MAKING SENSE OF STIGMATISED PROPERTY: A CROSS-PROFESSIONAL PERSPECTIVE

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ABSTRACT

Housing is the basic needs for a human and it creates a lot of investment opportunity for speculators. When a property is attached with stigma, its value will be affected. However, there are different impacts of stigma on the value of the property. The main aim of this research is to determine the impact of stigma on property price. Therefore, the opinion of estate agents, negotiators or auctioneers was obtained through questionnaires interview. The data were analysed using cross-tabulation analysis, normality test for data distribution, reliability analysis for constructed research survey and structural equation modelling (SEM) to obtain the result of the study. The relationship between types of stigma and its implications on property price were explored. The result shows that stigmas influenced the property price; while implications of stigma did not bring noticeable impacts.

Keywords: *Stigma, Stigmatised properties, Impact, Property value*

1. INTRODUCTION

Housing is the basic need for a human; it involves a series of transaction procedures and a huge amount of money. Therefore, property homebuyers will usually study the market and history of the property before proceeding with the transaction. By referring to Malpezzi (2002), housing market involves land use, development regulation and housing prices where the housing prices are affected by regulations and demand determinants. This was supported by Green and Hendershott (1996) who mentioned the house prices are reflected by the willingness of the amount paid by homebuyers, and by the number of properties supplied by the builders. In addition, the price of a house is the main consideration for a homebuyer to own house (Haron and Liew, 2013). In purchasing property, factors that affect the homebuyers' decision making are, among other, the location, physical perspective, safety, economic features and amenities. Additionally, characteristic of the property also influence the homebuyers' decision making.

However, when the property is located at an undesirable location, such as close to hazards, homebuyers' perception differs. This type of property will be characterised as stigmatised property. Stigmatised properties create a negative perception amongst the public. Such property may have a physical or nonphysical defect, where the latter includes emotional defect such as the occurrence of death or crime. The properties are also characterised as stigmatised property when the neighbourhood or surrounding area of the properties have an ongoing commission of a crime. According to Brown and Turlow (1996), places with violent crimes have issues of disclosure and loss of property value. Such implication also applies to the properties on contaminated land, or susceptible to natural disasters, or even if it is perceived as being inhabited by supernatural beings (i.e., haunted). However, different homebuyers have a different perspective on the features of the properties. For example, some homebuyers are willing to purchase the property that is near power transmission line, as the developers may offer it with extra lands. The study of Richard Roddewig (1996) found that there is no evidence to suggest that the market for stigmatised properties is lacking. Thus, such demand may increase the value of the property. However, the studies by Lynch and Rasmussen (2001), Hellman and Naroff (1979) and Linden and Rockoff (2008) proved that stigma has a significant impact on the house price. When the properties are characterised as stigmatised, the willingness of homebuyers to purchase them are affected, as reflected in the price of the property. In short, the homebuyers' perception has a significant impact on the price of stigmatised properties.

Therefore, the main aim of this research is to determine how the public perceptions on stigmatised properties influence their prices. In order to gain more insight into the issues related to stigmatised properties, this paper is organised as follows. First, relevant literature encompasses the concept of stigma is discussed. Then, follows the discussion on the impact of stigma on property price and the methodology used in assessing such implication. Thereafter, analysis and conclusion of the paper are presented and discussed.

2. LITERATURE REVIEW

2.1 Definition of Stigma

Stigma has many definitions. For example, Morgan (1994) in Perlin & Ben-Ezra (2005), refers stigma as property psychologically impacted by an event which occurred or was suspected to have occurred on the property, even being one that has no physical impact of any kind. Perlin and Ben-Ezra, 2005) further added that stigmatise properties can be created even without physical indications, where it can be of non-physical or emotion defects. Meanwhile, Sanders (1996) defined it as "an intangible psychological impact on value or marketability because of increased risk or future uncertainty". In addition, Said in the NST (2012) refers Stigmatise properties as "any negative public perception adversely affects a project's marketability and value".

