ISCTE Business School
Instituto Universitário de Lisboa

CULTURAL EFFECTS ON REAL ESTATE MARKET: AN EXPLANATION OF URBANIZATION

Ling Wang

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Supervisor:
Prof. Rui Alpalhão, ISCTE Business School, Departamento de Finanças

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Resumo

Este estudo investiga a Teoria do homem no comportamento do consumidor e as dimensões culturais de Hofstede, proporcionando uma compreensão mais profunda das atitudes dos consumidores relativamente ao investimento no mercado imobiliário para explicar a urbanização atual em diferentes países. Depois da quebra do mercado imobiliário e do processo de investimento imobiliário, os indicadores são seleccionados a partir de Atividades Económicas, Mercado Imobiliário, Risco e Limitação e dos Factores Culturais para explicar o fenómeno da urbanização para alcançar o objetivo deste trabalho. Após a realização do Stepwise, o resultado mostra que há ligação entre eles. Juntamente com o desempenho imobiliário, representado pelo Índice de Rendas e Índice de direito de propriedade, o índice cultural, representado pelo Índice de Incerteza e Prevenção e pelo Índice da Indulgência, bem como outros dois factores da Teoria do Comportamento do Consumidor – a Teoria do Homem é estatisticamente significativa para a urbanização.

Palavras-chave: Investimento imobiliário · Diferenças culturais · Urbanização.

JEL Sistema de Classificação: R29, R30, Z10.

Abstract

This study investigates the Theory of Man in Consumer Behavior and Hofstede Cultural dimensions by providing deeper understanding of consumers' attitudes towards investment in real estate market to explain nowadays´ urbanization in different countries. After breaking down the Real estate market and RE investment process, the predictors are selected from Economic Activities, Real Estate Market, Risk and Limitation and Cultural Factors to explain the Urbanization phenomenon to reach the purpose of this paper. The result after conducting the Stepwise Regression shows there is connection among them. Together with 'Real Estate Performance', represented by Rent Index and Property Right Index, 'Cultural Index', represented by Uncertainty Avoidance Index and Indulgence Index, as well as other two factors from Consumer Behavior Theory- the Theory of Man are statistically significant for Urbanization.

Keywords: Real estate Investment · Cultural Differences · Urbanization.

JEL ClassificationSystem: R29, R30, Z10.

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Introduction

A crowd of empirical studies have investigated the determinants of real estate investment decisions, which bring attention to centralized investor behavior. Like any other investment, investment in real estate considers the investment return of its own. In general, the influences to this decision are strongly connected with the economic elements.

Many scholars have studied the relationship between consumer behavior or decision making and cultural influences. Within real estate market, several researches can be found, Simionescu, for example, has studied socio-economic and cultural aspects to the urbanization process in Romania (Simionescu, 1984); Halpern, 1966, presented peasant culture in explaining urbanization. There is rare research in providing sight view from a global prospective. Therefore, the main problem or flaw is the inability to accurately capture a cultural explanation from an international level.

Inspired by the Hofstede Theory and the Cultural Dimension Index in an international level, this paper intends to raise a concern from household of different countries as a proof for the rapid growing of city urbanization. Up to now, the Hofstede studies have provided the basis for the belief that cultural factors influence the organizational behavior. However, other scholars have applied his theory in other areas as an explanatory tool for behavioral study.

The literature review later on provides the basis for understanding and analyzing the market, as well as provides background for variable selection. In detail, macroeconomic variables connect to urbanization would be used in conducting the model; however, the paper sheds more light on cultural perspective. Real estate market, RE investment and consumer behavior was studied and variables were selected for certain reasons. The Theory of Man was introduced for an explanation of consumer behavior as a whole. Not surprisingly, the result brings indicators from these dimensions as expected, both macroeconomic and cultural.

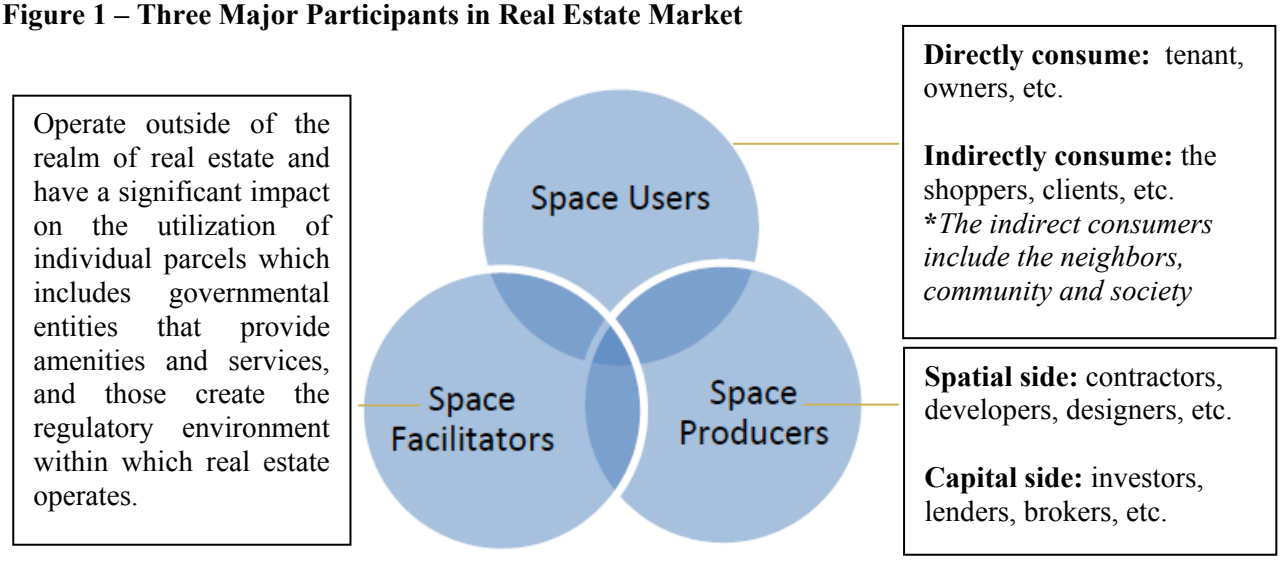
The remainder of this thesis is as follows: Section 2 consists in a detailed Literature Review. Section 3 presents the Methodology applied to the variables in study. Section 4 deals with the data (i.e. selection of the macroeconomic variables, sources and expected outcome) and Empirical Results. Section 5 contains a Summary of the thesis and concluding remarks.

1. Real Estate Market and Urbanization

1.1 Real Estate Market Segmentation

Identifying segments of the real estate market is essential for investors. DeLisle (2010) is relevant to explaining the composition of the real estate market which is important for better understanding of the market as a whole. He summarized the `three major participants´ in the real estate process and renamed them from Graaskamp´s (1981) research: space producers, space users, and space facilitators or infrastructure providers. As shown below, the overlap clearly displays the roles of these groups that create the real estate market.

Figure 1 – Three Major Participants in Real Estate Market



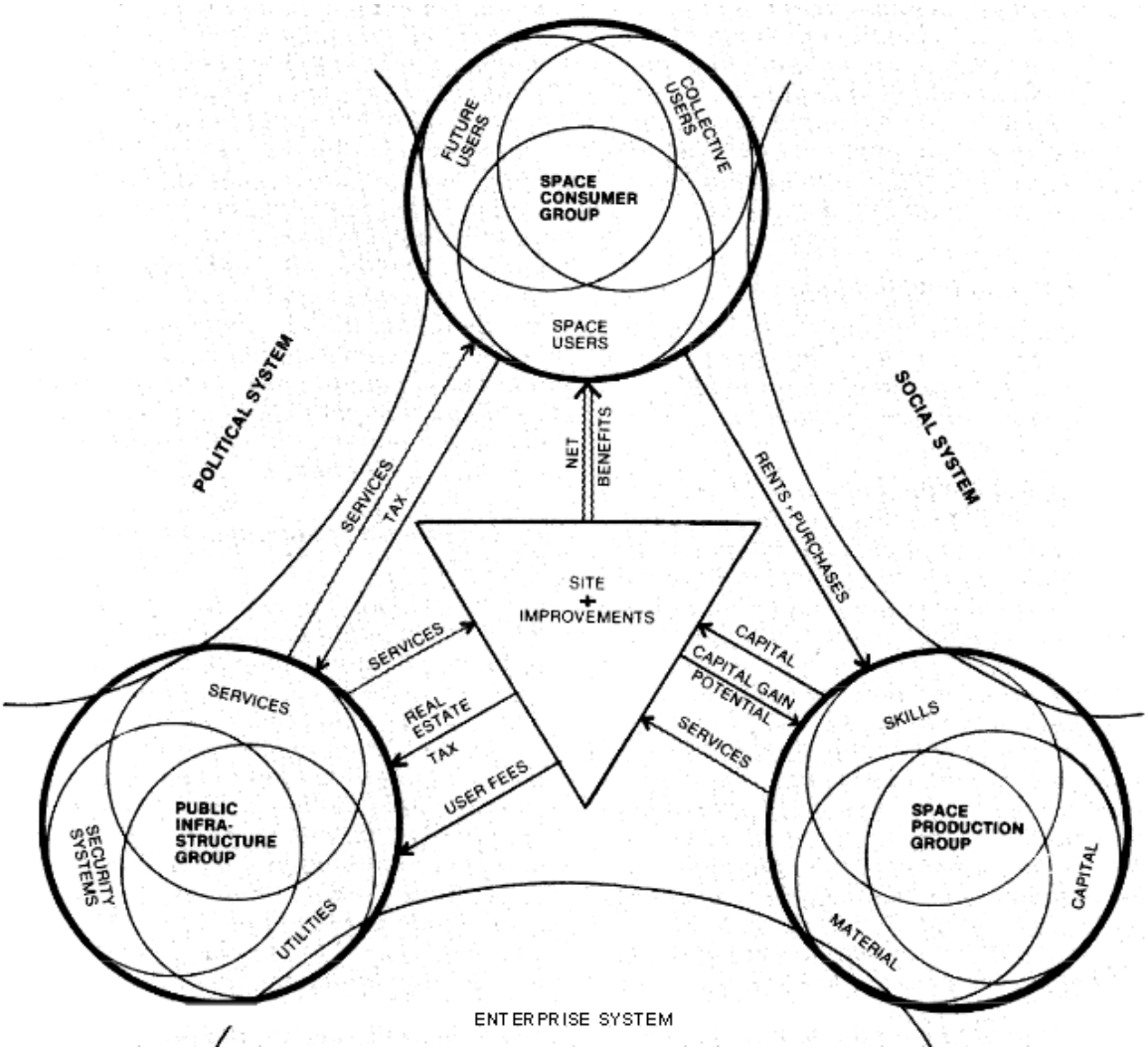
Source: Graaskamp (1981)

These three groups are directly and indirectly involved inthe market and the connection between them comes from the transaction of transferring ownership or usage for economic return. With some noteworthy exceptions (excess capital flow in 1980; flooded easy cheap credit in 2000, etc.), the transitions from one phase to another are fairly smooth with the market adjusting to changes in supply and demand.

In Graaskamp´s original research from 1981, he explains the real estate market´s function and the constant interaction between three groups of people. He classifies each group in detailed slices,

and conducts a functional real estate process as shown below. These relationships involve social, political and enterprise systems. Where the `space consumer group´ contains space users, collective users and future users; the `space production group´ involve skills, materials and capitals; and the `public infrastructure group´ covers services, utilities and security systems. These three sections were considered as the components of the real estate market. The arrows between each group show the principle of running this market and better explain the relationship. In the structure below, the `space consumer group´ pays rents or purchases and receives services; the `public infrastructure group´ supplies services and receives tax and user fees; finally the `space production group´ provides the capital for construction and services to clients but ultimately gains potential capital.

Figure 2 –The components and interactions of RE market



Source: Graaskamp (1981)

The modern French historian Fernand Braudel, emphasized (Braudel, 1985) the role of large-scale socioeconomic factors in the making and writing of history and identified three "stages" of economic life, which were seen as tools to deconstruct the structure of the real estate market by Theurillat, Rérat and Crevoisier (2004). They summarize and extend Braudel's representation of the stages of economic production and clarify the territorial situations in which property is produced, from rural areas to the heart of major cities. Their findings are displayed below:

Table 1 – The three stages of RE market

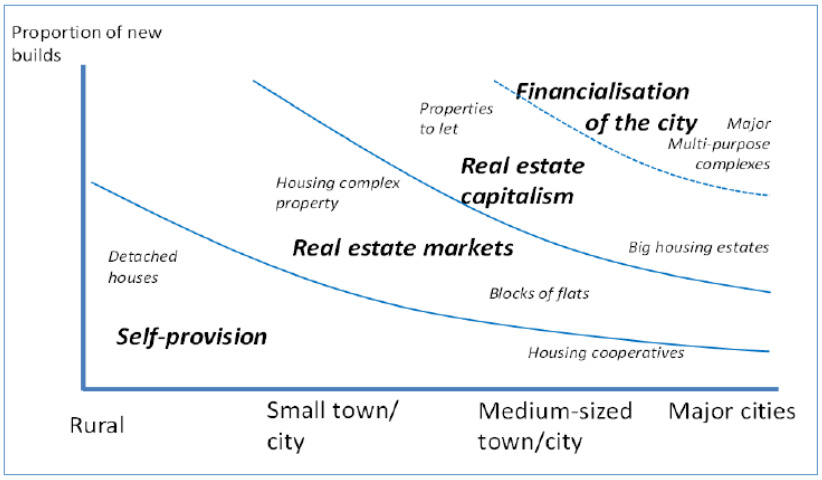
Real Estate Systems *Characteristics*	1st stage: SELF-PROVISION	2nd stage: MARKET	3rd stage: CAPITALISM	
			REAL	FINANCIALIZED
Parties involved	Households	Property developers	Institutional investors	Portfolio managers
Knowledge of the markets	Tacit, based on local networks	Tacits, based on recent success and on interpersonal relations	Codified and quantified (market surveys) and interpersonal relations	Standardized and abstract
Evaluation criteria and methods	Functional and symbolic rather than monetary evaluation	Evaluation through the local housing market (construction costs)	Real comparative risk/return based on new methods (discounted cash flows) in accordance with local markets	Based on financial model of comparative risk/return on financial markets
Phases Initial intension	Maximise usage value Minimise monetary cost Isolation from the property market	Production to generate monetary returns (exchange value)	Set up a constant source of long-term profit Speculation on local market appreciation	Attract institutional investors
Creation	Significant self-provision and production Local savings, use of banks	Construction of homes (buildings) or individual houses (detached homes)	Construction of buildings, housing estates, etc. or purchasing of existing stock	Diversifiying risks and speculating on securities
Exploitation	Self-consumption	Sale to users	Letting (long-term)	Stock market appreciation and dividends
Exit	Family transmission (inheritance, etc.) Sale on the local market	Sale by estate agents	Speculative property sales	Disposal of securities on the financial markets

Source: Theurillat, Rérat and Crevoisier (2004)

As shown in this graph, there are three stages in the real estate system: Self-Provision, Market, and Capitalism. The first stage (Self-Provision) has generally held true. It characterizes situations in which household activities are shaped by needs or aspirations and by the use value of the goods they produce. The second stage (Market) is based on exchange value and is organized at a local level, where the key players are the real estate companies and construction companies which have a tacit understanding of a specific market. The third stage (Capitalism) covers professional investors who invest their capital in real estate with the aim of making a profit. More specifically, in the Financialized stage, the market emphasizes the extent of monetary outlay and

the size of the projects concerned. Furthermore, these authors show the overlap and hierarchy of the stages in terms of location and demonstrate the link between them:

Figure 3 - The Areas of the RE Market

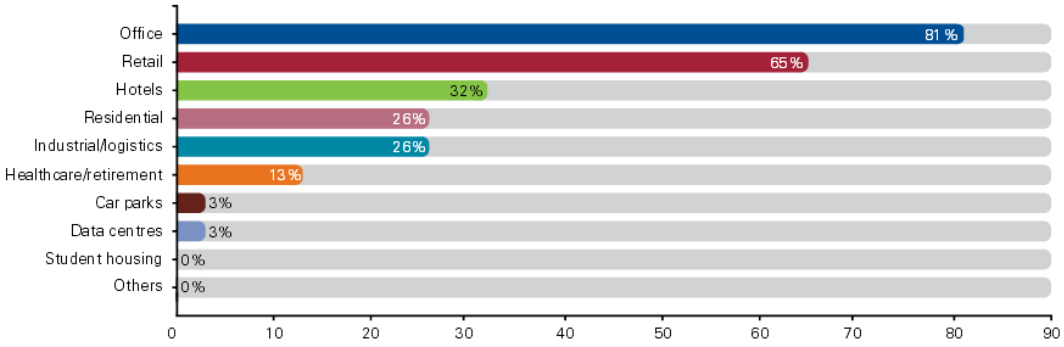


Source: Theurillat, Rérat and Crevoisier (2004)

On the basis of their ideal real estate system model, the first stage refers mostly to rural areas, the second generally to urban areas and the third to metropolitan areas. In correspondence with the chart of stages before, in the third stage includes two types of Capitalism: the Real estate capitalism and the Financialisation of the city. The graph above shows how these categories increasingly coincide with the level of urban development. The proportion of new builds is theoretically balanced in different percentages. And the standard that categorizes the proportion is the location, from Rural to Major cities.

More practically, from the KPMG RE invest survey, the graph below displays the types of property being invested globally and the ranking of each segment in 2014. In general, the real estate market is composed of the residential market where owner-occupied housing is and the commercial market that includes offices, retail, industrial and other rented housing, as well as special real estate that includes untraded and public buildings. The spectrum of investable property has also widened to include car parks and student housing. In this data from 2014, office property turns out to be the most prevalent preference, with 81% respondents desiring it, while 65% showed an interest in retail property.

Figure 4 – Invested Property Ranking in 2014



Source: KPMG RE invest survey

1. 2 ResidentialMarket

When defining real estate microeconomics, many economists have used Urban Land and Location, the famous land theory stated by Alonso (1960). The theory notes that a property buyer always considers land and location. Consumers tend to bid for a rent that is cheaper when further from the center. This rate should be just low enough to balance the cost of increased commuting expenses and the aversive effects of a long trip to work.

The term "good location" varies with the changes in the city´s growth. With increasing populations and city developments, most city´s areas have seen a 5 to 12 percent increase in land consumption during the last two decades, which has expanded their borders. This is expected to continue moving city boundaries outward with this rapid growth (Leinberger, 2003). Due to this, the mobility of the population and their location decisions has changed as well.

Without doubt, location has played an important role both for occupation or investment. Some economists, however, have challenged the rule and presented other factors that weigh heavily on this decision making. Except for locational factors, the effect of property-specific factors on real estate in terms of rents include amenities, services, physical attributes and characteristics of renters themselves and their willingness to pay; all of which may influence the value (Sirmans and Benjamin, 1991). Sirmans and Benjamin have examined multifamily housing amenities, and found that services and external factors such as swimming pools, gardens, paid utilities and modern kitchens with well-equipped appliances are consistently important positive determinants of rent. Kahn (2006) analyzed the economics of pollution in urban areas and found out once

urban areas were associated with dirty air that soiled buildings and damaged the health of city residents; it would influence the image of the neighborhood and in turn decrease investments.

In addition to these two theories, in the current product differentiated market, a house price can vary with the size, quality and character of a unit´s structure, and of course, location. Even though the units have similar features, for example, commuting time, access to work, qualities of the neighborhood and other amenities nearby, the prices for the units vary hugely mainly due to the location. Whereas, even in a highly desirable location, these non-locational factors can determine the house value with surprising results.

Along with the development of economy and society, the way people think must also change. The determinants might alter as they change their mind. I tend to agree that location is important but the other factors are relevant as well. No matter what the purpose for buying real estate is, the core motivation must be people. This is also what the microeconomical approach places emphasis upon. The empirical theory, Renter´s Characteristics and Willingness was devised by Smith, Johnson and Hill (1991). They demonstrate that differences exist in the marginal values placed on features of apartment tenants. These personal profiles include sex, marital status, income and children, etc. In fact, two years earlier, Smith and Kroll (1989) had already indicated that the real estate market needed behavioral consideration that related to renters. Because of this theory, I was inspired to think about different groups of people in the world and to consider more demographical and cultural differences. Different groups of families require different sets of amenities; this affects the price they are willing to pay for a unit, for example, not everyone appreciates having a 24hour guard in building. And because of this, the global market is influenced by personal preferences.

