



## KEY CRITERIA FOR LAND BANK INVESTMENT

Sharifah Nurul Akhilah Syed Mustorpha\*, Mohd Nadzri Jaafar, Mat Naim Abdullah @ Mohd Asmoni,  
Azizah Ismail, Ahmad Ariffian Bujang  
Faculty of Built Environment and Surveying, Universiti Teknologi Malaysia  
81310 Skudai, Johor, Malaysia

### History:

Received: 29 November 2018  
Received in revised form: 7 March 2019  
Accepted: 16 April 2019  
Available Online: 30 April 2019

### Keywords:

*Investment, land bank, land development, criteria, stakeholders*

\*Corresponding Author  
[sharifahnurulakhilah.utm@gmail.com](mailto:sharifahnurulakhilah.utm@gmail.com)

### ABSTRACT

Real estate development is widely regarded as a creative process focused on value added. In an effort to remain competitive, there has been an increasing need in organizations to better understand the development element as a whole as there has a continuous innovation in investment instruments to gain exposure to real estate returns. Land bank joining this list as having the potential to give higher returns. This paper explores the key criteria of land banking strategy in an effort to achieve land bank development success. The first phase included a thorough review of literatures relevant to the topics meanwhile the second phase was a survey of selected developers. Key criteria constructs were then identified using content analysis methodology and an inductive coding technique in literature review phase while the research generally uses a Delphi method as a research technique. The most significant finding is the identification of key criteria from the process of literature review and the perspectives of developers. Plus, there appears to be much variance with respect to what exactly is encompassed by investment strategy, one of the most widely cited criteria and little detail of specific implementation tactics. This piece of work serves as a corroborative evidence to improve the satisfaction of industry players, policy makers and investors. The paper ends by recommending that the study be repeated in Malaysia in the context of the improved framework for its most optimum implementation.

## 1.0 INTRODUCTION

Real estate development is widely regarded as a creative process focused on value added (Olsson *et al.*, 2015). Generally, real estate is about investment in land with the objective to increase its value (Cloete and Venter, 2013), while the creation of value happened when the land utilization is changed from one type to another type that is in demand, for example, an agricultural land that is converted to housing. In an effort to remain competitive, there has been an increasing need in organizations to better

understand the development element as a whole as there has a continuous innovation in investment instruments to gain exposure to real estate returns. Land banking is regarded as having the potential to give higher returns. Land bank is also seen to be able to solve some issues related to land speculation (Gilbert, 2009); land fragmentation (Van Dijk and Kopeva, 2006); land conservation (Cummiskey, 2001); to encourage the use of agricultural land (Coimbra, 2011); to control social pressure arising from the disproportionate distribution of resources, to resolve the problem of high population and

unemployment problems (Harts-Broekhuis and Huisman, 2001). In Malaysia, Abdul-Aziz *et al.* (2006) rank land bank and market assessment as among the top three resources needed by developers to excel in real estate. There are other studies focused on land bank development, however, the results of the study were only focused on agricultural development and thus still considered very risky (Kelly\_Kai\_Seng *et al.*, 2017; Ngidang, 2002; Cramb, 2013; Khor, 2011). Increasingly, we hear of the failure of land bank development (Marosan *et al.*, 2014; Gilbert, 2009), or the complete abandonment of the operational aspects (Van Dijk and Kopeva, 2006).

As a result, there has been expanded research focusing on the investment strategy and its key criteria (Bao *et al.*, 2012; Natasha and Hassan, 2015; Ginevičius and Zubrecovas, 2009; Capozza and Li, 2002; Ronyastra *et al.*, 2015; Bersani *et al.*, 2015; Ziemba *et al.*, 2014). It appears that much of the literature, however, has focused on criteria with very limited or no regard to stakeholder perspective. As mentioned by Mittal and Kashyap (2015), a proper implementation and stakeholder engagement are two most important elements for a large project. For a project development team, a more intimate understanding of the key criteria of the various stakeholder groups would make it possible to assess the project planning phases and determine if the concerns of these relevant groups are being addressed as effectively as possible. Ultimately, this will enhance the probability of achieving higher success levels, resulting in time saving, cost saving, quality and efficiency in the development process. Particularly, various stakeholder groups view the new technology as a decision support tool (Ginevičius and Zubrecovas, 2009) or a method by which they can reinvent their development processes and increase their competitiveness (Porta *et al.*, 2013).

According to Annual Report 2017 Bank Negara Malaysia, Foreign Direct Investments (FDI) in the real estate and construction sector has risen in terms of share, from an average of 6.3% of annual FDI flows in 2010-2015, to 19.1% in 2016 and 2017. Thus, industrial engagements suggest these investments are channeled mainly in the high-end property segments. There is a need to promote a stable property market as it is a significant contributor to the country's gross

domestic product. Thus, property investment decisions should not always be made just on the basis of profitability but should ensure that the property market remains healthy and sustainable (Sean and Hong, 2014). However, a growing problem of vacant and abandoned properties has been worrying many parties. The properties that are left behind can spur a cycle of blight, crime and decreased property values, draining city resources, threatening the safety and stability of the surrounding neighborhoods.

Based on the results of a comprehensive compilation and analysis of preliminary literature review, this paper seeks to present a new agenda for further research on land banking strategy in an effort to achieve land bank development success. This aspect had triggered the subsequent research question of what is the key criteria to obtain a success in the land bank development in context of past literature and private developers' perspective. Dabara *et al.* (2014) stated that the process of identifying key criteria helps to ensure that those criteria receive the necessary attention, thus, the development can continue to be viable and remain competitive. Similarly, Bao *et al.* (2012) agreed that the examination of the decision criteria involved in land banking helps firms to make appropriate land banking decisions.

The structure, exempting the introduction, begins with a concise literature review that summarize the key criteria categories and concepts. Ensuing sections present the applied research methodology, highlighting the approach adopted in collecting and analyzing the data. A subsequent section successively discusses topics concerning the developers' view on current practices of land bank development. The last part concludes the paper with a general discussion followed by suggestions for further research.

## 2.0 LITERATURE REVIEW

In short, a strategy can be defined as a contingency plan of actions which stipulates a guideline of how the player will act when a move is made by another player. Yet, players are supposed to be able to choose from a set of different strategies (Samsura *et al.*, 2010). Meanwhile, the investment strategy is a statement of how an organization intends to achieve its growth objectives (Cloete and Venter, 2013;

Adriansyah Samsura and van der Krabben, 2012). Key criteria were those specifically distinguished areas that an organization is better placed to make a more informed decision. In terms of land bank investment, the key criteria are those elements that must be considered in order for the investment process to occur successfully.

Many researchers (e.g. Maruani and Amit-Cohen, 2011; Wilkinson and Reed, 2008) note the importance of market analysis in real estate development. Kahr and Thomsett (2005) explained market analysis as an action to identify the trends in demand and supply for the sake of product marketability and competitive advantage against business rivals. For the land developers, it is considered as homework before taking up the project since it involves feasibility study and thorough observation of the industry. Extensive research on the markets may allow land developers to make a better decision and able to prepare financial projections in relation to the targeted market (McDonagh, 2010).

