MACROECONOMIC VARIABLES AND HOUSING PRICE IN MALAYSIA

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ABSTRACT

This study aims to examine the determinants of the Malaysian housing price from the year 2000 until 2017. The continuous upward movement of the Malaysian housing price raises certain issues, such as housing affordability, unsold residential units, and household debt. However, the household still takes house ownership as a family aspiration and is the most expensive investment. This study investigates the relationship between macroeconomic variables and housing prices. Macroeconomic data on exchange rate, gross domestic products growth, interest rate, inflation rate, population growth, and housing stock were collected based on quarterly basis over the period from 2000 quarter one to 2017 quarter four. The global financial crisis is taken into account as a variable in this study. The analysis employed the Autoregressive Distributed Lag Model, Error Correction Model as well as the DiPasquale and Wheaton Model. Results indicate that all macroeconomic variables in the analysis have long-run relationships with housing price except for growth in gross domestic product. Our findings also show that the financial crisis and gross domestic product have short–run relationships with housing price.

Keywords: Malaysian housing price, Macroeconomic variables, Cointegration test (ARDL), Error Correction Model (ECM), DiPasquale, Wheaton Model

1. Introduction

An increase in housing price is not a new issue in Malaysia because from 2009 until 2017, housing price has been on an increasing trend. However, households continue to take house ownership as a family aspiration and as the most expensive investment for the household. Several studies have been conducted with the purpose of determining the effects or factors that influence the Malaysian housing price. The studies indicate that an increase in the Malaysian housing price may raise certain issues such as housing bubble, housing affordability, unsold residential units, and household debt.

In Malaysia, the housing sector plays an important role in the country’s economic development whereby it can support and sustain the growth of the economy. Rapid urbanization leads to an increase in urban population, raises economic performance as well as increases the demand for housing. The continuous rise in housing price presents housing issues, including that households may not be able to afford to buy a house. It could also increase household debt as households borrow funds to purchase a house. An increase in the number of unsold residential units is another issue that causes higher housing prices.

Moreover, households may worry that they cannot afford such higher housing price. The Malaysian government has implemented various housing policies such as PRIMA (1 Malaysian People’s Housing Program), First Home Scheme, PPA1M (1 Malaysian Civil Servant Housing Program) to ensure that all citizens have an opportunity to own a place to stay (Ong, 2013). However,

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the affordability of housing is still an issue in Malaysia whereby the housing price keeps increasing and the effectiveness of the affordable housing policy is inconclusive.

Financial crises may also affect the Malaysian housing market. The Asian financial crisis (1997-1998) and the global financial crisis (2007-2008) brought significant effects to ASEAN countries including Malaysia (Shukor et al., 2016). During the Asian financial crisis, the Malaysian house price index decreased by 18.78 percent; the recovery from the drop in the house price index did not manifest as fast, where the house price index increased by only 10.20 percent between 1999 and 2005 (Global Property Guide, 2007). The economic recession in 2007 hit the Malaysian housing market by reducing the housing price as well. Figure 1 below shows the movement of the Malaysian house price index from 2009 to 2017. Meanwhile, macroeconomic variables may have been affected during the economic recession, and indirectly affected housing prices. For instance, Malaysia experienced a contraction in gross domestic products during both of the financial crisis periods due to a decline in export demand and the foreign direct investment inflows (Rasiah & Abidin, 2009).

In a nutshell, although the Malaysian economy returned to steady growth mode after the recession, the housing price kept an increasing price trend, and it is important to find out the factors that influence the housing price in order to minimize future housing issues. This study attempts to determine the macroeconomic factors that influence the housing price in Malaysia and clarify the ambiguous relationship between macroeconomic factors and housing prices.

![Figure 1: Malaysian Housing Price Index, 2009Q1 – 2017Q3](image)

The remainder of this paper is organized as follows. Section 2 discusses previous literature on the relationships between macroeconomic variables and housing price. Section 3 focuses on the method of analysis and provides the specification of the housing price model. Section 4 discusses estimation results, and Section 5 concludes.

2. Literature Review

2.1 Gross Domestic Products

Gross Domestic Product or GDP plays an important role in determining housing price, as favorable economic growth tends to raise housing price. Razali and Tan (2016) noted that GDP growth was the most significant factor on housing price. This is because an increase in income may significantly affect the demand for housing. Ong (2013) noted that housing investment was a part of GDP. An increase in household consumption may drive up housing investment as the wealth value of housing rises due to an increment in GDP.

