

Finding the Role of FDI in Housing Affordability Level in Malaysia

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Abstract

As Malaysia is moving towards becoming a high-income nation, policies on FDI also been steered to sustain the investment flow into the country. To complement the attraction, policy such as pertaining to real estate has been revolutionized in 2009. Came along with the changes in residential landscape is high price of these houses which generates new problem – housing affordability among the locals. This research intends to examine the influence of house price, FDI and interest rate in 3 periods: full, pre-liberalization and post-liberalization periods. The findings suggest that the positive results between housing affordability level with house price, FDI and interest rate during the period indicated that inflows have significantly contributed to increase the affordability, however speculation activities played significant role as high house price and high interest rate do not lower the affordability level as expected.

Key Words: Foreign Direct Investment, Housing Affordability Level, Malaysia, Liberalization.

INTRODUCTION

Malaysia is one of the 5th largest foreign direct investment (FDI) recipients in the world (UNCTAD, 2015). The country received RM15 billion in the first quarter of 2016 showing its resilience despite dwindling global economy and allegation of domestic scandal involving the Prime Minister. The largest investors came from Japan (21.2%), Singapore (14.6%), The Netherlands (14.5%) and Hong Kong (10.5%). The country continued to become of the investors' favourite destination due to its high-skilled and English speaking workforce and country's stability. FDI contributed significantly to the country's growth when the percentage of FDI inflows on the gross fixed capital formation (GFCF) reaches 12% average annually. Indirectly, FDI is eminent in alleviating the Malaysian's standard of living (Har et. Al, 2008; Goh & Tham, 2013).

As Malaysia is moving towards becoming a high-income nation, policies on FDI also been steered to sustain the investment flow into the country. If in the last decades focus on FDI were on export-oriented manufacturing products, in year 2000s, the country welcomes FDI which contribute to high-impact economic activities (Flaen, Ghani & Mishra, 2013). In doing so, certain policies have been changed to attract intellectual capitals from other countries to participate actively in economy (Akhtar et. Al, 2015). To complement the attraction, policy such as pertaining to real estate has been revolutionized in 2009. Residential landscape has changed dramatically with obvious view of apartments and high-rises mushrooming in urban areas such Kuala Lumpur, Klang Valley and Penang. Came along with the changes in residential landscape is high price of these houses. House price jumped dramatically by 70% from 2009 to 2015. The transformation in real estate, particularly in residential sector generates new problem – housing affordability among the locals (Yusof, Chai & Johan, 2015).

In Malaysia, urban areas which are dynamic in its economic activities offer wider range of job opportunity. The income obtained, however, does not necessarily guarantee home ownership. According to the Malaysia Economic Monitor (2014), 51% Malaysians are considered as 'aspirational' group whose income is between RM2120 and RM 5900. Seventy six percent of the aspirational group lives in urban areas. Can these groups afford to buy a home?

General rule of thumb suggested a person could afford a house which prices up to 4 times of a person's annual gross income. Thus, a person whose income is RM2120, the house price he could afford must be below than RM101,760. As average house price in the capital city Kuala Lumpur is RM292,564, therefore, only a person or a family with household income of RM6095 per month could afford to buy the house. This raises a vital issue on the significance of FDI inflows in raising the standard of living.

This research intends to seek answers to these questions: Firstly, does FDI affects the Malaysian housing affordability level. Secondly, does house price affects the housing affordability level and thirdly, does housing affordability level impacted by the introduction of liberalization? Generally home affordability level of a country is

calculated based on one house type. By modifying the house affordability index calculation introduced by NAR Realty Organization, we calculated the HAI index of different house types in Malaysia (terrace, semi-detached (semi-D), detached and hi-rise).

LITERATURE REVIEW

Housing affordability level can be viewed in two perspectives. The first perspective concerns with the locals who are not able to own a house due to land issue. The case appears when a country has insufficient developable land and capital to build housing on a massive scale (Cooper, 2015). Second, is when a country has land but massively build houses which could only be afforded by middle-upper and upper income levels. The second perspective is related to influx of people migrating from rural to urban area due to job demand in urban areas (Cooper, 2015).

