The Factors for Residential Properties Overhang in Johor

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Abstract: In 2020, Johor recorded the highest number of residential overhangs at 7,030 units in Malaysia. However, the majority of the residential properties overhang in Johor were from the Johor Bahru district, accounting for 78.59% of the state's overhang (5,525 units) in 2020. Despite there are many housing incentives announced by the government, the number of 2-3 storey semi-detached residential property overhang in Johor Bahru just decrease slightly from 378 units in 2019 to 313 units in 2020. Therefore, the objectives of this research are to investigate the factors that influence the 2-3 storey semi-detached residential property overhang in Johor Bahru, Johor. The data that related to research objectives were collected through a literature review of previous studies and distributing the online survey questionnaire form to the registered valuers, registered estate agents and housing developers in Johor Bahru in order to achieve the objectives of this research. The data analysis method of this study includes Multiple Regression analysis and Pearson Correlation analysis. The result shows that the price factor, location factor, housing loan factor, building factor and housing feasibility studies factor are the factors that influence 2-3 storey semi-detached residential properties overhang in Johor Bahru. Besides, the price factor is the most significant factor that influences the 2-3 storey semidetached residential properties overhang in Johor Bahru. In conclusion, this study can be used as a guideline to the housing developers and policymakers to plan suitable housing policies to improve the 2-3 storey semi-detached residential property overhang in Johor Bahru. In 2020, Johor recorded the highest number of residential overhangs at 7,030 units in Malaysia. However, the majority of the residential properties overhang in Johor were from the Johor Bahru district, accounting for 78.59% of the state's overhang (5,525 units) in 2020. Despite there are many housing incentives announced by the government, the number of 2-3 storey semi-detached residential property overhang in Johor Bahru just decrease slightly from 378 units in 2019 to 313 units in 2020. Therefore, this research aims to investigate the factors that influence a 2-3 storey semi-detached residential property overhang in Johor Bahru, Johor. The data that related to research objectives were collected through a literature review of previous studies and distributing the online survey questionnaire form to the

registered valuers, registered estate agents and housing developers in Johor Bahru in order to achieve the objectives of this research. The data analysis method of this study includes multiple Regression analyses and Pearson Correlation analyses. The results show that the price factor, location factor, housing loan factor, building factor and housing feasibility studies factor are the factors that influence 2-3 storey semi-detached residential properties overhang in Johor Bahru. Besides, the price factor is the most significant factor that influences the 2-3 storey semidetached residential properties overhang in Johor Bahru. In conclusion, this study can be used as a guideline to the housing developers and policymakers to plan housing policies to improve the 2-3 storey semi-detached residential property overhang in Johor Bahru.

Keywords: Factors, Overhang, Residential Property

1. Introduction

1.1 Research Background

Property overhang is the property that has been completed with a certificate of completion and compliance (CCC). But, it has not been sold more than nine (9) months from the launch date (NAPIC, 2020). In Malaysia, overhang residential properties are one of the main issues that the housing developers of residential properties and policymakers need to take seriously.

In 2020, Johor recorded the highest number of residential overhangs at 7,030 units. The majority of the residential properties overhang units are in the Johor Bahru district, accounting for 78.59% of the state's overhang (5,525 units) in 2020 (NAPIC, 2020). In 2020, 2-3 storey semi-detached residential properties recorded the fourth largest contributor to overhang residential properties at 313 units in Johor Bahru. Besides, the sum value of 2-3 storey semi-detached residential properties overhang property in Johor Bahru recorded the third-highest at around RM 610 Million. Therefore, understanding factors that influence properties overhang are essential to creating awareness among developers of residential properties about what the homebuyers actually needed (Saleh *et al.*, 2016). However, the previous studies were too general and were not focused on the specific types of buildings. Thus, more studies should be conducted in order to detectors that influence the overhang on 2-3 storey semi-detached residential properties in Johor Bahru.

In addition, the recent trends in Malaysia's property market highlight a slowdown, and even decrease in prices in certain locations, resulting from an oversupply of residential property in recent years (Property Guru, 2019). There are many factors of overhang residential properties towards the property market that the policymakers and housing developers need to realize and conduct a suitable strategic plan to improve the property overhang issues as soon as possible.

1.2 Problem Statements

Despite there are many housing incentives announced by the government. For example, Home Ownership Campaign (HOC) 2019 has been launched in 2019 to support homebuyers looking to purchase property and also encourages the sales of unsold properties in Malaysia's housing market, the number of 2-3 storey semi-detached residential property overhang in Johor Bahru just decrease slightly from 2019 at 378 units to 2020 at 313 units. Therefore, it is important to understand the factors that influence 2-3 storey semi-detached residential properties overhang in Johor Bahru.