Basically, land developers need market information before commencing the preliminary design phase. Miles *et al.* (2000) pinpoint several dimensions that might be beneficial for land developers in undertaking the market analysis. They mainly include employment trends and population growth rates in the market area, number of properties that the market can absorb, percentage of market demand and targeted customers as well as expected operating revenue or income of the project. Most importantly, the significance of demographic information that includes market statistics, the population base, population density, projected growth, growth patterns and incomes must be investigated (Sorenson, 1990). The analysis is very valuable to gain insights on project designs and feasibility, market velocity, regulatory reaction, marketing plans and basic documentation of zoning (Wilkinson and Reed, 2008).

### **3.0 RESEARCH METHODOLOGY: KEY CRITERIA COMPILATION**

Research uses Delphi method as a research technique to include the mode of data collection due to its ability to explore the criteria influencing the current practice of the decision making process in land bank development projects and

information required for the different decision making points. Generally, this research has five main activities which are literature review, data collection, data analysis and finding. The main purpose of this activity is to identify this research systematically so that the aim and objectives of the research can be achieved.

Utilizing a conceptual analytical approach, the comprehensive literature review has involved extensive note taking that has highlighted any and all possible references to key criteria. As mentioned previously, a key criteria are defined as a reference to any condition or element that was deemed necessary in order for the land bank investment to occur successfully. Those articles containing references to key criteria of land bank investment were then analyzed more deeply for the purpose of coding the identified constructs. Part of this analysis involved differentiating and combining the data collected (Miles and Huberman, 1994, as cited in Finney and Corbett, 2007). Emphasis was placed on the meaning of the words rather than the words themselves. Therefore, all key criteria, regardless of description, were noted with the understanding that the sorting phase would begin to place key criteria in like categories. This involved an inductive coding technique as mentioned below:-

Open coding can be understood as a part of the analysis that pertains specifically to the naming and categorizing of phenomena through close examination of data. During open coding, the data are broken down into discrete parts, closely examined, compared for similarities and differences, and questions are asked about the phenomena as reflected in the data (Finney and Corbett, 2007).

This part of methodology also involved the technique that suggests the preparation of qualitative data category cards. Coded constructs were noted as they appeared in individual journal articles by utilizing a bibliographic software program. Furthermore, each recorded construct was placed in a spreadsheet file that recorded the frequencies of each.

Given that the goal of this literature review process was to gain depth of understanding of the various key criteria already identified by other researchers and to provide insight into the current state of research on key criteria for the land bank investment, content analysis was an appropriate

analysis approach. As recommended by Silverman (2000), cited in Finney and Corbett (2007), it is the most common technique when analyzing texts. He has also stated that “every way of seeing is also a way of not seeing” which is very insightful comment with respect to one’s approach when coding. Consequently, he further suggests that “a good coding scheme would reflect a search for ‘uncategorized activities’ so that they could be accounted for, in a manner similar to searching for deviant cases”. As a result, this analysis has also searched for references to “key” criteria that may not have necessarily been identified as such. This is part of the reason why some of the search terms used to select the articles did not always include “key,” “key criteria,” etc.

The actual data collection procedure for the compilation of key criteria followed the eight category coding steps offered by Carley (1993). First, decide the level of analysis-to search for a single word, set of words or phrases. Berg (2004) study (as cited in Finney and Corbett, 2007) states that the first step of content analysis is to determine the level of the sample to be chosen and the units of analysis to be counted. In this study, the unit of analysis or level of analysis involved the entire journal articles.

The literature review involved an exhaustive search of the most prominent scientific journals, including, but not limited to, those outlined as below:

- *Land use policy*
- *Journal of environmental management*
- *Cities*
- *International Journal of Strategic Property Management*
- *International Journal of Project Management*
- *Geography: Malaysian Journal of Society and Space*
- *Journal of Policy Modeling*
- *Journal of Economics, Business and Management*
- *Landscape and Urban Planning*
- *Journal of World Economic Research*
- *Journal of Housing and the Built Environment*
- *The Journal of Real Estate Finance and Economics*

- *Journal of Risk and Financial Management*
- *Journal of Property Investment & Finance*
- *Economic Theory*

In addition, the preceding journals, the following databases were searched: ABI/Inform Global, ProQuest Computing, Web of Science and JSTOR. Collectively, these databases include thousands of essential scholarly journals and the most important trade journals.

Articles were selected from the search results and were used to search for the terms outlined in Table 3.1. Keywords selected for this search were chosen from the keywords supplied by the authors of some of the relevant articles identified in a preliminary literature review. As well, because of the uniqueness of a land bank development, the focus has been only on land investment and not the other types of investment (bonds, stocks, etc.). Finally, the searches were limited to only those journals that were peer-reviewed or scholarly.

**Table 3.1** Search terms: title, abstract and citation

Individual journal searches	Database searches
Key criteria land bank investment strategy	Key criteria “AND” land bank development
Key criteria land bank	Key criteria “AND” land bank
Criteria land bank	Land bank investment strategy “AND” criteria
Key criteria land bank development	Land development “AND” strategy
Criteria land bank development	Land development planning “AND” strategy
Land bank development	Land development “AND” criteria
Land bank investment strategy	Land development planning “AND” criteria
Land bank criteria	Land bank practice
Land bank investment criteria	Land bank
Land bank	
Land development planning	

The procedures involved in summarizing the literature reviews are as follows;

- Selection of articles - Depend on the researcher’s decision after reading each of the articles’ abstracts and titles.
- Decide how many steps to code for - Inductive approach would be more

appropriate as it would allow for absolute inclusion of all identified key criteria.

- Decide whether to code for the existence or frequency of a concept - It was decided to code for the frequency of the concepts as the researcher can gain a better understanding of the relative importance of the criteria.
- Decide on how we distinguish between concepts - It was necessary to decide whether concepts were to be coded exactly as they appeared, or if they could be recorded in some altered or collapsed form during this step.
- Develop rules for coding the texts - It was necessary to establish a set of translation rules that could be applied throughout the coding process to ensure consistency and therefore the internal validity when coding.
- Decide what to do with “irrelevant” information - Involved the determination of what to do with the information in the text that was not coded.
- Code the texts by manual technique. All translation rules established in step 5 were followed.
- Analyze the results. The actual analysis stage involved reviewing the constructs in terms of frequency as well as a critical evaluation of the key criteria approach. These results are reviewed in the following sections.

Further, the objective of the Delphi Pilot survey is to develop, adapt, or check the decision making of the land bank project extensively. Besides that, the survey was carried out to gather data and opinions from developers to identify primary constraints of decision making in the land bank development scenario.

After that, researcher analyses the data from the Delphi Pilot to create the interview schedule framework as a summary of research design. The next stage is to conclude and integrate research objectives using data from Delphi Pilot and literature review and finally produce the theoretical framework research. The theoretical framework is a basic to design a questionnaire and determine the respondents.

Next stage begins with the determination of the research sample which comes after literature review and Delphi Pilot survey. Private developers in Penang, Malaysia were selected to be a respondent. Iterative process is continuing with implementation of main Delphi first round survey (R1). This step depends upon the research objectives. All opinions and answers from the questionnaire produce list and then it is to be compared with the list in the Delphi second round (R2). The small size of selected respondents is given the second questionnaire form to summarize and verify the results.

The data is analyzed and presented to answer the aim and objectives of this research. Generally, the aspect discusses is the information required for decision making process. The answer from questionnaire and opinion from the selected developers are analyzed using SPSS software. Refer Figure 3.1 for more explanation of the flow of the research.