However, the study conducted by Trofimov (2018) found different results, whereby the GDP and housing prices were found to have a negative relationship. The researcher explained that continuous high economic growth may over stimulates residential construction and cause excessive
residential construction, or in other words, create an oversupply. This drives down housing prices. On the other hand, a study conducted by Pillaiyan (2015) noted that there was no significant relationship between GDP growth and housing prices.

2.2 Inflation Rate

Haibin (2004) suggested that inflation rate affects housing prices through construction costs. When inflation occurs, the prices of raw material for building a house will increase and drives up construction costs. Thus, a developer who seeks profit would increase the selling price of a house in order to cover the increment in construction costs. This means, housing price tends to increase when the inflation rate increases. This observation was supported by Kamal et al. (2016) whereby the paper noted that the inflation rate is a significant factor that might drive up housing price.

2.3 Population

The study conducted by Bujang (2010) noted that an increase in population size might bring a significant effect on the housing market. An increase in population size will lead to an increase in demand for housing and thus raise housing prices (Gao & He, 2014). A study done by Elod (2012) similarly points out that there is a significant link between population growth and housing price. This might be due to the structure of the population size that are mainly made up of middle aged and young generations. They either have enough purchasing power, or are starting to enter the job market, or are getting married. Thus, an increase in such population sizes may increase the demand for housing and drives up housing prices. The study concluded that there was a positive relationship between population growth and housing price.

2.4 Housing Stock

The study conducted by Posedel and Vizek (2011) mentioned that the changes in housing stock are considered as the most important determinant for housing supply, along with the cost of construction and cost of land. In addition, a positive shock in demand for housing may cause an upward reaction in house price in the short run, but house building cannot increase suddenly. The housing supply only increases as the starts are completed. Further, if the demand for housing decreases, the supply cannot perform a downward fit, since the building or house cannot be destroyed or removed from the market. Thus, such situation might generate the existence of a vacant.

Furthermore, the house price does not fall when the total units of vacant houses are increasing during the contraction period. This is because construction costs will still be incurred and the developers tend to maintain the number of units and not sell at underpriced values, to retain the chances of raising the housing price in the future (Glaeser et al., 2005).

2.5 Interest Rate

Several studies have mentioned that there was a negative relationship between interest rate and housing prices, for example, see Trofimov (2018), Kok (2018), Kamal et al. (2016), Guo and Wu (2013), and Tan (2010). Most of the studies suggested that a decline in interest rate might lead to a cheaper mortgage or cheaper housing loans. This leads to higher demand for housing and drives up housing prices.

A study conducted by Ibrahim and Law (2014) that investigates the long-run behavior of house prices and its relationship with interest rate found that there was a long term relationship between interest rate and aggregate housing price. The study mentioned that both housing prices and bank credit might have a negative relationship with positive interest rate shock.
2.6 Exchange Rate

According to Asal (2018), exchange rate was an important indicator in determining housing prices. This is because a weak exchange rate relative to foreign countries’ might have a positive influence on housing price. Foreign investors or households may desire to purchase domestic residential property such as houses due to cheaper prices when domestic currency depreciates relative to foreign currencies. As demand for domestic housing increases, it will drive up the housing prices. Thus, there is a positive relationship between exchange rate and housing prices.

Moreover, the study conducted by Abelson (2005) to find factors that influence housing price found that the exchange rate has a positive relationship with housing price. The study also indicated the same point of view with Asal (2018), whereby the decline in domestic exchange rate drives up the attractiveness of domestic housing assets to foreigners. However, Abelson (2005) pointed out that the relationship between exchange rate and housing price was statistically significant in the short run but not significant in the long run. In addition, these results were supported by Mallick (2015) who found that there was a negative relationship between exchange rate and housing price.

2.7 Financial Crisis

According to Jickling (2009), Iannuzzi and Berardi (2010), and Pillaiyan (2015), the United States’s sub-prime crisis that triggered the financial crisis was caused by the financial deregulation in mortgage markets. The rapid increase in mortgage credit led to rising housing prices in the United States. Furthermore, the global financial crisis occurred due to the burst of property bubbles from the subsequent collapse in local housing prices in United States. Such point of views were supported by Hashim (2010) who explained that the fluctuations of housing prices can give significant effects on regional economic activities.