Thus, stigmatised property can be concluded as a phenomenon when there were psychological impacts by bad circumstances and the value or reputation of the property was affected. This perception will influence the decision of the homebuyers when purchasing the property.

In real estate contents, stigma was categorised into various groups by different studies, as summarised in Table 1.

Table 1: Types of stigma

(Filarski, 2013)	(Wiltshaw, 1998)
• **Public stigma** Wide demographics know the existence of stigma. • **Criminal stigma** The neighbourhood of the properties has ongoing commission of crime. • **Murder or suicide stigma** Properties involved in murder or suicide cases. • **Debt stigma** Debtor moved out without the debt collectors noticing. • **Phenomena stigma** Properties that renowned as "haunting".	• **Certainty stigma** A known liability that is consider as permanent and comprehensive • **Uncertainty stigma** When the outcomes and probabilities of the occurance are uncertain. • **Risk stigma** Uncertain risk after the remedial is taken. • **Multicausal stigma** Several contributors are taken into account.
Dr Sr Rosli in (NST, 2012)	(Colangelo and Miller, 1995)
• **Physical stigma** A tangible physical asset defect. • **Non-physical stigma** An intangible physical asset defect. • **Physiological or emotional stigma** Neither physical nor environmental defects	• **Residual stigma** A permanent liability and continuing risk after the remedial took place, resulted from public perception. • **Proximity stigma** Negative impact towards the close proximity properties with other stigmatised causal.

In general, stigmatised properties include properties in contaminated area, natural hazard (such as flood and landslide) and neighbourhood with high crime rate. This includes properties involving death, abandoned for a prolonged time, incomplete construction or paranormal occurrence. As mentioned by Colangelo and Miller (1995), properties can be stigmatised due to their proximity to those factors. Stigma can be the defect that is tangible or intangible, and this is borne by the user or homebuyer. The common point for the different types of stigma is the impact towards property value.

2.2 Implication of Stigma

From the definitions studied in the previous subsection, it can be said when the property is characterised as stigmatised, there is an impact on the property in terms of its value, reputation and risk. As mentioned in NYT (2006), the stigmatised property will dissuade the potential homebuyers even if it is free from physical defects. Therefore, the stigmatised properties will command less than the market value (Wiltshaw, 1998; Roddewig, 1996 and Sanders, 1996). Declining market value is mainly due to the lack of demand in the market. Therefore, when the property is characterised as stigmatised, the demand for the property declined and hence, the market value of the property dropped.

In general, homebuyers refuse to purchase the property when additional cost of remedial is required for the properties' debt stigma, phenomena stigma or environmental stigma. Homebuyers feel insecure when they do not understand about the defects and afraid they have no adequate control over the property (Muldowney and Harrison, 1995). It is easy to understand that the effect of stigma rose from the risk perception, which concerned the homebuyers. The risk is an important issue in this aspect as it consists of remedial costs, time and uncertainty (NST, 2012). Every risk encountered or perceived by them will influence their decision whether it is from the environmental, safety or financial. When the homebuyers have a negative reaction towards the risk and stigma, the demand on the stigmatised property will reduce.

For environmental risk, it consists of health risk, remediation risk, media risk and regulatory risk (Richard Roddewig, 1996). Properties on contamination land are considered environmentally stigmatised. Homebuyers are afraid of the health hazard arise from the land. For instance, when the groundwater is below the contamination land, it has a high chance of being polluted. Therefore, the water supply to the residents might be harmful. In order to reduce the risk and value affected of the properties, owners are required to carry out the remedial work, such as site clearance. The remedial cost and any other additional costs are charged to the owner. On the other hand, properties with high exposure in media created public awareness on the pollution issues, which will affect the perceptions of the public and homebuyers. Therefore, the liability of the homebuyers and the owners on the particular land, such as the remedial work and taxes will be known; thus, expertise is required. The impact accrued from the environmental risk will discourage the home buyers.