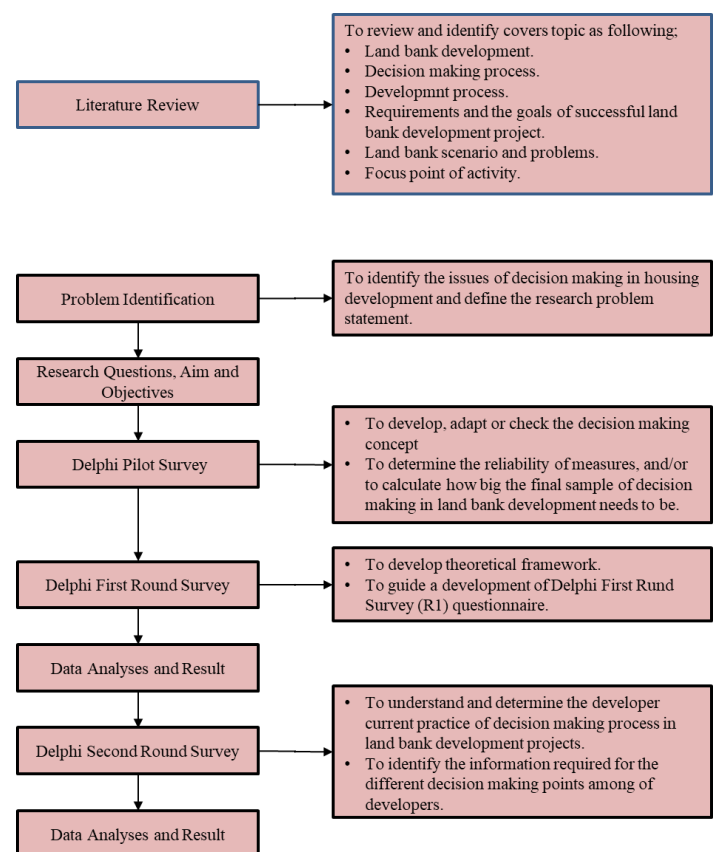


Figure 3.1 Research flow

## 4.0 KEY CRITERIA: A BRIEF REVIEW

### 4.1 Discovering Categories of Criteria

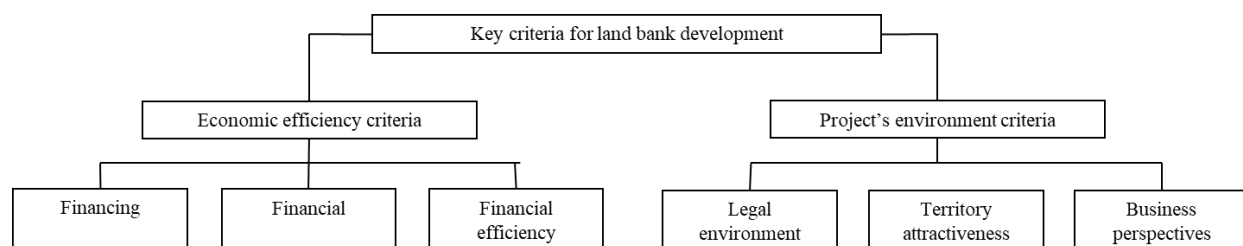
A total of 138 articles was reviewed and 85 were considered to contain “key criteria” applicable to this study. The first stage of the analysis involved categorizing or grouping like concepts into like categories. Criteria that, at least initially, appeared to refer to the same phenomenon were grouped together. At this point, the proposed relationship was still considered provisional. After completion of this stage, ten possible key criteria categories were identified. A successive round of analysis of the concepts resulted in the collapsing of several categories, producing six categories in total.

### 4.2 Naming Categories of Criteria

According to Finney and Corbett (2007), in selecting names to identify each category, an attempt was made to make the name graphic enough to allow the reader to determine its referent. Yet, the selected category names have been more abstract than the concepts they represent. In some circumstances, the selected category name was chosen from the pool of concepts. In other circumstances, the selected name was borrowed from technical terminology frequently used in the literature. If the criteria are not close enough to any categories of the analysed concept, that means it is a category by itself.

Table 3.2 shows the final six categories of 71 criteria of land bank investment. It is obvious that the criteria have different influence on investment decisions as well as their types are different.

Considering the research of Ginevičius and Zubrecovas (2009), it was decided to group the factors into financing variable, financial analysis, analysis of legal environment, techno-economic analysis of the object (attractiveness of the territory), analysis of investment environment (business perspective). The financing variable is highly dependent on bank loans (Gunji and Yuan, 2010). Financial analysis, on the other hand, considered as a suitable tool for assessing a company’s financial and economic situation and guiding the decision-making processes of companies and financial markets, should embrace sustainability issues within its logic, under some kind of scheme or framework that permits the evaluation of a company’s sustainable management system and the impact of sustainability issues on financial performance (Castro and Chousa, 2006). Analysis of legal environment is positively and robustly associated with per capita growth, physical capital accumulation, and productivity growth (Levine, 1998). Techno-economic analysis of the object (attractiveness of the territory) mostly depend on project type. Analysis of investment environment (business perspectives) is the organic whole of a series of key elements of production and the conditions of production that could promote the increment of capital.



**Figure 3.2** Categories of land bank criteria

### 4.3 Analysis of Land Bank Investment Literature

The preceding compilation has provided a foundation with respect to the range of criteria that are cited in the literature and the frequency associated with each. Table 4.1 shows the 20 criteria with the highest number of frequencies.

**Table 4.1** Frequency analysis of criteria in literature

No.	Criteria	Frequencies
1.	Corporate strategy and tactical	65
2.	Cost involved	62
3.	Land policy	63
4.	Planning and development control	57
5.	Market feasibility study (demand and supply)	54
6.	Location	49
7.	Credit limit from resource provider	49
8.	Geography, topography and type of soil	47
9.	The stability of political climate	46
10.	Technology	44
11.	Investor's participation rate	44
12.	Corporate strategy and tactical	42
13.	The suitability of the development site	41
14.	Labour	41
15.	Expected environmental changes in the future	41
16.	Development period / phases	40
17.	Design	37
18.	Calculated profit	36
19.	Legal environment	36
20.	Physical conditions	36

However, it is important to note that the criteria involved in land bank development are different accordingly to the type of development. Nevertheless, there was an additional analysis conducted that sought to uncover any obvious gaps in the literature to date. As a result, what has become more apparent from this review is the lack of depth in the coverage of key criteria. Additionally, another significant observation was the lack of stakeholder perspective in the criteria cited. Either the criteria were presented with no explanation from whose perspective was represented, or stakeholder perspective was provided, but for only a single criterion. Finally,

the concept of investment strategy, one of the most widely cited criteria, appeared to have varied definitions and there was little explanation of the specific tactics that could be used to develop such a project.