Carr, Lawson and Schultz (2003) summarized that there are four value forces that influence the neighborhood and district. The identification of a district or a neighborhood is usually based on the physical or environmental forces that affect its value; however, it is quite common to have one or more forces to be the most dominant determinant when identifying a district or neighborhood. These forces are listed as below:

Table 2 – Four Forces in Identifying Neighborhood

Forces	Characteristics
Social	- Family composition - Community and neighborhood organizations - Cultural or ethnic groups
Economic	- Income levels of residents - Development trends - Employment
Physical/Environmental	- Topography - Subsurface (Rock, marsh, etc.)
Governmental	- Zoning - School districts - Police and fire protection - Land use plan

Source: Carr, Lawson and Schultz (2003)

Besides amenities and other factors, recent research has also shown the effect of property management companies (Benjamin and Lusht, 1992). The authors demonstrated that the bigger the property management company, the higher the rent. Meanwhile, Sirmans and Sirmans (1992) examined the relationship between the quality of property management and the value of apartment rent. The result of their linear model has shown that property management companies earn a higher average monthly rent, on average 4% higher. The term property management includes buying and maintaining rental properties, advertising vacancies and dealing with troublesome tenants, etc. (Trevor, 2008). Within urban areas, neighborhoods vary dramatically. Poverty-stricken, crime-ridden neighborhoods offer a striking contrast to beautiful, expensive neighborhoods with excellent schools and virtually no crime. In this paper, I want to show how personal preferences have grown in importance in regards to real estate investment decision making and the weight of cultural influences.

1. 3 Commercial Market

Commercial real estate, which includes office, retail, industrial, apartment and hotel properties, represents a significant proportion of the investment market. This market in general is divided into the industrial market, the office market and the retail market. From the data of the National Bureau of Statistics of China, the table below shows the figures for investment completed in China in real estate development from the years 2009 to 2013. Commercial use in 2009 was 29.3% of the total investment completed, which had increased to 31.4% in 2013, while the ratio of

investment in real estate to total investment completed in China in 2013 was 25.6%.

Table 3 – Investment actually completed by enterprises for RE development by use in China

(100 million yuan)

Year / Region	Investment Completed This Year	Residential Buildings	Villas, High-grade Apartments	Office Buildings	Houses for Business Use	Others
2009	36241,81	25613,69	2073,34	1377,21	4180,66	5070,25
2010	48259,40	34026,23	2829,81	1807,38	5648,40	6777,39
2011	61796,89	44319,50	3424,16	2558,79	7424,05	7494,55
2012	71803,79	49374,21	3448,37	3366,61	9312,00	9750,96
2013	86013,38	58950,76	3637,90	4652,45	11944,83	10465,34

Source: China statistical yearbook 2014

From the president and chief executive officer of JLL, Dyer (2015) identifies 30 cities in the world that, together, received half of the total $5 trillion directly invested in commercial real estate over the past decade. Megadeals helped four elite “supercities” retain their places at the top, where they have been for the past few years. Though the proportions of Commercial Investment Holdings are large figure of a country´s wealth, the analysis for real estate investment lags behind that of classic financial asset classes.

The lag is mainly caused by misuse of standard techniques and many concepts tend to be obsolete due to the fact that the studies are out of date and the rapid development of the market (Clayton, J, 1996). The classic Urban Land theory from Alonso (1964) illustrates that bid-rent functions reduce rent when they are further from the city center. Sivitanidou (1995) used data sources from Los Angeles and found that the distance and accessibility to work do have a significant relation to office rental function, however, she also discovered that the standard bid-rent function is incomplete when explaining office bid-rent relationships unless other variables like office amenities, zoning and local institutional control are included in the model.

More recently, Keiler (2013) stated that the measure of price for commercial property should follow a Land-structure split, which is determined by the cost of the land and the cost of the structure. The land structure split equation is listed as follow:

$$\text{Property value} = \text{Land value} + \text{Structure value} \quad (1)$$

Keiler (2013) pointed out that in order to understand the determinants of commercial property value, the separation of value is not sufficient and it is very difficult to separate these two components to value a commercial property. He found that it is necessary to reconsider implications from index theory for discriminating sharply between the value, the price, the volume and the quantity of commercial property. The value of a commercial property is determined by the expected value of rent in the future, thus requiring a Discounted Cash Flow Method, which refers to rents and land-specific characteristics.

Özdilek (2011) explained the land value and structure value, focusing on the characteristics of each. A specific land obtains its value from various factors, such as proximity to city center, structure of the surrounding area or its shape and size, etc. However, the structural value is the cost to provide the characteristics of, for example, office and retail space, technical facilities or logistic areas. In summary, the most important considerations for office-use land can be divided into: accessibility, image, face-to-face contact and scales economies (Monetti, 2009), where the Image can attract people to a location which is related to social, cultural or environmental factors. The author didn't expand upon how cultural factors are involved in the location decision, which is what I am going to analyze in this paper.

Denise and William (1996) presented the idea that the commercial market is influenced by people, in this case, employment density. Recently, more offices are decentralizing to be closer to the workforce and lowering the cost of rent, moving to where the rent is acceptable for either residents or companies. The similarity is that the commercial market has to follow the pattern of people; if suburbanization is being more popular, the commercial market has to adapt to this trend. The retail market has to follow the mobility of people. Indeed, in a unitary city system, firms and retail units tend to locate together in the city center where it is more convenient for communication with both clients and suppliers. However, firms are heterogeneous and they have different standards for their location decision. The assumption of the agglomerative economies may not, therefore, be strictly binding (Sing; Ooi; Wong; Lum, 2004).

The location decision for retail market tends to be more violate because of the competition within its market. Indicated by Diego Puga and his various equally prolific coauthors, the agglomeration

of firms follows Krugman‘s central issue about competing forces, show how firms begin to move away from this agglomeration, stimulating growth in other countries (Puga; Venables, 1996). Similarly, the cluster of retail shops is a strategy to cater for a public averse to more frequent and tiring shopping trips, thus, one store´s sales gain may occur at the expense of other stores, since one on sale could attract more loads of people to one certain shop. The principle could be applied to the cluster of shopping centers too (DiPasquale and Wheaton, 1996).

Meanwhile a new term `Subcenter´ has attracted attention in the commercial real estate market. It happened not only because of the suburbanization of the residential market, but also occurred naturally due to the growth of the Central Business District (CBD) which was first proposed by E. W. Burgess, an American urban geographer, in 1923 in his famous model of a concentric circle regional structure of a city.The CBD location is a result of the sunk costs and built-in infrastructure, which creates the first-mover disadvantage and accelerates firms’ inertia to relocate from their CBD premises (Rauch, 1993). Because of its growth, it will reach a critical size that lowers the benefit of agglomeration, leads to traffic congestion, increases the office density and finally remove the difficulty of relocation. Plus the existence of new development around the fringe areas of the city, where the rent is lower and infrastructure is new, these all stimulate firms to relocate away from the center, named the Subcenter (DiPasquale and Wheaton, 1996). Along with the development of internet and transportation, the old barriers for face-to-face communication don’t influence the decision that much as they used to, which accelerates the decentralization process rapidly and reasonably (Ball, Lizieri and MacGregor, 1998). Bollinger, Ihlanfeldt and Bowes (1998) also showed that a centrally located market is an important office location determinant only for the market-oriented firms, which find access to clients to be very important.

Leishman and Watkins (2004) used the behavioral approach and studied 119 office occupiers in the Edinburgh office market. They showed that the choice of the office type by the firms is dependent on the characteristics of the firms, such as their size, type of business and their market coverage- either locally, regionally or nationally. As with the personal preferences in the residential market, companies differed in terms of their characteristics and cooperative culture, and these might influence the decision making of firm or retail unit locations. Urban economists have pointed out that the spatial equilibrium in commercial markets and residential markets are quite similar. In general, land prices are the entrance fee for companies to enter the productivity

and the amenities of a labor area (Rosen and Roback, 2006). While these two sectors are closely connected, important differences exist (Gyourko, 2009). Other factors may lead to different results within these two markets.

2. Real estate investment

"Only when the tide goes out do you discover who's been swimming naked."

--Warren Buffett

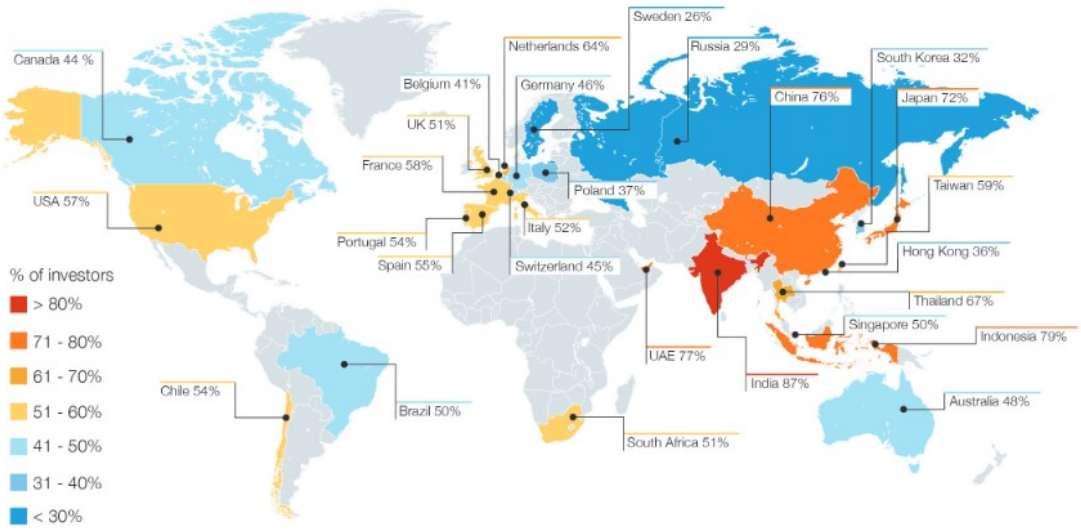
Real estate investment attracts and repels people, however, in general, it is still the trend of investment to gain return with relatively low risk. The most persuasive reasons for real estate investment are Inflation and Depreciation. Thanks to inflation, investors in the real estate industry are taking advantage of it because of the appreciation of products, in this case, rent. Historically, many economic experts doubted the market value of properties and claimed house prices had reached their peak and ultimately would decline.

- *The prices of houses seem to have reached a plateau, and there is reasonable expectancy that prices will decline. (Time, December 1, 1947)*
- *The goal of owning a home seems to be getting beyond the reach of more and more Americans. The typical new house today costs about $28,000. (Business Week, September 4, 1969)*
- *The era of easy profits in real estate may be drawing to a close. (Money, January 1981)*
- *A home is where the bad investment is. (San Francisco Examiner, November 17, 1996)*
- *The trends that have produced the housing boom . . . have nearly run their course. This virtually guarantees . . . plummeting home prices and mass foreclosures. . . . (John Rubino, How to Profit from the Coming Real Estate Bust, Rodale, 2003)*

However, house prices won't drop as long as inflation exists. Eldred (2008) goes as far as stating that the price of housing will go up, no matter how high it is today. Worldwide, from the latest Schroder's Global Investment Trends Survey 2015 of Increasing Confidence, over half (54%) of retail investors globally feel more confident about investment opportunities in the next 12 months

than they were a year ago, especially for investors from Asia.

Figure 5 – Confidence Heat Map by Country



Source: Schroder's' Global Investment Trends Survey 2015

Real estate investment decisions must be based on an understanding of the economic environment of each parcel of property. As a discipline, economics is divided into two fields with similar distinctions, which are microeconomics and macroeconomics. In the real estate market, the micro forces that should be considered are those location-specific factors that influence the value of use of one particular site. On the other hand, macro forces refer to economic factors that affect market timing and influence the profit or use of all properties (DiPasquale and Wheaton, 1996). These variables are well-known: market prices, rents, vacancy, interest rates, inflation rates, etc.

Many investors now ensure they have three or four real estate investment styles within their overall real estate allocations, seeking a new and enhanced way to set investment strategy. The definitions for investment styles are:

a. Core - low risk/low return
b. Core plus/ Value-Added - moderate risk/higher returns
c. Opportunistic - high risk/high return.

Baczewski, Hands and Lathem (2003) pointed out that the real estate market is far from unanimous, and the definitions may vary, and may not always produce the same results, because investors sometimes have particular needs, preferences and perceptions that drive the definitions above. They illustrate the key attributes for each style and define the investment styles further in detail:

Table 4–Investment Style Definition

Asset Level		
Core Definition	**Value Added Definition**	**Opportunistic Definition**
Assets that achieve relatively high percentage of return from income and that are expected to exhibit low volatility.	Assets that exhibit one of more of the following attributes – achieve a significant portion of return from appreciation, exhibit moderate volatility and/or are not currently considered core property types. However, if the overall risk level is excessive, the asset should be classified as Opportunistic.	An asset that is expected to derive most of the return from appreciation or which may exhibit significant volatility in returns. This may be due to a variety of characteristics such as exposure to development, significant leasing risk, or high leverage, but may also result from a combination of moderate risk factors that in total create a more volatile return profile.
Core Attributes	**Value Added Attributes**	**Opportunistic Attributes**
Major property types only – office, industrial, retail (neighborhood/ community centers, regional/super regional malls), multifamily	Major property types, plus other retail, hospitality, senior living, storage	Non-traditional property types, including speculative development for sale or rent and land
Lifecycle: Operating	Lifecycle: Operating, Leasing	Development and redevelopment lifecycles
High occupancy	Moderate to well leased, substantially pre-leased development	Low economic occupancy
Low rollover concentration	Moderate rollover concentration	High rollover concentration
Low total near term rollover	Moderate total near term rollover	High total near term rollover
Low leverage	Moderate leverage	High leverage
Institutional market/location	Institutional or emerging markets	Secondary and Tertiary markets and International Real Estate
Investment structures with significant control	Investment structures with significant or moderate control, but security or preferred position	Investment Structures with minimal control, unsecured positions

Portfolio Level		
Core Portfolio Definition	**Value-Added Portfolio Definition**	**Opportunistic Portfolio Definition**

A Portfolio that includes a preponderance of core attributes. As a whole, the portfolio will have low lease exposure and low leverage. A low percentage of non-core assets is acceptable. As a result, such portfolios should achieve relatively high income returns and exhibit relatively low volatility.	A Portfolio that generally includes a mix of core investments and others that will have less reliable income streams. The portfolio as a whole is likely to have moderate lease exposure and moderate leverage. As a result, such portfolios should achieve a significant portion of the return from appreciation and are expected to exhibit moderate volatility.	A Portfolio of preponderantly non-core investments that is expected to derive most of its return from appreciation and/or which may exhibit significant volatility in returns. This may be due to a variety of characteristics such as exposure to development, significant leasing risk, high leverage, or a combination of moderate risk factors.

Source: Baczewski, Hands and Lathem (2003)

Besides investment style, an effective analysis of a real estate investment must consider many critical characteristics and the task of analyzing a real estate investment may be divided into three components: Cash flow, Tax effect and Future benefits (Poorvu, 2003). Recently, though the economy has been recovering, investors venture into real estate investments always with greater demands to accommodate their particular needs so as to maximize their potential return while minimizing their risk. The effect of tax turns to be more important since tax regulations can negatively impact an investor's return, as well as the volatility of returns in today's real estate markets (Sowell, 2012).

As with the perception of investment style, investors' treatment of risks will almost invariably differ because each of them has a different view relating to the fundamentals that make up the investment, for example, income requirements, market expectations, and attitudes towards both general market risks and property specific risks (Danish Property Federation, 2013). Though it is hard to list all of them, and because of the different opinions among individuals, the general risk and considerations that would affect the investor's decision of` buy and sell ´ and the investment yield required may be observed. These risk factors are labeled: Risk free rate of investment, Market risk and Specific risks.

Like any other investment, to reduce the risk, investors tend to use a portfolio to create diversification. In the real estate market, from an international perspective, the principle is similar. The first research on the topic of international diversification was completed by Ibbotson and Fall (1979), who focused on calculating the total value of assets, including real estate, in the U.S. More recent publications on this topic include Hartzell, Miles (1986), who examined several diversification categories for real estate investment. Hartzell, Shulman and Wurtzebach (1987), who took a closer look at criteria for regional diversification and Mueller and Ziering (1992),

who analyzed real estate portfolios using a combination of economic and geographic diversification. This research tells us that if the assets in the portfolio do not correlate, the result of each wouldn't diminish the final return of the investment, so that would cause a risk-reduction benefit. Therefore, from an international perspective, when talking about the real estate market, a well-diversified portfolio should consist of assets from different geographic regions with different economic characteristics (Geurts and Jaffe, 1995) and it is likely that cultural factors could play a role in this consideration.

2.1 The Equilibrium of Real Estate Use

The evolution of the real estate market has enabled institutional investors to explore investment opportunities, and the market can be broken into a variety of structures and investment vehicles. The Four-Quadrant model shown below illustrates the different channels by which institutional investors can access the real estate market. Investments can be made through public or private vehicles and throughout the capital stack (Rogers, 2010). In this model, the four quadrants refer to the classification of real estate investing across all of the real estate related financial markets: public and private, debt and equity, which focuses on the links between real estate and capital markets. It reveals the fact that income from these investments relies on the performance of the underlying real estate notwithstanding the fact that the pricing, the risk and the liquidity will depend in which part of the spectrum (debt or equity) the investment occurs and whether it is traded in the public or private market (Harrington, Harris and Liossi, 2014). The authors gave the explanations and examples for each category, which are shown below.

Table 5 - Four-Quadrant Investment Model

	PRIVATE	PUBLIC
DEBT	Whole Loans	CMBS
EQUITY	Direct Property	Public REITs and REOCs

Source: Rogers (2010)

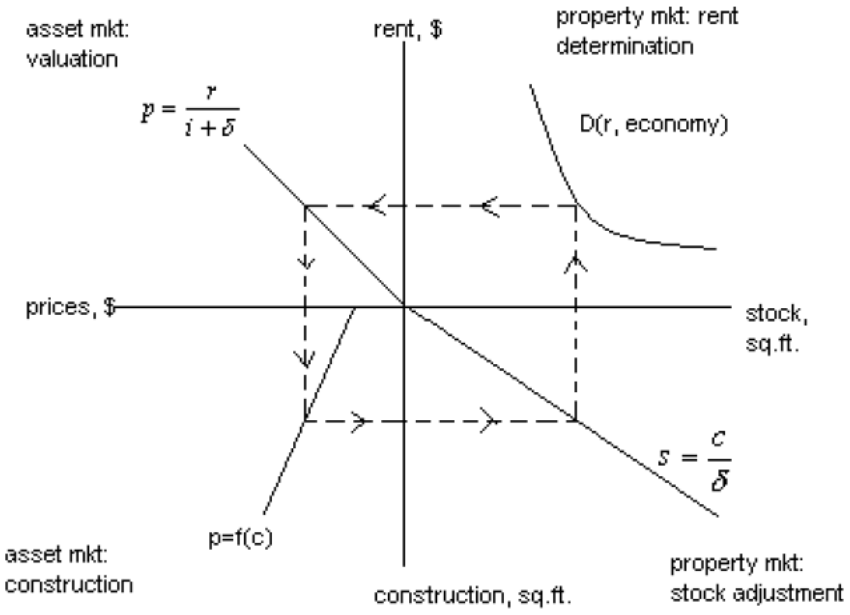
- **Private debt-** Conventional mortgages, whole loans.
- **Public debt**- Publicly traded mortgage securities, including residential and commercial mortgage backed securities (CMBS), securities issued by Fannie Mae, Freddie Mac, and private mortgage issuers.
- **Public Equity**- Consists of real estate securities such as equity REITs or publicly traded real estate operating companies (REOCs).
- **Private Equity**- Ownership of commercial real estate properties, either on a direct basis or indirectly through a commingled fund.

Historically, most office, retail spaces or industrial spaces have been built speculatively because the operation of the whole process required a sophisticated plan, beginning with site decisions, initial plans, the securing of necessary permits that may be required, etc. Land preparing and permission could take years. Considering the time value and the fact that people are risk averse, this enables the development company to ask for funds from other equity partners (DiPasquale and Wheaton, 1996). Because of the higher financial leverage, it differs with housing-based real estate. It is also noteworthy how risky commercial real estate tends to be when facing a general economic decline (Gyourko, 2009).

To understand rent, it is necessary to consider the market for the use of real estate (DiPasquale and Wheaton, 1996), since rent is determined in the property market as occupation of space, instead of in the asset market for ownership. Prior to DiPasquale and Wheaton, many authors completed research into the joint of capital and real estate market. Hendershott and Ling (1984) co-authored the first article on this topic. In 1987, Corcoran illustrates these two markets graphically and distinguishes them between short-term and long-term supplies of places. The most recent, formally published development in the field of diagrammatic integrated property and asset market models, is a quantitative version of the DiPasquale Wheaton model (1992), which was accompanied by Fischer, so that the term FDW was created (Toit and Cloete, 2003). The FDW model conceptualizes the interrelationships between Market for Space, Asset Valuation, the Construction Sector and Stock Adjustment.

According to the model, the connection between the asset market and the property market occurs in two areas which are demand for real estate assets, and increased supply in construction or development sectors. The relationships between these sectors are well illustrated in figure 6:

Figure 6 – FDW Model



Source: DiPasquale, Wheaton and Fischer (1992)

Many articles have talked about the FDW model. Based on DiPasquale and Wheaton, this model consists of four quadrants: the North-eastern quadrant (Quadrant I) which represents the demand for units by tenants; the North-western quadrant (Quadrant II) where price and rent are linked; the South-western quadrant (Quadrant IV) which is the supply curve of the construction industry; and lastly, the South-east quadrant (Quadrant IV) which details a certain level of construction and determines the level of stock that would be produced if that construction continued constantly. More specifically, quadrants I and II, represent the property market for the use of space, where III and IV quadrants deal with the asset market for the ownership of real estate. These four quadrants complete a 360-degree rotation around the diagram; shifts of certain variables in each quadrant will influence others, thus creating a new equilibrium in the market. Economic events could result in changes in movement in the model, but they would happen simultaneously. These economic events include decreasing employment rate, rising interest rate, changes in inflation rate etc. (Toit, 2003), which provide possibilities for cultural factors to be involved and influence the market.

