Efficiency of distressed property sales in Lagos city, Nigeria

Joseph Obaje Ataguba*[1] & Celestine Udoka Ugonabo[2]

[1]Department of Estate Management and Valuation, School of Environmental Studies, Federal Polytechnic, Idah
[2]Department of Estate Management, Faculty of Environmental Sciences, Nnamdi Azikiwe University, Awka

*Correspondence Email: joataguba@fepoda.edu.ng

Abstract

With recourse to data obtained from the online multiple listing services (MLS) of the Nigerian Property Centre, this study evaluated the efficiency of sale of distressed properties in Lagos city using a 6-month interval of observations protocol, comprising of listings of less than 6 months, 7 to 12 months, 13 to 18 months, and 19 to 24 months respectively. Time-on-the-market (TOM) in this study was perceived to be the duration (in months) from the listing date to the date of data collection. Results of selected parametric and non-parametric statistical tests indicated that there was an insignificant difference in the observation of distressed properties that have remained on the market for at most 6 months and those with marketing time beyond 6 months. Similarly, properties listed for distressed sales in Lagos city were found to have continuously attracted lower purchase rates in the same manner as the non-distressed properties. These results avowed the phenomenon of inefficient sale of distressed properties in Lagos city, Nigeria. It was recommended by the study that individuals and institutions in property brokerage business in Lagos city should conduct a risk assessment of the diminishing likelihood of distressed sales and the incremental losses associated with lengthy listing periods.

Keywords: Distressed property, Distressed sale, Efficiency, Time-on-the market, Lagos city

JEL Classification: G21, L85, R39

1. Introduction

Landed properties might be held in connection with occupation, investment, financial, socio-economic, and legal motives. Other contemporary motives for holding properties extends to marriage, partnerships, corporate mergers, and the various categories of hypothecation including mortgages and customary pledges. The sale of a landed property that is held in connection with any of the aforementioned motives shall ordinarily not arise unless the property falls into distress following the determination-

or non-performance of the motive or transaction which the landed property is designed to secure. In other words, when changes in the terms and conditions for the exercise of these motives call for the liquidation of the encumbered property assets, a situation of distressed sale of these properties shall arise. Brueggeman and Fisher (2011) averred that distress is a phenomenon that is used to describe the circumstances surrounding a reluctant sale of interest in property which could have been averted under normal circumstances. The distressed sale is likened to property asset liquidation such that the proceeds of the sale is used to settle outstanding liabilities arising from the primary transaction under which the encumbered property assets had been held (Brueggeman and Fisher, 2011). Among the rationale for the sale of distressed properties outlined by Brueggeman and Fisher (2011), the dominant trajectory arises from non-performing loans or other forms of secured lending for which property was given up as a collateral security (Allen *et al.*, 2022; Brueggeman and Fisher, 2011; Chow *et al.*, 2015; Daneshvary *et al.*, 2011; Vandell and Riddiough, 1992).

Scholars have averred that the sale of distressed properties is mostly carried out within limited period of time known as short sales, and at discounted prices (Allen *et al.*, 2022; Chow *et al.*, 2015; Daneshvary *et al.*, 2011; Downs and Xu, 2015), which entails foregoing the benefits of arms length transaction in exchange for a timely aversion of ever increasing financial obligations that are associated with the primary transaction which the property was used to secure. This is contrary to the sale of distressed properties by private treaty, which entails arms length negotiation and transaction using broker channels, some scholars have reported how distressed properties have been "efficiently" sold within a limited period of time through short sales (Allen *et al.*, 2022; Daneshvary *et al.*, 2011; Downs and Xu, 2015), with a corresponding reduction in the time-on-the market (TOM). In other situations of secured lending, distressed properties were sold pursuant to a foreclosure and acquisition by the lender (Allen *et al.*, 2022; Clauretie and Daneshvary, 2011; Mallach, 2014), and with TOM that is inversely proportional to the selling price on one hand (Ajayi, 1997; Anglin *et al.*, 2003; Bello and Olusola, 2018; Benefield *et al.*, 2014; Taylor, 1999), and directly proportional to property market conditions on the other hand (Filippova and Fu, 2011). However, these distressed properties that have remained on the market for a long period of time prior to their actual sales date might signal an adverse impact on the efficiency of selling landed properties in that category. Although there are Nigerian-specific studies dealing with TOM for the sale of properties (Ajayi, 1997; Bello, 2015; Bello and Olusola, 2018), the absence of a standard databank on marketing and sale of distressed properties especially in Lagos city actually makes it a cautionary exercise to generalize on the TOM prior to the sale of the distressed properties in that area. If TOM is chosen as a surrogate measure for the efficiency of property sales, it is very possible to reach diverging outcomes (Benefield *et al.*, 2014; McGreal *et al.*, 2009), with misleading conclusions pertaining to the acceptable range of epoch from the initial listing to final disposal that is required to avow efficient sales or otherwise. The implication here is the need to assess the efficiency of sale of distressed properties in a chosen location of interest with

recourse to statistical tests comparing the samples of distressed properties sold within the first 6 months of listing with the sample of distressed properties that have remained on the market for over 6 months of initial listing, contrary to the diverging insights from existing TOM studies.

This study aims to assess in relative terms, the efficiency of selling distressed properties in Lagos city, Nigeria for the purpose of settling outstanding liabilities arising from the primary transaction under which the encumbered property asset had been held. In order to address the aim of this study, some objectives are formulated which include, an examination of the distribution of sampled distressed- and non-distressed properties listed on the market, an evaluation of the differences in listings within- and beyond the 6 months' TOM for a sample of distressed- and non-distressed properties, and the evaluation of the differences in the sample of distressed- and non-distressed properties listed within- and beyond 6 months' periods respectively. In lieu of TOM, an alternative approach adopted in this study is the use of available samples of distressed and non-distressed properties on the market based on a standard observation protocol of the number of months on the market prior to collection of survey data to draw up conclusions regarding the efficiency or otherwise of the sale of distressed properties listed on the market.