As mentioned before, researchers very often focus on only a specific aspect of the development process or a specific criterion. Consequently, there is little research documented that encompasses all significant key criteria. For instance, Van Dijk and Kopeva (2006), Gilbert (2009), Tian and Ma (2009), Aryeetey and Udry (2010), Coimbra (2011), and Zhang (2012) recognized the importance of governmental influence to land bank development success; Marosan *et al.* (2014) focuses on defining the value framework for evaluation of land banks/funds. Other researchers, considered other perspectives. Feeney *et al.* (2000) interviewed students about the issue of one's background beliefs when interpreting information; and Fujii (2016a; 2016b) studied key actors to evaluate the impact of land banks and community development corporations and the impact of land banks and community land trusts, respectively. Further, Fisher and Robson (2006), Sheykh *et al.* (2013), Valtonen *et al.* (2017) researched the importance of risk analysis and used a combined methodology of secondary data and a case study/studies. Finally, governance was also found to be a key criteria of land bank development projects (Green *et al.*, 2016). The investigation was based on some form of primary research (survey, case study, or observation) in each of the aforementioned articles. The following research, however, has used only secondary sources. Regardless of methodology, all the aforementioned studies have been narrowly focused, affording readers a constricted, yet detailed, view of a specific criteria. In the following instances, the research was broader in scope.

Other researchers were more comprehensive in their coverage of key criteria, but attempted to categorize them differently. Wang *et al.* (2011) using grounded theory-based qualitative research. His study conceptualizes thirty key factors and seven trends for airport-city development via interviews with focus groups and experts. Based on the research by Natasha and Hassan (2015) highlights four independent

variables which are financial knowledge, geographical attributes, risk awareness and possible return. The study adopted explanatory research design and method used is an internet based questionnaire. Farragher and California (2008) categorized key criteria according to the degree of importance of stages in the investment decision-making process, the degree of importance of factors when searching for investment opportunities and degree of importance of evaluation measures.

Further, the final key observation of the literature review relates to the key criteria compilation itself and the definitions applied to the terms. For instance, while the criteria, investment strategy, appears to have emerged as one of the most widely cited criteria, there is still much confusion with respect to what exactly is included in the construct. As evidenced in the research cited below, the range of activities encompassed by investment strategy is varied. Further, there is very little offered in the literature that attempts to identify or explain the specific tactics required to successfully manage and develop these investment strategy activities.

Many researchers have been specific in their reference to the investment strategy activities required for projects' efficiency. In some cases, they have referenced the need to have development professionals with a variety of skills (Dowall, 1990; Sah *et al.*, 2010; Wu *et al.*, 2012) and address resistance (Li, 2009); the need of software (Shakhsi-Niaei *et al.*, 2011; Porta *et al.*, 2013); the need to understand the basic elements of the development (Guy and Henneberry, 2000; Roberts and Henneberry, 2007; Dabara *et al.*, 2014); the need to educate (Costello and Preller, 2010); and the need to consider and address local socioeconomic characteristic (Zhang, 2012). In addition, several researchers (Born and Pyhrr, 1994; Pyhrr *et al.*, 1999) cite the need for a detailed cash flow model that explicitly incorporate cycle impact in order to produce realistic present value estimates and valuation conclusions. Anderson and Settle (1996) noted the investors should be presented with a choice among the distribution of portfolios at the planning horizon and that these distributions should be characterized in simple, understandable terms.

As evidenced by the above references, the views on investment strategy and exactly what investment strategy involves varying greatly. This needs to be further explored, so that these ideas can be better presented in a manner that makes it possible for the "investment manager" to effectively develop and control this criteria. As well, although there is no doubt that investment is a necessary consideration, it is less clear exactly how it should be handled. Work by Worzala and Sirmans (2003) considered the impact of diversification on real estate investment and highlight some factors that influence alternative. Further, exploration is required in terms of risk that might impact these factors. Parker (2014) offered the first prescriptive model of the Australian REIT property investment decision-making process, forming a basis for comparative investigation of that process adopted by other property investment decision-making groups.

In summary, the concept of investment strategy, as it applies to land bank investment is extremely important and requires further examination. Many frameworks have been uncovered; however, framework alone are not sufficient. What tactics are required? Are there differing developers' views regarding what are appropriate tactics? How do influences like power, control and resistance have an impact on the selection of proper tactics? Answers to these questions will help us understand and better control the investment strategy process, one of the most critical of all land bank investment key criteria.

#### **4.4 Analysis of Information Required for Decision Making Process**

A Delphi Pilot survey resulted in the formation of 3 categories which are economic information, technical information and financial information that covers 6 steps of the process which are explore and assess development, evaluate development, pre-feasibility study, preliminary investigation, development schedule and feasibility study stage. The following analysis is from the result of R1 questionnaire survey.



#### 4.4.1 Mean Analysis

Mean analysis was adopted to determine the ranking of information. Ranking of information required refers to mean ( $\mu$ ) value. The first ranking refers to the highest value of the mean ( $\mu$ ) list, but the last ranking refers to the lowest value of the mean ( $\mu$ ) list. The 0.0000 values refer to no ranking. All the results from economic to financial information have shown in Table 4.2 to 4.19. The ranking of activities was listed under each of the tables.

##### a) Economic Information Required

**Table 4.2** Economic Information at Explore and Assess Development Stage

Stage Explore and assess development	Information		$\mu$	Ranking
	1.	Demand	0.5588	3
	2.	Supply	0.8235	2
	3.	Competition	0.5294	4
	4.	Policy	1.4412	1
	5.	Timing	0.1765	6
	6.	Size of development product	0.0000	-
	7.	Projected market	0.0000	-
	8.	Market of specific development	0.4412	5
	9.	Current trade area	0.0000	-
	10.	Social	0.0000	-
	11.	Target customer	0.0000	-
	12.	Past issues	0.0000	-

Ranking:

1. Policy
2. Supply
3. Demand
4. Competition
5. Market of specific development
6. Timing

**Table 4.3** Economic Information at Evaluate Development Stage

Stage Evaluate development	Information		$\mu$	Ranking
	1.	Demand	0.4412	5
	2.	Supply	1.0294	4
	3.	Competition	1.8529	2
	4.	Policy	2.1765	1
	5.	Timing	1.1176	3

	6.	Size of development product	0.0000	-
	7.	Projected market	0.0000	-
	8.	Market of specific development	0.0000	-
	9.	Current trade area	0.0000	-
	10.	Social	0.0000	-
	11.	Target customer	0.0000	-
	12.	Past issues	0.0000	-

Ranking:

1. Policy
2. Competition
3. Timing
4. Supply
5. Demand

**Table 4.4** Economic Information at Pre-Feasibility Study Stage

Stage Pre- feasibility study	Information		$\mu$	Ranking
	1.	Demand	0.1765	9
	2.	Supply	0.3529	8
	3.	Competition	0.5294	7
	4.	Policy	0.0000	-
	5.	Timing	0.0000	-
	6.	Size of development product	0.5588	6
	7.	Projected market	1.3824	4
	8.	Market of specific development	2.2059	2
	9.	Current trade area	1.2941	5
	10.	Social	1.5294	3
	11.	Target customer	2.8824	1
	12.	Past issues	0.0000	-

Ranking:

1. Target customer
2. Market of specific development
3. Social
4. Projected market
5. Current trade area
6. Size of development product
7. Competition
8. Supply
9. Demand

**Table 4.5** Economic Information at Preliminary Investigation Stage

Stage Preliminary investigation	Information		$\mu$	Ranking
	1.	Demand	0.0000	-
	2.	Supply	0.0000	-
	3.	Competition	0.0000	-
	4.	Policy	0.0000	-
	5.	Timing	0.0000	-
	6.	Size of development product	0.1765	5
	7.	Projected market	0.7059	3
	8.	Market of specific development	0.0000	-
	9.	Current trade area	1.0294	2
	10.	Social	0.4118	4
	11.	Target customer	0.0000	-
	12.	Past issues	2.0588	1

