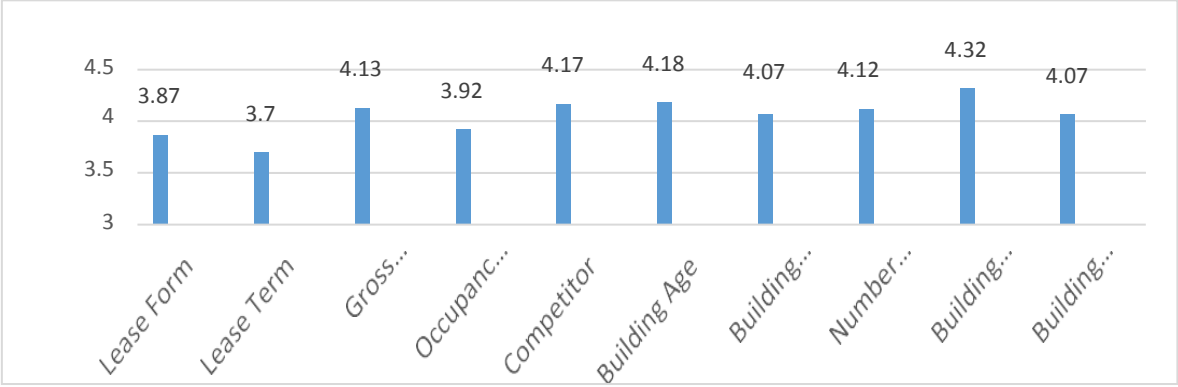

Figure 6: Key attributes affecting the rental value of green buildings

The green commercial office buildings attributes were adopted from the literature and test in Malaysia market. According to the figure 6, the results of means score for each key attribute that affecting the rental value. The analysis shows that key attributes such as building location recorded highest mean score 4.32 and the lowest which is lease term recorded 3.70 mean score. Theory Chua (2006), was applied to determine which attributes affecting the most rental value for green commercial office buildings. The Table 4 below shows that how accurately the interpretation means score of descriptive statistics are generated

Table 4: Mean scores of descriptive statistics (Chua, 2006)

Mean Range	Tendency Level
1.00-2.33	Low
2.34	Average/Moderate
3.67-5.00	High

5. Discussion and Conclusion

According to the Hess (2004), the purpose of the discussion in this research is to clarify the meaning of the findings and why they are so important to this study. There are some elements of this discussion that should be included and other things that can be avoided. After that, this section concludes that the results of the findings which are been summarized below. Using Microsoft Excel 2013 software, the designed objective for the purpose of study. The data was analysis using simple descriptive analysis to get the outcome. Therefore, this section concludes the results of the findings which are summarized below.

5.1 To Compare the Difference in Rental Value of Green and Non-Green Commercial Office Buildings in Kuala Lumpur, Malaysia

Findings from this research revealed that average rental value of green commercial office buildings is RM 219.89 which is higher than the non-green commercial office buildings with RM88.18 per square metre. The data get from the Jabatan Penilaian dan Perkhidmatan Harta, Kuala Lumpur and was analysed using of average mean and standard deviation technique. The standard

deviation for green commercial office buildings is RM 544.07, higher than the non-green commercial office buildings with RM 113.05. The obtained results are supported by Halim (2011), that green office buildings have higher rental rates around RM0.50 to RM2.25 per sq.ft and higher rental growth with RM0.50 to RM1.00 per sq.ft. Therefore, according to Eichholtz et. al (2010), buildings with a "green rating" are approximately 3 percent higher than comparable buildings that regulate the quality and specific location variables of office buildings. Efficient rent premiums are 7% higher and green building transaction prices increased around 16%.