2. Literature review

Conceptual framework

The conceptual foundation for this study is captured in Figures 1(a) and 1(b) respectively. The first dimension of the conceptual framework (Figure 1(a)) entails comparing independent samples of non-distressed properties (nX_1) listed and sold within an epoch of 6 months and the independent samples of non-distressed properties (nX_2) that are still on the market or awaiting sales from 6 to 24 months. On the other hand is the comparison of independent samples of distressed properties (nX_1) listed and sold within an epoch of 6 months and the independent samples of non-distressed properties (nX_2) that are still on the market or awaiting sales from 6 to 24 months.
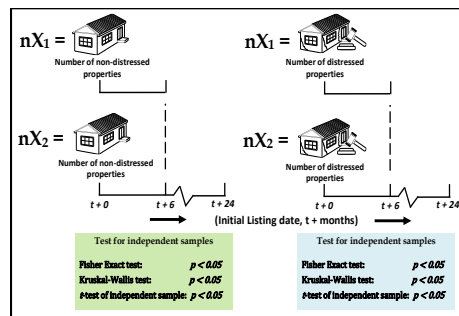

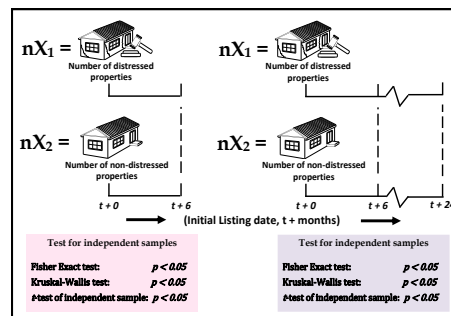*Figure 1(a): First dimension of the conceptual framework for the study*

Figure 1(b): Second dimension of the conceptual framework for the study

The second dimension of the conceptual framework (Figure 1(b)) pertains to comparing independent samples of distressed- (nX_1) and non-distressed properties (nX_2) listed and sold within an epoch of 6 months. On the other hand is the comparison of independent samples of distressed- (nX_1) and non-distressed properties (nX_2) that are still listed on the market or awaiting sales from 6 to 24 months. As mentioned above, distressed properties are conceived in this study as properties that are initially used to facilitate a transaction, or held in connection with a specific motive but mid-way into the primary transaction shall require sale (liquidation) in order to generate instant capital for the settlement of liabilities arising from the non-performance of the motive or transaction which the landed property was designed to secure. On the other hand, non-distressed properties are conceived in this study as landed properties/real estates that are not encumbered by any form of primary- or secondary transaction. With recourse to Figures 1(a) and 1(b), the total number of properties listed in the market over the observation period of 24 months comprises the number of non-distressed- and distressed properties listed and sold within the first 6 months, and those still on the market beyond the first 6 months and up to a threshold of 24 months respectively, including the date of data collection. It is conceptualized in Figure 1(a) that the sale of distressed properties is efficient if the number of distressed properties sold within the first 6 months of listing is higher than the number of distressed properties that are still in the market beyond the 24-month epoch calibrated for this study. Whereas, the control test on non-distressed properties is aimed at facilitating an independent comparison between these two groups of properties.

Secondly, it is conceptualized in Figure 1(b) that the sale of distressed properties is efficient if the number of distressed properties sold within the first 6 months of the listing is significantly higher than the number of non-distressed properties sold within the same epoch. On the other hand, it was hypothesized that the efficiency of distressed property sales can be avowed if the number of distressed properties that are still in the market from 6 months to 24 months of initial listing is significantly lesser than the number of non-distressed properties during the same epoch.

The of theories of property market efficiency
The theory of market efficiency as applicable to the property context can be traced to the literature in the field of financial economics where three major dimensions of market efficiency theory were identified to include allocative efficiency, informational efficiency, and operational efficiency (Gatzlaff and Tirtiroğlu, 1995; Herath and Maier, 2015). In its originally postulated forma, the efficient market theory states that asset prices result from interplay of all publicly available information relating to the asset's characteristics, such that the tendency to outperform the overall market index shall not arise without the investor accepting the trajectory of associated risks (Fama, 1970; Vamvakaris *et al.*, 2017). In response to this, Gatzlaff and Tirtiroğlu (1995) perceived the tendency for asset markets to allocate scarce resources and funds to their most productive uses. Although this notion of efficient market is highly skewed towards informational efficiency, the theoretical scope of efficient market has been expanded

through the following posed questions: who pays for the asset or who gets compensated for loss of the asset and what extent do prices reflect asset information? Also, what is the potency of the asset transaction and the relative ease of exchanging the asset between the buyer and the seller?

Table 1: An array of applicable theories of property market efficiency

General Domain	Application domain	Theory	Application domain of theory	Pathways	Meta pathways
Financial Economics	Property market	Market Efficiency Theory	Property market efficiency	Allocative efficiency	Pareto principle
					Kaldor-Hicks "compensation" principle
				Informational efficiency	Weak-form efficiency
					Semi strong-form efficiency
					Strong-form efficiency
				Operational efficiency	Efficacy of sale
					Efficiency of sale

Source: Authors' review of market efficiency theory

The first question posed relates to Allocative efficiency, which was theorized as the distribution of scarce resources among competing needs that maximizes utility and value (Gyrd-Hansen, 2014; Harries, 2012). As summarized in Table 1, allocative efficiency is further categorized to include the Pareto principle and the Kaldor-Hicks "compensation" principle. The pareto principle posits that the allocation of resources is optimal if and only if no single person losses and at least one person gains, which according to Pearce *et al.* (2006) signifies a "win-win" that can hardly be achieved in real-life since it is obvious that some persons shall incur losses in the course of the allocation. The second category of allocative efficiency is the Kaldor-Hicks "compensation" principle, which states that efficient resource allocation arises if gainers from the allocation process can compensate those that are worse off and still have 'positive' residual gains (Gyrd-Hansen, 2014; Pearce *et al.*, 2006). Although the application of allocative efficiency and its variants have been debated in the areas of land rights and resources allocation (Gavian and Fafchamps, 1996; Harvey and Jowsey, 2004), and the compensation for land expropriation and injurious affection among others (Blume and Rubinfeld, 1984; Kabanga and Mooya, 2018), this theory does not appear to be applicable to the evaluation of the efficiency of distressed property sales.

The second question posed in this sub-section relates to informational efficiency, which is the original construct to the definition of market efficiency postulated by Fama (1970) as the extent to which asset prices reflect the characteristics of the asset as well as all publicly available information about the asset. Under this pathway to the theory of (property) market efficiency include the weak-form efficiency, semi-strong efficiency, and strong-form efficiency (Fama, 1970; Fama, 1991). Within the real estate context, Eccles *et al.* (1999) reiterated that a market is *weak-form efficient* if property

prices and indices reflect past information about the property, *semi-strong efficient* if property prices and indices respond swiftly to publicly available information, and *strong-form efficient* if property prices and indices have incorporated all private- as well as publicly available information about the property asset. An added dimension to informational efficiency is the positive influence that market transparency exerts on the provision of appropriate information that might likely support efficient transfer of property rights especially in developed markets (Nozeman, 2010). Notwithstanding, the theory of informational efficiency is a pathway of (property) market efficiency, but with emphasis on the timely capture of all available information about the asset and the traded market in the asset prices and indices; as well as the issue of information asymmetry associated with asset transactions (Broxterman and Zhou, 2023). Therefore, this pathway to the theory of market efficiency does not equally appear to be applicable to the evaluation of the efficiency of distressed property sales.