Ranking:

1. Past issues
2. Current trade area
3. Projected market
4. Social
5. Size of development product

**Table 4.6** Economic Information at Development Schedule Stage

Stage Development schedule	Information		$\mu$	Ranking
	1.	Demand	0.0000	-
	2.	Supply	0.0000	-
	3.	Competition	0.0000	-
	4.	Policy	0.0000	-
	5.	Timing	0.3529	1
	6.	Size of development product	0.2647	3
	7.	Projected market	0.3529	1
	8.	Market of specific development	0.0000	-
	9.	Current trade area	0.0000	-
	10.	Social	0.0000	-
	11.	Target customer	0.1765	4
	12.	Past issues	0.0000	-

Ranking:

1. Timing
2. Projected market
3. Size of development product
4. Target customers

**Table 4.7** Economic Information at Feasibility Study Stage

Stage Feasibility study	Information		$\mu$	Ranking
	1.	Demand	0.0000	-
	2.	Supply	0.0000	-
	3.	Competition	0.0000	-
	4.	Policy	0.0000	-
	5.	Timing	0.9706	2
	6.	Size of development product	0.0000	-
	7.	Projected market	1.0882	1
	8.	Market of specific development	0.0000	-
	9.	Current trade area	0.0000	-
	10.	Social	0.0000	-
	11.	Target customer	0.0000	-
	12.	Past issues	0.0000	-

Ranking:

1. Projected market
2. Timing

b) *Technical Information Required***Table 4.8** Technical Information at Explore and Assess Development Stage

Stage Explore and assess development	Information		$\mu$	Ranking
	1.	Preliminary research	0.2353	5
	2.	Location	0.8235	1
	3.	Building	0.0000	-
	4.	Plan layout	0.0000	-
	5.	Flexibility of productive capacity	0.2941	4
	6.	Work schedule	0.0000	-
	7.	Environmental	0.0000	1
	8.	Size of project	0.0000	-
	9.	Facilities	0.0000	-
	10.	Policy	0.7059	2
	11.	Infrastructures	0.5294	3

Ranking:

1. Location
2. Policy
3. Infrastructure
4. Flexibility of productive capacity
5. Preliminary research

**Table 4.9** Technical Information at Evaluate Development Stage

Stage	Information		$\mu$	Ranking
Evaluate development	1.	Preliminary research	0.1765	9
	2.	Location	0.6471	3
	3.	Building	0.0294	8
	4.	Plan layout	0.0000	-
	5.	Flexibility of productive capacity	0.1471	7
	6.	Work schedule	0.0000	-
	7.	Environmental	1.0000	2
	8.	Size of project	0.5000	6
	9.	Facilities	0.5882	4
	10.	Policy	1.3824	1
	11.	Infrastructures	0.5294	5

Ranking:

1. Policy
2. Environmental
3. Location
4. Facilities
5. Infrastructures
6. Size of development product
7. Flexibility of productive capacity
8. Building
9. Preliminary research

**Table 4.10** Technical Information Pre-Feasibility Study Stage

Stage	Information		$\mu$	Ranking
Pre-feasibility study	1.	Preliminary research	0.0000	-
	2.	Location	0.1471	5
	3.	Building	0.0000	-
	4.	Plan layout	0.0000	-
	5.	Flexibility of productive capacity	0.1765	4
	6.	Work schedule	0.0000	-
	7.	Environmental	1.3235	2
	8.	Size of project	1.7941	1
	9.	Facilities	1.1176	3
	10.	Policy	0.0000	-
	11.	Infrastructures	0.0000	-

Ranking:

1. Size of development product
2. Environmental
3. Facilities
4. Flexibility of productive capacity
5. Location

**Table 4.11** Technical Information at Preliminary Investigation Stage

Stage	Information		$\mu$	Ranking
Preliminary investigation	1.	Preliminary research	0.1471	9
	2.	Location	0.9118	6
	3.	Building	1.3235	4
	4.	Plan layout	2.1176	3
	5.	Flexibility of productive capacity	1.2059	5
	6.	Work schedule	0.0000	-
	7.	Environmental	0.8824	7
	8.	Size of project	0.5294	8
	9.	Facilities	2.7941	2
	10.	Policy	0.0000	-
	11.	Infrastructures	3.4412	1

Ranking:

1. Infrastructures
2. Facilities
3. Plan layout
4. Building
5. Flexibility of productive capacity
6. Location
7. Environmental
8. Size of project
9. Preliminary research

**Table 4.12** Technical Information at Development Schedule Stage

Stage	Information		$\mu$	Ranking
Development schedule	1.	Preliminary research	0.2941	3
	2.	Location	0.0000	-
	3.	Building	0.2059	5
	4.	Plan layout	0.5882	2
	5.	Flexibility of productive capacity	0.0000	-
	6.	Work schedule	1.1176	1
	7.	Environmental	0.0000	-
	8.	Size of project	0.2647	4
	9.	Facilities	0.0000	-
	10.	Policy	0.0000	-
	11.	Infrastructures	0.0000	-

Ranking:

1. Work schedule
2. Plan layout
3. Preliminary research
4. Size of project

## 5. Building

**Table 4.13** Technical Information at Feasibility Study Stage

Stage Development schedule	Information		$\mu$	Ranking
	1.	Preliminary research	0.2647	3
	2.	Location	0.1765	4
	3.	Building	0.0000	-
	4.	Plan layout	0.0000	-
	5.	Flexibility of productive capacity	0.5294	1
	6.	Work schedule	0.0000	-
	7.	Environmental	0.1471	5
	8.	Size of project	0.5294	1
	9.	Facilities	0.0000	-
	10.	Policy	0.0000	-
	11.	Infrastructures	0.0000	-

Ranking:

1. Flexibility of productive capacity
2. Size of project
3. Preliminary research
4. Location
5. Environmental

### c) Financial Information Required

**Table 4.14** Financial Information at Explore and Assess Development Stage

Stage Explore and assess development	Information		$\mu$	Ranking
	1.	Capital costs	1.0000	2
	2.	Operating costs	0.0000	-
	3.	Pre-operating expenses	0.0000	-
	4.	Sunk cost	0.0000	-
	5.	Working capital	0.0000	-
	6.	Construction costs	0.0000	-
	7.	Revenue generated	1.0000	2
	8.	Loan	1.1471	1
	9.	Term of project	0.5294	4
	10.	Development costs	0.5294	4

Ranking:

1. Loan
2. Capital costs
3. Revenue generated
4. Term of project
5. Development costs

**Table 4.15** Financial Information at Evaluate Development Stage

Stage Evaluate development	Information		$\mu$	Ranking
	1.	Capital costs	0.1471	5
	2.	Operating costs	0.0000	-
	3.	Pre-operating expenses	0.0000	-
	4.	Sunk cost	0.0000	-
	5.	Working capital	0.0000	-
	6.	Construction costs	0.3529	4
	7.	Revenue generated	0.9706	2
	8.	Loan	0.0588	6
	9.	Term of project	1.4706	1
	10.	Development costs	0.7059	3