The diagram should be seen as a dynamic movement of the market. The principle for the equilibrium of the real estate market is to have the same start and end value in the diagram, which

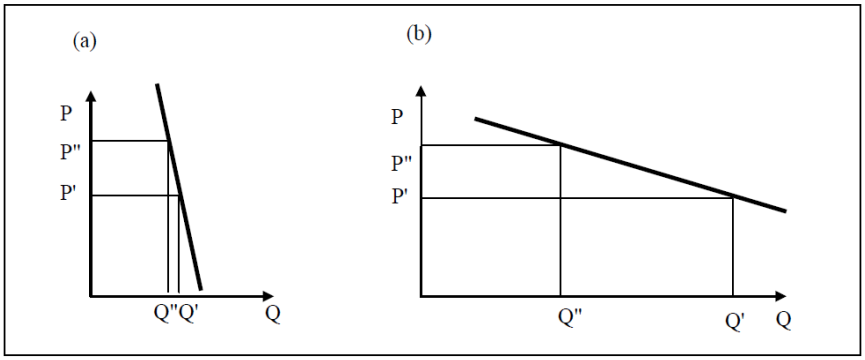
means balancing supply and demand. If the start value exceeds the end value, all the elements like rents, prices, and constructions must all rise to stay balanced. The same if the first quadrant has less value than the finishing one, all the elements have to decrease in order to be in equilibrium again. At the point at which the quantity of space demanded and supplied are equal to each other, the market is in equilibrium, and the observed rent is called market rent. To better understand the market it is important to analyze supply and demand.

2.2 Supply and Demand

The price of a certain product relies on supply-demand in relation to the market and it applies to the real estate market as well. In the real estate market, the supply of new real estate assets comes from the construction sector and depends on the cost of replacing or constructing the older ones; the demand comes from the occupiers of space which includes tenants and owners; firms and households (DiPasquale and Wheaton, 1996).

By looking the graph of supply and demand model below, unlike the conventional economic theory represented by model b, in real estate terms, a lower amount of space or number of units is demanded at an even higher price indicated by graph (a) shown in figure 7 (Sivitanidou, 2011).

Figure 7 – Fundamental Law of Demand

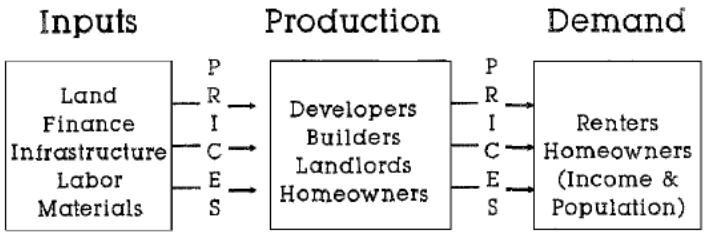


Source: Sivitanidou (2011)

Mayo, Malpezzi and Gross (1986) summarize a schematic diagram of how the housing market works. Inputs (land, labor, infrastructure, finance and materials) represent the Supply factors in the market, specifically, Infrastructure is provided by supply-side agents such as landlords and developers to produce housing services. Relative prices advise producers of housing services

about whether to provide or retain housing, and the input suppliers about providing more or fewer inputs.

Figure 8–Housing Market Operation Mechanism



Source: Mayo, Malpezzi and Gross (1986)

The differences between an efficient market and an inefficient market are shown in Carr, Lawson and Schultz´s chart in table 6 (2003). The main characteristic of an efficient market is that goods or services are easily produced and readily transferable, with a large number of buyers and sellers. An inefficient market is just the opposite: goods and services are not readily produced or easily transferable, with no readily recognized group of buyers and sellers active in a particular marketplace. Based on this description, the real estate market tends to be an inefficient market due to the long period of time between construction and sales. As displayed in the chart, in the inefficient market, the supply and demand level has a huge potential for being unbalanced for months or even years. Since the time for constructing an asset is relatively long, when the market is undersupplied normally a buyer would need to wait for the constructed home. Due to the uncertain period of time for delivery of the real estate, it is possible that demand changes, because the customer might no longer want the property due to the long period of waiting, which means it would cause oversupply. Historically the supply of buildings to meet people´s needs has been uneven: with too little space available during rapid growth time and too much supply when there is not much need in the market. This inconsistency between supply and demand is the major cause of volatility in real estate market cycles (Mueller, 2001).

Table 6 – Characteristic of Efficient/Inefficient Market

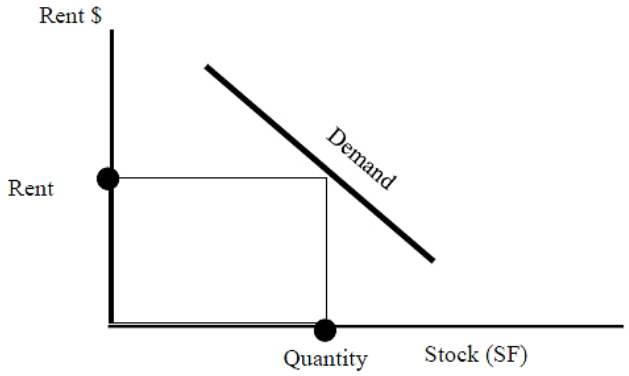
Characteristic	Efficient Market (Stock market)	Inefficient Market (real estate)
Products	Homogeneous	Unique
Inventory of Buyers and Sellers	Large number	Few
Prices	Uniform/Stable/Low (most can afford)/Quality tends to uniformity at	Variable/ Inconsistent/ High (limited affordability)

	a set price	
Restrictions	Self-Regulating/ Few Government Restrictions	Many Restrictions
Supply and Demand	Balanced (daily) due to competition	Often Unbalanced (for months/ years)
Information/ Intelligence	Fully Informed Participants	Limited Accurate Information
Organized Conduit	An Exchange	None
Goods	Readily Available/ Consumed Quickly/ Supplied Easily/ Transportable	Years to Consume/ Months or Years to Supply/ Immobile

Source: Carr, Lawson and Schultz (2003)

According to the Classical Supply and Demand Analysis in Real Estate, expounded by DeLisle (2010), the supply and demand relationship is illustrated as being seen to be in equilibrium.

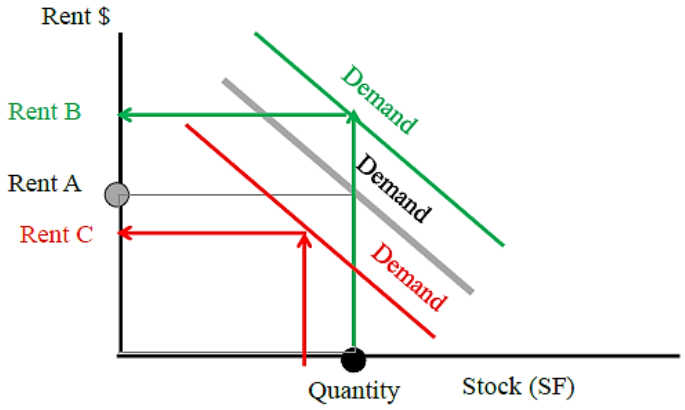
Figure 9 – The Supply/Demand Analysis in RE Market



Source: DeLisle (2010)

The horizontal axis represents Quantity, which means the supply of property, and the vertical axis reflects the property command prices, Rent. Clearly, the relationship between Rent and Quantity is perfectly inversed in the chart, indicated by the slope that is labeled Demand. The demand slope suggests that the real estate market would find a point in which supply and demand are in equilibrium. The point also signifies that the rate of return will be determined by the market and will be commensurate with the relative risk. It is quite noticeable that if supply increases beyond that point, rents will fall since the market will be oversupplied and values will decline correspondingly. Though the graph is quite simple, it is dynamic and changes in factors are possible to move the curve, for example, changes in demand.

Figure 10 – Changing in Demand



Source: DeLisle (2010)

As shown above, if demand increases significantly, rent would increase correspondingly due to the inelastic supply of buildings that generates the competition of tenants; ultimately, the higher price offer secures the house. On the other hand, if demand declines, the rents tend to fall as the market has an oversupply of space. The demand curve is the sensitivity of quantity demanded to price changes and this sensitivity is summarized by the concept of the Price Elasticity of Demand (Sivitanidou, 2011), which is calculated as the ratio of the percentage change in quantity demanded over the percentage change in prices.

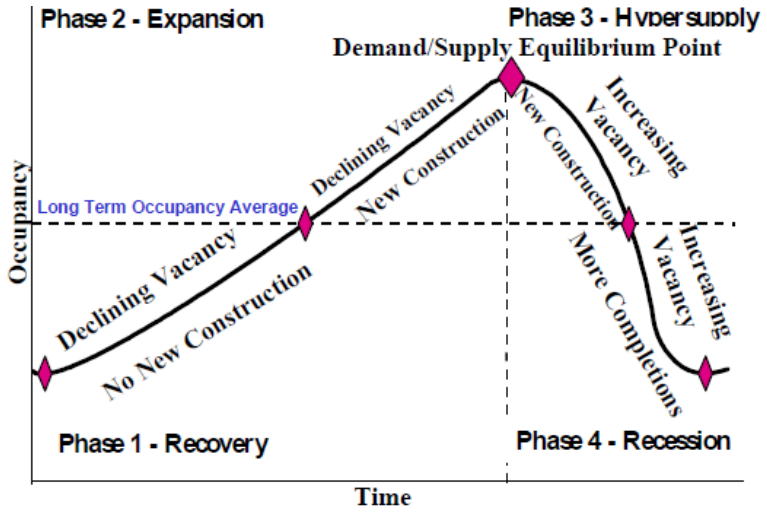
$$\varepsilon D = \frac{\Delta Q/Q \text{ [percentage change in quantity demanded]}}{\Delta P/P \text{ [percentage change in price]}} \qquad (2)$$

$|\varepsilon D| > 1$ [demand is price elastic]
$|\varepsilon D| = 1$ [demand is unit elastic]
$|\varepsilon D| < 1$ [demand is price inelastic]

εD shows by what percentage the quantity demanded will decrease in response to a 1% increase in price. In general, if the price elasticity is less than one, demand is considered to be inelastic. Usually, the real estate market is price inelastic, the Price Elasticity is always lower than 1. If the Price Elasticity is equal to one then demand is considered to be unit elastic and increasing price would be exactly the same as the amount which decreases in quantity demand. Lastly, if the value is larger than 1, demand is considerable to be elastic. Developers and investors tend to like an inelastic market, since the increase in price would bring about higher revenue. Though demand would decrease; the gain from rent is high enough to be eliminated (Kau and Sirmans, 1985).

Stated by Mueller (2011), the real estate market has its equilibrium point for supply and demand in a more complicated model. He explained the theory by using the real estate cycle graph, which is separated into four quadrants that are connected because of the supply and demand relationship in the real estate market.

Figure 11 – Market Quadrants Cycles



Source: Mueller (2011)

The graph above depicts the supply and demand relationship through the Occupancy Level and the Time Period. The line which divides phases 2, 3 and phases 1, 4, is called `long-term occupancy average´ (LTOA) or `normalized occupancy level ´, both of which the market goes through during an up-cycle and a down-cycle. The Occupancy Level is the difference between total supply (including newly constructed space) and effective demand. As shown in the graph, the curve has an upside trend in phases 1 and 2(Recovery and Expansion), where demand growth rates are higher than supply growth rates. Phases 3 and 4 (Hypersupply and Recession) represent the opposite. Supply and demand would perfectly match each other only at the peak point (Demand/Supply Equilibrium Point), with existing space plus new construction exactly matching new demand so that at this point the oversupply ends and demand turns positive. After this peak, either the demand growth rate starts to decline or the supply growth rate accelerates. The supply and demand equilibrium might occur numerous times, since future demand cannot be precisely predicted and supply does not respond immediately to demand changes. Other economic activities which occur in everyday life and factors from a buyer´s willingness, etc. all influence the balance in the long run.

The typical and basic determinants for shifting the demand curve in the economic model are: (1) consumers' tastes (preferences), (2) the number of consumers in the market, (3) consumers' incomes, (4) the prices of related goods, and (5) expected prices (McConnell, Brue, and Flynn, 2010). In the real estate market, the factors that could change the demand could be seen as endogenous (prices and rents), but also should consider exogenous determinants (Sivitanidou, 2011), some of which are overlap with the traditional economic supply and demand model. In her opinion, the external factors are significant for assessing real estate market prospects, evaluating project viability, identifying real estate development and investment opportunities. She summarizes the drivers of the demand into four categories: Market Size (Population, Employment), Income/Wealth, Prices of Substitutes, and Expectations. She places more importance on the economic determinants, but did not deliberate the consumers' tastes in the category, which I think is essential for an investment decision, both for the buyer and seller.

Logan (2012) summarizes the housing demand factors from ECO Northwest's literature review by seeing the factors as a function of the interactions of population growth, income, housing prices, and housing preferences. These factors are well known as `the six P´s´: Population, Purchasing Power, Preferences, Prices (and costs) of Housing, Prices of Housing Substitutes and Policy. I tend to agree with the idea of paying more attention to socioeconomic factors in regards to the current real estate investment market. It is quite obvious that different households will value what they can get differently since they have different preferences which in turn is a function of many features which include: income, age of household, number of people and children in the household, number of workers and job locations, number of automobiles, and so on. The consumer's decisions are likely to be vastly different, and dozens of factors weigh disproportionally in their mind, these factors that directly or indirectly correlate with the results are socioeconomic and demographic characteristics. Lastly, since the demand of a certain region is composed by thousands of households, it is worthwhile to consider regional factors from a global perspective.

The globalization of businesses has increased demand for the kind of office buildings and infrastructures required by large businesses, which boost metropolitan markets fueled by international financial capital. Due to the change in demand, major development and construction groups and real estate consultants operate on an international scale (Cushman & Wakefield, Jones Lang Lasalle, etc.), the worldwide trend calling attention to cultural understanding. Investors tend

to add foreign real estate physical assets or foreign real-estate-related financial securities to their portfolio which increases the integration of global financial markets, which in this case tends to have an impact on the pricing of these assets.

The effect on current real estate markets of global migration is another example of the effect of globalization on real estate. Where the global movement of people is also connected to the hospitality sector (Bardhan and Kroll, 2007); analysts expect strong growth in global tourism in the coming years, primarily fueled by the large numbers of Chinese citizens venturing abroad. Besides the USA and the UK, Europe has become an attractive destination for Chinese citizens since 1980 (Latham and Wu, 2013).

Table7– Global Growth Distribution of the Overseas Chinese Population since 1980 (million)

Region	1980		2000		2007	
	Population	Per cent	Population	Per cent	Population	Per cent
Asia	24.764	91.81	32.942	82.85	35.48	78.10
America	1.333	4.94	4.333	10.90	6.30	13.87
Europe	0.622	2.31	1.454	3.66	2.15	4.73
Pacific	0.176	0.65	0.786	1.98	0.95	2.09
Africa	0.077	0.29	0.244	0.61	0.55	1.21
Total	**26.972**	**100**	**39.76**	**100**	**45.43**	**100**

Source: authors' extrapolation from three tables in Gui (2011: 54–55).

Cities, meanwhile, have taken their own initiatives to manage migration at a local level and directly interact with migrants. The immigration policies and programs in some countries are now integral to their urban development and management, in this case, largely influencing the real estate market (IOM, 2015). Migrants are regarded as a resource and opportunities for low-middle income countries.

Bardhan and Kroll (2007) also point out that in spite of rapid globalization, it should be noted that real estate is still primarily influenced by indigenous factors. Local knowledge, local economies, local factors and local institutions will continue to play a significant role, albeit somewhat affected now by firms, consumers and economic influences from other, distant parts of the world. Regardless of what occurs on the supply and demand side, better understanding of local culture would bring about positive effects.

2.3 Bubbles, Inflation and Saving

A common phenomenon in big cities around the world is the rising demand for housing and the soaring cost of housing prices, which have caused real estate bubbles. The term `asset bubble´ is defined as inflation of the price of an asset relative to its fundamental value (Valadez, 2010).It is similar to the concept of ` irrational exuberance ´, which was used to describe the stock market's behavior in the 90s by Alan Greenspan, then Governor of the Federal Reserve (Greenspan, 1996).

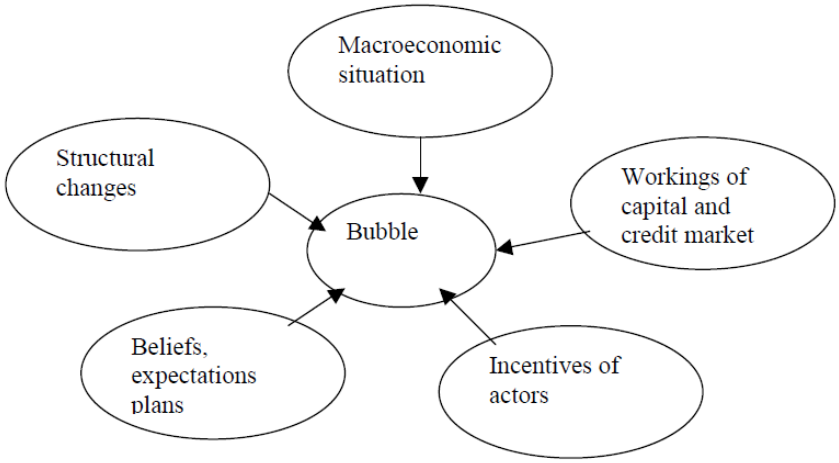
Existing theories regarding housing bubbles have been ambiguous. In Lind (2008), the author attempts to review some literature on the subject. He references Case and Shiller (2003), who argue that clear evidence and indicators existed of a bubble in the USA. This conclusion was questioned by Quigley (2003), Himmelberget. al. (2005), Smith and Smith (2006). In the mainstream magazine The Economist in 2005, it was argued that the largest bubble in history could be observed in the housing market. But it is also easy to find popular articles arguing against this view, for example, Krainer (2003).

Holt (2009) believes the cause of a bubble in real estate market is affected by all the participants who contributed to the market: government regulators, mortgage lenders, investment bankers, credit rating agencies, foreign investors, insurance companies, and home buyers. The universal assumption of increasing house prices led the participants to make the decisions that created the bubble. In addition, low mortgage interest rates, low short-term interest rates, and relaxed mortgage lending standards all contributed to the housing bubble.

More straightforwardly, Walterskirchen (2010) explains the bubble´s existence by defining the real estate market as a speculative market (stocks, real estate, commodities), because of buyer´s abnormal reactions to changes in price. Generally, if prices go up, demand falls correspondingly. Conversely, in speculative markets purchases raise when prices grow since further price increases are expected. Expected price increases have a self-fulfilling tendency on all markets as purchases are carried forward; in asset markets, there is the additional expectation of an increase in real values.

Lind (2008) believes that the ambiguity for real estate bubbles comes from the unsatisfactory definition of `bubble´. He seriously doubted the original concept when it was coined by Stiglitz in 1990. Stiglitz believes that the reason that the price is high is only because investors trust that the selling price will be higher tomorrow- when `fundamental´ factors do not seem to justify such a price. In this case, a bubble exists. Lind finds this theory problematic: the lack of a bubble episode as a whole; the narrowing of the definition `only´ and the definition for `fundamental´ is vague. He sums this up in the diagram below, which explains and defines the components and influences for a bubble in the real estate market.

Figure 12- Theoretical Framework for Explaining Bubbles



Source: Lind (2008)

Using his explanation, I believe that `Beliefs, expectations and plans´ should be brought to the forefront. Like anything else, expectation has pros and cons. Indicated by the famous economist Hyman Minsky (Minsky, 1986), the holding of high expectation would lead to a speculative euphoria, and eventually cause the financial crisis accompanied with a bubble burst. This change in the financial system from stability to fragility, followed by crisis, is something for which Minsky is well-known, and where the phrase "Minsky moment" comes from. As I am emphasizing in this paper, it is important to take into account the perspectives of people. In regards to the bubble, it should be expected that certain buyers who bought assets during the price increase episode have heterogonous beliefs, higher expectations and plans for the future. These aspects are strongly connected with cultural factors; people who come from a country with high uncertainty avoidance are unlikely to venture their capital while the market is volatile.

Lind (2008) gives a list of indicators of a bubble which include:

- Prices and incomes
- Housing expenditure
- Housing supply
- Buyer expectations about prices
- Buyer impatience and financial risk taking
- The credit market
- Speculative behavior

Many scholars have debated bubble indicators, and the term `Prices and Incomes´ has caused many disputes. For example, Case & Shiller (2003), found the ratio of price and income had remained very stable in some regions; Taipalus (2006) discovered many European countries have rent regulations that make the interpretation of the rent/price ratio difficult and unrepresentative. More persuasively, households care about the relation between housing expenditure and incomes, not the relation between price and income (McCarthy and Peach, 2004). I agree with Lind´s opinion regarding this issue, he explains that the ratio might not be acceptable because even in the fastest growing countries or regions, incomes do not grow more than around 10% per year, which means that any period with a dramatic rise in prices would be characterized by an increased price to income ratio, and the ratio would therefore not make it possible to distinguish periods where prices increase because of a structural shift or by factors that will not last.