However, research by Neustein and Bell (1998) offered a contradicting opinion; new generations of homebuyers are looking for the contaminated real estate. Researchers highlighted the perception as the main factor to shift the attitude and demand of the purchaser in the market and bring the impact on the property value or price (Neustein and Bell, 1998; Hurd, 2002 and Wiltshaw, 1998). The study of Muldowney and Harrison (1995) also mentioned when the public has negative opinions about the risk and future problems, the value of the properties will be affected. In addition, the homebuyers are not confident with the science has "caught up" with the common contamination problems and will lead them to question the future of the property. It is hard to determine the market value of the stigmatised properties and its future value when the property is repaired (Sanders, 1996). When the value of the property became uncertain, the desire of the home buyers towards that property will be less.

Properties situated in the neighbourhood that has an ongoing commission of crimes are characterised as crime stigma. According to Brown and Turlow III (1996), places with violent crimes are having the issues of disclosure and loss of property value. Additionally, the crime rate has a high impact on the individual's safety perception on a neighbourhood (Tita et. al., 2006). Thus, the value of property has a direct relationship with the individual's perception. Some homebuyers will not move into the neighbourhood with a bad reputation in terms of crimes and safety. People will reduce their desirability of ownership in the neighbourhood when the threat is a crime (Tita et al., 2006). As discussed by Cullen and Levitt (1999), residents prefer safer communities. The unlikelihood of the residents to enter a particular neighbourhood will affect the value of the properties. The influence on it is mainly due to the low mobility among the residents in a neighbourhood, reducing the housing supply on the market (Lynch and Rasmussen, 2001).

However, some homebuyers are willing to enter the affected neighbourhood. When the house has other characteristics, the homebuyer will change their desirability of ownership (Lynch and Rasmussen, 2001). For instance, location and accessibility of the house may be valued higher, despite with higher crime rate. Some homebuyers are willing to pay more in order to enter the particular neighbourhood. This contradicts the statement of Ihlanfeldt and Mayock (2010), where serious crimes will drive people out of the neighbourhood. Meanwhile, the willingness of the homebuyers to enter the crime neighbourhood also contradict to the assumption of the study by Linden and Rockoff (2008). This contradiction occurred because Linden and Rockoff (2008) did not consider the other characteristics of the properties that might change the ownership behaviour of the individuals. However, crime still has a significant impact on the market (Lynch and Rasmussen, 2001; Hellman and Naroff, 1979; and Linden and Rockoff, 2008).

Property's reputation could further affect its market value. Homebuyers will have difficulty in reselling their properties in the future even they are comfortable with the stigmatised property (Chapman and Ludlum, 2014). According to Ecker (2013), stigmatised properties are often harder to be rented and sold. This statement is supported by Larsen and Coleman (2010) who stated stigmatised properties usually sold or leased at a lower price or stayed in the market longer compared to other houses. In such cases, estate agents or sellers are facing problems to disclose the properties especially the properties that are thought to be "haunted". Meanwhile, in Malaysia, there is no law for a seller to disclose such information about the property's history (Star, 2012). Thus, homebuyers have to take the full responsibility for purchasing a stigmatised property in Malaysia.

On the other hand, Miller in NYT (2006) gave the opinion about the stigmatised property in the weaker market having more effect on its value. People are less pronounced with their opinions when the market is in recession, and thus, they affect less on the value. Correspondingly, an industry observer in the Star (2012) mentioned a haunted house that fetched a lower price compared to other properties in the market will be more attractive to the homebuyers who are not concerned about the paranormal phenomena. Some investors bought the haunted house and sold it for a large profit in the market. The marketability of stigmatised properties in the market varies on the beliefs of the home buyer.