Ranking:

1. Term of project
2. Revenue generated
3. Development costs
4. Construction costs
5. Capital costs
6. Loan

**Table 4.16** Financial Information at Pre-Feasibility Study Stage

Stage Pre- feasibility study	Information		$\mu$	Ranking
	1.	Capital costs	0.0000	-
	2.	Operating costs	0.5294	5
	3.	Pre-operating expenses	0.1765	7
	4.	Sunk cost	0.0000	-
	5.	Working capital	0.0000	-
	6.	Construction costs	0.6765	3
	7.	Revenue generated	1.0000	2
	8.	Loan	0.4706	6
	9.	Term of project	1.8824	1
	10.	Development costs	0.0588	4

Ranking:

1. Term of project
2. Revenue generated
3. Construction costs
4. Development costs
5. Operating costs
6. Loan
7. Pre-operating expenses

**Table 4.17** Financial Information at Preliminary Investigation Stage

Stage	Information		$\mu$	Ranking
Pre-feasibility study	1.	Capital costs	0.0000	-
	2.	Operating costs	0.4412	3
	3.	Pre-operating expenses	1.2647	1
	4.	Sunk cost	0.3529	4
	5.	Working capital	0.7059	2
	6.	Construction costs	0.0000	-
	7.	Revenue generated	0.0000	-
	8.	Loan	0.0000	-
	9.	Term of project	0.0000	-
	10.	Development costs	0.0000	-

Ranking:

1. Pre-operating expenses
2. Working capital
3. Operating costs
4. Sunk cost

**Table 4.18** Financial Information at Development Schedule Stage

Stage	Information		$\mu$	Ranking
Development schedule	1.	Capital costs	0.0000	-
	2.	Operating costs	0.5294	3
	3.	Pre-operating expenses	0.0000	-
	4.	Sunk cost	0.4118	5
	5.	Working capital	1.3235	2
	6.	Construction costs	0.3529	6
	7.	Revenue generated	0.0000	-
	8.	Loan	0.0000	-
	9.	Term of project	0.5294	3
	10.	Development costs	1.4118	1

Ranking:

1. Development costs
2. Working capital
3. Operating costs
4. Term of project
5. Sunk cost
6. Construction costs

**Table 4.19** Financial Information at Feasibility Study Stage

Stage	Information		$\mu$	Ranking
Feasibility study	1.	Capital costs	0.1471	7
	2.	Operating costs	0.2941	6
	3.	Pre-operating expenses	0.0000	-
	4.	Sunk cost	0.0294	8
	5.	Working capital	0.0000	-
	6.	Construction costs	1.1471	5
	7.	Revenue generated	1.9706	4
	8.	Loan	2.7941	3
	9.	Term of project	3.6176	2
	10.	Development costs	4.4412	1

Ranking:

1. Development costs
2. Term of project
3. Loan
4. Revenue generated
5. Construction costs
6. Operating costs
7. Capital costs
8. Sunk cost

The ranking of information required is performed to decide all variables that were considered in the second round survey (R2).

#### 4.4.2 Ranking analysis

The same scenario also occurs to the information required, which are economic, technical and financial. With regards to the mean analysis, the results show that all types of information used in making decision are accepted as shown in Table 4.20 to 5.22.

**Table 4.20** Acceptance Level of Economic Information

Stage/Economic Information		$\mu$ (n=12)	Acceptance
Explore and assess development			
1.	Policy	4.7500	Accept
2.	Supply	5.0000	Accept
3.	Demand	5.0000	Accept
4.	Competition	5.0000	Accept
5.	Market of specific development	5.0000	Accept
6.	Timing	4.9167	Accept
Evaluate development			

1.	Policy	4.9167	Accept
2.	Competition	5.0000	Accept
3.	Timing	5.0000	Accept
4.	Supply	5.0000	Accept
5.	Demand	5.0000	Accept
Pre-feasibility study			
1.	Target customer	4.9167	Accept
2.	Market of housing	5.0000	Accept
3.	Social	4.9167	Accept
4.	Projected market	5.0000	Accept
5.	Current trade area	4.8333	Accept
6.	Size of development product	4.8333	Accept
7.	Competition	4.9167	Accept
8.	Supply	5.0000	Accept
9.	Demand	5.0000	Accept
Preliminary investigation			
1.	Past issues	5.0000	Accept
2.	Current trade area	4.9167	Accept
3.	Projected market	4.9167	Accept
4.	Social	5.0000	Accept
5.	Size of development product	5.0000	Accept
Development schedule			
1.	Timing	5.0000	Accept
2.	Projected market	4.6667	Accept
3.	Size of development product	4.6667	Accept
4.	Target customer	4.3333	Accept
Feasibility study			
1.	Projected market	5.0000	Accept
2.	Timing	4.7500	Accept

**Table 4.21** Acceptance Level of Technical Information

Stage/Economic Information		$\mu$ (n=12)	Acceptance
Explore and assess development			
1.	Location	5.0000	Accept
2.	Policy	4.9167	Accept
3.	Infrastructures	5.0000	Accept
4.	Flexibility of productive capacity	4.4167	Accept
5.	Preliminary research	5.0000	Accept
Evaluate development			
1.	Policy	4.9167	Accept
2.	Environmental	5.0000	Accept
3.	Location	5.0000	Accept
4.	Facilities	5.0000	Accept
5.	Infrastructures	5.0000	Accept

6.	Size of project	4.9167	Accept
7.	Flexibility of productive capacity	4.3333	Accept
8.	Building	4.9167	Accept
9.	Preliminary research	4.9167	Accept
Pre-feasibility study			
1.	Size of project	5.0000	Accept
2.	Environmental	5.0000	Accept
3.	Facilities	5.0000	Accept
4.	Flexibility of productive capacity	4.6667	Accept
5.	Location	5.0000	Accept
Preliminary investigation			
1.	Infrastructure	5.0000	Accept
2.	Facilities	5.0000	Accept
3.	Plan layout	5.0000	Accept
4.	Building	5.0000	Accept
5.	Flexibility of productive capacity	4.6667	Accept
6.	Location	5.0000	Accept
7.	Environmental	5.0000	Accept
8.	Size of project	5.0000	Accept
9.	Preliminary research	4.9167	Accept
Development schedule			
1.	Work schedule	5.0000	Accept
2.	Plant layout	5.0000	Accept
3.	Preliminary research	4.8333	Accept
4.	Size of project	5.0000	Accept
5.	Building	5.0000	Accept
Feasibility study			
1.	Flexibility of productive capacity	4.5000	Accept
2.	Size of project	4.9167	Accept
3.	Preliminary research	4.6667	Accept
4.	Location	5.0000	Accept
5.	Environmental	4.9167	Accept

**Table 4.22** Acceptance Level of Financial Information

Stage/Economic Information		$\mu$ (n=12)	Acceptance
Explore and assess development			
1.	Loan	5.0000	Accept
2.	Capital	5.0000	Accept
3.	Revenue generated	5.0000	Accept
4.	Term of project	5.0000	Accept
5.	Development costs	5.0000	Accept
Evaluate development			
1.	Term of project	5.0000	Accept
2.	Revenue generated	5.0000	Accept