Bearing in mind the perspective of people, I found Dean Baker´s (Baker, 2007) list of Housing Bubble Economic Indicators interesting. Though it is conspicuous, it is practical and comprehensive. Several indicators which do not overlap the ones found in Lind´s are contained: the Vacancy Rates, the Consumer Price Index, the Housing Starts, the Residential Construction, the Residential Investment and the Industry Employment. These are tools for researching the market. As I see it, the bubble is a result of various economic activities and is influenced by different indicators; it is impossible to simply use one indicator and assert the existence of bubble. The most important thing is to understand the principle of using these indicators instead of judging the preciseness of them.

Practically, Li summarizes an indicator system after analyzing the housing market in China in 2007. This system of indicators includes the Price to Income Ratios, the Price Increase Rate, the Rent to Price Ratios and the Investor Psychology which together indicate the bubble generation in China. She lists the standard of bubble reference in Housing Price and Housing Supply and compares the conditions in China at that time. These comparisons are shown below.

Table 8 - Housing Price Index in China 2007

Type	Specific index	Bubble reference standard		China current situation
		Little bubble	Serious bubble	
Price index	Selling price	Housing price to income ratio<1:6	Housing price to income ratio >1:10	Almost 1:8
	Price increase rate	Housing price increase rate/average income increase rate per capita>1	Housing price increase rate>30%	Housing price increase rate/average income increase rate per capita>1
	Increase range	All kinds of property price increased nationally	All kinds of property price increased nationally	All kinds of property price increased nationally
	Rent level	Rent level index/CPI index<1	Rent level index<100	Rent level index/CPI index<1
	Investors' psychology	Quite optimistic	Very optimistic	Quite optimistic

Table 9 - Housing Supply Index in China 2007

Type	Specific index	Bubble reference standard		China current situation
		Little bubble	Serious bubble	
Supply index	Proportion of investment	10%<the amount of investment/the whole amount of housing purchased<20%	the amount of investment/the whole amount of housing purchased>20%	10%<the amount of investment/the whole amount of housing purchased<20%
	Development increase rate	2<development increase rate/GDP<3	development increase rate/GDP>3	development increase rate/GDP>3
	Development debt loan increase rate	1<development loan increase rate/total loan in banks increase rate<2	development loan increase rate/total loan in banks increase rate>2	1<development loan increase rate/total loan in banks increase rate<2
	Housing construction area increase rate	1<Housing construction area increase rate/selling area increase rate<2	Housing construction area increase rate/selling area increase rate>2	1<Housing construction area increase rate/selling area increase rate<2
	Vacancy rate	10-20%	More than 20%	More than 20%

Source: Li (2007)

The data sources from her research go back to 2006, when the housing inflation conditions `Little Bubble´ and the `Serious Bubble´ were occurring. As time passes, the level could increase. Due to the decade-long housing market boom in China, it is not hard to find other research regarding this subject. To Western people, it might be difficult to understand the willingness of households in China to endure such severe financial burdens for a home. This is not only because of a financial change, but it is a cultural matter as well. The importance of owning a piece of real estate and a sense of belonging has been handed for thousands years. Even during 2008-2009, though China was under severe financial pressure, the housing market remained strong especially in Shanghai, Beijing, Guangzhou, etc. The data from the National Bureau of Statistics clearly shows how diverse the economic development is in China´s different provinces. A different feature is that the housing market in China has a clear direction of commercialization. Compared with most western countries, commercialized residential buildings in the real estate market are more prevalent than secondhand housing due to the housing market revolution in 1998.

A recent piece of research about the housing boom in China was conducted by Fang, Gu, Xiong, and Zhou (2015) who investigated the bubble generation in different city tiers and point out that the housing boom in China is accompanied by economic growth. The performance regarding the housing market differs between regions because of the income growth differences. Demographic reasons of in-land migration are another key factor for a first tier city like Shanghai to grow rapidly, which helps a city´s economic growth and in turn maintains increasing buyer´s expectations. Their research confirms the article from Li (2007) - there are huge regional differences in the Chinese real estate market and certain factors result in different influences in different regions. Though first tier cities grow more rapidly with soaring prices than second and third tier cities, it tends to be more violate and fragile when facing any negative influences. Second and third tier cities, however, have a relatively steady increase.

A 2003 survey in Los Angeles, San Francisco, Boston and Milwaukee about investigating home buyer behavior during a housing price bubble period from Case and Shiller is useful. The survey sheds light on a number of aspects of buying behavior which include investment motivations, expectation of further price rises, the amount of local excitement and discussion about real estate, the sense of urgency in buying a home, the adherence to simplistic theories about housing markets, the occurrence of sales above asking prices, and the perceptions of risk-that suggest the

presence or absence of a bubble in house prices. The questionnaire designed by them was pertinent and the result of `Exaggerated Expectations, Excitement, and Word of Mouth´ come to my attention, especially the topic regarding `the extent of talk about real estate´.

Figure 13 - Survey Responses on Housing as an Investment 1988 and 2003

	Los Angeles		*San Francisco*		*Boston*		*Milwaukee*	
Question	*1988*	*2003*	*1988*	*2003*	*1988*	*2003*	*1988*	*2003*
There has been a good deal of excitement surrounding recent housing price changes. I sometimes think that I may have been influenced by it.								
Yes	54.3	46.1	56.5	38.5	45.3	29.6	21.5	34.8
No	45.7	53.9	43.5	61.5	54.7	70.4	78.5	65.2
No. of responses	230	141	191	156	181	199	233	184
In conversations with friends and associates over the last few months, conditions in the housing market were discussed…								
Frequently	52.9	32.9	49.7	37.4	30.3	31.0	20.0	27.6
Sometimes	38.2	50.3	39.0	43.6	55.1	53.7	50.2	40.5
Seldom	8.0	14.7	9.7	17.2	12.1	14.3	25.1	28.1
Never	0.8	2.1	1.5	1.8	2.5	1.0	4.7	3.8
No. of responses	238	143	195	163	198	203	235	185

Source: Case and Shiller (2003)

They conclude that talk is an important indicator of a bubble, since Word-of-Mouth transmission of the excitement is a hallmark. In association with this perspective, cultural differences are another angle in which to view this matter. I expect that the same questionnaire would have different results among different countries. This is also related to psychological differences. From the data above, though during that period the bubble existed, it appears most buyers in these four markets didn't perceive one at that time. As Walterskirchen (2010) discussed, the speculative bubbles are not always recognized - certainty exists only after they have burst. Before, they are often interpreted in an economically rational way, as efficient market price formation. This is also known as a `Money Illusion´ in the macroeconomic literature, which happens when inflation is not recognized. Consumers optimistically overestimate the purchasing power of their nominal income and decide to raise real consumption levels. Consequently, real consumption expenditure is increased and saving is reduced (Wachtel, 1977).

The first article that attempted to analyze at a comparative level between the commercial real estate price bubble and the residential real estate price bubble was Levitin and Wachter (2013). They believe the commercial real estate price bubble was accompanied by a change in the source of commercial real estate financing. Specifically, a `bubble´ in commercial mortgage-backed securities (CMBS) accompanies the commercial real estate price bubble and the key point about the CMBS bubble is that it grew in an entirely private environment. Instead of scrutinize in the demand side, they hold an opinion that the excess of CMBS comes from the overall increased supply in the real estate sector, and the cause of oversupply accompanies several possibilities represented by the global savings imbalance which calls for huge demand in AAA-rated assets, which normally could only be manufactured via structured finance, that is, securitization, and there are over 60,000 structured securities which are rated AAA.

Assets like real estate, commodities and gold etc. are called Inflation Hedges and their return displays a positive correlation with inflation, usually measured by Consumer Price Index (CPI) which exhibits the purchasing power of households. In regards to inflation, from an investment point of view, the asset were financed with long-term fixed-rate debt, higher inflation would be beneficial to the liabilities of the real estate owner, as the loss to the debt investor is mirrored as a gain to the borrower (Case, Wachter and Worley, 2011). To profit from inflation, it is vital to understand the relationship between inflation and real estate investment since inflation sensitive investments. Case, Wachter and Worley analyze inflation protection using correlation coefficient measurement in real estate assets compared to other inflation-sensitive asset classes and suggest an approach toward developing a strategic portfolio balanced between optimal performance in both high and low inflation periods. Based on their empirical results and theoretical arguments, they proved that different property types provide different levels of inflation protection, depending on the extent to which rents adjust to inflation and real estate has strong inflation-protection characteristic and deserve consideration in diversified inflation-protected portfolios.

Furthermore, Wurtzebach, Mueller and Machi (1991), have found that differences in inflation influences between office and industrial properties have a strong connection with the Vacancy Rate. They argued that investment return suffers regardless of inflation when vacancy rates rise dramatically that causes the market to be imbalanced. Since the influences in office and industrial markets are different, generally the vacancy rate in the industrial market stays relatively

balanced; thus, the inflation hedging effectiveness in industrial market stands out. Peyton´s research in the United States 2011 has shown the same conclusion, that commercial real estate should be considered as an inflation hedge. The correlation between commercial real estate return is 0.38, though it is far from a perfect correlation of 1.00, but the result has beaten all the other assets during the 1978-2011 period. However, she complemented, there is still risk in real estate investment in regards to the possible periods in which severe supply gluts exist, brought about by too much construction or a collapse in demand. These periods have been rare on a countrywide basis. However, it is more prevalent in local markets, because of the reflection of specific local characteristics. Investors can benefit from focusing on these characteristics by building commercial real estate portfolios that promise stronger returns along with beating inflation.

Besides Vacancy, personal saving is associated with inflation, because saving behavior is concerned with a country´s growth and development. Academic research has shown considerable variation across countries depending on their socio-economic structure. Earlier studies prior to 1975 about inflation and household saving generally concluded that households respond to price level increases by cutting back on borrowing and spending, thereby increasing their saving (Campbell and Lovati, 1979).Savings are a way for consumers to allocate their consumption across time. It is also used for retirement and very-low investment. Harbaugh (2004) points out demographic patterns have a large impact on the net amount of savings supplied to capital markets by consumers. Countries in Asia, represented by China, have witnessed steady growth in the savings rate.

Chamon and Prasad (2008) conducted an investigation into the rising saving rate in China 2008 by estimating how saving rates vary with time, age, and cohort (year of birth) of the household head, using a variant of the decomposition in Deaton and Paxson (1994). In this case, they find that demographic factors play at best a minor role in explaining this increase. They have put forward some hypothesizes which they believe are key factors for the growth. One of them, which they found weak evidence for, but is very convincing for me, is the concept of `Target Saving´. This is a phenomenon in China in which capital goes into bank deposits which have been negative recently since inflation has risen. Chinese households save as much as they do because they are targeting a certain level of wealth and the real return on their savings in the future. It is plausible from a cultural point of view, since by thousands, Chinese inherit a long-

term orientation influenced by Confucian, and this concept has been passed down from generation to generation.

The micro-level determinants of household savings are summarized by Hailesellasie, Abera and Baye in 2013 by studying the case of Ethiopia. The critical economic factors that affect saving culture includes: low interest rate of saving, lack of incentives to savers and high inflation rates prevailing in the country. The single most important determinant of a poor saving habit is the attitude of the society towards consumption rather than saving.

The demographic factors that affect saving habits include:

- Age, which implies that when a household´s age increases, their savings will decrease;
- Gender, which reveals that female households have better saving behaviors than males; Educational level, which reveals that as the academic level of households increase their saving behavior improves;
- Work status, which revealed that self-employed households save more than employed and retired households;
- Housing status which reveals that households who have not their own home save more than house owner's;
- Income level, which shows that when the income level of households increase the saving rate will also increase by some presents;
- Marital status, which shows that the saving behavior of widowed and married households is better than unmarried;
- Number of dependences, which shows when the number of dependences increases the saving behavior of households, will also increase.

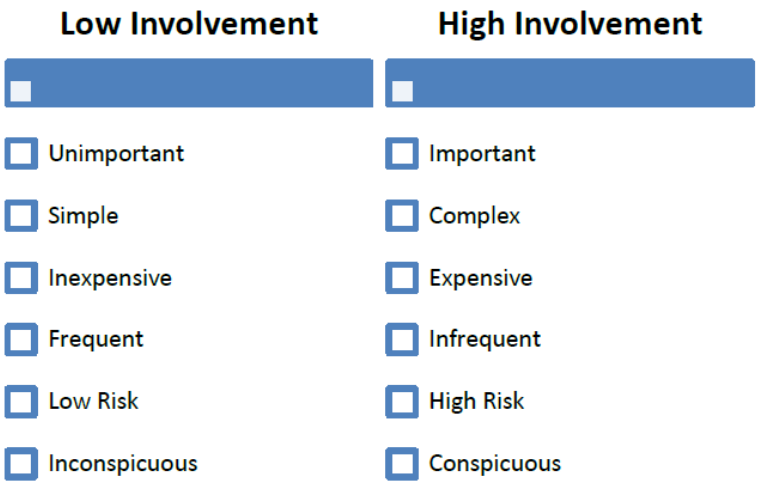
The findings of their research turn out to be very interesting and constructive. After this theory review which details real estate by shifting from personal saving habits to consumer behavior in relation to cultural differences, I will detail the cultural determinants; which I believe is closely linked with real estate market, in the next chapter.

3. Cultural Differences

3.1 Consumer Behavior

Behavioral sciences and research methods are seen as tools to understand the driving forces of key decision makers, finding out the models they apply, and context within which they make decisions. In consumer behavior literature, the concept of The Notion of Involvement is essential since it is the element that suggests the decision making approaches; in general, the higher the level of involvement, the more formal the decision-making style and the more consumers will seek for risk management (DeLisle, 2010). The standards for distinguishing the level of involvement were summarized by DeLisle and are shown below.

Figure 14 - Low vs. High Involvement Decisions



Source: DeLisle (2010)

Considering the features of Involvement, decision-making in regards to real estate apparently should be High Involvement and a formal decision making style should be applied, which arouses attention to the theories of behavior. Delisle (2010) summarized the Theories of Man from Kotler (1965), which explains consumer behaviors, are relevant to real estate market behavior are interesting. His summarized model includes five types of behavioral models which developed in the market, namely:

- Marshallian Man: it dates from the economist Alfred Marshall, by his contribution in economy, especially on human behavior. Marshall first brings the ideas of Supply and Demand, Marginal Utility, and Costs of Production into a coherent whole. `Marshallian´ refers to the emphasis of the financial or economic elements of a buying process, with utility preferences and making clear trade-offs when selecting products. Though the economic factor alone cannot explain the variation of sale and buying (Philip, 1974), the priority of economic element represents a useful frame for analyzing certain decision-making behavior.

- Pavlovian Man: it goes back to the `Classical Condition´ theory from Ivan Pavlov, which is one of the oldest and most extensively studied learning paradigms (Domjan, 2005). The `Pavlovian´ represents who makes habitual or thoughtful decision-making based on previous experiences and cues. The cues are seen as drive of impelling a response; meanwhile, the same learned response would generalize by similar cue patterns. Buying behavior can be seen as a process for consumer; during the process, certain conditioned stimulus an unconditioned stimulus are involved, thus generated different buying experiences. These antecedent experiences are crucial for decision making.

- Freudian Man: it is derived from Sigmund Freud's Psychoanalytic Theory of Personality. Freud (1900) argues the human behavior is always driven by the interaction of id, ego and superego. `Freudian´ refers to people who make positive statement and reinforce their self-actualization; consider symbolic which is driven by inner psyche and need for gratification. This is an explanation for the arouse interests in branding and the attraction of life-style centers and other emerging shopping center formats that appeal to some tenants. The conflicts of these inner psyche need s play great importance role in shaping consumer behavior and eventually, influence the buying decision.

- Vebblian Man: is in correspondent to The Theory of Leisure Class by Thorstein Veblen. `Pecuniary Emulation´, `Conspicuous Leisure´ and `Conspicuous Consumption´ (Veblen, 1899) are seen as core elements of his theory and are very useful in understanding real estate buying behavior. `Vebblian´ is considered as a social animal who makes real estate decisions based on a need to conform to current peer standards or to help move into a

higher order peer group, influenced by present and desired group status. This is a picture of competence in retail market. An obvious difference from `Freudian´ to `Vebblian´ is the Vebblian man emphasizes more on the choice of conspicuous goods, like clothes, cars, and houses because certain economic consumptions are motivated not by intrinsic needs or satisfaction so much as by prestige-seeking (Veblen, 1889).

- Hobbesian Man: it is formulated based on Thomas Hobbes´s Moral and Political Philosophy, which sheds lights on how human beings live in peace and avoid danger and conflicts. Hobbesian dedications are used as tools in understanding organizational buyers who seek to deliver solutions that help achieve individual success and satisfy corporate needs without introducing too much risk. In truth, the buyers should be guided by both personal and organizational goals, and these two needs should be satisfied with balances. The model explains irrational organizational buyer´s behavior and `under- the- table´ kickbacks (Essien and Imeh, 2006). It may be applied in the analysis of organizational buyers, for example, institutional investors´ behaviors. However, in regards to the future analysis in this paper, it wouldn't be included in terms of individual behavior.

Delisle believes, though the models above are clearly discrete, one decision making process might draw elements from more than one depending on the level of involvement, personality and situation surrounding the consumption decision. Based on the model above, John (1979) added one more element which is useful for this paper:

- Lewinian Man: is built upon Lewin's Equation:

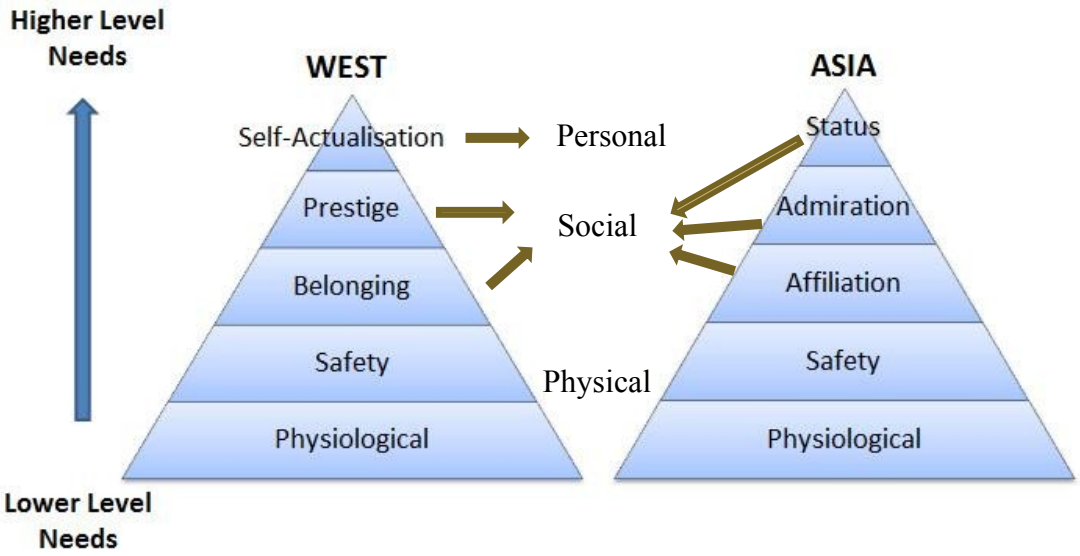
$$B = f(P, E) \qquad (3)$$

Where: B=Behavior; P=Person and E= Environment, with an inner connection of the `Field Theory´ which proposes the idea that a person's life space determines their behavior (Balkenius, 1995). Based on that Lewin (1936) extended the theory in two concomitant parts, Person and Environment. `Lewinian´ therefore, describes people who are heavily influenced in their buying patterns by external environment stimuli, namely, person and environment.

Abraham Maslow´s (Maslow, 1943) Hierarchy of Needs turns out to be the landmark in the theory of consumer behavior. By classifying the needs in five levels and ranking them in order of importance, Maslow discovered the pyramid of needs where he believed lower-level of needs have to be satisfied before upper-level of needs could be addressed. Many people have been affected by the structure of needs; in the meantime, crowd of empirical studies have supported the result of the existence of the elements in his model in a scientific scrutiny. However, there are dissenting views over the discovery of a hierarchical arrangement (Griffin, 2014).

Schutte and Ciarlante (1998) research that in Asia the needs are satisfied differently compared to western countries. As shown in figure 13, the replaced Asian context shows the comparison of culture in regards to the needs of human being. The model differentiated itself from western to eastern with consistency in fourth and fifth levels, but distinct differences in regards to upper level of needs. The Western need for self-actualization is replaced by the needs of Status, Admiration and Affiliation in the Asian context.