Stigmatised property has a direct implication towards the property value or house price. As mentioned earlier, the homebuyers have a different opinion on the stigmatised properties (Neustein and Bell, 1998). In the articles of Star (2011) and Star (2012), the industry observers highlighted stigmatised properties provided an opportunity to the investors to make a huge profit. Some homebuyers purchased the stigmatised property in the weaker market with lower price and waited a longer time to market the property, lowering the chance for future tenants to hear about the rumour or the history of the properties (Alias et al., 2014). When the property is successfully transacted, investors will be able to earn larger profits (Star, 2011; Star, 2012). There are several studies about the changes in property values due to stigma, where most of the researchers have the opinion of stigmatised property fetching the lower property value. The list of the result and opinions of the previous researchers are shown in Table 2.

Table 2: The Result and Opinion of the Researchers about Implications of Stigma on the Property Value or House Price

Types of stigma	**Implication of the property value or house price**	**Author**
Electromagnetic Field	Decline in value: (i) Residential Property: 1% - 2% (ii) Industrial Property: 1% - 3% (iii) Commercial Property: 2% - 8% (iv) Other Type of Property: Agricultural land, 3%	Alias and Baharuddin (2005)
Crime stigma	(i) Increase of 10% in crime in the properties decreases $206 of property sales price (ii) Increase of 10% violent crime in neighbourhood decreases $145 of property sales price	Lynch and Rasmussen (2001)
Landslide property	(i) In the year 2009, - apartment sales price dropped to 26% - the terraced house remained unscathed with 1% increment (ii) In the year 2010, - Apartment sales price dropped to 4%	Star (2011)

Haunted house	The sales price of stigmatised property is 10% to 20% less than comparable properties.	Star (2012)
Death stigma	Capital appreciates for $22.5million in one year time	NYT (2006)
Crime stigma	Property value depreciates about $60 million	Linden and Rockoff (2008)
Crime stigma	Reduction in violent crime increases the house price by approximately 39%.	Tita et al. (2006)
Crime stigma	Property value increases with: (i) 1% crime rate reduction: $2.3 million (ii) 5% crime rate reduction: $11.489 million (iii) 10% crime rate reduction: $22.996 million	Hellman and Naroff (1979)

In short, individual's perception will affect the demand and market for the stigmatised properties. The perception of the individuals from the risk factors that come from stigma is treated as one of the many attributes of the sales price (Messer et al, 2006). However, there is no valid support to say there is no market for the stigmatised property (Roddewig, 1996). This fact is only true for certain types of stigmatised properties. Some people will go for the stigmatised property when the property has other attractive characteristics such as location and accessibility when compared to the bad reputation of the crime stigma. The summary of the implications of stigma is shown in Figure 1 and this becomes the theoretical framework of the study.

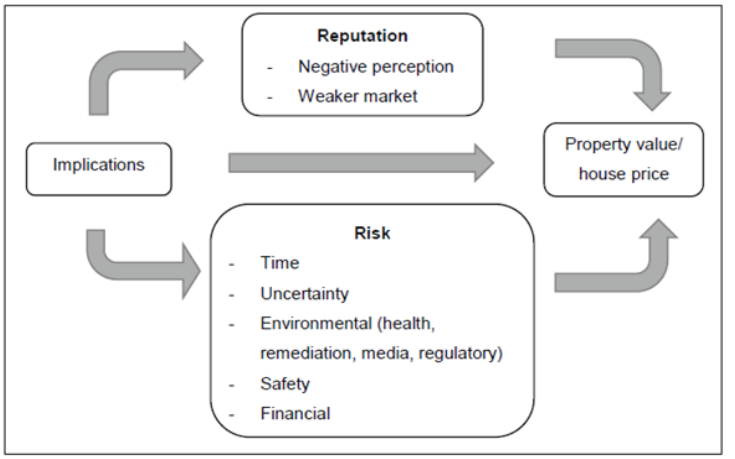

Figure 1: Summary of Implication of Stigma

3. METHODOLOGY

Quantitative method is used as the research approach for the study. The questionnaires were used as a mode of research survey and conducted to determine the opinions of the real estate real estate agents, negotiators and auctioneers. The questionnaire contained open-ended questions, checklists, and ranking scales. The brief description of types of questions by Phillips (2008) are:

- Open-ended: Respondent is allowed to answer without limit in ample blank spaces that have been provided.
- Checklist: Respondent is required to choose the suitable items that apply in the situation from a list of items that have been provided.
- Two-way: The answer is limited to a pair of alternatives responses.
- Ranking scales: Respondent is required to rank a list of items.