3.	Development costs	5.0000	Accept
4.	Construction costs	5.0000	Accept
5.	Capital	5.0000	Accept
6.	Loan	5.0000	Accept
Pre-feasibility study			
1.	Term of project	5.0000	Accept
2.	Revenue generated	5.0000	Accept
3.	Construction costs	5.0000	Accept
4.	Development costs	5.0000	Accept
5.	Operating costs	4.3333	Accept
6.	Loan	5.0000	Accept
7.	Pre-operating expenses	4.4167	Accept
Preliminary investigation			
1.	Pre-operating expenses	4.5000	Accept
2.	Working capital	5.0000	Accept
3.	Operating costs	5.0000	Accept
4.	Sunk cost	4.2500	Accept
Development schedule			
1.	Development cost	5.0000	Accept
2.	Working capital	5.0000	Accept
3.	Operating costs	5.0000	Accept
4.	Term of project	4.4167	Accept
5.	Sunk cost	5.0000	Accept
Feasibility study			
1.	Development costs	5.0000	Accept
2.	Term of project	5.0000	Accept
3.	Loan	5.0000	Accept
4.	Revenue of project	5.0000	Accept
5.	Construction costs	5.0000	Accept
6.	Operating costs	4.9167	Accept
7.	Capital	4.9167	Accept
8.	Sunk cost	4.9167	Accept

All respondents agreed and accepted all the elements in R2 questionnaire survey. It is due to the reason that the result is high whereby it almost reaches mean ( $\mu$ ) value of 3.5000 to 5.0000. The results show that all criteria of the decision-making process that is normally carried out during the initiation phase of the housing project development are accepted.

## 5.0 CONCLUDING THOUGHTS AND DIRECTIONS FOR FUTURE RESEARCH

Research on land bank investment and key criteria can be a valuable step toward enhancing chances of investment success. There are many types of information used in the decision making process for land bank development projects which can finally help to produce the most accurate decision. Currently, developers are still lacking in the skill of choosing the right information at the right stage but the gap is too small. Advancement of skill must be increased and developers should not be easily satisfied or contented with their achievement as the information technology world evolves quickly from year to year.

The competition, projected market, past issues and life cycle project are the highest information required during decision making for land bank development. In addition, work schedule, location and size of the project are the most information necessary in the technical information area. However, for the financial information, developer frequently uses development costs, term of the project, loan, revenue generated and construction costs when they make a land bank development decision.

Ostrom (2007) argued that the property development is an interdisciplinary field that produces interesting time-risk questions for the various participants; therefore, they recommend that future research should place emphasis on the development process from a holistic perspective. Since the real property development process is characterized by a continuum of decision points, the number of potential applications of the model is limitless. Work by Costello and Preller (2010) also presented an agenda for future research in this field. Specifically, he suggested for the education process relating to property development. It is evident that academic institutions and the property development industry should ensure that content covering the science and important principles of entrepreneurship be included in appropriate training courses because the complexity of the property development process requires this. Plus, property development is in many ways another form of entrepreneurship, in that it involves

"creating the future", not merely managing construction tasks.

In view of the limitations of the above mentioned literature and based on the recommendations of other researchers, there is a need to focus future research efforts on the study. Finally, there is a need to conduct more in-depth research into the concept of investment strategy and what it entails. All of the land bank key criteria are important in their own right; however, the need to approach the development from the investment strategy perspective is central to the success of any land bank project. The gap in this aspect of the literature needs to be explored in more detail. Expressly, there is a need to identify the strategies to be employed and the explicit tactics to be used to successfully manage and land bank investment project.

## REFERENCES

- Adriansyah Samsura, A., & van der Krabben, E. (2012). Negotiating land and property development: a game theoretical approach to value capturing. *Journal of European Real Estate Research*, 5(1), 48-65.
- Anderson, B. F., & Settle, J. W. (1996). The influence of portfolio characteristics and investment period on investment choice. *Journal of Economic Psychology*, 17(3), 343-358.
- Aryeetey, E., & Udry, C. (2010). Creating property rights: Land banks in Ghana. *The American Economic Review*, 100(2), 130-134.
- Bao, H., Chong, A. Y. L., Wang, H., Wang, L., & Huang, Y. (2012). Quantitative decision making in land banking: a Monte Carlo simulation for China's real estate developers. *International Journal of Strategic Property Management*, 16(4), 355-369.
- Beringer, C., Jonas, D., & Kock, A. (2013). Behavior of internal stakeholders in project portfolio management and its impact on success. *International Journal of Project Management*, 31(6), 830-846.
- Bersani, C., Guerisoli, C., Mazzino, N., Sacile, R., & Sallak, M. (2015). A multi-criteria methodology to evaluate the optimal location of a multifunctional railway portal on the railway network. *Journal of Rail Transport Planning & Management*, 5(2), 78-91.
- Born, W., & Pyhrr, S. (1994). Real estate valuation: the effect of market and property cycles. *Journal of Real Estate Research*, 9(4), 455-485.
- Capozza, D. R., & Li, Y. (2002). Optimal land development decisions. *Journal of Urban Economics*, 51(1), 123-142.
- Castro, N. R., & Chousa, J. P. (2006). An integrated framework for the financial analysis of sustainability. *Business Strategy and the Environment*, 15(5), 322-333.
- Cloete, C. E., & Venter, I. (2013). A framework for successful hotel developments. *South African Journal of Economic and Management Sciences*, 10(2), 223-237.
- Coimbra, E. (2011). Land management grounded in social soil: Galician land banking in context. *Sociologia, Problemas e Práticas*, (66), 135-155.
- Costello, G., & Preller, F. (2010). Property Development Principles and Process—An Industry Analysis. *Pacific Rim Property Research Journal*, 16(2), 171-189.
- Cramb, R. A. (2013). Palmed off: incentive problems with joint-venture schemes for oil palm development on customary land. *World Development*, 43, 84-99.
- Cummiskey, J. (2001). The Cape Cod Land Bank: the use of a land acquisition strategy to preserve a Massachusetts coastal region. *Ocean & coastal management*, 44(1), 61-85.
- Dabara, D. I., Anthony, A. I., Odewande, A. G., & Adeyanju, O. (2014). Decision theory and its relevance to real estate development decisions. *British Journal of Economics, Management & Trade*, 4(12), 1861-1869.
- Dowall, D. E. (1990). The public real estate development process. *Journal of the American Planning Association*, 56(4), 504-512.
- Farragher, E., & California, A. (2008). An investigation of real estate investment decision-making practices. *Journal of Real Estate Practice and Education*, 11(1), 29-40.
- Feeney, A., Evans, J. S. B., & Clibbens, J. (2000). Background beliefs and evidence