Figure 15 - Hierarchy of Needs between Different Cultural Groups



Source: Schutte and Ciarlante (1998)

Based on the comparison above, Fletcher (2006) doubts the result in geographical limitation since the model views the Eastern or Asia market as a whole and does not differentiate with different groups of people within such market. He believes the basic bottom needs applies to all of the human beings in general. However, the buyer behaviors in these countries differ with the wealth

condition of people or the masses of urban/rural which indicated at the top of the pyramid is possibly less precise. On balance, his point stands up, but the importance essence in the model is to better understand the most representative qualities in regards to another different culture. As I see it, to initially target the point, the comparison above may be applied in conjecturing the Eastern buyer´s behavior from a globalization perspective.

Schutte and Vanier (1995) assert that consumer behavior is strongly influenced by culture, where obviously western culture and eastern culture are different, reasoning I will explain in detail in the chapter dedicated to Hofstede´s theory. In Schutte and Vanier´s finding, there are several social factors in influencing consumer behaviors that are towering in the image of Asia. These factors includes: Group Behavior, Family orientation, Roles and Status and Situational Influences. Unlike western culture, due to the prolonged Confucianism influence, Asian culture, represented by China, has lasted an orientation of family and grouping. I see this as an explanation for dozens of China towns scattered around the world.

The term `Role and Status´ echos the Hierarchy of needs in Figure 15, which appears on the top of the needs in terms of Asia. In the Concept of Face where displays the degree of inter-personal sensitivity, Lien and Mien-tsu represent the confidence of society in the integrity of ego´s moral character. The Chinese are always willing to meet others´ expectations so as to maintain their Mien-tsu. The influence of Mien-tsu can also affect buying decision in regards to giving gift (Shutte and Vanier, 1995), while they give face to others but also gain Mien-tsu for buy an expensive enough gift. The concept may easily be found in the marketing area as an application for marketing strategy in regards to the development of luxury brands in China.

After combining the multidimensional nature of housing in regards to what a house can fulfill to human beings from Wallace Smith (1970) and the hierarchy of needs which are related with motivation of buyers, Harris and Young (1983) match up these two theories and conduct the desired housing characters by buyer at each motivational level:

**Figure 16 – Demand for Specific Housing Characteristics at Various Levels of Human Motivation **

Motivation Level	Dimensions of Housing Characteristics: Physical	Social	Economic
Physiological	Sound structure offering basic facilities	Location convenient to employment and transportation	Lowest possible cost
Safety/security	Adequate privacy for family unit	Freedom from environmental hazards and uncertainties of rental market	Ability to exercise control over home environment
Belonging	Adequate privacy for each individual	Socially compatible neighbors	Acceptance into community of other homeowners
Esteem	Attractive home design and landscaping	Prestige address	Pride in owning an asset with appreciation potential
Self-actualization	Facilities for avocational pursuits	Proximity to aesthetic, cultural, and recreational interests	Expression of commitment to specific set of values

Source: Harris and Young (1983)

In correspondence with Smith´s theory, Shelter and Privacy go to the `Physical´ dimension; Location and Amenities combine into a `Social´ dimension; and Investment represents an `Economic´ dimension. The graph above display five types of typical buyers in the market who has different Satisfaction depends on his available budget for Housing, Life Experience, Family Status, and Lifestyle Aspirations. This would be a practical tool as a useful guideline no matter for buyers or investors. Simply forecasting based on financial condition would not be sufficient in estimating the market. Based on their approach, I have conducted the Dimensions of Housing Characters combining the Asian Hierarchy of Needs.

Table 10: Demand for Specific Housing Characteristics at Various Levels of Asian

Motivation Level	**Physical**	**Social**	**Economic**
Physiological	Basic facilities	Location convenient for employment and transportation	Lowest possible cost
Safety	Adequate privacy for family unit	Freedom from environmental hazards and uncertainties of rental market	Ability to exercise control over home environment
Affiliation	Sizeable neighborhood with tidy environment	Socially involved in neighborhood	Similar cost in housing as other neighbors

Admiration	Spacious and well-designed rooms in high quality neighborhood	Socialize with middle upper class human beings	Respected by others for owning the asset paying upper average cost
Status	Modest luxury with identified name in terms of the association of high quality of the neighborhood	The neighbor and the home are seen as a symbol for wealth and cheerful life	Be proud for owning the high-cost asset as an expression of higher status

Source: reconstructed based on Harris and Young (1983)

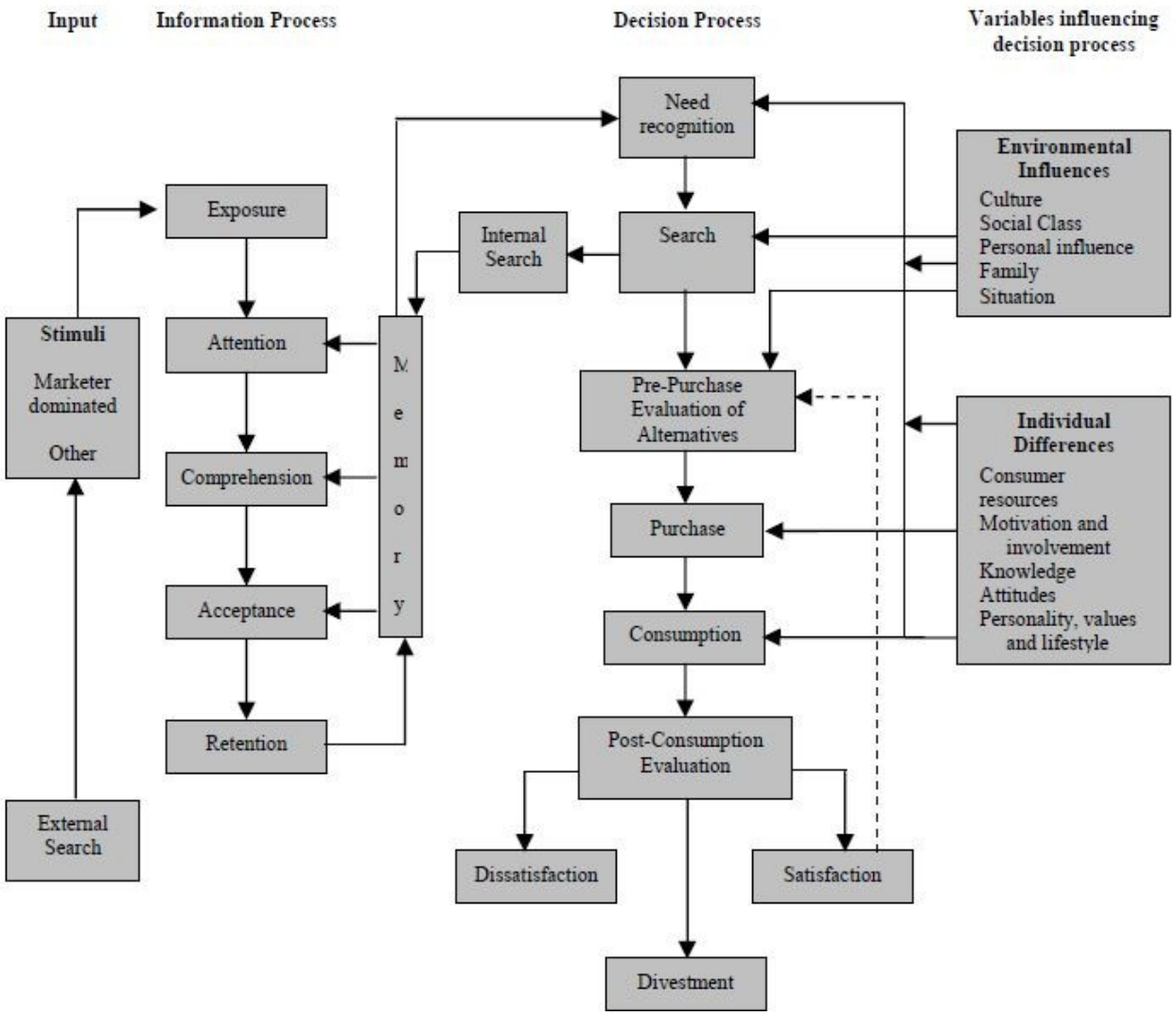
Differences occur from the third layer, in corresponding to the hierarchy needs theory. Affiliation needs are satisfied when an individual be accepted by a group; Admiration refers to being respect within a group; Status represents the esteem from the society as a whole (Schutte and Ciarlante, 1998). Upon on my perceptions and the explanations from the authors, the summarized chart above shows the types of buyers. In comparison to western perspectives, I found the similarity in Physical observations, but in Social and Economic, the substances of the results are totally different due to the distinction of the starting point. Asians care, apparently, how others think about them. There is little literature in demonstrating the accuracy of the expressions above, however, it is not hard to find the phenomenon described above in terms of Asian investment worldwide.

It´s noteworthy that consumer behavior in regards to invest and purchase should has different models in regards to the processes, no matter in residential or commercial areas. Investors who see the property investment as a business consider different needs and different expectations in return, which reflect in their decision-making processes.

3.2 Decision Making

The theory of Consumer Decision Making has been long attractive to researches. After numerous revisions, the original Consumer Decision Making formed by Engel, Kollat, and Blackwell (1968) is useful for researching purpose as shown in Figure 17.

Figure 17 – Consumer Decision Model



Source: Blackwell, Miniard et al. (2001)

The decision-making process for institutional investors tends to be more complicated. Thought there is theoretical framework for the decision-making process, in practice, the allocation decisions must be made in an environment of incomplete information, changing estimates of return, and shifting definitions of the risk of investment (Goetzmann and Dhar, 2005). The main structure of the model starts by the Need Recognition. As discussed before, assuming the human needs varies with individuals by countries, the decision making process may differs in the beginning. As shown above, the Individual Differences which includes Motivation and Involvement, Attitudes, Personalities, Values and Lifestyles, etc. and the Environmental Influences which directly connect with Culture, Social class or Family are taken part in the Need Recognition. Indeed, the interactions between environmental and individual variables go through the whole process in most main processes. Information searching is dependent on the nature of

problem solving (Blackwell, Miniard et al., 2001). New or complex problems are required extensive external information search, while simpler problems would be solved by internal search or previous behavior (Memory). Though the structure is clear and distinct, the decision making results may surprise to one from another due to the cultural differences. Such surprises arise when people are unaware of the factors that people in another culture consider when evaluating the attractiveness of a same action (Noble, Sander and Obenshain, 2000).

Unlike traditional economists, behavioral economists seek to enrich the understanding of decision-making by integrating the insights of psychology into economics. The term `Behavioral Economics´ has been brought to the front, since it explains inconsistent or irrational actions (Taylor, 2014). In traditional finance, expected utility theory provides the basis for much of modern finance theory which assumes people have complete information about possible outcomes and their likelihoods, and can evaluate their preferences across different expected options. However, under base of investment consideration, behavioral finance provides insights from understanding the decisions investors make (Ackert, 2014). Behavioral financial is common in pricing model (BAPM: behavioral asset pricing model) and portfolio formation (BPT: behavioral portfolio theory) etc.

The source of money may also influence the result of a decision making, which is named `Mental Accounting´. People tend to separate their money into different accounts based on a variety of purpose and subjective reasons which tend to be irrational and might leads to detrimental effect on their consumption decisions comparing with traditional economic theory. Thaler (1999) provides a review of how mental accounting can help in understanding the wide variety of financial behaviors. The process of consumption categories are seen as: first, a facility to make rational trade-off among the competition of different use of money; second, a device of self-control.

To characterize consumer´s approach to making consumption decision, Sproles and Kendoll (1987) have developed Consumer Style Index in considering mental orientation. The purposes for the definitions conducted by the authors were to build a Consumer Style Inventory to score the eight characterizes and get a result from a low to high indications in terms of consumption willingness. Tai (2005), however, doubted the reliability of some dimensions and pointed out the

restriction in the sample data from the origin study though the structure above is generally confirmed. To make it more persuasive, country-specific features and cultural divergences should be considered. Many scholars have applied the CSI system in researching, but have changed the content of factors by adjusting the real condition in the country. For instance, Fan and Xio (1998) proposed a modified five-factor CSI for Chinese consumers.

As I see the Consumer Style Index is useful in analyzing real estate investment, in which the model can be applied in commodity as well as in housing market. The key factors on which consumer styles emphasize on can be treated as attributes in diversifying real estates and better understanding investors. The eight significant characterizes are:

(1) **Perfectionist, High-Quality Conscious Consumer:** Investors search for best qualities in properties with advanced equipment installed and great materials in constructing. What they are seeking for is the high physically quality of the properties.

(2) **Brand Conscious, Price Equals Quality Consumer:** Refers to a consumer's orientation towards the purchase of expensive and well-known brands. In real estate market, the brand conscious may refer to the reputation of the developer and the marketing influence of the neighborhood. Investors are willing to pay for an expensive asset in believing deserving.

(3) **Novelty and Fashion Conscious Consumer:** the origin explanation is *`a characteristic identifying consumers who appear to like new and innovative products and gain excitement from seeking out new things´* I assume these innovative investors tend to invest in new assets which either relative new in the market or are different with the areas or projects they have invested in . For example, smart home, environmental friendly offices tend to be their targets.

(4) **Recreational and Shopping Conscious Consumer:** The term shopping conscious reflecting consumers who are enjoying in shopping which is defined by way of `enjoyment of shopping as a leisure-time activity, which includes wasting time in stores,

shopping just for fun, and fast shopping trips´ (Bellenger and Korgaonkar, 1980). Buyers who are lingering in several proposals, time consuming in comparing differences but with excitements and joy belong to this category.

(5) **Price Conscious "Value for Money" Consumer:** As obvious in the name of the category, the key factors in weighting a decision for these types of investors are price. Get the best property out of money an investor would to pay. Investment is always sensitive with money, there are bunches of studies have pointed out the connection between buying actions and cultures. Additionally, in contrast with consuming, the saving habits for different countries would also influence the price sensitivities for the investors.

(6) **Impulsive, Careless Consumer:** Impulsive buying behavior is common these days. The sudden, hedonically and complex buying process has proved significantly influenced by cultural differences (Kacen and Lee, 2002). The theory of individualism and collectivism which I will demonstrate later are crucial for explaining the action. In real estate market, the impulsive buyers are those aimless buyers following the buying decisions from others who pay very little attention in negative consequences and are emotionally attracted to the project.

(7) **Confused by Overchoice Consumer:** Overchoice is highly common in the high-involvement markets, like real estate. Complex purchases happen and consumers devote more time and effort to gather and process information and have a higher propensity to become overloaded (Mitchell and Papavassiliou, 1999).There are many reasons could cause overchoice: consumers are subjected to greater amounts of information; the diversification in real estate market is not as simple and obvious as in the retail market; large payment would make the decision even harder, etc.

(8) **Habitual Brand Loyal Consumer:** In this type of investors, they clearly know what kind of assets they are seeking for; which characteristics and qualities are important. Instead of being open to the market, they tend to make repeatedly decisions, cooperate with same groups of people and trust in the same asset developers.

The brief summary above was connected by the consumer styles and the real estate market, to bring culture elements in evaluating how cultural difference influence in real estate market, by using static model to test the correlation between this two items. Therefore, it is necessary to review the great cultural theory from Hofstede.

3.3 Hofstede Theories

From the literature reviewing before, it is not hard to connect real estate with values and cultures. In this research, a very important theory may build bridge upon this two area rely on the systematical cultural theory from Hofstede (1980) who sets up a series of scores for countries in different culture dimensions by the research in IBM companies.

These well-known dimensions are:

(1) **Power Distance Index- PDI:** This is term is commonly referring a boss-subordinates relationship which indicated by the fear of disagreeing with superiors and compromising in decision-making. A High Power Distance ranking indicates that inequalities of power and wealth exist within the society; A Low Power Distance ranking indicates the society de-emphasizes the differences between citizen's power and wealth (Tamas, 2007).In more general terms, power distance is a consequence of inequality; this inequality can occur in a variety of areas: physical and mental characteristics, social status, wealth, power, laws, rights and rules, etc.

(2) **Uncertainty Avoidance Index- UAI:** Uncertainty refers to which members of a culture feel threatened or anxious about unfamiliar situations and future. The feeling of physiological and mental disorders caused by stress has proved a negative influence to lead a wrong decision making. In most of European countries, UAI and PDI are highly correlated since the level of uncertainty avoidance in a country reflects the existence of power (Hofstede, 1980).

(3) **Individualism Index- IDX:** Individualism is opposed to Collectivism which describes the relationship between individual and collectivity in a given country, physically and mentally. A High Individualism ranking indicates that individuality and individual

rights are paramount in the society. A Low Individualism ranking typifies societies of amore collectivist environment with close ties among societies. The individualism in human society is not only about living together, but also the linkage within the society.

(4) **Masculinity Index- MAS:** Masculinity is opposed to Femininity which implicates the biological differences between the sexes should have for the emotional and social roles of the genders. The focus of Masculinity is the degree of competiveness and the country wealth; higher masculinity ranking tends to imply assertive and aggressive traits. Yet, the focuses of Femininity are relationship building and the quality of life.

(5) **Long-term Orientation Index- LOI:** Long-term orientation was composed from a values inventory suggested by Eastern minds and based on items reminiscent of the teachings of Confucius. More specifically, it reveals persistence and thrift to personal stability and respect for tradition and where long-term rewards are expected as a result of today's hard work. In a short-term orientation society, however, people expect short-term rewards to fulfill the current condition.

Besides the original five cultural dimensions index above, with time and more empirical studies have conducted, the sixth index is produced. Research by Bulgarian scholar Michael Minkov using data from the World Values Survey in 2000s which considers Happiness, Life Control and Importance of Leisure allowed a new calculation of Long-term Orientation index, and the addition of a sixth dimension (Hofstede, Hofstede & Minkov, 2010):

(6) **Indulgence Index- IVR:** Indulgence is opposed to restraint which stands for relatively free gratification of basic and natural human desires related to enjoying life and having fun. In the other hand, restraint refers to a tendency for curbed and regulated for certain gratification by social norm. This new dimension is resemble with the Loose and Tight Society in U.S anthropology, and because of that, it is easier to associated and understand that IVR has a weak negative correlation with PDI, indicating a slight tendency for more hierarchical societies to be less indulgent (Hofstede, Hofstede &Minkov, 2010).

The indexes above in the embodiment of work situation, applicability of management methods, consumer behavior, matters of health and disability, politics, education and so on. Extracting the useful subsets that are helpful in this research, the table below was conducted to show the importance of these cultural dimensions in explaining consumer behavior.

Table 11: Key Differences for Hofstede´s Culture Index in Consumption Behaviors and Decision-making Behavior

Culture Index		Contrasts across cultures	Consumer behavior in terms of real estate market	Decision-making behavior	Examples
PDI	High	Hierarchy is strong and power is centralized at the top	Less modern industry, less urbanization with less social mobility and weak development of middle class and less national wealth.	Centralized decision structures; more concentration of authority.	West
	Low	Power is relatively equally distributed	More modern industry, more urbanization with greater social mobility and strong development of middle class and greater national wealth.	Decentralized decision structures; less concentration of authority.	Asia
UAI	High	Risk is regarded as threatening and to be avoided	Only known risks are taken; Investment in precious metals and gems; Less prepared to live abroad; Long payment terms for bills.	Decision-making concerned with security in life; Great need for consensus.	Portugal/ Japan/ France/ SouthKorea
	Low	Calculated risk is seen as necessary in order to seize opportunity	Willingness to take unknown risks; Investment in stocks; More prepared to live abroad; Short payment terms for bills.	Decision-making concerned with less security in life; tolerant in risk.	Singapore / Hong Kong/ Sweden/ USA
IDX	High	Self- reliance is valued, as is the need for the individual to satisfy his own needs	Live in detached houses with private gardens; own motor homes, and live with cats and/or dogs are preferred; Self-	Individual decisions are better.	West

		within the group	supporting lifestyles. Tend to rent property.		
	Low	Dependence is valued and society expects the individual to subordinate his own needs to those of the group	Live in apartments or flats with human companions; Other dependent lifestyles. Tend to buy property.	Group decisions are better.	Asia
MA	High	Personal achievement and assertiveness are favored	Money and things are important; Live in order to work; Traditional family concepts and less satisfied with home life; More appeal of foreign goods; Purchase for showing off.	Belief in individual decisions; Men make main buying decisions, women shop for food.	Japan/ Switzerland/ UK
	Low	Caring for others and nurturing roles and attitudes are favored	Quality of life and people are important; Work in order to live; Flexible family concepts and positive feelings about home and family; Less appeal of foreign godds; Purchase for use.	Belief in group decisions; buying decisions and shopping shared between partners.	Scandinavia/ Thailand/ Netherlands
LOI	High	Delay short-term material or social success or even shot-term emotional gratification in order to prepare for the future	Large share of additional income saved; Investment in real estate;	Either full or no confidence in the way of thinking; Synthetic thinking.	China/ Hong Kong/ Taiwan/ Japan
	Low	Focuses on the present or past and consider them more important than the future	Small share of additional income saved; Investment in mutual funds;	Probabilistic thinking; Analytic thinking.	Pakistan/ Nigeria/ Philippines/ Canada
IVR	High	Higher importance of leisure; Loose society; Positive investment attitude	Optimistic in real estate investment; Neighborhood with leisure function; An extra holiday home is preferred	Having fun in life is important; Comfort and simplicity; Object needs to fulfill purpose not status	United States/ Australia/ Canada/ UK/Sweden/Netherlands/Belgium

	Low	Lower importance of leisure; Thrift is important; Tight society; Negative attitude towards consumption and investment	Pessimistic in real estate investment; Practical and economic neighborhood with privacy; Little possibility in buying holiday house	Practical and thrift are important; prudent in investment activities; Status need to be fulfilled	China/India/Indonesia/ Vietnam/ Japan/ Germany/ Morocco

Source: summarized and extended from Hofstede (1980); Schutte and Ciarlante (1998)

Hofstede culture dimension theory is confirmed by many scholars and modified into many other dimensions, represented by Hampden-turner and Trompenaars (1997) after 10 years research of sending 46000 questionnaires to more than 40 countries conclude seven culture dimensions. Indeed, as the humble conclusion Hofstede, the origin findings in 1980 are uncompleted and should be marched on in an ongoing exploration; the concept of dimensions should be further underpinned, criticized; the data of countries should be expanded, so as the time dimension. The preponderance of using Hofstede´s index in application thought other authors have more research finding is that Hofstede index has a systematical scores for each country which allow to be used in either quantitative or qualitative researches.