Snowball sampling technique is used for this research. This is conducted by approaching respondents who can fulfil all the criteria of the study. After obtaining the required data from the first respondent, the researcher will approach the other respondent who was suggested by the first respondent. The process is repeated until the desired number of the respondents is reached. Snowball sampling is usually adopted when the target group is small with unique characteristics and compiling the complete list of sampling units is considered not practical.

The sample size is limited to 50 people of respondents. The target group of respondents are estate agents, negotiators and auctioneers. The respondents must be registered with their respective professional bodies and active in Malaysia housing market. These parties must have been dealing with stigmatised properties. The surveys were conducted both face-to-face interview and online forms distribution. The geographical area of study is Klang Valley.

The method used in the analysis is Structural Equation Modelling (SEM). The method is commonly used to convert a theoretical framework into AMOS syntax (Awang, 2010). SEM is also known as a collection of tools used to analyse the connections between various concepts in cases whereby the connections can be either for expanding the general knowledge or for problem solving (Blunch, 2008). A confirmatory factor analysis is used in the study to determine the relationship between the types of stigma, implications brought by stigma and price changes of stigmatised property. According to Blunch (2008), under the three-indicator rule, a confirmatory factor model is identified when every factor has, at least, three indicators, no manifest variable is an indicator for more than one factor and the error terms are not correlated.

Latent variables are theoretical constructs that are unable to observe and measured directly in a research study. In order to measure all the variables in the study, the unobserved variable is linked to one that is observable (observed variables) (Byrne, 2010). Among latent variables, there are exogenous and endogenous variables. Referring to Byrne (2010), exogenous latent variables are synonymous with independent variables. Exogenous latent variables will bring impact on the values of other latent variables in the model. However, endogenous latent variables are synonymous with dependent variables, which will be influenced directly or indirectly by exogenous variables. Figure 2 shows a schematic diagram of the study.

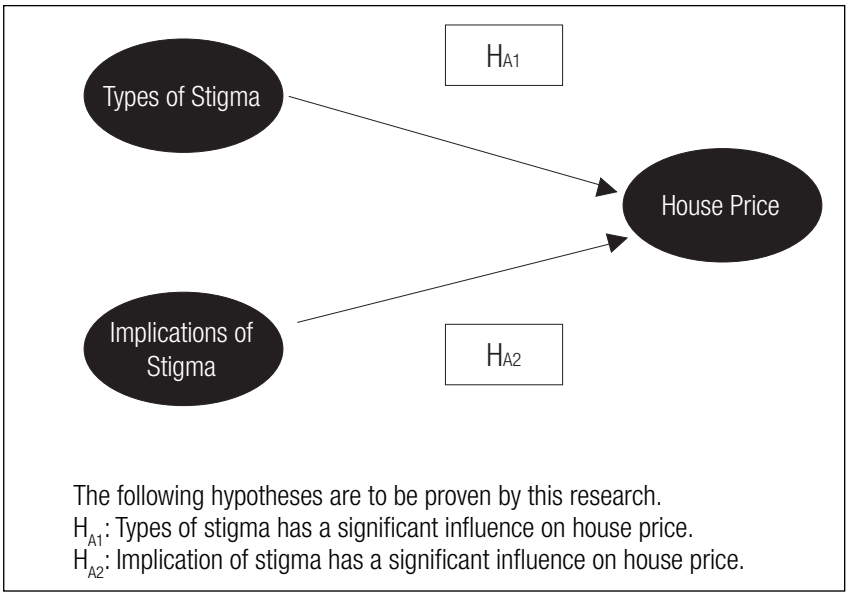

Figure 2: Schematic Diagram

The theoretical model of the study is developed using AMOS graphic as shown in Figure 3.