- interpretation. *Thinking & reasoning*, 6(2), 97-124.
- Finney, S., & Corbett, M. (2007). ERP implementation: a compilation and analysis of critical success factors. *Business Process Management Journal*, 13(3), 329-347.
- Fisher, P., & Robson, S. (2006). The perception and management of risk in UK office property development. *Journal of Property Research*, 23(2), 135-161.
- Fujii, Y. (2016a). Putting the pieces together: How collaboration between land banks and community land trusts can promote affordable housing in distressed neighborhoods. *Cities*, 56, 1-8.
- Fujii, Y. (2016b). Spotlight on the main actors: How land banks and community development corporations stabilize and revitalize Cleveland neighborhoods in the aftermath of the foreclosure crisis. *Housing Policy Debate*, 26(2), 296-315.
- Gilbert, A. (2009). The rise (and fall?) of a state land bank. *Habitat International*, 33(4), 425-435.
- Ginevičius, R., & Zubrecovas, V. (2009). Selection of the optimal real estate investment project basing on multiple criteria evaluation using stochastic dimensions. *Journal of business economics and management*, 10(3), 261-270.
- Green, O. O., Garmestani, A. S., Albro, S., Ban, N. C., Berland, A., Burkman, C. E., ... & Shuster, W. D. (2016). Adaptive governance to promote ecosystem services in urban green spaces. *Urban ecosystems*, 19(1), 77-93.
- Gunji, H., & Yuan, Y. (2010). Bank profitability and the bank lending channel: Evidence from China. *Journal of Asian Economics*, 21(2), 129-141.
- Guy, S., & Henneberry, J. (2000). Understanding urban development processes: integrating the economic and the social in property research. *Urban studies*, 37(13), 2399-2416.
- Harts-Broekhuis, A., & Huisman, H. (2001). Resettlement revisited: land reform results in resource-poor regions in Zimbabwe. *Geoforum*, 32(3), 285-298.
- Kelly\_Kai\_Seng, W., Shamsudin, M. N., Sharifuddin, J., & Mohamed, Z. (2017). Sustaining Paddy Self-Sufficiency and Land Demands in Sabah, Malaysia: A Structural Paddy and Rice Econometric Model Analysis. *International Journal of Food and Agricultural Economics*, 5(1), 29.
- Khor, Y. L. (2011). The oil palm industry bows to NGO campaigns. *Lipid Technology*, 23(5), 102-104.
- Lavers, T. (2012). 'Land grab' as development strategy? The political economy of agricultural investment in Ethiopia. *Journal of Peasant Studies*, 39(1), 105-132.
- Levine, R. (1998). The legal environment, banks, and long-run economic growth. *Journal of money, credit and banking*, 30(3), 596-613.
- Li, Z. (2009). Stochastic optimization model and O (N<sup>2</sup>) solution algorithm for highway investment decision making under budget uncertainty. *Journal of Transportation Engineering*, 135(6), 371-379.
- Marosan, S., Milicevic, D., Đokic, V., & Soskic, M. (2014). Vrednostni Okvir Za Ocenu Zemljiskih Bank/Skladov/Value Framework for Evaluation of Land Banks/Funds. *Geodetski vestnik*, 58(3), 568.
- Mittal, J., & Kashyap, A. (2015). Real estate market led land development strategies for regional economic corridors—A tale of two mega projects. *Habitat International*, 47, 205-217.
- Natasha, I., & Hassan, Z. Factors that influencing property investment decisions among Employees in Felcra Bhd., *International Journal of Accounting & Business Management*, 3(2), 160-177.
- Ngidang, D. (2002). Contradictions in land development schemes: the case of joint ventures in Sarawak, Malaysia. *Asia Pacific Viewpoint*, 43(2), 157-180.
- Olsson, N. O., Sørensen, A. Ø., & Leikvam, G. (2015). On the need for iterative real estate project models—Applying agile methods in real estate developments. *Procedia Economics and Finance*, 21, 524-531.
- Ostrom, E. (2007). Challenges and growth: the development of the interdisciplinary field of institutional analysis. *Journal of Institutional Economics*, 3(3), 239-264.
- Parker, D. (2014). Property investment decision making by Australian REITs. *Journal of Property Investment & Finance*, 32(5), 456-473.

- Porta, J., Parapar, J., García, P., Fernández, G., Touriño, J., Doallo, R., ... & Crecente, R. (2013). Web-GIS tool for the management of rural land markets. *Earth Science Informatics*, 6(4), 209-226.
- Roberts, C., & Henneberry, J. (2007). Exploring office investment decision-making in different European contexts. *Journal of Property Investment & Finance*, 25(3), 289-305.
- Ronyastra, I. M., Gunarta, I. K., & Ciptomulyono, U. (2015). A multi criteria decision analysis for reinvestment action portfolio selection problem in an Indonesian real estate company. *Procedia Manufacturing*, 4, 558-567.
- Sah, V., Gallimore, P., & Sherwood Clements, J. (2010). Experience and real estate investment decisionmaking: A process-tracing investigation. *Journal of Property Research*, 27(3), 207-219.
- Samsura, D. A. A., van der Krabben, E., & Van Deemen, A. M. A. (2010). A game theory approach to the analysis of land and property development processes. *Land Use Policy*, 27(2), 564-578.
- Sean, S. L., & Hong, T. T. (2014). Factors affecting the purchase decision of investors in the residential property market in Malaysia. *Journal of Surveying, Construction and Property*, 5(2), 1-13.
- Shakhshi-Niaei, M., Torabi, S. A., & Iranmanesh, S. H. (2011). A comprehensive framework for project selection problem under uncertainty and real-world constraints. *Computers & Industrial Engineering*, 61(1), 226-237.
- Shearer, K. S., & Xiang, W. N. (2009). Representing multiple voices in landscape planning: A land suitability assessment study for a park land-banking program in Concord, North Carolina, USA. *Landscape and Urban Planning*, 93(2), 111-122.
- Sheykh, M. J., Azizi, M., & Sobhiyah, M. H. (2013). How Can the Tradeoff between Corporate Business Strategy and Project Risk be Optimized? *Procedia-Social and Behavioral Sciences*, 74, 134-143.
- Squires, G., & Heurkens, E. (2016). Methods and models for international comparative approaches to real estate development. *Land Use Policy*, 50, 573-581.
- Tian, L., & Ma, W. (2009). Government intervention in city development of China: A tool of land supply. *Land Use Policy*, 26(3), 599-609.
- Valtonen, E., Falkenbach, H., & van der Krabben, E. (2017). Risk management in public land development projects: Comparative case study in Finland, and the Netherlands. *Land Use Policy*, 62, 246-257.
- Van Dijk, T., & Kopeva, D. (2006). Land banking and Central Europe: future relevance, current initiatives, Western European past experience. *Land Use Policy*, 23(3), 286-301.
- Wang, K. J., Hong, W. C., Chen, S. H., & Jiang, J. T. (2011). Strategic development trend and key factors analysis of Airport City in Taiwan. *Journal of Transport Geography*, 19(4), 807-820.
- Wang, H., Shen, Q., Tang, B. S., Lu, C., Peng, Y., & Tang, L. (2014). A framework of decision-making factors and supporting information for facilitating sustainable site planning in urban renewal projects. *Cities*, 40, 44-55.
- Worzala, E., & Sirmans, C. F. (2003). Investing in international real estate stocks: a review of the literature. *Urban Studies*, 40(5-6), 1115-1149.
- Wu, W., Kou, G., Peng, Y., & Ergu, D. (2012). Improved AHP-group decision making for investment strategy selection. *Technological and Economic Development of Economy*, 18(2), 299-316.
- Zhang, Y. (2012). Institutional sources of reform: The diffusion of land banking systems in China. *Management and Organization Review*, 8(3), 507-533.
- Ziemba, P., Piwowski, M., Jankowski, J., & Wątróbski, J. (2014, September). Method of criteria selection and weights calculation in the process of web projects evaluation. In *International Conference on Computational Collective Intelligence* (pp. 684-693). Springer, Cham.