5.2 To Identify the Key Attributes Affecting the Rental Value of Green Commercial Office Buildings in Kuala Lumpur, Malaysia

The result revealed that 10 key attributes affecting the rental value of green commercial office buildings. As mention by the Kim et al. (2017), several attributes such as locational, building characteristics and lease contract features had strong impact towards the rental value. Through the findings of this study we can conclude that the respondents have deep understanding of the key attributes and the effect on the rental value of green commercial office buildings. Therefore, we know that the key attributes are the main contribution for the high rental value of green commercial office buildings in Kuala Lumpur, Malaysia.

5.3 Research Limitations

The limitations encountered in this research are listed as followed.

- The obtained rental value data of commercial office buildings from JPPH KL in this research are only limited to commercial office buildings in Kuala Lumpur.
- During this covid-19 pandemic, Valuation and Property Services Department, Kuala Lumpur reject given rental value data transaction of commercial office buildings by face to face. Get the rental value data through email but the data are not fully complete and limited because of this pandemic.
- Time constraint during data collection stage and analysis data

5.4 Conclusion

In a nutshell, the two objectives were determined and achieved with reasonable explanations. In this research was conducted to compare the difference in rental value of green commercial office buildings and non-green commercial office buildings and to identify the key attributes affecting the rental value of green commercial office buildings in Kuala Lumpur, Malaysia. Findings from the first objective revealed that green commercial office buildings fetch higher rental value average comparingto non-green commercial office buildings by using the technique of mean or average and standard deviation formula to determine the results.

For the second objective, Table 5 and Figure 7 below shows the results of 10 key attributes affecting the rental value of green commercial office buildings in Kuala Lumpur, Malaysia by using means score. However, it is useful to note that the correct path to proper valuation as the property market players were fitted themselves on the significance of key attributes and their potential to impact the rental value of green commercial office buildings in Kuala Lumpur, Malaysia. As an overall conclusion, it is mandatory knowing the difference in the rental value of green and non-green commercial office buildings as well as awareness of key attributes that affects the rental value so that it can bring benefits to industry players, stakeholders and as well as for green policy makers.

Table 5: Key attributes of Kuala Lumpur, Malaysia

No	Key Attributes	Mean Score
1.	Lease Form	3.87
2.	Lease Term	3.70
3.	Gross Rent of Building	4.13
4.	Occupancy Rate	3.92
5.	Competitor	4.17
6.	Building Age	4.18
7.	Building Classification	4.07
8.	Number of Building Storey	4.12
9.	Building Location	4.32
10.	Building Size	4.07

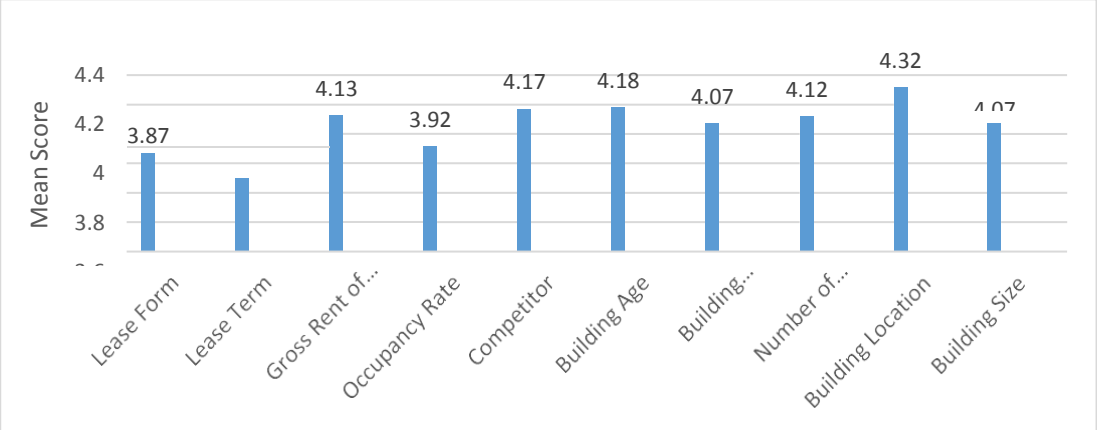

Figure 7: Key attributes affecting the rental value of green buildings

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