3.4 Cultural Influences on Real Estate Market

There exists some limitation for learning cultural influences on the real estate market since there is rare empirical research conjunct with these two topics. However, real estate market is not a screen- based and centralized market, which is unavoidable to have cultural barriers (Baum and Murray, 2010). The role of gender and education have been focused and been proved of correlation with investment preferences for long history. Wealth across countries, for example, were speculated its differences by Blau and Graham (1999) indicating the difference is largely due to the uncertainty of income; Asset ownership and performance have correlations with race in terms of age, income and attitude with risk, etc. (Hurst, Luoh, & Stafford, 1998). Farrell (2014) uses multiple specifications and leverages multiple risk/return measures, proves the significant effects with respect to both race and gender and provides evidence that demographical factor plays important role in investment preferences.

Many scholars have studied personal traits influence in trading and investment. Back to 1989,

Carew and Slatyer (1989) contend that personality is essential for becoming a good dealer and cannot be compensated by education. The success in investment may depend on individual's level of introversion vs. extraversion, sensation vs. intuition, thinking vs. feeling, and judgment vs. perception (Tharp, 2009). One very optimistic finding was contributed by Ben-Shahar and Golan (2014), who provide solid evidence on the correlation between personality traits and individual preferences over real estate topics. In their research, they used the Big Five factors related with personality analyze which are:

(a). Extraversion (versus introversion);

(b).Agreeableness (versus antagonism);

(c). Conscientiousness (versus lack of direction);

(d). Neuroticism (versus emotional stability);

(e). Openness (versus closeness) to experience.

In their research, they found out that these factors are associated with preferences over mortgage attributes such as loan-to-value level, fixed versus adjustable interest rate, and mortgage duration and housing attributes such as homeownership versus rental tenure modes. Based on what they have proved, the feasibility of researching on cultural factors would be increased, since personality has correlated with culture, and the cultural differences should delineate an international map for global investors to better evaluation investments.

So far, the literature review has revealed the substance of Real Estate Market, Investment Decision-Making Process, Personal Traits in investment and trade, and Cultural Influences Index System. The `Consumer Style´ and `Personalities´ are seen as a reflection of the Real Estate Market. The features of these two indexes are meanwhile, involved into The Theory of Man as an illustration. Figure 19 elaborated this relationship in detail.

Table 12 – Consumer Style, Five Forces of Personalities and the Theory of Man

Marshallian Man — **Personality: Conscientiousness (versus lack of direction)**

- Consumer Style: Price Conscious "Value for Money" Consumer/ Recreational and Shopping Conscious Consumer

Pavlovian Man — **Personality: Openness (versus closeness) to experience/Neuroticism (versus emotional stability)**

- Consumer Style: Habitual Brand Loyal Consumer

Freudian Man — **Personality: Extraversion (versus introversion)**

- Consumer Style: Brand Conscious, Price Equals Quality Consumer/Novelty and Fashion Conscious Consumer

Vebblian Man — **Personality: Extraversion (versus introversion)/ Openness (versus closeness) to experience**

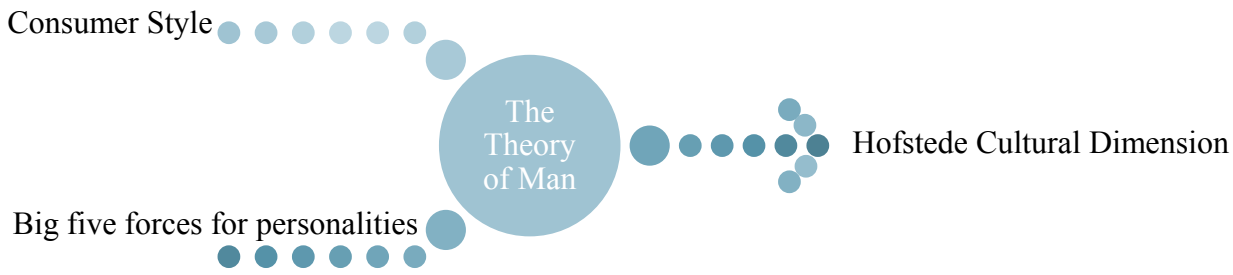
- Consumer Style: Perfectionist, High-Quality Conscious

Lewinian Man — **Personality: Agreeableness (versus antagonism)**

- Consumer Syle: Impulsive, Careless Consumer/ Confused by Overchoice Consumer

The purpose of this paper is to seeking any evidence in bridge the relationship between the Real Estate Market behavior and the Cultural factors through the Theory of Man and the Hofstede Index. A proposed relationship among these indexes is shown below. Hypotheses are built upon them.

Figure 18– Derived Internal Relation



A more detailed research method would be introduced in the next chapter.

4. Methodology

4.1 Research Overview

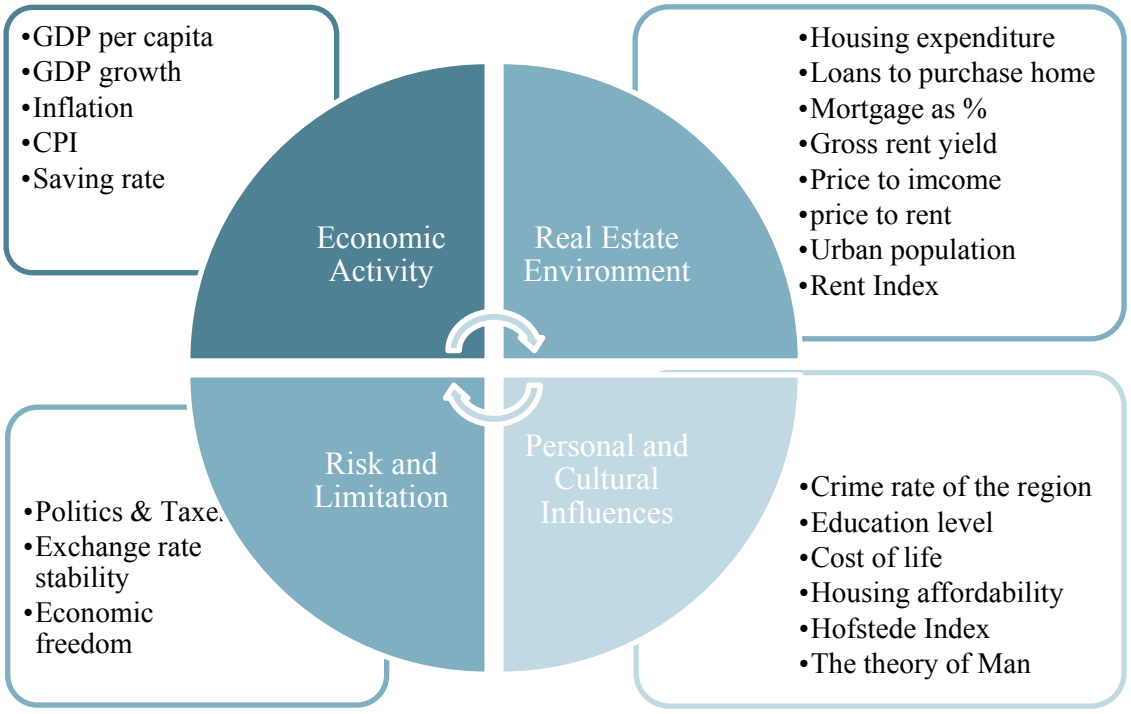
To describes the state variables that are used in the empirical analysis, there are two main types of data should be collected in terms of the research, economics variables and real estate variables in the forms of dependent variables and independent variables.

- Dependent Variable (DV): Variables whose change the researcher wishes to explain.
- Independent Variable (IV): Variables that help explain the change in the dependent variable (Patel, 2009).

Researches in analyzing the relationship between socioeconomic variables like cultures and real estate market are limited. The most common framework used by economists to measure how a y -variable relates to two or more x variables (or transformations of x-variables) is Multiple Linear Regression Model (Young, 2015). By using the MLR model, it is possible to use culture variables and other macroeconomic variables as explanatory variables and present its relationship with housing market.

Built upon the literature review, certain factors can be used as determinants of attractiveness of real estate investments in terms of socio-economic influences. By grouping these factors, several drivers are concluded: (I) Economic Activity; (II) Real Estate Investment Environment; (III) Risk and Limitation; (IV) Personal and Cultural Influences. These drivers may present a structure for data selection in conducting the methodology and better interpreting the relationship as a whole.

Table 13 - Determinants in Relation of Real Estate and Socio-Economic



Source: self- summarized.

The factors above reflect the real estate investment activities, which are useful in analyzing the hypothesis, however, not all of them are suitable in conducting the analysis model, only the most representative and related variables are going to be used.

In regards to the Cultural Factors variables, there are two types of variables going to be applied, the Hofstede Six Dimension of Culture and The Theory of Man. The Hofstede Cultural Index provides systemic scores by countries which allow the conduction of furthering statistical analysis; however, the Theory of Man is not a quantitative research method so that the definition and usage of Dummy Variable will be introduced in the next chapter.

4.2 Dummy Variables

Dummy Variable is a numeric stand-in for a qualitative fact or a logical proposition (Susan and Asha). The bridge between consumer behavior and real estate investment actions can be explained by `The Theory of Men´, which has an interconnection with consumer style index as mentioned before so that it reflects cultural elements in each type of behavior. The concern for using the theory is that it lacks any numerical index or scores to standardize the extent of the

behavior for countries. To reach the purpose of conducting a MLR model for relationship analysis, dummy variables (indicator variables) are possible a solution for finding the result.

A Dummy variable or Indicator Variable is an artificial variable created to represent an attribute with two or more distinct categories/levels (Skrivanek, 2009) indicating if something is present or not, designated by the values 1 (present) or 0 (not present). Though the variables do not have intrinsic meaning of their own, the purpose for using them in the collection of data is to grant each country a level of type of `Man´ from consumer behavior theory (Models of buying behavior).

MAR= `**1**´if the country conform to the definition of `Marshallian Man´ and '**0**' otherwise,
PAV= `**1**´ if the country conform to the definition of ` Pavlovian Man ´ and '**0**' otherwise,
FRE=`**1**´ if the country conform to the definition of ` Freudian Man ´ and '**0**' otherwise,
VEB=`**1**´ if the country conform to the definition of ` Vebblian Man ´ and '**0**' otherwise, and
LEW=`**1**´ if the country conform to the definition of ` Hobbesian Man ´ and '**0**' otherwise.

5. Empirical Study

Methodology Design:

1. Descriptive Statistics: Observations, Mean, Median, Maximum, Minimum, Std. Dev., Skewness, Kurtosis;

2. Design and estimate the Dummy variables for countries;

3. Conduct the multiple linear regression model;

4. Deal with result analysis and conclusion.

5.1 Data Selection

Embracing the previous Literature Review, the Global Urbanization represented by urban population turns out to be an option for the dependent variables since it involves the Location

theory, economic and demographic development. Though, overall the urban population witnesses a stable growing globally, certain increasing is not only related with industries or city development, but also in line with cultural drives. The table below presents the descriptive statistics of Urban Population to Total Population of 57 countries from The World Bank.

Table 14–Descriptive Statistics of Urban Population by Countries-2015

0,86	
Média	0,72625
Erro-padrão	0,02115
Mediana	0,745
Moda	0,86
Desvio-padrão	0,15827
Variância da amostra	0,025049
Curtose	-0,05486
Assimetria	-0,55056
Intervalo	0,67
Mínimo	0,33
Máximo	1
Soma	40,67
Contagem	56

Source: The World Bank- see raw data in Appendix I.

Based on both theoretical and empirical literature reviewed，this study hypothesizes the relation between Urban Population Index (URB) and other variables selected from Table 15:

Table 15: Summary of Raw Data and Resources

Name	Unit	Source
1. Real Estate Activity		
1.1**URB**- Urban population Index	% of total	The World Bank- 2015
1.2**LPH**- Outstanding loan to purchase a home	% age 15+	The World Bank- MRV
1.3 **RI** – Rent Index	% to NYC	NUMBEO
1.4 **PI** – Price to Income Ratio	Years of income	NUMBEO
1.5 **GRYcc** – Gross Rental Yield City Center	%	NUMBEO
1.6 **GRYoc** – Gross Rental Yield Out of City Center	%	NUMBEO
1.7 **PRcc** – Price to Rent Ratio City Center	%	NUMBEO
1.8 **PRoc**– Price to Rent Ratio Out of City Center	%	NUMBEO
1.9**MpI**– Mortgage as a percentage of Income	%	NUMBEO
2. Economic Activity		
2.1 **PPP**- GDP per Capita	USD dollar/person	The World Bank- (2010- 2015)
3. Risk and Limitation		
3.1 Economic Freedom Index		
3.1.1 **PR**- Property Rights	Scores from 0 to 100	2016 Index of Economic Freedom

3.1.2 **MF**-Monetary Freedom	Scores from 0 to 100	2016 Index of Economic Freedom
3.1.3 **IF**- Investment Freedom	Scores from 0 to 100	2016 Index of Economic Freedom
4. Personal and Cultural Influences		
4.1 **CoL**- Cost of Life Index	% to NYC	NUMBEO
4.2 AI- Affordability Index	n/a	NUMBEO
4.3 Hofstede Cultural Dimension	n/a	Hofstede´s book and private website
PDI- Power Distance Index		
IDV- Individualism Index		
MAS- Masculinity Index		
UAI- Uncertainty Avoidance Index		
LO- Long term Orientation Index		
IVR- Indulgence Index		
4.4 The Theory of Man		
MAR/ PAL/ FRE/ VEB/ LEW	0 or 1	Dummy variables- subjectively selected

In line with the consistency of the variables, most of them were collected from The World Bank and NUMBEO database, abreast of times.

5.2 Description of Variables

The selection of independent variables is correspondent with the relationship from real estate to socio-economic as illustrated in Table 14. From a perspective cover Economic Activity, Risk and Limitation, Real Estate Environment and Personal and Cultural factors.

- **Outstanding Loan to Purchase a Home (LPH)**

For most of families' immediate access to a better house, mortgage loan products that amortize the cost of the purchase over years are required. The 'Outstanding loan to purchase a home to Total Loan´ index is gathered from The World Bank official databank with time series `More Recent´. The index provides an insight in consumer risk taking, housing desire, and overall level of individual RE financing.

- **Rent Index (RI)**

This index is a result relative to New York, which was collected from NUMBEO as an estimation of prices of renting apartments in the city compared to New York City. RI gives an overview of the rental price level for the global market; the relative to NYC price shows the comparison among countries as well.

- **Price to Income Ratio (PI)**

The Price to Income Ratio has been widely used as an indicator for housing market bubble. Theoretically, there is a reasonable range of housing price that local income can support (Lee and

You, 2012). NUMBEO collected this index for countries as basic measure for apartment purchase affordability. It is the ratio of median apartment prices to median familial disposable income, expressed as years of income; therefore, a lower value is preferred.

- **Gross Rental Yield (GRYcc & GRYoc)**

To meet the concordance of the dependent variable- Urban Population Index, breaking down the Gross Rental Yield (GRY) into City Center and Out of City Center has more explanatory power. The GRY is the total yearly gross rent divided by the house price, which is used as an indicator for income producing ability measure, before factoring other considerations such as rates, insurance, vacancy, maintenance and mortgage (Ninness, 2016). A higher yield indicating the property has a higher rental income relative to its purchase price, which is preferred by investors.

- **Price to Rent Ratio (PRcc & PRoc)**

Along with the Gross Rental Yield, the Price to Rent Ratio is also segmented for city center area and out of city center area. The relation between house prices and rents matters both for households and real estate investors since house is the largest asset in homeowners' balance sheets, and rents represent the major expenditure for most renters (Bracke, 2013). The ratio is calculated as:

- Buying to let: the average cost of ownership divided by the received rent income;
- Buying to reside: the average cost of ownership divided by the estimated rent that would be paid if renting.

Lower values suggest that it is better to buy rather than rent, and higher values suggest that it is better to rent rather than buy (NUMBEO official explanation), taking maintenance and taxes apart.

- **Mortgage as a percentage of Income (MpI) & Loan Affordability Index (AI)**

As the name indicated, the calculation of this index is simply the actual monthly cost of the mortgage divided to take-home family income. Within the index, the family income is estimated by average monthly salary, and the 100 % mortgage was assumed to be taken on for 20 years. Therefore, lower MpI is preferred. The Loan Affordability is the inverse version of MpI, with formula: 100 / mortgage as percentage of income, equally, the higher the better.

- **GDP/Capita (PPP)**

As a basic economic indicator, GDP measures the economic performance of a nation, which describes only the value of a country. GDP/Capita, however, is more proper in analyzing the housing market while consider personnel as a whole which reflects the standard of living of households by countries. Real estate market shall fall into the category of `standard of living´. In this paper, GDP/ Capita were collected from The World Bank, using data from 2010-2015.

- **Economic of Freedom (EFI)**

Economic of Freedom Index (EFI) is an annually index which has been conducted for 22 years and published in The Wall Street Journal and The Heritage Foundation as a tool to analysis 186 economies throughout the world.EFI is considered important in the analysis for several reasons. EFI focuses on four key parts as stated in the Methodology for accomplishing the index, which are Rule of Law, Government Size, Regulatory Efficiency and Market Openness. These four categories are detailed in 10 components as specific assessments for this four, each of which is graded on a scale from 0 to 100. A final grade of each economy is composed by an equally weighted score from these 10 components.

To examine deeply, three strongly related components are selected as the indicators:

- Property Rights: whether a country´s legal framework allows the individual accumulates private property by their own, and supports protection by clear law. The more effective the legal protection of property, the higher a country's score will be.
- Monetary Freedom: this is related to price stability in terms of price control and inflation influence which are seen very important when making an investment decision. The less microeconomic intervention, the higher a country's score will be.
- Investment Freedom: the ideal state would have no constraints for investment capital inflow. The index itself is a combination of a variety of restrictions for different areas, which include *National treatment of foreign investment, Foreign investment code, Restrictions on land ownership, Sectoral investment restrictions, Expropriation of investments without fair compensation, Foreign exchange controls* and *Capital controls.*

- **Cost of Living Index (CoL)**

Cost of living is a relative indicator of consumer goods price, including accommodation expenses

groceries, restaurants, transportation and utilities. Since the variable segmentation has already broken into several different activities, for example, another strong variable which represents the renting level, has introduced in the Real Estate Environment, the Cost of Living here is the extracted version, exclude the accommodation expense. Therefore, the index tells the price of commodities relative to NYC. 120% indicates 20% more expensive than NYC.

- **Hofstede Cultural Index**

The Hofstede six dimensions model covers 76 countries since 2001. Many researchers have followed Hofstede's paradigm and have replicated his model (Values Survey Modules) using the updated questionnaire (VSM2013) upon his version and conducted a score for certain country; some, however, have developed new research instruments for comparing country samples. The table below contains six dimension scores for the selected 57 countries, a country marked with `*´ was not derived from Hofstede original results, but other scholars´.