Housing price, cost of borrowings and household income are among the primary determinants for housing affordability (Yates and Milligan, 2007). House price is reflected not only on the dwelling itself but also on rents. They are themselves being influenced by supply and demand factor. According to Yates and Milligan (2007), it is not necessarily the supply and demand factors influence in one way direction, as they are also being influenced by house price, interest rates and household income.

The macroeconomic factors for housing affordability level are house price, income, interest rates, inflation, money supply and others and the economic intuition of this is quite straightforward. A higher house price would discourage the purchase of a house, while a higher income is associated with higher affordability level.

The relationship between house price and foreign direct investment is unclear although FDI is agreed to contribute to an economy's growth (Belloumi, 2014; Lall & Narula, 2013). FDI as commonly quoted from UNCTAD is defined as "investment involving a long-term relationship and reflecting a lasting interest and control by a resident entity in one economy (foreign direct investor or parent enterprise) in an enterprise resident in an economy other than that of the foreign direct investor." So far, no link has been made between FDI and house price although the spillover effect has certainly raise the standard of living of the host country through a positive influence on both host country welfare and knowledge infrastructure while the national governance positively mediates these relationships (Lehnert, Benmamoun & Zhao, 2013).

Studies on house price and FDI have not been ventured into although according to Popkova and Tinyakova (2013) liberalization of policy in forms of business of no equity could drives the economic growth to a higher level. Refer it to the first force, opening up of national markets and the introduction of free treatment for all types of FDI would benefit both the MNC and host country. The second force according to them is rapid technological progress with its rising cost and risk. The rising cost and risk forces

companies to strengthen their activities in international markets. The third force is the consequence of the first two forces.

DATA & METHODOLOGY

Data and Sources

Our dependent variable is housing affordability index. We modified the formula for Housing Affordability Index (HAI) provided by The National Association of Realtors (NAR) due to several limitations in Malaysia data. HAI is normally used to calculate based on the average house price. In this study, instead, we measured the HAI for different levels of house type; terrace, semi-D, detached and high-rise. We believe different house types could represent different income group. Following interpretation of values given by the NAR, HAI value which equals to 100, it indicates that a family with the median income has exactly enough income to qualify for a mortgage on an averaged-price home.

Our independent variables are house price of different house types, FDI inflows and interest rate. We utilize house price index to represent house price of terrace, semi-D, detached and high-rise. The data is taken from the Annual Property Market Report from 1999 to 2015. Data for net FDI inflows and interest rate are taken from the Bank Negara Malaysia. All data is transformed to logarithm form and mathematically, the equation is as follow:

$$\ln HAI_j = f(\ln HPI_j, \ln FDI, IR)$$

Where $\ln HAI_j$ is housing affordability index for j house type, $\ln HPI_j$ is house price index for j house type, $\ln FDI$ is net FDI and IR is lending interest rate. We examined the relationship based on quarterly period starting 2000:Q1 and 2015:Q4. Acknowledging that the time period is short (due to limited availability of data), however, we are keen to provide the pathway once the development of active data available in Malaysia. We also consider the effect of property sector liberalization in 2009, thus split the time period into two phases. Phase 1 represents period before the liberalization announcement (2000:Q1 to 2009:Q2) and Phase 2 represents post-liberalization period (2009:Q3 to 2015:Q4).

Methodology

We began our analysis by performing unit root test to examine whether our series suffer from unit root issue. Then we did correlation analysis to observe the association between the variables and to check whether multicollinearity issue arises. Next, we examined the long-run relationship by employing the Johansen Cointegration test, with the null hypothesis of no cointegration relationship in the equation system. This cointegration analysis determines the number of cointegrating vectors, r , using the

maximal eigenvalue procedure as given in Johansen (1988). The number of cointegrating vectors is determined sequentially based on the log-likelihood ratio test statistics.

Hypotheses

This study has the followings hypotheses:

Housing affordability level is determined by house price, thus we hypothesize that high house price would cause the housing affordability index price to decline.