The third and fourth questions posed in this sub-section fall under the ambit of operational efficiency, which according to Brown and Matysiak (2000) and Herath and Maier (2015) connotes the relative ease and cost effectiveness associated with property transactions. In tandem with Brown and Matysiak (2000), the aspect of operational efficiency that deals with ease of property transaction is called efficiency of a transaction, whereas, the second aspect that deals with cost effectiveness of property transaction most likely refers to the efficacy or potency of the transaction. In the first instance, the efficacy of sale of landed property implies that the rationale or potency of the conveyance of title from the seller to the buyer has been achieved. On the other hand, this study dwells principally on the second dimension which perceives efficiency of property sale as the conveyance of title from the seller to the buyer over a relatively minimal length of time without engulfing excessive transaction cost.

Theoretical framework for the study
Emphasis of this study is on the efficiency of distressed property sales, which is drawn from the second Meta pathway of operational efficiency in Table 1. Within the framework of operational efficiency as defined by Brown and Matysiak (2000) and Herath and Maier (2015), this article theorizes the efficiency of distressed property sales as the conveyance of title in a distressed property from the seller to the buyer over a relatively minimal length of time without engulfing excessive transaction cost. A surrogate to this concept is called time-on-the market (TOM), which has been defined as the length of time between the initial listing of property on the market and the actual time that it is finally sold (Haurin, 1988; Kalra and Chan, 1994; Leung *et al.*, 2002). Synonymous to the definition above is the concept of normal selling time (NST), which Cheng *et al.* (2010) defines as the expected or average TOM for which interest in real estate can be sold under normal and unconstrained market condition. Studies credited to Benefield *et al.* (2014) and McGreal *et al.* (2009) however observed a lack of consensus among scholars regarding what constitutes a minimal TOM for listed properties, let alone the appropriate range of quantified TOM that supports the hypothesis of distressed property sales being efficient or otherwise. Benefield *et al.* (2014) however

provided insights into five distinct definitions of TOM and exhibited the actual calculation of TOM based on these definitions with a conclusion urging brokers and researchers to match their definition of TOM with actual data for the computation exercise, bearing in mind the diverging opinions regarding the definition and calculation of the phenomenon.

Review of empirical literature

The classification of distressed properties include short sale properties, foreclosed properties, and real estate owned (REO) (Allen *et al.*, 2022; Clauretie and Daneshvary, 2011; Mallach, 2014). Short sale properties are typically encumbered assets that are listed on the market for quick sale by their owners prior to a foreclosure and usually at prices below their market values for the purpose of timely liquidation of an obligation (Goodwin and Johnson, 2016). Short sales within the context of hypothecation was however described as a process whereby the property owner decides to sell the encumbered property by himself and avails the lender with the proceeds of the property sales for the purpose of amortizing the outstanding loan balance (Brueggeman and Fisher, 2011). Suffice it to say that short sale of property is not typical to hypothecation alone as it might be required to generate minimum amount of capital in pursuit of a short-term obligation.

Foreclosed properties fall within the second category in the taxonomy of distressed properties. These are distressed mortgaged properties for which the mortgagee exercises a court order known as *foreclosure order nisi*, empowering it to take possession of the mortgaged property in the event of loan default, to enable the mortgagor to pay up all outstanding within a limited period of moratorium (Bateman *et al.*, 2006; Baum and Hartzell, 2012; Ebisike, 2010). If default still persists after the moratorium has elapsed, then the mortgaged property shall be finally foreclosed by the mortgagee through court order to pave the way for the exercise of statutory power of sale.

The third category of distressed properties is the real estate owned (REO) otherwise called the *"lender owned properties"* (Mallach, 2014). These are distressed mortgaged properties that the lender forecloses and exercises full title prior to outright sales (Allen *et al.*, 2022; Clauretie and Daneshvary, 2011; Cohen *et al.*, 2016; Mallach, 2014). In other words, the full foreclosure of a mortgaged property must be apparent before the creation of REO shall be instantiated. Although Hepburn (2001) reiterated that the issuance of foreclosure order finally extinguishes the mortgagor's debt obligation and transfers the unexpired interest in the mortgaged property to the mortgagee, it would be most appropriate for the mortgagee to exercise this right where the value of the property significantly exceeds the outstanding debt capital, otherwise the mortgagee is bound to incur losses.

Existing literature has indicated that any of these categories of distressed properties could be sold by private treaty, tender (competitive bidding), or auction in tandem with extant legislations on auctioneering practice (Aluko, 2007; Bello, 2007; Ratcliffe *et al.*,

2009; Smith, 2007). Notwithstanding, there appears to be online evidence corroborating the marketing of distressed properties for sale in Nigeria through broker channels that are outside the statutory advertisement platform of the Asset Management Corporation of Nigeria (AMCON), implying that not all distressed properties in Nigeria might be linked to non-performing loans given the plethora of rationale for the evolution of distressed properties identified in the preceding section.

With recourse to the concept of TOM, The subject matter of the expected listing period prior to transaction, which qualifies property sales as being "efficient" or otherwise has generated plethora of debates. Miller (1978) proposed 65 days, Haurin (1988) proposes 64.11 days, Kalra and Chan (1994) puts it at 138 days or approximately 4.5 month; whereas Glower *et al.* (1988) put the mean TOM for a sample of 115 residential homes in Ohio at 194 days, but with a 50% and 95% likelihood for TOM to fall within 199 days and 335 days respectively. Taylor (1999) found a positive correlation between lower listed price and shorter TOM, which corroborates the results of Pryce and Gibb (2003) regarding the stigma effects and diminishing likelihood of sales of properties that have remained listed over a long period of time. Anglin *et al.* (2003) found a mean TOM to the tune of 58 days and 110 days (Approximately 2 months and 3.7 months) for sold and unsold properties respectively in Arlington, Texas, and concluded that increase in the list price will likely increase the "expected" TOM especially for houses with lower variance in list prices.