The factors that influence the overhang on residential properties is due to the mismatch between the prices of new launches residential property and households' income (Ling *et al.*, 2017). Apart from that, a massive over construction of houses by Malaysian housing developers have created the problem of property overhang (Teck-Hong, 2011). Besides, the approval process at the local planning authorities and state authorities, which is primarily concerned with technical requirements without taking into

account the actual demand, also contributes to the problem of overhang and oversupply in the construction industry (Mukhtar *et al.*, 2017). In addition, housing developers' indiscriminate construction, a lack of market studies and financial feasibility studies, a lack of coordination on planning among local authorities, indiscriminate approvals by various authorities, and a delay in the publication of local plans are all examples of problems (PEPS, 2017). Furthermore, few affordable housing units offered in the market have caused an oversupply problem in the high-end property market (Osman *et al.*, 2017).

This situation affects the property market trend and the market value of the surrounding properties as the supply is higher than the demand. However, there has not been previous research done on the factors that influence 2-3 storey semi-detached of residential properties overhang in Johor Bahru.

1.3 Research Questions

(i) What are the factors that influence the overhang on 2-3 storey semi-detached residential properties in Johor Bahru?
(ii) Which are the most significant factors that influence 2-3 storey semi-detached residential properties overhang in Johor Bahru?

1.4 Research Objectives

(i) To investigate the factors that influence the 2-3 storey semi-detached residential properties overhang in Johor Bahru.
(ii) To examine the most significant factors that influence the 2-3 storey semi-detached residential properties overhang in Johor Bahru.

1.5 Scope of the Study

The scope of this study was limited to the factors that influence a 2-3 storey semi-detached residential property overhang in Johor Bahru. Besides, the target respondents of this study are limited to registered estate agents, registered property valuers and housing developers in Johor Bahru only.

The registered estate agent is a person who obtained a professional estate agent with the Board of Valuers, Appraisers, Estate Agent and Property Managers in Malaysia while the registered valuer is a person who obtained a professional property valuer with the Board of Valuers, Appraisers and Estate Agent in Malaysia. A housing developer is a person whose job involves buying, improving and selling the buildings, and arranging for new buildings to be built.

The reason for the selection in Plentong, Johor as the sampling location is due to Plentong recorded the highest number of 2-3 storey semi-detached residential properties overhang in Johor Bahru at 103 units in Q3 2020 (NAPIC, 2020).

1.6 Significance of the Study

The following are the significance of this study to several parties such as:

- Policymakers
  The policymakers can refer to this information to provide more appropriate housing policies that can improve the 2-3 storey semi-detached residential properties overhang in Johor Bahru.
- Housing developers
  The housing developers can consider this information before launching a new 2-3 storey semi-detached residential properties project in Johor Bahru.
- Researchers/academician
  The results of this study are expected to provide the researchers or academicians with new knowledge or perception on the factors that influence of 2-3 storey semi-detached residential properties project in Johor Bahru.

2. Literature Review

2.1 Housing Market in Malaysia

The housing market brings together the buyer (who want to buy properties) and the seller (who want to sell their properties) to make the transactions (Investopedia, 2020). It represents the demand and supply for houses. Rameli *et al.* (2006) stated that the housing market should be functioned to obtain an equilibrium between demand and supply. However, the housing market system fails to achieve a balance between demand and supply in urban housing (Mariadas *et al.*, 2019). According to the Property Market Report 2020, the volume of residential performance transactions in Malaysia is decreased by 17,941 (8.57%) in 2020. Figure 1 shows the volume of residential performance transactions in Malaysia from 2016 to 2020.
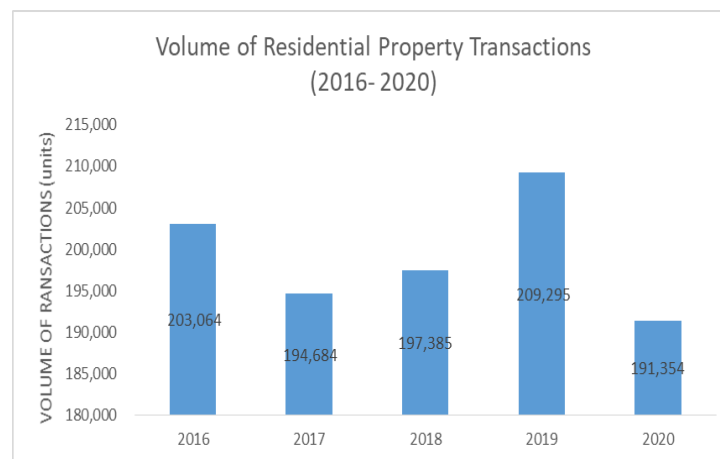

Figure 1: volume of residential performance transactions in Malaysia from 2016 to 2020 (NAPIC, 2020)

(a) Housing Market in Johor

According to the Property Market Report 2020, the volume of residential property transactions in Johor decreased from 26,196 in 2016 to 24,886 in 2017. But, it bunched back from 24,886 in 2017 to 26,885 in 2018 and continued increasing to 28,904 in 2019. However, it decreased steadily to 23,150 in 2020. This could be due to the impact of Covid-19 impact and Movement Control Order (Bruce Lee, 2021).