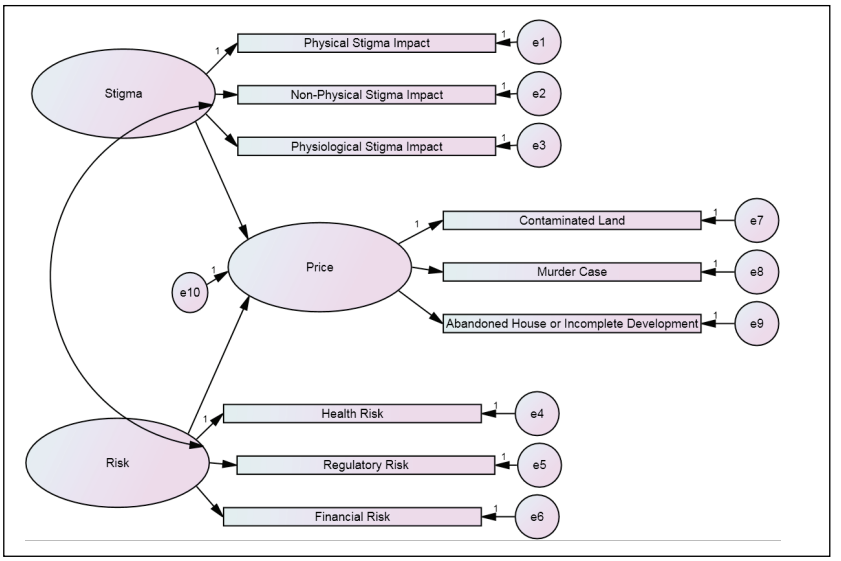

Figure 3: The Theoretical Model of This Study in AMOS Graphic
Source: AMOS 20.0 Output Viewer

As mentioned before, the aim of the research is to identify the relationship between types of stigma, implications of stigma and price changes of stigmatised properties. The relationships between variables are represented by parameters or path (Teo et al., 2013). These parameters include directional effects, variances, and covariance. The relationships between the variables are known as directional effects.

In the study, the directional arrows from stigma (latent variable) to non-physical stigma impact and physiological stigma impact (observed variable) are known as factor loading to be estimated. This is the same as the directional arrows from risk to regulatory risk, and financial risk; as well as changes in value due to the murder case and abandoned or incomplete construction or development. Physical stigma, health risk and contaminated land are factor loadings set at 1.0. The relationship between latent variables to another latent variables is known as path coefficient (Teo et al., 2013). The arrow from stigma to price indicates the path coefficient, which shows the relationship between exogenous variable to endogenous variable. In the study, the path coefficient is shown by stigma to price, the risk to price, stigma to risk and risk to stigma. The directional effect in this study is six-factor loadings between latent variables and observed variables and four path coefficients between latent variables. Therefore, ten parameters have been established in this study.

Path loading of independent latent variables set to 1.0 will be estimated by variance (Teo et al., 2013). In this study, indicator error (e1 to e9) that associated with the nine observed variables; errors-associated endogenous variables (stigma) and exogenous variables (risk and price) will be estimated by variance. On the other hand, covariance is known as non-directional associates among independent latent variables. In this study, a covariance exists as the hypothesis made earlier mentioned that stigma and risk factors are correlated. In short, for this study, 23 parameters (4 path coefficient, six-factor loadings, 12 variances and one covariance) were specified for the estimation.

3. RESULTS AND DISCUSSION

The results of the analysis are presented as follows:

Normality Test for Data Distribution

Skewness and kurtosis are the common methods used to identify the normality of data. The data distribution pattern can be represented in skewness and kurtosis statistics. According to Chua (2013), the value of skewness and kurtosis should be in the range of -1.96 to + 1.96 for a normally distributed data. The results are shown in Table 3.