Within the Nigerian context, Bello (2015) observed that properties in the periphery of Akure were sold within 6 months from the initial listing date, whereas developed properties in transition areas exhibited lengthy TOM to the tune of at least 12 months from the initial listing date. Still on the subject of TOM for landed properties in Nigeria, Bello and Olusola (2018) found the significant determinants of TOM for a sample of properties in Akure to include number of conveniences, state of repairs, zone, and availability of water supply respectively. In agreement with similar studies by Ajayi (1997) and Taylor (1999) respectively, Bello and Olusola (2018) avowed a positive correlation between higher listing price and TOM.

Notwithstanding these varying perspectives, this study adopted a different perception of TOM as the length of time from the initial listing of property on the market up to the actual date for the collection of data for the research, owing to the absence of a standard database of distressed property sales for the study area. The hypothesis is that past sales of distressed and non-distressed properties shall leave a lower residual number of properties in the distressed category than the non-distressed category, so that the efficiency of the sale of distressed properties in Lagos city shall be avowed; otherwise, the sale of distressed properties in Lagos city shall be adjudged to be inefficient.

The contemporary trajectory of studies on this matter can be traced to Crockett (1990) averring that property sales under distress leads to a trade-off between illiquidity and incremental losses. Curry *et al.* (1991) reports the mean TOM for the full sample of public-, quasi-private-, and private managers to be 591 days. In a related study of

determinants of liquidation values of distressed assets, Shleifer and Vishny (1992) provides an insight into optimal timing of sales of distressed properties to coincide with when the buyer has adequate incremental cash flow for outright purchase or when the buyer can raise capital from other sources to purchase the distressed asset, which is a cautionary exercise that defies generalization.

Contrary to the proposition by Vandell and Riddiough (1992) that the amount of time that a (distressed) property is officially on the market (TOM) may not be significant in the case of an auction as compared to the traditional broker channels, the epistemological-realist perspective of the subject matter credited to Azasu (2006) is an indication that the phenomenon of increased TOM can arise from any strategy or method adopted in pursuit of distressed property sales, including auctions. Chow *et al.* (2015) further found that auctions generate higher price premium for non-distressed properties compared to distressed properties. Onwuanyi (2018) equally observed the phenomenon of higher asking prices placed on vacant properties within Lagos city, which might be perceived to have adverse impact of extending the TOM for non-distressed- and distressed properties alike. However, insight into the seminal work of Azasu (2006) regarding the possible irrational behaviour by bidders and auctioneers, calls to caution, the generalization of the *"typical"* 4 to 6 weeks' TOM for the auction of distressed property credited to Chow *et al.* (2015). Benefield and Sirmans (2009) found the mean days on market (DOM) being the period from the initial listing date to pending contract date for a sample of 17,572 properties to be76.6 days; whereas the mean days until closing (DTC) which constitutes the period from pending contract date to closing date was found to be 53.9 days. Although inference from the study by Benefield and Sirmans (2009) indicates an average of 141 distressed properties in the sample, useful insights would have been provided in further studies by the same authors if the sample of distressed properties were isolated and analyzed to obtain specific descriptive statistics on the days on market (DOM), and days until closing (DTC) strictly for distressed properties in the study area.

In a systematic review of literature on the subject matter of simultaneously modelling the regressors of property price and TOM, Benefield *et al.* (2014) reveals a measure of synergy between the two control variables. Whereas a major fallout from that study was the incidence of price decline in the event of lengthy TOM for distressed properties in consonance with the study by Björklund *et al.* (2006), and the sale at a discount price in pursuit of timely asset liquidation as later pointed out by Chinloy *et al.* (2017). Although Downs and Xu (2015) did not actually focus on the likely TOM for distressed properties, they however concluded within the framework of a tobit regression model that the length of time for the resolution of distressed loan exhibits a nonlinear relationship with the recovery rate, coupled with an optimal liquidation period of 6 months for distressed loans, which indicates quick or efficient sale of the sample of distressed properties.

According to Cohen *et al.* (2016), Goodwin and Johnson (2016), and Pryce and Gibb (2003) there is always a stigma for distressed properties coupled with a risk of an increased TOM. In a related study of short sale with market stigma, Goodwin and Johnson (2016) discovered that marketing days prior to sale of a distressed property or the removal from listing revolved around 269.5 days (Approximately 9 months), whereas it is about 216.7 days (Approximately 7 months) on the market for non-distressed properties. These results appear to be consistent with the Nigerian property market situation where traces of parity in TOM seemed to exist between listed distressed and non-distressed properties. Benefield and Hardin (2015) concluded their study by upholding the hypothesis that the definition of TOM, especially for distressed properties should align with the type of data and calculation being undertaken by brokers and community of scholars. With recourse to emerging TOM estimation methodologies and data for the epochs of pre- and post housing market recession, Allen *et al.* (2022) found that distressed properties in the sub-groups of short sale- and foreclosed properties exhibited a significantly longer TOM than non-distressed properties in support of results in prior studies credited to Goodwin and Johnson (2016) on the same subject matter. The latest study by Allen *et al.* (2022) indicates the likelihood that distressed properties might likely exhibit lengthy TOM depending on the nature and complexity of issues surrounding their intended sale; irrespective of the lack of consensus regarding what constitutes a minimal TOM for listed properties. The authors' position in this study is the perception of TOM for distressed and non-distressed properties as the total period of time (in months) from initial listing on the market to the date of data access and collection.

3. Methodology

Lagos state in South-Western Nigeria is geographically situated within the bounds of Latitude 6°22'48" N and 6°42'00"N, and longitude 2°30'00"E and 4°15'00"E respectively and occupies a land mass of about 3,577 square kilometres (See Figure 2).
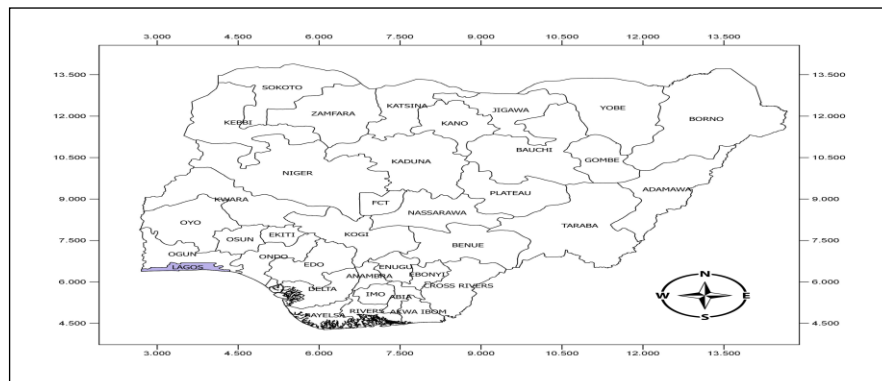

Figure 2: Political map of Nigeria with Lagos state highlighted

Centrally located within Lagos state is the Lagos city made up of Lagos mainland and Lagos Island (See Figure 3). The sampling of properties listed online was delimited to Lagos city, because of the intensive economic activities in this area of the state (Osho and Adishi, 2019), and the resilience of transactions that characterizes the Lagos property market (Onwuanyi, 2018). The study deployed an epistemologically-pragmatist approach to capture the perception of what constitutes acceptable knowledge regarding the efficiency or otherwise of the sale of distressed properties in Lagos city, based on the recommendation by Cheng and Metcalfe (2018) on the conduct of similar researches. The study combined the survey-, exploratory case study-, and experimental designs which lead to the development of an observation protocol for the classification of properties according to their TOM prior to data collection.