H1: House price affects housing affordability index negatively.

Based on notion that FDI promotes growth (Borensztein et al, 1998; Vu and Im, 2013; al-Sadig, 2013), we hypothesized that FDI spillover would contribute to a higher income as a whole, thus increase the affordability level.

H2: FDI inflows affect housing affordability index positively.

Lending interest rate is essential in home loan purchasing since potential buyers will look for financing their home with lower interest rate. Thus, lower interest rate will attract more potential buyers therefore, would drive housing demand, consequently the house price.

H3: Interest rate affects housing affordability level negatively..

RESULTS & DISCUSSION

This section elaborates on the findings of the long-run relationship analysis that we have conducted. Prior to the analysis, we conducted the unit root test to ensure our series ($\ln HAI$, $\ln HPI$, $\ln FDI$, IR) are free from unit root which could cause spurious results later. By utilizing the ADF Unit Root test, we confirmed that all series are integrated of order 1, $I(1)$.

Correlation Analysis

In order to examine the association between these variables, we perform correlation analysis (Table 1) and the results indicated a possibility of multicollinearity issue between HPI and interest rate ($\ln TER|\ln IR = -0.914$, $\ln SD|\ln IR = -0.913$, $\ln DET|\ln IR = -0.893$). Nonetheless, since there was no conclusive suggestion on the multicollinearity 'benchmark' figure, we treated the analysis in two ways; with and without IR. We found later that models with IR produces satisfactory results.

Back to correlation analysis, three findings can be obtained. First, the preliminary results showed that HAI has positive association with HPI ($\ln HAI_T|\ln TER = 0.342$, $\ln HAI_{SD}$

$\ln SD=0.400$, $\ln HAI_{DET}|\ln DET=0.404$). This early results do not support our hypotheses; where high house price could lead to a lower affordability. Second, HAI correlate positively with FDI ($\ln HAI_T|\ln FDI=0.307$, $\ln HAI_{SD}|\ln FDI=0.317$, $\ln HAI_{DET}|\ln DET=0.355$, $\ln HAI_{HR}|\ln FDI=0.373$) Third, HAI has negative association with IR ($\ln HAI_T|\ln IR=-0.338$, $\ln HAI_{SD}|\ln IR=-0.366$, $\ln HAI_{DET}|\ln IR=-0.471$, $\ln HAI_{HR}|\ln IR=-0.611$).

Table 1. Correlation analysis

	$\ln HAI_T$	$\ln HAI_{SD}$	$\ln HAI_{DET}$	$\ln HAI_H$	$\ln TER$	$\ln SD$	$\ln DET$	$\ln NFDI$	IR
$\ln HAI_T$	1.000								
$\ln HAI_{SD}$	0.970	1.000							
$\ln HAI_{DET}$	0.950	0.955	1.000						
$\ln HAI_H$	0.890	0.906	0.914	1.000					
$\ln TER$	0.342	0.394	0.486	0.594	1.000				
$\ln SD$	0.360	0.400	0.498	0.601	0.998	1.000			
$\ln DET$	0.288	0.341	0.404	0.543	0.989	0.987	1.000		
$\ln NFDI$	0.307	0.317	0.355	0.373	0.579	0.587	0.580	1.000	
IR	-0.338	-0.366	-0.471	-0.611	-0.914	-0.913	-0.893	-0.455	1.000

Cointegration Results

We proceeded by conducting the Johansen Cointegration analysis to examine the possibility of housing affordability level, house price, FDI inflows and interest rate cointegrate in the long-run. The null hypothesis of no cointegrating relationship is assumed. We referred the outcomes against 5% critical value of the Trace and Max-Eigenvalue statistics (Table 2). The results show that all variables possess at least 1 cointegrating relationship in the system. To further confirm the impact of $\ln NFDI$ on $\ln HPI$, we continued by checking the vector error correction model (VECM).