Moreover, a study conducted by Said et al. (2014) mentioned that there was a significant relationship between housing price and financial crisis. As a financial crisis occurs, the demand for housing declines and leads to a decline in housing price. Apart from this, a study conducted by Malgorzata and Radoslaw (2012) also points out that the financial crisis does influence housing market by reducing housing price indices. Malgorzata and Radoslaw (2012) explained that financial crisis can influence macroeconomic variables at the beginning, and then subsequently affect housing markets.

3. Data and Methodology

Secondary data of macroeconomic variables (gross domestic products, population growth, inflation rate, exchange rate, interest rate, and housing stock) and the Malaysian housing price used in the current analysis are in quarterly basis that cover the time period from quarter one 2007 until quarter four 2017. Data were collected from the World Bank, the National Property Information Centre (NAPIC), the Department of Statistic Malaysia, and Bank Negara Malaysia. A dummy variable was used to indicate the global financial crisis whereby the events of financial crisis are represented by either 1 or 0.

3.1 Model Specifications

DiPasquale and Wheaton’s (1996) equilibrium model is a model that defines the distinctions between the property market and the asset market, as well as the interaction among both markets. The model was formed based on four quadrants as shown by Figure 2. Quadrant I and IV represent the property market, while quadrant II and III represent the asset market.
The demand and supply model equation can be formed based on the DiPasquale and Wheaton (DW) model as equation (1) and equation (2) below:

\[
D_t = \alpha + \beta^* x_t^D + \delta^* z_t^D + \epsilon_t \tag{1}
\]

\[
S_t = \alpha + \gamma^* x_t^S + \lambda^* z_t^S + \nu_t \tag{2}
\]

The terms of \(x_t^D\) and \(x_t^S\) refer to the vector of macroeconomic variables that may affect demand and supply. The variables \(z_t^D\) and \(z_t^S\) refer to the vectors that capture the country’s specific factors that may affect the demand and supply in microeconomic levels; these could be tax regulations, social environment, distance and location. Since this study is focused on the effects of macroeconomic variables on housing price, the vectors \(z_t^D\) and \(z_t^S\) will be incorporated into the error term and rewritten as equation (1) and equation (2):

\[
D_t = \alpha - \beta_1 HPI_t + \beta_2 GDPG_t + \beta_3 POPG_t - \beta_4 IR_t + \epsilon_t \tag{3}
\]

\[
S_t = \omega + \gamma_1 HPI_t - \gamma_2 CONST_t + \nu_t \tag{4}
\]

The equilibrium of the housing market is established by equating demand and supply. In other words, the equilibrium of the market is achieved when the demand curve equals the supply curve. The housing price equation is formed based on the demand and supply as below:

\[
D_t = S_t
\]

\[
\alpha - \beta_1 HPI_t + \beta_2 GDPG_t + \beta_3 POPG_t - \beta_4 IR_t + \epsilon_t = \omega + \gamma_1 HPI_t - \gamma_2 CONST_t + \nu_t
\]

\[
HPI_t = \alpha^* + \beta_1^* GDPG_t + \beta_2^* POPG_t + \beta_3^* CONST_t - \beta_4^* IR_t + \epsilon^*_t \tag{5}
\]

Additionally, this study expands the housing price function by adding two variables, namely, the exchange rate and the inflation rate. Both of the variables may impact the demand and supply functions. Meanwhile, based on previous empirical studies, both the exchange rate and inflation may have a positive relationship or a negative relationship with housing price. Therefore, these variables are suitable to be included in the housing price function in order to clarify the thus far ambiguous relationships. Apart from this, the variable representing construction cost is the housing stock. This proxy variable is used due to the lack of data on construction costs. Meanwhile, housing stock also acts as a mediator for construction costs in influencing housing price.

\[
HPI = f(GDPG, POPG, HS, IR, EXR, INF) \tag{6}
\]
Equation (6) and (7) shows the economic function of housing price and econometric regression model of this study, whereby Malaysian housing price (HPI) is the function of gross domestic products (GDP), population growth (POPG), housing stock (HS), interest rate (IR), exchange rate (EXR), inflation rate (INF), and global financial crisis (FC). The term of $t$ refers to the time period, while $\beta_0$, $\beta_1$, $\beta_2$, $\beta_3$, $\beta_4$, $\beta_5$, $\beta_6$, $\beta_7$ refer to the constant and slope coefficients. Meanwhile, $\varepsilon_t$ refers to the error terms of the model.