2.2 Definition and Overview of Property Overhang

NAPIC (2020) stated that property overhang is defined as the properties which has been completed with certificate of completion and compliance (CCC). But, it has not been sold more than nine (9) months from launch date. Figure and Table below shows the overview of property overhang in Johor.
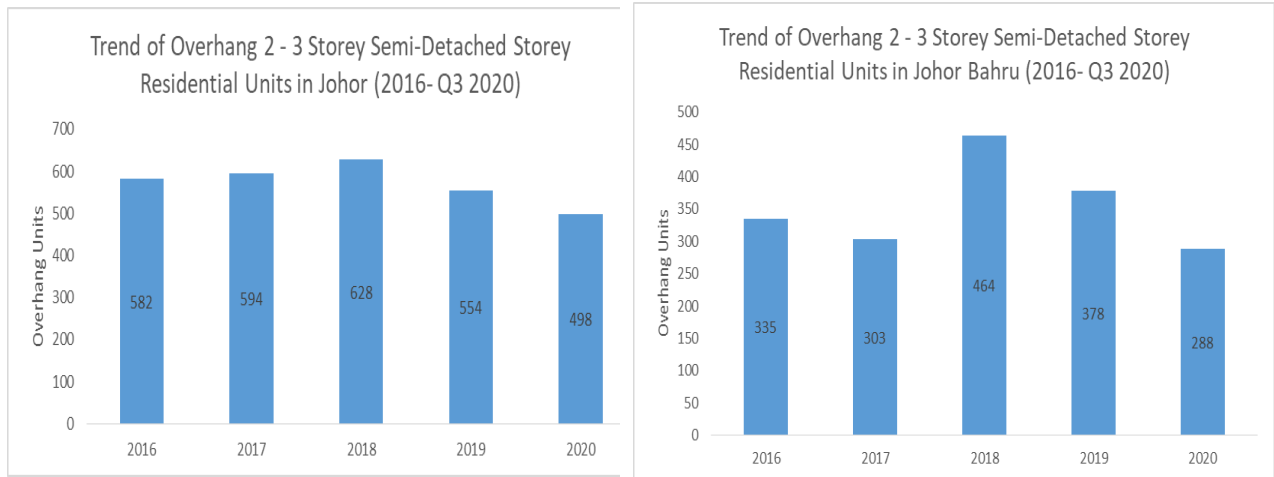
Table 1: Price of 2 - 3 Storey Semi-Detached Storey Residential Property Overhang in Johor Bahru (NAPIC, 2020)

Price Range	Overhang status (unit) 2018	Overhang status (unit) 2019	Overhang status (unit) Q3 2020
Below RM 200K	0	0	0
RM 200K – RM300 K	0	0	0
RM 300K – RM500 K	0	0	0
RM 500K – RM700 K	0	0	0
RM 700K – RM800 K	9	0	0
RM 800K – RM1 million	0	0	0
Above RM1 million	455	378	288
Total	464	378	288

Table 2: Number of 2 - 3 Storey Semi-Detached Residential Property Overhang by Location in Johor Bahru in Q3 2020 (NAPIC, 2020)

Location (Mukim/Section)	Number of Property Overhang (Units)
Pulai	91
Tanjong Kupang	30
Plentong	103
Tebrau	64
Total	288

2.3   Factors that Influence Property Overhang

(a) Expensive House Price

Lee (2009) stated that property price is the main concern that purchaser takes consider. However, the price of landed property in Penang Island is around RM700, 000 and RM1, 600, 000 (Osmadi *et al.*, 2015). It lead to middle-income and low-income household cannot afford the residential property in urban areas. The finding research of Salfarina *et al.* (2010) showed that the majority of respondents agreed that the price of residential property in urban areas of Malaysia exceeds their income and ability to purchase it. Despite there are 15 percent discount of property price to Bumiputera homebuyers, the price of property offered is also considered high.

Houses will remain unsold if the price offered for a house is too high (A Karim *et al.*, 2017). Based on the finding of A Karim *et al.* (2017) high price is the main factor that influence of oversupply

property in double storey terrace houses in Johor Bahru. Apart from terrace houses in Johor Bahru, the finding of Ishak *et al.* (2019); Zainon *et al.* (2017) and Olanrewaju & Tan (2018) also discovered that expensive house price is one of the main factor that lead to affordable property overhang. Bank Negara Malaysia, (2016) stated that Malaysia's maximum affordable house price is RM282, 000 based on the household median income in 2016. However, the average price of new properties launched in the primary market is about RM417, 262 in 2016 (Bank Negara Malaysia, 2016). The gap between the maximum affordable house price and the average price of new launched residential properties is large. This situation increases the number of residential property overhang as there are fewer people can afford the new launched residential properties by housing developers. Especially, B40 and M40 groups. According to Susilawati & Armitage, (2004), the affordability of home ownership has decreased due to the mismatch between property prices with household's income affordability.