Table 3: Normality Test for Types of Stigma, Types of Implications of Stigma and House Price

Variable		Skew	Kurtosis
Types of Stigma	Physiological Stigma	.000	-.500
	Non-Physical Stigma	.139	-.789
	Physical Stigma	-1.088	1.143
Types of Implications of Stigma	Financial Risk	-.579	-1.136
	Health Risk	.000	-1.750
	Regulatory Risk	-.328	-.336
House Price	AH	.515	-.635
	CL	.622	-1.042
	MC	.000	-1.550

Source: AMOS 20.0 Output Viewer

The results of the normality test show the data of types of stigma, types of the implication of stigma and house price are normally distributed since the skewness and kurtosis values are within ±1.96.

Reliability Analysis of Constructed Research Survey

The level of reliability of a questionnaire survey is determined by the result of the Cronbach's alpha value by using Cronbach's alpha internal consistency method. The acceptable range of alpha is 0.65 to 0.95 (Chua, 2013). In the study of Tavakol and Dennick (2011), a satisfactory alpha value is from .70 to .95. This had been mentioned Gefen et al. (2000) where the construct reliability should be above .70. A low alpha coefficient shows the items in the questionnaire survey have a low ability to measure the concept whereby high alpha value shows all the items are homogeneous or overlap to each other (Chua, 2013). The results are shown in Table 4.

Table 4: Reliability Test for Types of Stigma, Types of Implications of Stigma and House Price.

Item Tested		Cronbach's Alpha
Types of Stigma	Physical Stigma	.716
	Non-Physical Stigma	
	Physiological Stigma	
Types of Implications of Stigma	Health Risk	.871
	Regulatory Risk	
	Financial Risk	
House Price	Contaminated Land	.910
	Murder Case	
	Abandoned Houses or Incomplete Construction or development	

Source: SPSS 20.0 Output Viewer

The results show that the Cronbach's alpha reliability coefficients are below .95 which is .716 for types of stigma, .871 for types of the implication of stigma and .910 for house pricing. The reliability value is satisfactory. The implications of stigma are reduced to three variables namely health risk, regulatory risk, and financial risk; variables for house pricing is reduced to contaminated land, murder cases and abandoned houses or incomplete construction or development in order to obtain the ideal Cronbach's alpha reliability coefficient.

Structural Equation Model (SEM)

SEM is used to study the relationship between the types of stigma, implications brought by stigma and house pricing changes of the stigmatised property.