Table 2. Johansen Cointegration Test Results

	Trace	5% CV	Max-Eigen	5%CV
<i>Terrace</i>				
None *	52.923	47.856	28.135	27.584
At most 1	24.788	29.797	19.735	21.132
At most 2	5.053	15.495	4.754	14.265
At most 3	0.299	3.841	0.299	3.841
<i>Semi-D</i>				
None *	51.168	47.856	34.001	27.584
At most 1	17.167	29.797	13.504	21.131
At most 2	3.662	15.494	3.508	14.264
At most 3	0.153	3.841	0.153	3.841
<i>Detached</i>				
None *	77.137	47.856	46.656	27.584
At most 1 *	30.481	29.797	21.398	21.131

At most 2	9.082	15.494	7.033	14.264
At most 3	2.048	3.841	2.048	3.841
<i>Hi-rise</i>				
None *	57.287	47.856	36.166	27.584
At most 1	21.120	29.797	14.367	21.131
At most 2	6.752	15.494	5.489	14.264
At most 3	1.263	3.8414	1.263	3.841

VECM & Long-Run Model

We divided the analysis into 3 parts which cover different time period. Full observation (1999:Q1 until 2015:Q4), phase 1: pre-liberalization (2000:Q1 to 2009:Q2) and phase 2: post liberalization (2009:Q3 to 2015:Q4). The finding shows that during full observation, the relationships between house price and affordability level were negative and significant in all house types. It signified that the increase in house price has increased the affordability level among the locals. The model fitness are however very poor and only increased for pre- and post-liberalization.

In pre-liberalization however, the results followed our hypotheses. Higher house price has caused the affordability level to be lower in period 2000 to 2009. Results in post 2009 on the other hand, shows that affordability level tend to be higher when house price increased.

In relation to FDI, the results are mixed. Before liberalization was introduced, a higher FDI level has caused the affordability level to reduce in terrace ($\beta_{Terrace} = -0.086$) and hi-rise ($\beta_{Hi-rise} = -0.291$) type. In semi-D and detached type however, the higher the inflows, the higher the affordability level were for the potential buyer ($\beta_{Semi-D} = 0.0717$ and $\beta_{Detached} = 0.222$). The results strikes a new thought on whether the FDI spill over was only affecting the semi-D and detached potential buyers whose income were usually higher than that of buyers of terrace.

Table 3. Long-run Relationship Results

DV: Affordability level Variables	Terrace			Semi-D			Detached			Hi-rise		
	Full ^a	Phase 1 ^b	Phase 2 ^c	Full	Phase 1	Phase 2	Full	Phase 1	Phase 2	Full	Phase 1	Phase 2
<i>lnHPI_i</i>	25.048** (5.52)	-0.758** (-3.51)	2.220** (5.72)	24.843** (5.17)	-1.199** (-8.75)	0.014 (0.10)	3.505** (4.75)	-1.779** (-4.27)	1.383** (3.69)	1.903** (5.23)	-1.646** (-2.27)	1.309** (2.66)
<i>lnFDI</i>	-6.264** (-6.76)	-0.086* (-1.78)	0.187** (2.82)	-6.829** (-6.72)	0.0717* (2.53)	0.286** (6.11)	-0.973** (-6.36)	0.222** (2.54)	0.240** (3.99)	-0.492** (-6.28)	-0.291** (-4.37)	0.426** (4.20)
<i>IR</i>	5.293** (4.87)	-0.805** (-3.08)	3.586** (3.69)	4.798** (4.33)	-0.814** (-5.20)	- ^d	0.592** (3.81)	-1.129** (-2.53)	2.200* (2.09)	1.837** (4.67)	0.414 (0.96)	2.131 (1.39)
<i>C</i>	8.263	-2.331	7.521	-3.184	5.287	-10.805	-3.131	1.769	-20.181	-6.051	8.751	-24.32
<i>Ect (-1)</i>	-0.005* (-1.78)	-0.827** (-3.69)	-0.137** (-3.01)	-0.005* (-1.79)	-0.919** (-3.43)	-0.345** (-6.24)	-0.038* (-1.71)	-0.452** (-2.48)	-0.153** (-3.01)	-0.085** (-2.30)	-0.172** (-3.26)	-0.104** (-2.81)
VECM Diagnosis												
<i>R</i> ²	0.084	0.666	0.386	0.092	0.534	0.909	0.092	0.449	0.376	0.165	0.344	0.401
<i>R</i> ²	0.052	0.286	0.205	0.061	0.232	0.777	0.063	0.091	0.192	0.094	0.235	0.225
s.e	0.069	0.040	0.051	0.052	0.051	0.021	0.081	0.073	0.051	0.062	0.076	0.057