Table 16 – Hofstede Six Dimension Scores by Countries

Countries	PDI	IDV	MAS	UAI	LO	IVR
Arab countries	80	38	53	68	23	34
Argentina	49	46	56	86	20	62
Australia	36	90	61	51	21	71
Austria	11	55	79	70	60	63
Belgium	65	75	54	94	82	57
Brazil	69	38	49	76	44	59
Bulgaria	70	30	40	85	69	16
Canada	39	80	52	48	36	68
Chile	63	23	28	86	31	68
China	80	20	66	30	87	24
Colombia	67	13	64	80	13	83
Croatia	73	33	40	80	58	33
Czech Rep	57	58	57	74	70	29
Denmark	18	74	16	23	35	70
Egypt	70	25	45	80	7	4
Estonia	40	60	30	60	82	16
Finland	33	63	26	59	38	57
France	68	71	43	86	63	48
Germany	35	67	66	65	83	40
Great Britain	35	89	66	35	51	69
Greece	60	35	57	112	45	50

Hong Kong	68	25	57	29	61	17
Hungary	46	80	88	82	58	31
India	77	48	56	40	51	26
Indonesia	78	14	46	48	62	38
Ireland	28	70	68	35	24	65
Italy	50	76	70	75	61	30
Japan	54	46	95	92	88	42
Latvia	44	70	9	63	69	13
Lithuania	42	60	19	65	82	16
Luxembourg	40	60	50	70	64	56
Malaysia	104	26	50	36	41	57
Mexico	81	30	69	82	24	97
Netherlands	38	80	14	53	67	68
New Zealand	22	79	58	49	33	75
Norway	31	69	8	50	35	55
Peru	64	16	42	87	25	46
Philippines	94	32	64	44	27	42
Poland	68	60	64	93	38	29
Portugal	63	27	31	104	28	33
Romania	90	30	42	90	52	20
Russia	93	39	36	95	81	20
Saudi Arabia	95	25	60	80	36	52
Serbia	86	25	43	92	52	28
Singapore	74	20	48	8	72	46
Slovak Rep	104	52	110	51	77	28
Slovenia	71	27	19	88	49	48
South Africa	49	65	63	49	34	63
Spain	57	51	42	86	48	44
Sweden	31	71	5	29	53	78
Switzerland	34	68	70	58	74	66
Taiwan	58	17	45	69	93	49
Thailand	64	20	34	64	32	45
Turkey	66	37	45	85	46	49
U.S.A.	40	91	62	46	26	68
Ukraine	92	25	27	95	55	18
Vietnam	70	20	40	30	57	35

Sources: http://geert-hofstede.com/china.html

5.3 The Application of Dummy Variables

Based on the previous reference review, I transformed `the theory of man´ and the correspondent information of each category of it into housing buying behavior as a standard for conducting dummy variables presenting below:

Table 17 – Summary of The Theory of Man

Category of Man	Feature
MAR	Concerned chiefly with economic cues; make prudent calculation before each purchase. Very conscious with the change of economics in terms of the influence of house price. In this case, pay attention to `Price equal Quality´
PAL	Make decision based on the past learning; habitual decision making style rather than thoughtful way. In this case, buyer make habitual decisions based on their previous experience, knowledge, people they know, areas they familiar with.
FRE	Consider symbolic of the appearance or neighborhood, which is driven by inner psyche and need for gratification; influenced strongly by motives and fantasies. In this case, care about the layout of the building, developer of the neighborhood, appliances brand of the apart.
VEB	Acts in conforming to current peer standards; move into a higher order peer group; influenced by present and desired group status. In this case, observe the quality of neighbors, pay attention with the reputation of the neighborhood, crime rates of the area, schools nearby, etc.
LEW	Heavily influenced by external environment stimuli in the buying patterns (amount, frequency, timing, etc. In this case, the external man-made factors may be from families or friends' suggestions, economic changes, or simply any random reasons.

Source: summarized based on previously Literature Review & Robert (1979).

According to the list above, as planned in Methodology, the allocation of indicator variable scores is showing in Table 19. Explanation in Demonstration is based on personal cognize and research support from the Market Analysis Tools of Santander Bank.

Table 18 – Dummy Variables for the Theory of Man

Countries	MAR	PAL	FRE	VEB	LEW	Demonstration
Arab countries	0	0	0	1	0	Brand conscious; Social buying behavior; Status symbol is very important; Prestige seeking.
Argentina	0	0	0	1	0	Rational and conservative with money; Wary, selective; Hard to access loan, owning a house is a status of wealthy.
Australia	1	0	0	0	0	Consumption habits with high debt; Consumers spending extremely carefully, considering value for money (Tony, 2012).
Austria	1	0	0	0	0	Price-driven market; Focus on precision of use and efficiency; Buyer is dependent upon the salesmanship of the seller.
Belgium	1	0	0	0	0	Belgian consumers tend to be very price sensitive and focused on receiving the best value for their money.
Brazil	0	0	0	1	0	Consumers of all income levels are loyal to brands. More well-off consumers pay particular attention to quality and status.

Bulgaria	0	1	0	0	0	Consumer emphasizes on invariable quality (Vaska & Elka, 2004); prefers to use the local store near their homes.
Canada	0	0	0	0	1	Increasing housing buying among young adult generation has been observed due to the housing environment change in Canada.
Chile	1	0	0	0	0	Based on A.C. Nielsen, 48% Chileans think Price orient purchasing decision, 68% of Chileans possess at least one credit card.
China	0	0	0	1	0	Growing brand awareness; Owning house is a wealthy status; Not shy with spending; Price is seen as an indicator of quality.
Colombia	1	0	0	0	0	The price is the most important consideration for the most of Colombian consumers; consumption mainly concerns primary needs and education.
Croatia	1	0	0	0	0	Due to the high households debts Croatian consumers are forced to be price sensitive customers, though they´re brand conscious.
Czech Rep	1	0	0	0	0	Traditionally price sensitive; The importance of quality is becoming increasingly important.
Denmark	0	0	0	1	0	Highest product expectations in Europe; High connectivity with modern infrastructure; rich areas exist.
Egypt	1	0	0	0	0	Though there is luxury house represents wealth, due to the obvious gap between poor and rich, price is the dominant factor of purchasing;
Estonia	0	0	1	0	0	Compulsive buying behavior influenced by materialism (Raudsepp, 2015); wish to own things.
Finland	0	1	0	0	0	Used to have sophisticated market with a high standard of living; Instead of price, quality is more important; Consumer culture emphasizes modesty.
France	0	0	1	0	0	Buying equals pleasure; Favor products with a quality label or brand; Affluent and impulsive; Likes to try new and innovative things.
Germany	1	0	0	0	0	Compare price for the best offer; Cherry-picking rather than customer loyalty.
Great Britain	0	0	0	1	0	Consumers respond well to advertising and will buy if they see an advantage; Special attach to the antique image of the house.
Greece	1	0	0	0	0	Little money to invest; irrational home buyers; more frugal in their purchases, even when it comes to basic necessities.
Hong Kong	0	0	0	1	0	35% of household expenses are reserved for housing due to the high remaining housing price; Location tells wealthy.
Hungary	1	0	0	0	0	Make purchases primarily based upon their immediate needs; Focus on price rather than quality; Conservative.
India	0	0	1	0	0	Buying recognized trademarks; Very brand conscious; Huge gap of wealth; The layout of the apartment is crucial.
Indonesia	0	0	0	1	0	Faster growing consumer market; Optimistic; house is important. 28% of consumer tends to pay more premium; Attach to brand.
Ireland	0	0	1	0	0	Primarily concerned with quality and value; Youth concern with brand and notoriety; Adults focus on the brand and quality of products.

Italy	0	1	0	0	0	Demanding of quality products; Very concerned with operating hours, frequent special offers; loyalty programs or credit offers.
Japan	1	0	0	0	0	Spending more time in home; Most rented house; Thought Japanese are novelty seekers, when talking about property, economic factor goes first
Latvia	0	0	0	0	1	Sensitive to external factors such us state economic situation, inflation, GDP, interest rates, etc. (Elina, Anatoly, and Leva, 2008).
Lithuania	1	0	0	0	0	Tend to orientate to the quality and Lithuanian production products; Analyze before the purchase.
Luxembourg	0	0	0	1	0	Housing satisfaction is one of the highest in the European Union; attach importance to reputation and to the comfort of durable consumer goods
Malaysia	0	0	1	0	0	Though highly price sensitive, are also brand-conscious, and increasingly concerned about quality; Impulsive purchases exist in young generation.
Mexico	0	1	0	0	0	Time-poor; Good quality products that can help save time as well as money; Largely brand loyal; Family and friends advices are crucial.
Netherlands	0	1	0	0	0	Favor high-quality products; Modest consumption habits; Prefer familiar brands over novel products.
New Zealand	0	0	0	0	1	Customer service is crucial; Ill-treated would change the purchasing decision, brands synonymous with customer care.
Norway	1	0	0	0	0	Not as price sensitive and are willing to spend more, especially when buying durable goods; But price with `quality´.
Peru	0	0	0	1	0	Doubled `middle class´; Significant housing deficit; Consolidate status as part of the middle class over the long term.
Philippines	0	0	0	0	1	Does not like ostentatious expenditure; Renting is more expensive than buying; Gives priority to family life; Monopoly in housing market.
Poland	0	0	1	0	0	Quality and brand are becoming increasingly important in middle and upper classes;
Portugal	0	0	0	1	0	Conservative and loyal to brands; Consider price vs. Quality in housing buying decision; Social status is important.
Romania	0	0	0	0	1	Romanians quickly adapted to the newly created situation; perform an obvious association between the quality of a product or service
Russia	0	0	0	0	1	Strongly brand loyalty; Family affects shopping effects; Oil price fall and sanctions affect market; Large invest outside of the country.
Saudi Arabia	0	0	0	1	0	Consumers are typically young and high-spending; Gap between poor and rich, owing house is showing of status.
Serbia	1	0	0	0	0	Ongoing economic crisis in the country, which has negatively affected the purchasing power of the population since 2008.
Singapore	0	0	0	1	0	Stay loyal to familiar brand names; Owning House is very important
Slovak Rep	1	0	0	0	0	Low demand for the property; Pricing strategy like promotion and discounts working well among the society.

Slovenia	0	0	1	0	0	Typical Slovenian consumer is willing to spend more on quality satisfaction for certain basic needs, education, homes and cars.
South Africa	1	0	0	0	0	Generally very brand conscious; seek sophisticated goods and tend to spend less on vital commodities or housing.
Spain	1	0	0	0	0	Price is important; Attaches less importance to the guarantee of a known brand; Youngsters are more open to new products.
Sweden	0	1	0	0	0	Price is the determining factor, then quality; are loyal to brands and to shops; Used to a higher standard of living.
Switzerland	1	0	0	0	0	Appreciate quality and brand-value; very cautious in buying housing decision; Renting instead of buying.
Taiwan	0	0	0	1	0	Faithful to brands, but also keen on new products; Like to buying and investing in houses.
Thailand	0	0	1	0	0	Less pressure in buying houses due to the high supply and the lower price; More willing to pay generation with brand conscious.
Turkey	0	0	0	0	1	Keen on new products coming from abroad; Products have a luxurious, modern connotation; Buy products they had not planned to acquire
U.S.A.	0	0	0	1	0	Growing price consciousness; Tend to buy houses than rent; Willing to spend money in houses; theslum and rich areas.
Ukraine	1	0	0	0	0	Find the best price; Take advantage of the discount; Consumer conservatism.
Vietnam	0	0	0	0	1	Cautious about house investment; Parents fund with buying- significantly influence the decision; Familial solidarity and parental decision.

Source: Self conducted. Reference- https://en.portal.santandertrade.com/analyse-markets/

5.4 Multiple Regression Model

The hypothesized relation is represented as follows:

URB= f (LPH, RI, PI, GRYcc, GRYoc, PRcc, PRoc, MpI, PPP, PR, MF, IF, CoL, AI, PDI, IDV, MAS, UAI, LO, IVR, MAR, PAL, FRE, VEB, LEW) (5)

In order to see whether the above identified factors could explain the variation on urban population index, the multiple linear regression models is formed:

$$URB = \alpha + \beta_1 LPH + \beta_2 RI + \beta_3 PI + \beta_4 GRYcc + \beta_5 GRYoc + \beta_6 PRcc + \beta_7 MpI + \beta_8 PPP + \beta_9 PR + \beta_9 MF + \beta_{10} IF + \beta_{11} CoL + \beta_{12} AI + \beta_{13} PDI + \beta_{14} IDV + \beta_{15} MAS + \beta_{16} UAI + \beta_{17} LO + \beta_{18} IVR + \beta_{19} MAR + \beta_{20} PAL + \beta_{21} FRE + \beta_{22} VEB + \beta_{23} LEW + e \quad (6)$$

After the data selection the table below gives a summary of descriptive statistics:

Table 19: Descriptive Statistics for All Variables

Descriptive Statistics

	Mean	Std. Deviation	N
URB	72,860	15,7848	57
LPH	16,188	17,2456	57
PPP	28518,29711	24672,547903	57
PR	61,404	25,3151	57
MF	78,949	7,8111	57
IF	69,474	19,7458	57
PDI	59,37	22,296	57
IDV	47,96	23,214	57
MAS	49,07	21,078	57
UAI	65,96	23,416	57
LO	50,754430155994530	21,464532253971313	57
IVR	45,860	20,5925	57
MAR	,35	,481	57
PAL	,11	,310	57
FRE	,14	,350	57
VEB	,26	,444	57
LEW	,14	,350	57
CoL	56,1707	20,75063	57
RI	22,5298	16,77596	57
P/I	12,1474	7,19610	57
GRYcc	4,6696	1,92636	57
GRYoc	5,0691	2,03469	57
P/Rcc	25,3447	12,38838	57
P/Roc	22,9051	9,96709	57
MpI	112,4209	99,48140	57
AI	1,4125	,88897	57

It is commonly accepted to use generalized linear model (GLM) to study ecological, evolutionary, and behavioral research with multivariate tests in which the investigator examines which of several predictor variables influence a single response variable (Mundry and Nunn, 2009). Two fundamentally different approaches are available in GLMs, depends on the way variables enter the model: `All-in together´ or `enter with subsequence´. The purpose for having criteria for variables to enter is to get a regression model as complete and realistic as possible; having every variable is even remotely related to the dependent variable. More importantly, the variable selection process effectively eliminates irrelevant variables so that the precision of the estimated coefficients and predicted values can be achieved. Therefore, the

stepwise regression would be applied.

5.5 Output of Stepwise Regression

Table 18displays the test of significance of the model using an ANOVA. The eight ANOVAs that are reported correspond to eight models. Only one variable was added at each step until the forth, from step 5, the model starts from three variables again, which is showing in the `df´ column (a more detail explanation states under the box). From the explanation, it is obvious to observe that in the fifth step, variable `CoL´ was removed. In the whole stepwise regression, each step results in a model, and each successive step modifies and each model is tested for the statistical significance. The remaining variables are excluded by SPSS (see Appendix II).

Table 20: MLR ANOVA results

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4664,296	1	4664,296	27,618	,000[b]
	Residual	9288,581	55	168,883		
	Total	13952,877	56			
2	Regression	5583,803	2	2791,902	18,014	,000[c]
	Residual	8369,074	54	154,983		
	Total	13952,877	56			
3	Regression	6512,735	3	2170,912	15,465	,000[d]
	Residual	7440,142	53	140,380		
	Total	13952,877	56			
4	Regression	7114,386	4	1778,596	13,524	,000[e]
	Residual	6838,491	52	131,509		
	Total	13952,877	56			
5	Regression	6897,405	3	2299,135	17,271	,000[f]
	Residual	7055,472	53	133,122		
	Total	13952,877	56			
6	Regression	7695,552	4	1923,888	15,988	,000[g]
	Residual	6257,325	52	120,333		
	Total	13952,877	56			
7	Regression	8387,372	5	1677,474	15,372	,000[h]
	Residual	5565,505	51	109,128		
	Total	13952,877	56			

8	Regression	9285,039	6	1547,507	16,576	,000[i]
	Residual	4667,838	50	93,357		
	Total	13952,877	56			

a. Dependent Variable: URB

b. Predictors: (Constant), CoL

c. Predictors: (Constant), CoL, FRE

d. Predictors: (Constant), CoL, FRE, PR

e. Predictors: (Constant), CoL, FRE, PR, VEB

f. Predictors: (Constant), FRE, PR, VEB

g. Predictors: (Constant), FRE, PR, VEB, UAI

h. Predictors: (Constant), FRE, PR, VEB, UAI, RI

i. Predictors: (Constant), FRE, PR, VEB, UAI, RI, IVR

Table 21 shows the Model Summary, presents the R Square and Adjusted R Square values for each step along with the amount of R Square Change.

Table 21: MLR Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,578[a]	,334	,322	12,9955	,334	27,618	1	55	,000
2	,633[b]	,400	,378	12,4492	,066	5,933	1	54	,018
3	,683[c]	,467	,437	11,8482	,067	6,617	1	53	,013
4	,714[d]	,510	,472	11,4678	,043	4,575	1	52	,037
5	,703[e]	,494	,466	11,5379	-,016	1,650	1	52	,205
6	,743[f]	,552	,517	10,9696	,057	6,633	1	52	,013
7	,775[g]	,601	,562	10,4464	,050	6,340	1	51	,015
8	,816[h]	,665	,625	9,6621	,064	9,615	1	50	,003

a. Predictors: (Constant), CoL

b. Predictors: (Constant), CoL, FRE

c. Predictors: (Constant), CoL, FRE, PR

d. Predictors: (Constant), CoL, FRE, PR, VEB

e. Predictors: (Constant), FRE, PR, VEB

f. Predictors: (Constant), FRE, PR, VEB, UAI

g. Predictors: (Constant), FRE, PR, VEB, UAI, RI

h. Predictors: (Constant), FRE, PR, VEB, UAI, RI, IVR

The Coefficients table in Table 22 provides the details of the results. Both the raw and standardized regression coefficients are readjusted at each step to reflect the additional variables

in the model. Although it is interesting to observe the dynamic changes taking place, the final model turns out to be the key result.

Table 22: MLR Coefficients Summary

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	48,155	5,006		9,619	,000					
	CoL	,440	,084	,578	5,255	,000	,578	,578	,578	1,000	1,000
2	(Constant)	51,281	4,964		10,330	,000					
	CoL	,413	,081	,543	5,109	,000	,578	,571	,538	,982	1,018
	FRE	-11,669	4,791	-,259	-2,436	,018	-,332	-,315	-,257	,982	1,018
3	(Constant)	49,275	4,789		10,290	,000					
	CoL	,193	,115	,254	1,682	,098	,578	,225	,169	,440	2,273
	FRE	-14,955	4,735	-,332	-3,158	,003	-,332	-,398	-,317	,910	1,098
	PR	,241	,094	,387	2,572	,013	,541	,333	,258	,445	2,249
4	(Constant)	48,046	4,670		10,287	,000					
	CoL	,146	,114	,192	1,284	,205	,578	,175	,125	,423	2,364
	FRE	-13,126	4,662	-,291	-2,816	,007	-,332	-,364	-,273	,880	1,137
	PR	,267	,092	,429	2,920	,005	,541	,375	,283	,437	2,290
	VEB	7,755	3,626	,218	2,139	,037	,321	,284	,208	,905	1,105
5	(Constant)	50,794	4,177		12,161	,000					
	FRE	-14,568	4,552	-,323	-3,200	,002	-,332	-,402	-,313	,934	1,071
	PR	,355	,061	,570	5,813	,000	,541	,624	,568	,992	1,008
	VEB	8,668	3,577	,244	2,423	,019	,321	,316	,237	,941	1,062
6	(Constant)	35,127	7,265		4,835	,000					
	FRE	-13,546	4,346	-,301	-3,117	,003	-,332	-,397	-,289	,926	1,080
	PR	,409	,062	,655	6,623	,000	,541	,676	,615	,881	1,135
	VEB	10,955	3,515	,308	3,117	,003	,321	,397	,289	,881	1,135
	UAI	,177	,069	,262	2,575	,013	-,008	,336	,239	,832	1,202
7	(Constant)	32,018	7,028		4,556	,000					
	FRE	-11,930	4,189	-,265	-2,848	,006	-,332	-,370	-,252	,904	1,106
	PR	,304	,072	,488	4,237	,000	,541	,510	,375	,589	1,698
	VEB	7,359	3,639	,207	2,022	,048	,321	,272	,179	,746	1,341
	UAI	,227	,068	,337	3,321	,002	-,008	,422	,294	,761	1,313
	RI	,307	,122	,326	2,518	,015	,567	,333	,223	,465	2,148
8	(Constant)	25,041	6,878		3,641	,001					
	FRE	-	3,922	-,223	-2,556	,014	-,332	-,340	-	,882	1,133

	10,026							,209		
PR	,201	,074	,322	2,696	,010	,541	,356	,221	,470	2,129
VEB	6,244	3,385	,176	1,844	,071	,321	,252	,151	,737	1,357
UAI	,250	,064	,370	3,925	,000	-,008	,485	,321	,751	1,331
RI	,377	,115	,401	3,279	,002	,567	,421	,268	,447	2,235
IVR	,224	,072	,293	3,101	,003	,467	,402	,254	,750	1,332

a. Dependent Variable: URB

There are 23 variables were used in the stepwise multiple regression analysis to predict Urbanization. The stepwise model contained eight of the twenty-three predictors and was reached in eight steps with removal of the variable `CoL´. The model was statistically significant, F (8, 50) =16.576, $p < 0.001$, and accounted for approximately 65% of the variance of Urbanization ($R2 = 0.665$, Adjusted R2 = .0.625).

After observing the result of Coefficient table of the last model, Urbanization was primarily predicted by a lower level of Freudian Man behavior, and to a lesser extent by a higher level of country Property Right, Vebblian Man behavior, Uncertainty Avoidance behavior, Rental level, and Indulgence level respectively. Rental Index received the strongest weight in the model followed by Uncertainty Avoidance Index, Property Right, Indulgence Index, and Freudian Man; Vebblian Man received the lowest weights.

Inspection of the structure coefficients suggests that Rental Index and Uncertainty Avoidance were very strong indicators of Urbanization, Property Right and Indulgence Index were relatively strong indicators of urbanization, and the two types of man, Freudian and Vebblian were moderate indicator of Urbanization.