(b) Unsuitable Location

Location is defined as the indicator to determine the easy access to public transport, workplace or schools and colleges (Zainon *et al.*, 2017). However, the location of some of the affordable housing projects are unattractive due to the long distance from workplace and low transport connectivity, and resulting to property overhang (Ling *et al.*, 2017). Majority of affordable housing projects were developed on unattractive location due to the price of land is quite low compare to attractive location.

Based on finding of Ishak *et al.* (2019); Zainon *et al.* (2017) and A Karim *et al.* (2017), they discovered that unattractive location of residential property is one of the factors that lead to increasing number of unsold property and resulting in overhang property. This research also supports the finding of Salfarina *et al.* (2010), that location is one of the factors that homebuyers are concerned about in urban areas. Aliyu, Kasim & Martin (2011) and Ishiyaku, Kasim & Harir (2017) stated that the location of the property can be used as the indicator to determine the time and distance from going to school and workplace. Therefore, there is high demand for property located in a good location. (Yusof *et al.*, 2017). People prefer to purchase a property which is close to their working place in order to save the transportation cost.

(c) Housing Loan Restriction

According to Bujang *et al.* (2015), the purpose of housing loans provided by financial institutions is to lend the sum of capital to those who want to purchase the property but not afford it. Therefore, the majority of people prefer to apply for a housing loan from a bank rather than cash to purchase their own property. However, the rejection rates of home loans were at almost 60% in 2017. %. Redha, (2017). A Karim *et al.* (2017) and Ishak *et al.* (2019) also discovered that housing loan restriction is the main factor that leads to residential property overhang. Financial institutions imposed the strict lending conditions such as Loan-to-value (LTV) limits, high credit scores recorded in Central Credit Reference Information System (CCRIS) requirements and loan restrictions for those who want to purchase a third property.

Baqutaya *et al.* (2016) also stated that the other important issue faced by the middle-income group is loan availability and stricter lending guidelines. According to the findings of (Baqutaya *et al.*, 2016), there were 78% per cent of the respondents who were agreed with difficulty obtaining a housing loan, and only 22% per cent of them disagree with that assumption. It indicated that the middle-income group and low-income group were difficulties obtaining the housing loan in Malaysia due to the stricter lending guidelines and resulting in property overhang. This statement supports the finding of Olanrewaju & Tan (2018), restrictions in the issuance of housing bank loans to the homebuyer is the most significant factor influence of housing overhang. Because financial institutions concerning about the ability of middle-income groups to repay loans instalment every month as the housing mortgage instalments exceed the income capacity. Therefore, financial institutions imposed strict housing loan

lending conditions for the borrowers (A Karim *et al.*, 2017). Particularly for the low-income earners to secure housing loans.

(d) Building Factors

Ishak *et al.* (2019) stated that building factors can be defined as the quality and design of a house. For example, unit size, the number of bedrooms and presence in the parking area. Abdul-Rahman *et al.* (2014) stated that the design and quality of housing today does not meet the requirement of homebuyers. Olanrewaju & Tan, (2018) stated that it is a high probability increasing property overhang is due to mismatched design standards of affordable housing and the value system of households. However, the findings of A Karim *et al.* (2017); Ishak *et al.* (2019) and Zainon *et al.* (2017) discovered that building factor was recorded low ranking in the influence of property overhang. This suggested that buyers less pay attention too much to the building factor and features such as design and quality of the property. This could be due to the scope of previous studies were focusing the affordable housing only. Therefore, the respondents of previous studies were B40 and M40 groups. Therefore, the respondents were more focusing on house prices compare to building factors. Building factor is still considered questionable for non-affordable housing. Because some of the high-income potential buyers are concerned with the quality and design of residential property compared to the price of the property

(e) Lack of Feasibility Studies

Mustapa & Cheong (2006) stated that a feasibility study is an examination of a variety of factors that may influence the development of a proposed project's future. The feasibility study consists of site/location feasibility, economic feasibility, market feasibility, design feasibility and financial feasibility (Masfaliza Mohsen, 2020). It is critical for housing developers to conduct a feasibility study before launching a new housing project. Because, there is a strong relationship between feasibility studies and the sale of real estate properties (Mustapa & Cheong, 2006). However, there are some aspects that are important but are neglected by the housing developers. For example, market and economic feasibility.