Data on listed distressed and non-distressed properties in Lagos city were obtained from the multiple listing services (MLS) of the Nigerian Property Centre, being one of the online listing platform for real estate brokers in Nigeria. The properties in the sample were arranged according to a 6-monthly interval for the band of TOM commencing from the initial listing date to the observation date on 24th February 2022; namely less than 6 months, 7 to 12 months, 13 to 18 months, and 19 to 24 months; in tandem with the 6 months average length of time for the resolution of distressed loan as reported by Downs and Xu (2015).

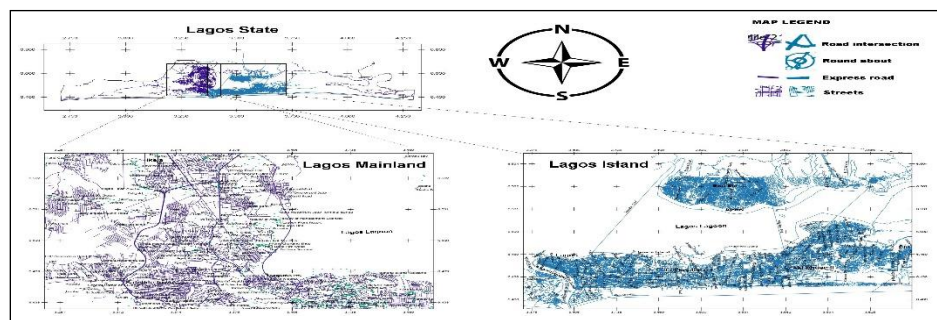Six techniques of data analysis were deployed for each paired observation in this study.

Figure 3: Map of Lagos state with the detailing of Lagos mainland and Lagos Island
Map Source: https://www.openstreetmap.org/#map=11/6.5841/3.4377&layers=O

These comprises of cross tabulations, runs test of randomness, the Kolmogorov-Smirnov normality test, the Fisher exact test, the *t*-test of independent samples, and the Kruskall-Wallis test respectively. The efficiency of sale of distressed properties in Lagos is avowed on the condition that the number of distressed properties that are unsold after 6 months of initial listing is significantly lower than- and different from the number of non-distressed properties that are unsold after more than 6 months of initial listing on the market.

4. Results

Descriptive Data Analysis

A total of 85 properties were drawn from the online census survey as presented in Table 2. Properties offered for sale in the MLS were categorized into five groups namely flats, houses, commercial property, industrial property, and parcel of land.

Table 2: All properties listed for sale on the online platform

Property type	Period of listing with reference to 24th February, 2022			
	≤ 6 months	7 - 12 months	13 - 18 months	19 - 24 months
Flats	10	4	2	2
Houses	27	6	2	2
Commercial property	1	5	0	0
Industrial property	2	1	0	0
Parcel of Land	13	6	1	1
Total	53	22	5	5

Source: The Nigerian Property Centre - https://www.nigeriapropertycentre.com

The total number of properties listed within 6 months prior to the survey represents approximately 6 out of every 10 listing in the study area so that approximately 4 out of every 10 properties listed might have remained unsold/rolled over from the previous years' listing.

Table 3 was created by identifying and subtracting the observations of non-distressed landed properties offered for sale on the online platform from the content of Table 2. It is likely that approximately 5 out of every 9 observation of non-distressed properties in Table 3 have been listed within 6 months prior to the survey; so that about 4 out of every 9 observation of non-distressed properties from the previous years' listing may have remained unsold and rolled over to the current year of observation.

Table 3: All non-distressed properties listed for sale on the online platform

Property type	Period of listing with reference to 24th February, 2022			
	≤ 6 months	7 - 12 months	13 - 18 months	19 - 24 months
Flats	6	2	2	0
Houses	2	0	0	1
Commercial property	0	3	0	0
Industrial property	1	0	0	0
Parcel of Land	7	2	1	0
Total	16	7	3	1

Source: The Nigerian Property Centre - https://www.nigeriapropertycentre.com

In Table 4, the 6 distressed properties that have remained unsold for about 13 to 24 months prior to the survey were rolled over to the year 2022 listing, where they were further offered for sale.

Table 4: All distressed properties listed for sale on the online platform

Property type	Period of listing with reference to 24th February, 2022			
	≤ 6 months	7 - 12 months	13 - 18 months	19 - 24 months
Flats	4	2	0	2
Houses	25	6	2	1
Commercial property	1	2	0	0
Industrial property	1	1	0	0
Parcel of Land	6	4	0	1
Total	37	15	2	4

Source: The Nigerian Property Centre - https://www.nigeriapropertycentre.com

Efficiency of sales on the basis of time-on-the market
Presented in Table 5 is a cross tabulation of listed properties between two specific epochs namely listing that are at most 6 months old and those above 6 months in tandem with the first dimension of the conceptual framework in Figure 1(a). For all listed properties, the two groups of data in the second and third columns of Table 5 did not exhibit randomness at $p < 0.05$, but were normally distributed at $p > 0.05$ in tandem with the Kolmogorov-Smirnov test. The Fisher Exact test indicated that properties listed during the two epochs were independent at $p < 0.05$; whereas the Kruskal-Wallis test and the t-test reconciled the hypothesis that the difference between properties in the two epochs is not significant at $p < 0.05$. Secondly, the data for non-distressed properties listed between the two epochs were isolated and treated in the same manner as the parent data evaluated above. Data on the two groups of non-distressed properties contained in the fourth and fifth columns of Table 5 failed the randomness test at $p < 0.05$; whereas the Kolmogorov-Smirnov test avowed a normal distribution for the data over these two epochs at $p > 0.05$.