To make a clear comparison, in Appendix III displays the result of standard MLR, the result presents different value and variables for the sample: removes `CoL´, `PR´, `VEB´ out and adds `PPP´ and `MAS´ in. Nevertheless, the statistical result shows the cultural factors´ explaining power in the model- UAI, IVR and FRE have been seen in both models.

6. Conclusion

Many studies have been conducted to explore the variation of real estate markets to macroeconomic variables theoretically and empirically. The motivation for the present study is to explore the correlation between socio-economic variables and the market. The outcome result of this study has shown certain correlation do exists. Combining Hofstede Cultural Dimension and the Theory of Man, the result shows the importance of this inclusion. The result from the MLR model has declared itself quite understandable. Along with the purpose in this paper, the result is concluded basing on these two great theories.

In Hofstede theory, Uncertainty Avoidance and Indulgence Index were proofed to be useful in the MLR model; the other four- Power Distance Index, Individualism Index, Masculinity Index and Long-term Orientation Index were excluded from it. The designated evidence UAI and IDV are very interesting results. Under the description I summarized before, UAI refers how people in the countries seeing risk and security in life; IDV reflects importance of leisure and investment attitude. These two indexes are somehow connected and corresponding to each other.

On the other side, the results model gave two types of 'Man'- Freudian Man and Vebblian Man; the other three in the model- Marshallian, Pavlovian and Lewinian were rejected from it. Similar to the result from Hofstede theory, the 'portrayal' for Freudian and Vebblian is quite close, for they both emphasis on self-actualization and status. In fact, these four chosen variables agreed in same direction that the need from inner psyche of people and the importance of satisfaction in fulfilling it play very direct role in the decision making process, even it towards a big and serious one like buying property.

Urbanization, however, is a combination of different considerations. The complexity of itself might increase the query of the question. Though the statistics has shown positive result, the analysis exist restriction and limitation which encourages later on research deeply analyzing. The model is conducted by subjective judgment in determining the value of `the Theory of Man´. These dummy variables play an important role in the analysis of data, and meanwhile provide flexibility for conducting the model. However, the subjectivity for value assigning may generate a different result for the analysis.

Another concern may be aroused is the complexity of the decision making behavior. What has been studied in regards to this issue in this paper was shallow; it is true the buying decision making process involves a great deal of psychology knowledge as well as understanding human being. I believe, the statistics tell part of the truth that certain cultural variables taking account into the decision making model, however, as these two theories themselves clarified, those variables tend to appear several together at same time, it is hard to entirely isolate any of them in asserting a conclusion. As well as the topic I am testing right now, the urbanization in terms of buying house intensively in the center of the city or not influenced by cultural effects, but the behavior itself is not certainly intuitive driven by human needs, more considerations depend on individuals would be taken into account. Therefore, it is fair to conclude that the cultural factors contribute to urbanization as a whole, by partially involved.

Combining the concerns mentioned above, future analysis shall sheds more light on solving the restrictions as well as fitting the accuracy of the model.

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Appendix

Appendix I – Urban population by countries

Countries	URB	Countries	URB
Arab countries	0,86	Lithuania	0,67
Argentina	0,92	Luxembourg	0,9
Australia	0,89	Malaysia	0,75
Austria	0,66	Mexico	0,79
Belgium	0,98	Netherlands	0,9
Brazil	0,86	New Zealand	0,86
Bulgaria	0,74	Norway	0,8
Canada	0,82	Peru	0,79
Chile	0,9	Philippines	0,44
China	0,56	Poland	0,61
Colombia	0,76	Portugal	0,63
Croatia	0,59	Romania	0,55
Czech Rep	0,73	Russia	0,74
Denmark	0,88	Saudi Arabia*	0,83
Egypt	0,43	Serbia	0,56
Estonia	0,68	Singapore	1
Finland	0,84	Slovak Rep	0,54
France	0,8	Slovenia	0,5
Germany	0,75	South Africa*	0,65
Great Britain	0,83	Spain	0,8
Greece	0,78	Sweden	0,86
Hong Kong	1	Switzerland	0,74
Hungary	0,71	Taiwan	0,77
India	0,33	Thailand	0,5
Indonesia	0,54	Turkey	0,73
Ireland	0,63	U.S.A.	0,82
Italy	0,69	Ukraine	0,7
Japan	0,93	Vietnam	0,34
Latvia	0,67		

Appendix II – Stepwise Regression Excluded Variables

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	LPH	-,116[b]	-,652	,517	-,088	,383	2,609	,383
	PPP	,135[b]	,534	,595	,072	,191	5,231	,191
	PR	,259[b]	1,654	,104	,220	,479	2,086	,479
	MF	-,027[b]	-,233	,816	-,032	,906	1,104	,906
	IF	,149[b]	1,170	,247	,157	,737	1,358	,737
	PDI	,040[b]	,279	,781	,038	,595	1,682	,595
	IDV	-,021[b]	-,155	,878	-,021	,680	1,471	,680
	MAS	-,042[b]	-,383	,703	-,052	1,000	1,000	1,000
	UAI	,213[b]	1,861	,068	,245	,885	1,130	,885
	LO	-,040[b]	-,359	,721	-,049	,983	1,017	,983
	IVR	,280[b]	2,432	,018	,314	,839	1,191	,839
	MAR	-,006[b]	-,058	,954	-,008	1,000	1,000	1,000
	PAL	,122[b]	1,112	,271	,150	,995	1,005	,995
	FRE	-,259[b]	-2,436	,018	-,315	,982	1,018	,982
	VEB	,228[b]	2,102	,040	,275	,970	1,031	,970
	LEW	-,128[b]	-1,150	,255	-,155	,973	1,028	,973
	RI	,297[b]	1,737	,088	,230	,399	2,507	,399
	P/I	-,087[b]	-,774	,442	-,105	,968	1,033	,968
	GRYcc	,156[b]	1,415	,163	,189	,977	1,024	,977
	GRYoc	,083[b]	,747	,459	,101	,982	1,018	,982
	P/Rcc	-,056[b]	-,495	,623	-,067	,954	1,048	,954
	P/Roc	-,028[b]	-,248	,805	-,034	,960	1,042	,960
	MpI	-,014[b]	-,115	,909	-,016	,855	1,169	,855
	AI	,120[b]	1,008	,318	,136	,859	1,164	,859
2	LPH	-,088[c]	-,510	,612	-,070	,381	2,622	,376
	PPP	,125[c]	,517	,608	,071	,191	5,232	,191
	PR	,387[c]	2,572	,013	,333	,445	2,249	,440
	MF	,009[c]	,078	,938	,011	,890	1,124	,880
	IF	,160[c]	1,307	,197	,177	,736	1,359	,724
	PDI	,048[c]	,347	,730	,048	,594	1,683	,590
	IDV	,007[c]	,052	,959	,007	,674	1,483	,662

	MAS	-,060[c]	-,565	,574	-,077	,995	1,005	,977
	UAI	,185[c]	1,672	,100	,224	,874	1,144	,861
	LO	-,052[c]	-,484	,630	-,066	,981	1,019	,967
	IVR	,272[c]	2,468	,017	,321	,839	1,192	,829
	MAR	-,091[c]	-,823	,414	-,112	,911	1,098	,894
	PAL	,090[c]	,846	,401	,115	,978	1,023	,965
	VEB	,178[c]	1,652	,105	,221	,922	1,085	,922
	LEW	-,184[c]	-1,720	,091	-,230	,938	1,066	,938
	RI	,283[c]	1,725	,090	,231	,398	2,510	,398
	P/I	-,095[c]	-,886	,380	-,121	,967	1,034	,950
	GRYcc	,109[c]	1,002	,321	,136	,938	1,066	,938
	GRYoc	,031[c]	,280	,780	,038	,940	1,064	,940
	P/Rcc	-,035[c]	-,321	,750	-,044	,948	1,055	,933
	P/Roc	,000[c]	,002	,999	,000	,949	1,054	,937
	MpI	-,049[c]	-,424	,673	-,058	,842	1,187	,830
	AI	,106[c]	,926	,359	,126	,856	1,168	,849
3	LPH	-,213[d]	-1,274	,208	-,174	,355	2,820	,302
	PPP	-,116[d]	-,464	,645	-,064	,163	6,118	,163
	MF	-,240[d]	-1,853	,070	-,249	,572	1,747	,286
	IF	-,102[d]	-,620	,538	-,086	,372	2,686	,225
	PDI	,231[d]	1,636	,108	,221	,487	2,052	,365
	IDV	-,109[d]	-,837	,406	-,115	,601	1,663	,396
	MAS	-,039[d]	-,386	,701	-,054	,989	1,012	,438
	UAI	,218[d]	2,085	,042	,278	,864	1,158	,428
	LO	-,061[d]	-,595	,554	-,082	,980	1,020	,438
	IVR	,211[d]	1,904	,062	,255	,779	1,284	,413
	MAR	-,142[d]	-1,341	,186	-,183	,884	1,131	,430
	PAL	,073[d]	,719	,475	,099	,974	1,027	,440
	VEB	,218[d]	2,139	,037	,284	,905	1,105	,423
	LEW	-,153[d]	-1,481	,145	-,201	,924	1,083	,438
	RI	,262[d]	1,674	,100	,226	,397	2,517	,275
	P/I	-,031[d]	-,294	,770	-,041	,906	1,104	,417
	GRYcc	,100[d]	,968	,337	,133	,937	1,067	,431
	GRYoc	,028[d]	,267	,791	,037	,940	1,064	,434
	P/Rcc	-,029[d]	-,281	,780	-,039	,947	1,055	,428
	P/Roc	,008[d]	,080	,937	,011	,948	1,055	,428
	MpI	,079[d]	,656	,515	,091	,702	1,425	,370
	AI	,032[d]	,282	,779	,039	,793	1,261	,412
4	LPH	-,179[e]	-1,094	,279	-,151	,351	2,851	,287
	PPP	-,097[e]	-,402	,689	-,056	,163	6,126	,163

	MF	-,184[e]	-1,402	,167	-,193	,538	1,859	,286
	IF	-,021[e]	-,124	,902	-,017	,350	2,857	,224
	PDI	,188[e]	1,341	,186	,185	,474	2,109	,364
	IDV	-,019[e]	-,138	,891	-,019	,530	1,887	,385
	MAS	-,038[e]	-,384	,703	-,054	,989	1,012	,421
	UAI	,284[e]	2,815	,007	,367	,819	1,221	,416
	LO	-,041[e]	-,408	,685	-,057	,970	1,030	,421
	IVR	,205[e]	1,905	,062	,258	,778	1,286	,405
	MAR	-,031[e]	-,252	,802	-,035	,623	1,605	,422
	PAL	,135[e]	1,342	,186	,185	,911	1,098	,422
	LEW	-,098[e]	-,921	,361	-,128	,843	1,186	,423
	RI	,150[e]	,882	,382	,123	,327	3,056	,272
	P/I	-,081[e]	-,773	,443	-,108	,866	1,155	,414
	GRYcc	,086[e]	,853	,398	,119	,933	1,072	,413
	GRYoc	,017[e]	,165	,870	,023	,937	1,067	,416
	P/Rcc	-,055[e]	-,548	,586	-,076	,934	1,071	,414
	P/Roc	-,024[e]	-,238	,812	-,033	,926	1,079	,415
	MpI	,048[e]	,407	,685	,057	,690	1,449	,369
	AI	,021[e]	,187	,852	,026	,791	1,264	,403
5	LPH	-,023[f]	-,169	,866	-,023	,517	1,935	,515
	PPP	,111[f]	,697	,489	,096	,380	2,629	,380
	MF	-,211[f]	-1,651	,105	-,223	,564	1,772	,564
	IF	-,046[f]	-,279	,782	-,039	,355	2,813	,355
	PDI	,126[f]	,920	,362	,127	,513	1,950	,513
	IDV	,032[f]	,250	,803	,035	,583	1,716	,583
	MAS	-,030[f]	-,299	,766	-,041	,993	1,007	,930
	UAI	,262[f]	2,575	,013	,336	,832	1,202	,832
	LO	-,031[f]	-,307	,760	-,043	,976	1,024	,926
	IVR	,215[f]	2,003	,050	,268	,783	1,276	,783
	MAR	-,039[f]	-,313	,756	-,043	,625	1,601	,625
	PAL	,140[f]	1,384	,172	,188	,912	1,096	,882
	LEW	-,094[f]	-,886	,380	-,122	,844	1,186	,844
	RI	,201[f]	1,484	,144	,202	,509	1,966	,509
	P/I	-,078[f]	-,738	,464	-,102	,866	1,155	,866
	GRYcc	,064[f]	,637	,527	,088	,956	1,046	,913
	GRYoc	,000[f]	,004	,997	,001	,952	1,050	,908
	P/Rcc	-,036[f]	-,358	,722	-,050	,953	1,049	,921
	P/Roc	-,006[f]	-,062	,951	-,009	,944	1,059	,912
	MpI	,047[f]	,397	,693	,055	,690	1,449	,690
	AI	,028[f]	,254	,800	,035	,793	1,261	,793

	CoL	,192[f]	1,284	,205	,175	,423	2,364	,423
6	LPH	,012[g]	,091	,928	,013	,511	1,956	,498
	PPP	,124[g]	,820	,416	,114	,380	2,632	,373
	MF	-,226[g]	-1,872	,067	-,254	,563	1,776	,540
	IF	-,125[g]	-,784	,437	-,109	,343	2,913	,318
	PDI	,103[g]	,790	,433	,110	,510	1,959	,495
	IDV	,069[g]	,561	,577	,078	,575	1,739	,575
	MAS	-,029[g]	-,310	,758	-,043	,993	1,007	,832
	LO	-,025[g]	-,264	,793	-,037	,976	1,025	,832
	IVR	,232[g]	2,295	,026	,306	,781	1,281	,724
	MAR	-,129[g]	-1,056	,296	-,146	,580	1,723	,580
	PAL	,162[g]	1,686	,098	,230	,906	1,103	,821
	LEW	-,034[g]	-,322	,749	-,045	,795	1,258	,774
	RI	,326[g]	2,518	,015	,333	,465	2,148	,465
	P/I	-,001[g]	-,014	,989	-,002	,789	1,267	,745
	GRYcc	,042[g]	,440	,662	,061	,948	1,054	,825
	GRYoc	,000[g]	-,005	,996	-,001	,952	1,050	,832
	P/Rcc	-,023[g]	-,242	,810	-,034	,951	1,052	,830
	P/Roc	-,002[g]	-,018	,985	-,003	,944	1,060	,832
	MpI	,094[g]	,827	,412	,115	,674	1,485	,604
	AI	,002[g]	,019	,985	,003	,786	1,273	,705
	CoL	,241[g]	1,708	,094	,233	,416	2,401	,416
7	LPH	-,057[h]	-,450	,655	-,063	,488	2,050	,430
	PPP	-,058[h]	-,355	,724	-,050	,296	3,373	,296
	MF	-,210[h]	-1,820	,075	-,249	,561	1,781	,402
	IF	-,078[h]	-,510	,612	-,072	,338	2,960	,249
	PDI	,049[h]	,388	,700	,055	,494	2,023	,346
	IDV	,083[h]	,705	,484	,099	,574	1,743	,427
	MAS	-,067[h]	-,740	,463	-,104	,967	1,034	,453
	LO	-,033[h]	-,361	,720	-,051	,975	1,026	,465
	IVR	,293[h]	3,101	,003	,402	,750	1,332	,447
	MAR	-,141[h]	-1,221	,228	-,170	,579	1,726	,465
	PAL	,175[h]	1,927	,060	,263	,904	1,106	,464
	LEW	-,034[h]	-,340	,735	-,048	,795	1,258	,465
	P/I	-,067[h]	-,651	,518	-,092	,742	1,349	,437
	GRYcc	,022[h]	,243	,809	,034	,941	1,063	,462
	GRYoc	-,015[h]	-,162	,872	-,023	,948	1,054	,464
	P/Rcc	-,025[h]	-,269	,789	-,038	,951	1,052	,465
	P/Roc	-,009[h]	-,094	,925	-,013	,943	1,061	,465
	MpI	,056[h]	,509	,613	,072	,660	1,516	,416

	AI	,026[h]	,256	,799	,036	,779	1,284	,461
	CoL	,057[h]	,335	,739	,047	,271	3,690	,271
8	LPH	-,166[i]	-1,376	,175	-,193	,453	2,206	,394
	PPP	-,183[i]	-1,187	,241	-,167	,279	3,588	,279
	MF	-,130[i]	-1,156	,253	-,163	,523	1,913	,299
	IF	-,011[i]	-,074	,941	-,011	,330	3,033	,207
	PDI	,092[i]	,780	,439	,111	,488	2,050	,315
	IDV	,072[i]	,662	,511	,094	,573	1,745	,365
	MAS	-,107[i]	-1,285	,205	-,181	,946	1,057	,432
	LO	,140[i]	1,456	,152	,204	,708	1,412	,420
	MAR	-,104[i]	-,959	,342	-,136	,572	1,749	,447
	PAL	,132[i]	1,525	,134	,213	,876	1,142	,447
	LEW	-,025[i]	-,274	,785	-,039	,794	1,259	,447
	P/I	,016[i]	,156	,877	,022	,685	1,461	,421
	GRYcc	-,040[i]	-,454	,652	-,065	,892	1,121	,439
	GRYoc	-,060[i]	-,696	,489	-,099	,922	1,084	,443
	P/Rcc	,031[i]	,355	,724	,051	,910	1,099	,447
	P/Roc	,040[i]	,465	,644	,066	,912	1,097	,447
	MpI	,070[i]	,687	,495	,098	,658	1,519	,359
	AI	-,023[i]	-,244	,808	-,035	,757	1,322	,420
	CoL	-,066[i]	-,403	,689	-,057	,255	3,926	,255

a. Dependent Variable: URB

b. Predictors in the Model: (Constant), CoL

c. Predictors in the Model: (Constant), CoL, FRE

d. Predictors in the Model: (Constant), CoL, FRE, PR

e. Predictors in the Model: (Constant), CoL, FRE, PR, VEB

f. Predictors in the Model: (Constant), FRE, PR, VEB

g. Predictors in the Model: (Constant), FRE, PR, VEB, UAI

h. Predictors in the Model: (Constant), FRE, PR, VEB, UAI, RI

i. Predictors in the Model: (Constant), FRE, PR, VEB, UAI, RI, IVR

Appendix III – MLR Results

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	AI, MAR, LO, MAS, RI, PAL, FRE, PDI, MF, UAI, LEW, IVR, P/Rcc, MpI, LPH, IDV, GRYoc, IF, PPP, PR, P/I, CoL, GRYcc, P/Roc[b]	.	Enter

a. Dependent Variable: URB

b. Tolerance = ,000 limit reached.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,896[a]	,802	,654	9,2875

a. Predictors: (Constant), AI, MAR, LO, MAS, RI, PAL, FRE, PDI, MF, UAI, LEW, IVR, P/Rcc, MpI, LPH, IDV, GRYoc, IF, PPP, PR, P/I, CoL, GRYcc, P/Roc

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11192,622	24	466,359	5,407	,000[b]
	Residual	2760,255	32	86,258		
	Total	13952,877	56			

a. Dependent Variable: URB

b. Predictors: (Constant), AI, MAR, LO, MAS, RI, PAL, FRE, PDI, MF, UAI, LEW, IVR, P/Rcc, MpI, LPH, IDV, GRYoc, IF, PPP, PR, P/I, CoL, GRYcc, P/Roc

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	16,671	37,306		,447	,658
	LPH	-,264	,152	-,289	-1,741	,091
	PPP	,000	,000	-,483	-2,186	,036
	PR	,126	,170	,201	,739	,465
	MF	-,086	,317	-,043	-,272	,788
	IF	,121	,165	,151	,731	,470
	PDI	,102	,117	,144	,866	,393
	IDV	,219	,119	,322	1,842	,075
	MAS	-,166	,077	-,221	-2,147	,039
	UAI	,265	,083	,393	3,211	,003
	LO	,138	,096	,188	1,446	,158
	IVR	,401	,118	,524	3,414	,002
	MAR	-5,867	4,068	-,179	-1,442	,159
	PAL	-3,353	5,808	-,066	-,577	,568
	FRE	-16,243	5,495	-,361	-2,956	,006
	LEW	-7,310	5,024	-,162	-1,455	,155
	CoL	,024	,236	,032	,103	,919
	RI	,811	,239	,862	3,395	,002
	P/I	-,727	,645	-,332	-1,128	,268
	GRYcc	-,359	8,361	-,044	-,043	,966
	GRYoc	-1,542	8,867	-,199	-,174	,863
	P/Rcc	,046	1,413	,036	,033	,974
	P/Roc	,063	1,884	,040	,033	,973
	MpI	,047	,036	,296	1,296	,204
	AI	3,657	3,866	,206	,946	,351

a. Dependent Variable: URB

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics: Tolerance
1	VEB	.[b]	.	.	.	,000

a. Dependent Variable: URB

b. Predictors in the Model: (Constant), AI, MAR, LO, MAS, RI, PAL, FRE, PDI, MF, UAI, LEW, IVR, P/Rcc, MpI, LPH, IDV, GRYoc, IF, PPP, PR, P/I, CoL, GRYcc, P/Roc