PEPS (2017) stated that the lack of market studies and financial feasibility studies being carried out prior to building is one of the main factors that led to an increase in the number of property overhangs. Because, it is possible that demand and supply for specific types of properties will be forecast incorrectly if the feasibility study has not been conducted (Designblendz Team, 2021). Therefore, an unsuitable project scheme will be undertaken in the current market conditions and resulting in property overhang. A Karim *et al.* (2017) stated that the housing developers who fail to complete feasibility studies will have a negative impact on the sale of properties, resulting in an overhang of housing.

(f) Public Facilities Factor

Fierro *et al.* (2009) stated that public facilities included things like schools, healthcare centers, mosques and others. The findings of Zainon *et al.* (2017) discovered that the availability of public facilities is the third important factor that influences the decision making of homebuyers. It indicates that the availability of public facilities has an impact on the purchasing decision of homebuyers. Because the availability of numerous public facilities made it convenient and faster for households to carry out their daily routines. According to the finding of Ishak *et al.* (2019), the majority of respondents stated that the availability of public facilities is the third most factor in contributing to affordable housing overhang in Malaysia. Because, the availability of public facilities plays an important roles in the property quality and homebuyers stratification.

2.4 Theoretical Framework Development

The reason for choosing the theoretical framework is that this study adopts quantitative methods to collect the data related to the research objectives. Besides, the previous studies also designed the questionnaire form based on the theoretical framework reviewing factors that influence property overhang. Because, the theoretical framework is the foundation for a research study. Therefore, the theoretical framework of this study is developed based on the findings of factors that influence residential property overhang from the previous studies that researchers have reviewed. The mapping of the theoretical framework of this study is able to demonstrate the link to achieve the research objectives of this study. Because, the previous studies that the researcher reviewed and this study are focusing on the factors that influence of residential property overhang issues.
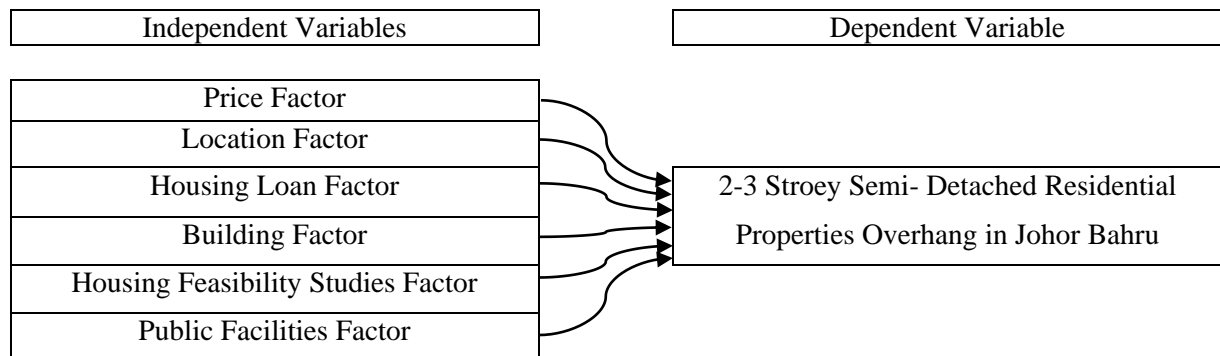
Independent Variables	Dependent Variable
Price Factor Location Factor Housing Loan Factor Building Factor Housing Feasibility Studies Factor Public Facilities Factor	2-3 Stroey Semi- Detached Residential Properties Overhang in Johor Bahru

Figure 2: Theoretical Framework of This Study

2.7   Hypothesis

H1:   Price factor has positive effect on 2-3 storey semi-detached residential properties overhang in Johor Bahru

H2:   Location factor has positive effect on 2-3 storey semi-detached residential properties overhang in Johor Bahru

H3:   Housing loan factor has positive effect on 2-3 storey semi-detached residential properties overhang in Johor Bahru

H4:   Housing feasibility studies factor has positive effect on 2-3 storey semi-detached residential properties overhang in Johor Bahru

H5:   Building factor has positive effect on 2-3 storey semi-detached residential properties overhang in Johor Bahru

H6:   Public factor has positive effect on 2-3 storey semi-detached residential properties overhang in Johor Bahru

3. Research Metodology

3.1 Research Design

The descriptive research design was adopted in this study due to the nature of this study. Descriptive research can be defined as the statistical research which describe the data and characteristics of the population or phenomenon being studied. Descriptive research can answer the questions about what, when, who, where and how. Therefore, the descriptive research design was appropriate for the present study as it was important to examine the factors that influence of 2-3 storey semi-detached residential properties overhang in Johor Bahru. The questionnaire survey was formulated based on the theoretical framework of this study.

According to the objectives of the study, the quantitative method was identified as the suitable data design method. Because, it can summarize statistically large information such as questionnaires responses feedback. It can be translated into figures that are easy for researchers to understand. The researcher used the quantitative method to collect the data related to the research objectives of this study from the respondents to address the research objectives of this study.