Table 5: Statistical test for difference in listed properties between two specific epochs

Property type	Period of listing for property groups					
	All listed properties		Non-distressed properties		Distressed properties	
	≤ 6 months	> 6 months	≤ 6 months	> 6 months	≤ 6 months	> 6 months
Flats	10	8	6	4	4	4
Houses	27	10	2	1	25	9
Commercial property	1	5	0	3	1	2
Industrial property	2	1	1	0	1	1
Parcel of Land	13	8	7	3	6	5
Total,n_i	53	32	16	11	37	21
p-value runs test		0.0003		0.0003		0.0028
p-value normality test	0.9242	0.6836	0.7895	0.6368	0.4273	0.9809
p-value Fisher Exact test		0.0000		0.0058		0.0030
p-value t-test		0.4210		0.5431		0.5162
p-value Kruskall-Wallis test		0.4647		0.7540		1.0000

Source: Authors Computation

The Fisher Exact test indicated that non-distressed properties listed during the two epochs were independent at $p < 0.05$. Just as in the case of the *t*-test, it can be concluded from the Kruskal-Wallis test that the difference between non-distressed properties in the two epochs is insignificant at $p < 0.05$.

The third round of the inferential analysis in Table 5 evaluated the difference in listed distressed properties between the two epochs. As indicated in the penultimate and final columns of Table 5, Data for the two groups of distressed properties failed randomness test at $p < 0.05$; whereas the paired data were normally distributed at $p > 0.05$. The Fisher Exact test indicated that distressed properties listed during the two epochs were independent at $p < 0.05$. The Kruskal-Wallis test and the *t*-test reconciled the hypothesis that the difference between distressed properties in the two epochs is insignificant at $p < 0.05$. While the insignificant difference between distressed properties listed for at most- and above 6 months period in Table 5 is a latent indicator of inefficient sale of distressed properties in Lagos city, the inference is inconclusive at this stage until the listed distressed and non-distressed properties are paired up and further analyzed.

Paired comparison between the stock of distressed and non-distressed properties
Analysis at this stage was carried out based on the comparison of distressed- and non-distressed properties, in tandem with the second dimension of the conceptual framework in Figure 1(b). As indicated in the second and third columns of Table 6, data for all listings in the two groups of properties exhibited non-randomness at $p < 0.05$ but were found to be normally distributed at $p > 0.05$. The data pairs were independent at $p < 0.05$ based on the Fisher Exact test, while the Kruskal-Wallis test affirmed the outcome of the *t*-test by indicating insignificant difference between the two categories of listed properties at $p < 0.05$.

Analysis of distressed- and non-distressed properties listed for at most 6 months on the market as captured in the fourth and fifth columns of Table 6 reveals that the two groups of properties exhibited a non-randomness at $p < 0.05$ and were normally distributed at $p > 0.05$. Both categories of listed properties were found to be independent at $p < 0.05$ on the basis of the Fisher Exact test, while the Kruskal-Wallis test affirmed the outcome of the *t*-test to reach a conclusion that there is insignificant difference between observations of distressed- and non-distressed properties listed on the market for at most 6 months prior to the survey.

In the sixth and seventh columns of Table 6, it was found that the two groups of properties exhibited non-randomness at $p < 0.05$ but were normally distributed at $p > 0.05$. The Fisher Exact test indicated independence of the two group of listed properties at $p < 0.05$, while the Kruskal-Wallis test affirmed the outcome of the *t*-test so that a conclusion was reached regarding the insignificant difference between distressed- and non-distressed properties listed on the market for over 6 months prior to the survey.

Table 6: Statistical test for difference between the two listed property groups

Property type	Period of listing for property groups					
	Listing for the entire period		Listing for at most 6 months		Listing for over 6 months	
	Distressed properties, n_1	Non-distressed properties, n_2	Distressed properties, n_1	Non-distressed properties, n_2	Distressed properties, n_1	Non-distressed properties, n_2
Flats	8	10	4	6	4	4
Houses	34	3	25	2	9	1
Commercial property	3	3	1	0	2	3
Industrial property	2	1	1	1	1	0
Parcel of Land	11	10	6	7	5	3
Total, n_i	58	27	37	16	21	11
p-value runs test		0.0028		0.0205		0.0003
p-value normality test	0.5830	0.5274	0.4273	0.7895	0.9809	0.6368
p-value Fisher Exact test		0.0000		0.0000		0.0030
p-value *t*-test		0.3423		0.3987		0.2398
p-value Kruskall-Wallis test		0.4647		0.6761		0.2506

In other words, the *t*-test for independent samples and the Kruskal-Wallis test have provided a meta-analysis of the low patronage of properties listed for distressed sales in Lagos city in the same manner as the non-distressed properties so that inference can be drawn from inefficient sale of distressed properties in Lagos city.

Discussion of findings

It was observed in the study that about 6 out of every 10 unsold properties listed on the Lagos city property market exhibited at most 6 months marketing time whereas about 4 out of every 10 of these unsold properties have been on the market for more than 6 months. The reason for this distribution of unsold properties on the market for these duration of time is connected with higher selling prices as observed in related studies by Ajayi (1997), Anglin *et al.* (2003), Bello and Olusola (2018), Benefield *et al.* (2014), and Taylor (1999), and a comparative study for which Onwuanyi (2018) did not completely rule out the impact of higher prices on vacant properties in Lagos city. Higher selling prices is equally responsible for the rollover of about 4 out of every 10 unsold properties from the year 2021 listing to 24th February, 2022 when data was collected for this study.

Results in Tables 5 and 6 indicate that properties listed for distressed sales in Lagos city have continued to attract lower purchase rates in the same manner as the non-distressed properties. However, the insignificant difference in distressed properties listed within- and beyond 6-month period in Lagos city is an indication of an unstable property market as noted by Chow *et al.* (2015), and is contrary to sellers' and buyers' expectation of a quick transactions as noted in a similar study by Vandell and Riddiough (1992); such that inference could be drawn within inefficient disposal of listed distressed properties in Lagos city. In agreement with the study credited to Pryce

and Gibb (2003), there appears to be a censored indication of the stigma effect and diminishing likelihood of sales of both distressed and non-distressed properties listed over a long period of time in Lagos city, unless the Lagos property market is inundated with innovations that might likely increase the volume of sales and reduce the average TOM for the listed properties.