Note:^a indicates observation from 2000:Q1 to 2015:Q4, ^b indicates observation from 2000:Q1 to 2009:Q2, ^c indicates observation from 2009:Q3 to 2015:Q4, ^d VECM appeared positive if includes LIR. ** indicates coefficient is significant at 1% level, * indicates coefficient is significant at 5% level.

As for hi-rise, the negative relation between FDI and affordability level might owe to the shift in preference to semi-D and detached.

Meanwhile, during the post liberalization period, all house types show consistent positive and significant results with FDI. The increase in FDI has caused the affordability level to also increase. The finding signifies the FDI role in increasing the standard of living which eventually make it possible to raise the affordability level not only for the terrace potential buyers but also to semi-D and bungalows potential buyers.

The role of interest rate in influencing affordability level also mixed in pre-liberalization and post-liberalization period. During the former period, a higher level of interest rate would cause the affordability level to be low, following our hypothesis that higher cost of borrowing would discourage potential buyers of all sorts of houses. However, during post-liberalization, a higher interest rate have induced the affordability level to jump positively and significantly in terrace ($\beta_{\text{Terrace}}=3.58$) and detached house ($\beta_{\text{Detached}}=2.22$)

Briefly, results from post-liberalization period showed that affordability level would increase when the house price, FDI and interest rate increases. It reflects that the role of FDI in affecting standard of living might have been very significant while role of house price and interest rate which were supposed to affect affordability level negatively, have succumbed to speculation. Two factors might be useful in explaining the situation. First, the liberalization have opened up the Malaysia residential to foreigners who are at currency advantage plus the readiness of foreign buyers to purchase these houses at a higher price. These have indirectly stimulate speculation activities. As a result, even with a higher house price, Malaysians are automatically pushed to purchase properties price offered by the developers (though the real price is below the market price), worrying the price would climb higher in the future.

Second factor might be due to high cost of construction supply which has created the cost-push inflation. Together with it is high cost of living which consequently lead to a person having a higher income. Higher income however might have not caused the housing affordability level to drop as speculation activities continued to play role in increasing both the price of construction supply and overall price level as a whole. Therefore, explains why the higher house price has caused affordability level to grow.

CONCLUSION

Malaysia is the 5th largest FDI recipient in the world. In order to boost the inflows, the government has relaxed the country's real estate ownership and invited foreign participation in purchasing the real estate. Active foreign participation has caused the previously mundane residential market to be very dynamic. Demand from foreign potential buyers has caused the house price to increase in all house types such as terrace, semi-D, detached and hi-rise. The repercussion of the liberalization is the reduction in affordability level. This research examines the influence of house price, FDI and interest rate in 3 periods: full, pre-liberalization and post-liberalization periods. The

findings were not consistent between pre- and post-liberalization periods. While pre-liberalization period findings mostly follow our hypotheses, the findings during post-liberalization period showed otherwise. Thus to answer our research question, it is indeed FDI has a positive impact on housing affordability in Malaysia during post-liberalization period in all house types. House price also influenced housing affordability, however in the contradictory manner during post liberalization period. Therefore, briefly, the difference in the results conducted before and after liberalization would suggest that housing affordability level does not entirely depending on the house price and FDI factors but also depending on the liberalization policy introduced by the government. The positive results between housing affordability level with house price, FDI and interest rate during the period indicated that inflows have significantly contributed to increase the affordability, however speculation activities played significant role as high house price and high interest rate do not lower the affordability level as expected. Nonetheless, this research is not without limitation. Future research needs to examine the multicollinearity issue in regards to variable interest rate.

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