(a) Target Population

The target population of this research is housing developers, registered valuers and registered estate agents in Johor Bahru. Because, they are those who are more familiar with the overhang issues. For example, housing developers are more familiar about what are the factors that influence 2-3 storey semi-detached residential property overhang in Johor Bahru as they have a lot of experience in the real estate field. Therefore, they will share their knowledge about the factors that influence a 2-3 storey semi-detached residential property overhang in Johor Bahru. Therefore, they will give their opinion about the factors that influence 2-3 storey semi-detached residential property overhang in Johor Bahru through the questionnaire form.

(b) Sampling Size

The determination of sample size was calculated by using Yamane (1976) sampling calculation formula. Besides, the acceptable sampling error of this study is estimated at 10% of the precision level. Table 3 shows the sampling size of this study.

$n = \dfrac{N}{1+N \times (e)^2}$	where; n is the sample size N is the population size e is the acceptable sampling error

Table 3: Sampling Size

	Population	Sample Size
Housing developer in Johor Bahru	30	23
Registered estate agents in Johor Bahru	92	48
Registered valuers in Johor Bahru	42	30
Total	164	101

(c) Sampling Location

The sampling location of this study is Johor Bahru. The reason for selecting Johor Bahru in this study is Johor recorded the highest number of residential oveoverhangs 7,030 units in Malaysia. However, the sampling location of this study is in Plentong, Johor only. Plentong is a mukim in Johor Bahru District, Johor, Malaysia. The reason for selecting Plentong, Johor is due to Plentong recorded the highest sum of unsold value 2-3 storey semi-detached residential property overhang in Johor Bahru in Q3 2020 (NAPIC, 2020).

(d) Sampling Methods

The methods of sampling in this research are convenience sampling due to the limited time frame. Besides, convenience sampling is inexpensive and could easily obtain the data from the respondent of this study.

(e) Research Instrument

The questionnaire form is defined as a tool for measuring instruments that will be carried out in this research. The main reason to conduct the questionnaire survey is to get the respondent's feedback within a short period of time as well as for their direct responses. While creating the questionnaire, it is preferable to use the fixed-alternative question method since this form of method is easier and it is less time consuming compared to other technique. Since the element of time is crucial in order to complete the survey, the questions that this study proposed is in a simple, direct and clear manner in order to avoid any inconveniences for answering. The respondents only select the most suitable answer as a representative for their opinions from the overall answer. The questionnaire is divided into three sections, Section A, Section B, and Section C.

Section A focused on the background of the respondent. For example, gender, age, race, working experience, occupation in the real estate field and the number of 2-3 storey semi-detached residential property overhang units that you have come across in your professional experience.

Section B focused on the factors that influence of 2-3 storey semi-detached residential property overhang in Johor Bahru. The respondents were required to select a number between one and five to reflect their opinions for each independent variable that influence of 2-3 storey semi-detached residential property overhang in Johor Bahru. Four independent variables comprise the price factor, location factor, housing loan factor, building factor, housing feasibility studies factor and public factor.

Section C focused on the most significant factor that influences 2-3 storey semi-detached residential properties overhang in Johor Bahru. The respondents were required to select a number between one and four to reflect their opinions for the significance of each independent variable that influence of 2-3 storey semi-detached residential property overhang in Johor Bahru. The independent variables of this study are price factor, location factor, housing loan factor, building factor, housing feasibility studies factor and public factor.

3.2 Data Collection Method

(a) Primary Data

In this study, primary data is collected through distribution the questionnaire form to the relevant respondent by simple random sampling method. The questionnaire form is created by using the Google Form and distributed to the respondents which are registered estate agents, registered valuers and housing developers in Johor Bahru. Self-administrated questionnaire is used to get response from the respondents due to data can be collected in a short period of time for this research (Saunders *et al.*, 2009). The questionnaires forms are distributed to 101 respondents randomly in Johor Bahru. The firms included the housing developer, registered valuer and registered estate agent in Johor Bahru.

(b) Secondary Data

Secondary data is the data or information that has already been existed. In this research, the secondary data is gathered from NAPIC, articles, newspapers, previous studies and others. The secondary date is used for the literature review chapter in this research.

3.3 Data Analysis

Statistical Package for the Social Sciences (SPSS) version 26.0 was used as the data analysis tools for the data analysis in this study. The coding of variables in quantitative research is very critical for better interpretation of results.

(a) Pilot Test

A pilot test is needed to ensure the reliability of the questionnaire. The first 20 sets of questionnaires have been distributed before the distribution of the 101 sets of questionnaire forms to the respondents of this study. The purpose is to ensure that the questionnaires are reliable by reliability testing before distribution all sets of questionnaire to the respondents.

The reliability test (pilot test) of the first 20 sets of questionnaire will be conducted in this research. Cronbach's alpha reliability analysis is used as the analysis method to test the reliability which represents consistency and stability. Cronbach's alpha acts as a sample to refer to the significant relationship between the set of variables. The higher values reflect a higher degree of internal consistency and value above 0.70 is considered acceptable.