5. Conclusion and Recommendation

Examined in this study is the efficiency at which distressed properties in Lagos city, Nigeria were sold on the market for the purpose of settling outstanding liabilities arising from the primary transaction under which the properties have been held. A censored approach to the evaluation of the efficiency of sale of distressed properties was deployed owing to the lack of a standard database of actual distressed property sales in the study area. It was found that properties listed for distressed sales in Lagos city have continued to attract lower purchase rates in the same manner as the non-distressed properties. Furthermore, there is insignificant difference in the observation of distressed properties that have remained on the market for at most 6 months and those with marketing time beyond 6 months, implying that in most cases, the sale of distressed properties in Lagos city cannot be achieved within 6 months of the initial listing on the market. The apparently inefficient sale of distressed properties in Lagos city is attributed to higher asking prices and the associated stigma effects of distressed listings according to this study. It is therefore recommended that the planned process of selling distressed properties located in Lagos city, Nigeria should include a risk assessment of the diminishing likelihood of distressed sales and the incremental losses associated with lengthy listing periods.

References

Ajayi, C. A. (1997). An analysis of the factors influencing the time on the market and selling price of residential property. *The Professional Builder's Journal, 2*, 7 - 12.

Allen, M. T., Benefield, J. D., Cain, C. L., and Maynard, N. (2022). Distressed Property Sales: Differences and Similarities Across Types of Distress. *The Journal of Real Estate Finance and Economics*. doi: 10.1007/s11146-022-09911-2

Aluko, B. T. (2007). Accuracy of Auction sales valuations in distressed bank lending decisions in Nigeria. *Journal of Business Economics and Management, 8*(3), 225 – 233. doi: 10.1080/16111699.2007.9636172

Anglin, P. M., Rutherford, R. C., and Springer, T. M. (2003). The trade-off between the selling price of residential properties and time-on-the-market: the impact of price setting. *Journal of Real Estate Finance and Economics, 26*(1), 95 - 111.

Azasu, S. (2006). Auctions in the Real Estate Market: A Review *Working Paper No. 55*. The Royal Institute of Technology (KTH), Sweden: Department of Real Estate and Construction Management.

Bateman, H., McAdam, K., Sargeant, H., and Simpson, L. (Eds.). (2006). *A-Z of Property Terms.* London: A & C Black Publishers Ltd.

Baum, A., and Hartzell, D. (2012). *Global property investment: strategies, structures, decisions*. Chichester: Wiley-Blackwell.

Bello, N. A. (2007). *Land Law and Conveyancing*. Abeokuta: De Nab Publication.

Bello, V. A. (2015). Marketing Time and Sales Price of Residential Properties in Akure, Nigeria. *Journal of Economics and Sustainable Development, 6*(24), 129 - 134.

Bello, V. A., and Olusola, A. T. (2018). Determinants of residential property time on the real estate market in Nigeria. *Indoor and Built Environment, 27*(2), 148 - 155.

Benefield, J., Cain, C. L., and Johnson, K. (2014). A Review of Literature Utilizing Simultaneous Modeling Techniques for Property Price and Time-On-Market. *Journal of Real Estate Literature, 22*(2), 149 - 175.

Benefield, J., and Sirmans, G. S. (2009). The Influence of Contingent Closing Costs on Sale Price, Time on Market, and Probability of Sale. *Journal of Housing Research, 18*(2), 121 - 142. doi: 10.1080/10835547.2009.12092008

Benefield, J. D., and Hardin, W. G. (2015). Does Time-on-Market Measurement Matter? *Journal of Real Estate Finance and Economics, 50*, 52 - 73. doi: 10.1007/s11146-013-9450-z

Björklund, K., Dadzie, J. A., and Wilhelmsson, M. (2006). Offer Price, Transaction Price and Time-on Market. *Property Management, 24*(4), 415 - 426. doi: 10.1108/02637470610671631

Blume, L., and Rubinfeld, D. L. (1984). Compensation for Takings: An Economic Analysis. *California Law Review, 72*(4), 569-628. doi: 10.2307/3480447

Brown, G., and Matysiak, G. (2000). *Real Estate Investment: A Capital Market Approach*. England: Financial Times-Prentice Hall.

Broxterman, D., and Zhou, T. (2023). Information Frictions in Real Estate Markets: Recent Evidence and Issues. *The Journal of Real Estate Finance and Economics, 66*(2), 203-298. doi: 10.1007/s11146-022-09918-9

Brueggeman, W. B., and Fisher, J. D. (2011). *Real Estate Finance and Investments* (14th ed.). New York: McGraw-Hill.

Cheng, K. K. F., and Metcalfe, A. (2018). Qualitative Methods and Process Evaluation in Clinical Trials Context: Where to Head to? *International Journal of Qualitative Methods, 7*, 1 - 4. doi: 10.1177/1609406918774212

Cheng, P., Lin, Z., and Liu, Y. (2010). Home price, time-on-market, and seller heterogeneity under changing market conditions. *Journal of Real Estate Finance and Economics, 41*, 272 - 293.

Chinloy, P., Hardin, W., and Wu, Z. (2017). Foreclosure, REO, and Market Sales in Residential Real Estate. *Journal of Real Estate Finance and Economics, 54*, 188 – 215. doi: 10.1007/s11146-015-9544-x

Chow, Y. L., Hafalir, I. E., and Yavas, A. (2015). Auction versus Negotiated Sale: Evidence from Real Estate Sales. *Real Estate Economics, 43*(2), 432 – 470. doi: 10.1111/1540-6229.12056

Clauretie, T. M., and Daneshvary, N. (2011). The Optimal Choice for Lenders Facing Defaults: Short Sale, Foreclosure, or REO. *Journal of Real Estate Finance and Economics, 42*(4), 504 – 521.

Cohen, J. P., Coughlin, C. C., and Yao, V. W. (2016). Sales of Distressed Residential Property: What Have We Learned from Recent Research? *Federal Reserve Bank of St. Louis Review, 98*(3), 159 - 188. doi: 10.20955/r.2016.159-188

Crockett, J. H. (1990). Workouts, Deep Pockets, and Fire Sales: An Analysis of Distressed Real Estate. *AREUEA Journal, 18*(1), 76 - 90.

Curry, T., Blalock, J., and Cole, R. (1991). Recoveries on Distressed Real Estate and The Relative Efficiency of Public versus Private Management. *AREUEA Journal, 19*(4), 495 - 515.

Daneshvary, N., Clauretie, T. M., and Kader, A. (2011). Short-Term Own-Price and Spillover Effects of Distressed Residential Properties: The Case of a Housing crash. *Journal of Real Estate Research, 33*(2), 179 - 207.