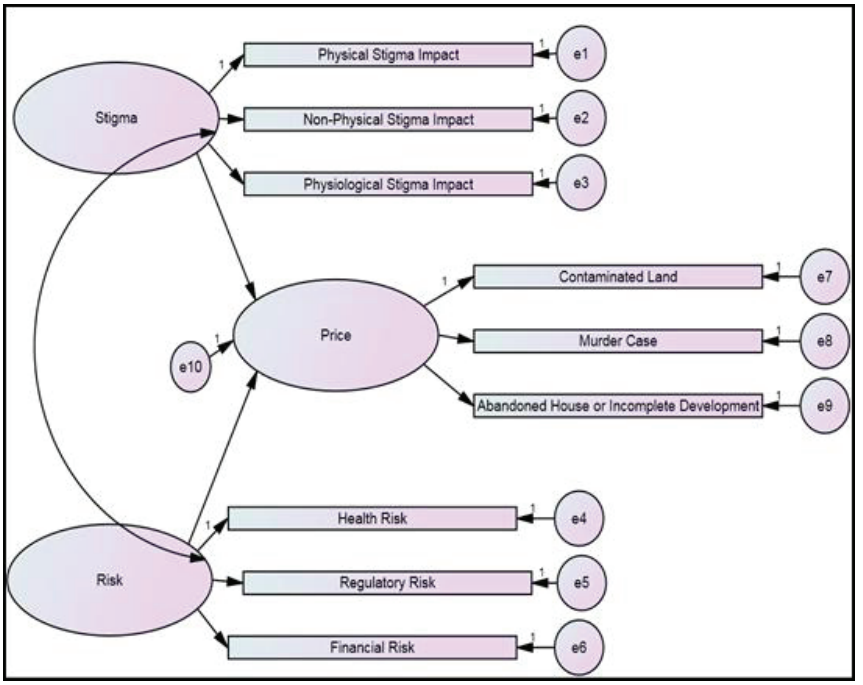

Figure 4: The Path Diagram presents the strength and magnitude of association among the variables in the Study

Source: AMOS 20.0 Output Viewer

Based on the figure above, the covariance between types of Stigma and types of implications that bring by stigma (Risk) is .14. The result of the errors and path coefficient are in Figure 4.

Table 5: Result of errors and path coefficient

Variables	Estimate
Stigma	.127
Risk	.559
e10	.714
e1	.433
e2	.095
e3	.219
e4	.241
e5	.182
e6	.202
e7	.397
e8	.390
e9	.003

Source: AMOS 20.0 Output Viewer

Variance estimated path loading of independent latent variables that have been set to 1.0. The estimation of variance for each variable is stated in Table 5. This shows the independent latent variables have a positive path loading.

The estimate of correlations determines the strength of the relationship between types of stigma and implications that brought by stigma.

Table 6: Result of Correlation

Variable	Path	Variable	Estimate
Stigma	<-->	Risk	.531

Source: AMOS 20.0 Output Viewer

Based on the result above, the value of correlation among types of stigma and types of implications brought by stigma is .531, which is at an average level.

The hypothesised links among the main variables in this research study namely Stigma, Risk and Price are tested.

H_{A1}: Types of stigma has a significant influence on house price.

Table 7: Path Analysis of SEM for Hypothesis 1

Variables	Path	Variable	Estimate	P
Price	<---	Stigma	1.214	.030

Source: AMOS 20.0 Output Viewer

The P-value for H_{A1} is .030, which is lower than .05. Hence the null hypothesis is rejected. Therefore, H_{A1} is supported. Types of stigma have a significant and direct influence the house price.

H_{A2}: Implication of stigma has a significant influence on house price.

Table 8: Path Analysis of SEM for Hypothesis 2

Variable	Path	Variable	Estimate	P
Price	<---	Risk	-.023	.917

Source: AMOS 20.0 Output Viewer

Since the P-value for H_{A2} is higher than .05, the null hypothesis is not rejected. Thus, H_{A2} is not supported. The types of implications that brought by stigma have no significant and direct influence on house price.

In summary, the result of the main variables in this study is shown in Table 9.

Table 9: Summary of the Result of Main Hypothesis in the Study

No	The Main Hypothesis Statement in the Study		Result
1	H_{A1}	Types of stigma have significant influence on house price.	Supported
2	H_{A2}	The implication of stigma has a significant influence on house price.	Not Supported

3. CONCLUSION

This research study aims to determine the perception of estate agents, negotiators and auctioneers on the influence of stigmatised property on its value. The information of stigmatised properties and perceptions of respondents were collected through a questionnaire survey.

The normality and reliability test were conducted before applying the structural equation modelling (SEM) in the analysis of the study. The purpose is to determine the eligibility of the data obtained to be analysed using SEM method. From the result of SEM, it was clearly shown that types of stigma bring significant influence to house pricing. For instance, when a property is characterised as physical stigma such as built on contaminated land, the price is reduced to an average of 19%.

On the other hand, types of implications that brought by the stigmas had no significant impact on its price. Thus, it sufficed to conclude that health risk, regulatory risk and financial risk will not affect the price of the properties. Homebuyers took more consideration on other types of factors such as physical attributes of the houses and design than the risk that brought by stigma.

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