(b) Descriptive Analysis

The researcher used the mean and standard deviation for descriptive analysis. Mean is used to measure the level of the positive influence of independent variables towards the dependent variables while standard deviation is used to measure variability (Ali *et al.*, 2019).

A high mean shows that the dependent variable has a more positive influence on the independent variables while a low mean shows that the independent variables have a low positive influence on the dependent variables. On the other hand, a high standard deviation shows that the data is less reliable and a low standard deviation shows that the data is more reliable.

(c) Inferential Analysis

The researcher used Pearson's Correlation analysis and Multiple Regression analysis to measure the gathered data from 101 respondents in order to analyze the relationship between independent variables and dependent variables of this study.

Pearson's correlation analysis is used to determine the strength of a linear relationship between two variables whether there are positive, negative or no relationships between the independent variables and dependent variable in this study. The correlation coefficient ranges from -1.00 to +1.00, with 0 representing absolutely no systematic association between two variables. The result of +1.00 indicates a perfect positive relationship. While the result of -1.00, it indicates a perfect negative relationship.

Multiple regression analysis is used to find out the relationship between independent variables and dependent variables. The relationship between multiple independent variables (price factor, location factor, housing loan factor and building factors) and one dependent variable (2-3 storey semi-detached residential properties overhang in Johor Bahru) are to be tested.

4. Results and Discussion

4.1 Pearson Correlation Analysis

Table 4: Pearson Correlation

		Correlations						
		Dependent Variable	IV 1	IV 2	IV 3	IV 4	IV 5	IV 6
Dependent Variable	Pearson Correlation	1	.820**	.569**	.759**	.300**	.693**	-0.114
	Sig. (2-Tailed)		0.000	0.000	0.000	0.002	0.000	0.241
	N	108	108	108	108	108	108	108

Price Factor (IV 1)	Pearson Correlation	.820**	1	.596**	.727**	.289**	.460**	-0.091
	Sig. (2-Tailed)	0.000		0.000	0.000	0.002	0.000	0.349
	N	108	108	108	108	108	108	108
Location Factor (IV 2)	Pearson Correlation	.569**	.596**	1	.437**	.490**	.250**	-0.097
	Sig. (2-Tailed)	0.000	0.000		0.000	0.000	0.009	0.316
	N	108	108	108	108	108	108	108
Housing Loan Factor (IV 3)	Pearson Correlation	.759**	.727**	.437**	1	.220*	.469**	-0.079
	Sig. (2-Tailed)	0.000	0.000	0.000		0.022	0.000	0.419
	N	108	108	108	108	108	108	108
Building Factor (IV 4)	Pearson Correlation	.300**	.289**	.490**	.220*	1	0.125	.248**
	Sig. (2-Tailed)	0.002	0.002	0.000	0.022		0.198	0.010
	N	108	108	108	108	108	108	108
Housing Feasibility Studies Factor (IV 5)	Pearson Correlation	.693**	.460**	.250**	.469**	0.125	1	-0.040
	Sig. (2-Tailed)	0.000	0.000	0.009	0.000	0.198		0.681
	N	108	108	108	108	108	108	108
Public Factor (IV 6)	Pearson Correlation	-0.114	-0.091	-0.097	-0.079	.248**	-0.040	1
	Sig. (2-Tailed)	0.241	0.349	0.316	0.419	0.010	0.681	
	N	108	108	108	108	108	108	108

Table 4 shows the significance of explaining independent variables (price factor, location factor, housing loan factor, building factor, housing feasibility studies factor and public facilities factor) towards the dependent variables (2-3 storey semi-detached residential properties overhang in Johor Bahru). According to Table 4, the p-value of price factor, location factor, housing loan factor, building factor and housing feasibility studies factor is less than the alpha value of 0.05 ($p<0.05$) at 0.000, 0.000, 0.000, 0.002 and 0.000 respectively. This indicates that price factor, location factor, housing loan factor, building factor and housing feasibility studies factor are significant to the 2-3 storey semi-detached residential properties overhang in Johor Bahru. However, the p-value of the public facilities factor is greater than the alpha value of 0.05 (0.241>0.05). This indicates that the public facility factors is not significant to the 2-3 storey semi-detached residential properties overhang in Johor Bahru.

4.2 Multiple Regression Analysis

Table 5: Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.917[a]	0.841	0.831	0.60838

According to Table 5, it shows that the R-square value is 0.841, or 84.1%, which means that 84.1% of the variation of the 2-3 storey semi-detached residential properties overhang in Johor Bahru can be explained by the price factor, location factor, housing loan factor, building factor, housing feasibility studies factor and public facilities factor. However, there is 15.9% of the variation that is not able to

explain through this model. This model can be considered fit with the data. Because, the higher the R-square value, the better the model fit with the data.