Downs, D. H., and Xu, P. T. (2015). Commercial Real Estate, Distress and Financial Resolution: Portfolio Lending Versus Securitization. *Journal of Real Estate Finance and Economics, 51*, 254 - 287. doi: 10.1007/s11146-014-9471-2

Ebisike, O. A. (2010). *Real Estate Accounting Made Easy*. New Jersey: John Wiley & Sons.

Eccles, T., Sayce, S., and Smith, J. (1999). *Property and Construction Economics.* London: International Thomson Business Press.

Fama, E. F. (1970). Efficient Capital Markets: A Review of Theory and Empirical Work. *The Journal of Finance, 25*(2), 383-417. doi: 10.2307/2325486

Fama, E. F. (1991). Efficient Capital Markets: II. *The Journal of Finance, 46*(5), 1575-1617. doi: 10.2307/2328565

Filippova, O., and Fu, S. (2011). Time-On-Market and House Prices in Auckland, New Zealand. *Pacific Rim Property Research Journal, 17*(1), 70 - 91. doi: 10.1080/14445921.2011.11104318

Gatzlaff, D. H., and Tirtiroğlu, D. (1995). Real Estate Market Efficiency: Issues and Evidence. *Journal of Real Estate Literature, 3*(2), 157-189. doi: 10.1080/10835547.1995.12090046

Gavian, S., and Fafchamps, M. (1996). Land Tenure and Allocative Efficiency in Niger. *American Journal of Agricultural Economics, 78*(2), 460-471. doi: 10.2307/1243717

Glower, M., Haurin, D. R., and Hendershott, P. H. (1988). Selling time and selling price; the influence of seller motivation. *Real Estate Economics, 26*(4), 719 - 740.

Goodwin, K. R., and Johnson, K. H. (2016). The Short Sale Stigma. *Journal of Real Estate Finance and Economics, 55*, 416 - 434. doi: 10.1007/s11146-016-9571-2

Gyrd-Hansen, D. (2014). Efficiency in Health Care, Concepts of. In A. J. Culyer (Ed.), *Encyclopedia of Health Economics* (pp. 267-271). San Diego: Elsevier.

Harries, S. (2012). Achieving added value: efficiency, effectiveness and public value. In S. Harries (Ed.), *Records Management and Knowledge Mobilisation* (pp. 169-193): Chandos Publishing.

Harvey, J., and Jowsey, E. (2004). *Urban Land Economics* (6th ed.). England: Palgrave Macmillan.

Haurin, D. (1988). The duration of marketing time on residential housing. *AREUEA Journal, 16*(4), 396 - 410.

Hepburn, S. (2001). *Principles of Property Law* (2nd ed.). Sydney: Cavendish Publishing Pty Ltd.

Herath, S., and Maier, G. (2015). Informational efficiency of the real estate market: A meta-analysis. *Journal of Economic Research, 20*(2), 117 - 168. doi: 10.17256/jer.2015.20.2.001

Kabanga, L., and Mooya, M. M. (2018). Compensation Theories and Expropriation of Customary Property Rights: A Critical Review. *Journal of African Real Estate Research, 3*(2), 87 - 106. doi: 10.15641/jarer.v3i2.487

Kalra, R., and Chan, K. C. (1994). Censored sample bias, macroeconomic factors, and time on market of residential housing. *Journal of Real Estate Research, 9*(2), 253 - 262.

Leung, C. K. Y., Leong, Y. C. F., and Chan, I. Y. S. (2002). TOM: why is not price enough? . *International Real Estate Review, 5*(1), 91 - 115.

Mallach, A. (2014). Lessons From Las Vegas: Housing Markets, Neighborhoods, and Distressed Single-Family Property Investors. *Housing Policy Debate,, 24*(4), 769 - 801. doi: 10.1080/10511482.2013.872160

McGreal, S., Adair, A., Brown, L., and Webb, J. R. (2009). Pricing and Time on the Market for Residential Properties in a major U.K. City. *Journal of Real Estate Research, 31*(2), 209 - 233.

Miller, N. G. (1978). Time on the Market and Selling Price. *AREUEA Journal, 6*(2), 164- 174.

Nozeman, E. (2010). *Transaction costs in commercial real estate: a european comparison*. Paper presented at the 17th Annual European Real Estate Society Conference (ERES), Milan, Italy. https://www.eres.org/eres2010/contents/papers/eres2010_327_Nozeman_TRANSACTION_COSTS_IN.pdf

Onwuanyi, N. (2018). Between Abuja and Lagos: Insights of Price and Value in Residential Real Estate. *Journal of African Real Estate Research Volume, 3*(2), 107 - 129. doi: 10.15641/jarer.v3i2.559.

Osho, G. S., and Adishi, O. (2019). The Effects of Macroeconomic Variables on Lagos State Economy: As Lagos Economy Goes, So Goes the Economy of Nigeria? *Journal of Economics and Development Studies, 7*(1), 1 - 9. doi: 10.15640/jeds.v7n1a1

Pearce, D., Atkinson, G., and Mourato, S. (2006). *Cost-Benefit Analysis and the Environment: Recent Developments*. France: OECD Publishing.

Pryce, G., and Gibb, K. (2003). *Modelling Time to sale of Second Hand Owner Occupied Residential Properties in Glasgow*. Paper presented at the Conference of the European Real Estate Society, Helsinki, Finland.

Ratcliffe, J., Stubbs, M., and Keeping, M. (2009). *Urban Planning and Real Estate Development* (3rd ed.). Oxon: Routledge.

Shleifer, A., and Vishny, R. W. (1992). Liquidation Values and Debt Capacity: A Market Equilibrium Approach. *The Journal of Finance, 47*(4), 1343-1366.

Smith, I. O. (2007). *Practical Approach to Law of Real Property in Nigeria* (2nd ed.). Lagos: Ecowatch Publications.

Taylor, C. R. (1999). Time on the market as a sign of quality. *The Review of Economic Studies, 66*(3), 555 - 578.

Vamvakaris, M. D., Pantelous, A. A., and Zuev, K. (2017). Investors' Behavior on S&P 500 Index During Periods of Market Crashes: A Visibility Graph Approach. In F. Economou, K. Gavriilidis, G. N. Gregoriou & V. Kallinterakis (Eds.), *Handbook of Investors' Behavior During Financial Crises* (pp. 401-417): Academic Press.

Vandell, K. D., and Riddiough, T. J. (1992). On the use of auctions as a disposition strategy for RTC Real Estate Assets: A policy perspective. *Housing Policy Debate, 3*(1), 117 - 141.