Table 6: Analysis of Variance

	ANOVA[a]					
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	197.284	6	88.835	88.109	.000[b]
	Residual	37.383	101	0.373		
	Total	234.667	107			

According to Table 6, it shows that the p-value (sig) is 0.000 which is less than the alpha value of 0.05 (p<0.05). Therefore, the F-statistic can be proved that it is significant. The models are able to describe the relationship between the independent variables (price factor, location factor, housing loan factor, building factor, housing feasibility studies factor and public facilities factor) and the dependent variable (2-3 storey semi-detached residential properties overhang in Johor Bahru). Thus, this study concludes that the correlation between the models and the dependent variable (2-3 storey semi-detached residential properties overhang in Johor Bahru) is significant. Furthermore, the models can be used to explain the dependent variable as well.

Table 7: Summary of Multiple Regression Analysis

	Coefficients[a]					
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics
	B	Std. Error	Beta			VIF
(Constant)	-10.162	0.658		-15.437	0.000	
Price Factor	1.142	0.193	0.392	5.933	0.000	2.764
Location Factor	0.358	0.174	0.111	2.065	0.042	1.830
Housing Loan Factor	0.745	0.185	0.238	4.018	0.000	2.232
Building Factor	0.135	0.111	0.057	1.213	0.047	1.416
Housing Feasibility Studies Factor	1.029	0.130	0.363	7.900	0.000	1.337
Public Facilities Factor	-0.073	0.064	-0.049	-1.145	0.255	1.143

Multicollinearity problems occur when independent variables are correlated. If the degree of correlation between variables is high enough, it can cause problems when you fit the model and interpret results. Variance Inflation Factors (VIFs) is adopted to identify the strength of the correlation between the independent variables and the strength of that correlation to assess whether there are multicollinearity problems. According to Lind, Marchal and Wathen (2017), a VIF higher than 10 is not acceptable and the variable should be removed from the regression. Generally, the VIFs below 5 or 10 indicated that are no multicollinearity problems. According to Table 7 above, VIF of all independent variables is below 5. This indicates that are no multicollinearity problems.

Multiple Regression Equation:

$Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6$

Y = 2-3 storey semi-detached residential properties overhang in Johor Bahru

A = intercept or constant

$\beta_1 X_1$ = Price factor

β2X2 = Location factor

β3X3 = Housing loan factor

β4X4 = Building factor

β5X5 = Housing feasibility studies factor

β6X6 = Public facilities factor

2-3 storey semi-detached residential properties overhang in Johor Bahru	=	-10.162 + 1.142 (Price factor) + 0.358 (Location factor) + 0.745 (Housing loan factor) + 0.135 (Building factor) + 1.029 (Housing feasibility factor) – 0.073 (Public facilities factor)

4.3   Most Significant Factor that Influence 2-3 Storey Semi-Detached Residential Properties Overhang in Johor Bahru

Table 8: Most Significant Factor that Influence 2-3 Storey Semi-Detached Residential Properties Overhang   in Johor Bahru

	Price Factor	Location Factor	Housing Loan Factor	Building Factor	Feasibility Studies Factor	Public Factor
Frequency (Respondents)	55	6	26	4	13	4

According to Table 8, majority of respondents chose the price factors as the most significant factors that influences the 2-3 storey semidetached residential properties overhang in Johor Bahru while housing loan factor as the second most significant factor. The housing feasibility studies and the location factor is ranked third and fourth respectively. The building factor is ranked at fifth whereby the public facilities factor is ranked at sixth (least significant factor).

5.   Conclusion

According to Pearson Correlation analysis outcome, it shows that price factor, location factor, housing loan factor, building factor and housing feasibility studies factor have a significant relationship with 2-3 storey semi-detached residential properties overhang in Johor Bahru. However, price factor, housing loan factor and housing feasibility studies factor were considered as factors that have a strong relationship with 2-3 storey semi-detached residential properties overhang in Johor Bahru. Therefore, it is recommended to prioritize these factors.

The analysis also shows that the price factor is the most significant factor that influences the 2-3 storey semidetached residential properties overhang in Johor Bahru. This is because there is a mismatch between the property price and household income. This result is also supported by Susilawati & Armitage, (2004) that the affordability of homeownership has decreased due to the mismatch between property prices with household income affordability.

According to the analysis of the result, it is proposed that pay more attention to the price factor first, followed by housing loan factor and housing feasibility studies factor as well as location factor. For example, extending the Home Ownership Campaign (HOC), imposing a freeze on the development of buildings, the housing feasibility studies must be verified by public and private registered valuers compulsory before implementing a new housing project and adjusting the housing lending policy.

In conclusion, future research is advised to focus on factors that influence commercial property overhang or other factors that influence 2-3 storey semi-detached residential properties overhang in Johor Bahru.

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