3.2 Unit Root Test

Unit root test is a test that examines the stationarity of the time-series data. In other words, the unit root test is used to examine the stochastic trend. Augmented Dickey-Fuller and Phillips-Perron unit root tests are used in this study. Data that is not stationary implies a unit root problem and may cause unacceptable results in a time series analysis.

The Dickey-Fuller unit root test was developed by Dickey and Fuller in 1979. It was further improved as the Augmented Dickey-Fuller test in 1981; this test is able to detect serial correlation problem by adding lagged dependent variables ($\Delta y_t$). In addition, the optimal lag length of the test is based on the minimum information criterion. Phillips–Perron (PP) test was developed by Peter C.B. Phillips and Perron in 1988. The PP test is another test for a unit root in time series sample. The PP test is also another method that can correct the serial correlation problem in unit root testing.

3.3 Unit Root Test with Structural Breaks

The time series data from 2000 to 2017 in this study included several events, such as the global financial crisis in 2008 and 2009 and political scandals. Meanwhile, these major shocks led to the contraction of macroeconomic conditions and created fluctuations. Thus, it is important to examine the unit root hypothesis and any structural breaks.

3.4 Autoregressive Distributed Lags (ARDL-Bound Test)

ARDL bound test is a cointegration method developed by Pesaran, Shin, and Smith (2001) in order to test the short run and long run relationship between the dependent variable and independent variables. ARDL is preferred when dealing with variables that are integrated at different orders. For example, some of the variables will be integrated at level I(0) and other variables integrated at first difference I(1), and not at second difference I(2).

![Figure 3: Criteria of F-Bound Test](image)

The long-run relationship between variables can be detected from an F-Bound test. Figure 3 shows the criteria of the F-Bound test. As the F-statistic value is greater than the upper bound critical value, it means that there are long-run relationships between the independent variables and dependent variable and vice versa.

Equation (8) shows the ARDL model of the study. $Y_t$ refers to the dependent variable, while $X_t$ refers to independent variables. The short run dynamics with lag is shown as $\sum_{i=1}^{n} \beta_i \Delta Y_{t-i}$. The terms of $\sum_{i=0}^{n} \delta_i \Delta X_{t-i}$ show the short run relationships between dependent variable and independent variables. Meanwhile, a long run relationship is shown as $\varphi_1 Y_{t-1} + \varphi_2 X_{t-1}$. In addition, equation (9)
shows the Error Correction Model (ECM). The term ECT refers to the error correction terms which are extracted from the long run residuals.

\[
\Delta Y_t = \beta_0 + \sum_{i=1}^{n} \beta_1 \Delta Y_{t-i} + \sum_{i=0}^{n} \delta_1 \Delta X_{t-i} + \varphi_1 Y_{t-1} + \varphi_2 X_{t-1} + \mu_t \quad (8)
\]

\[
\Delta Y_t = \beta_0 + \sum_{i=1}^{n} \beta_1 \Delta Y_{t-i} + \sum_{i=0}^{n} \delta_1 \Delta X_{t-i} + \lambda ECT_{t-1} + \mu_t \quad (9)
\]

The term \( \lambda \) refers to the speed of adjustment of \( Y_t \) to return to the equilibrium in long run. In order to validate the short run relationship, the coefficient of ECT needs to be negative in sign and be statistically significant.

3.5 Diagnostic Checking

Several diagnostic checking methods are employed in this study, such as autocorrelation test, heteroscedasticity test, stability test, and normality test in order to test whether the model’s adequacy is sufficient or not. The Ramsey Regression Specification Error Test (RESET) is used to test whether the model is correctly specified in a linear model or otherwise.

4. Result and Discussion

4.1 Unit Root Test Result

Table 1 shows the results of both Augmented Dickey-Fuller and Phillips-Perron unit root tests. Based on the result, both of the unit root tests suggest that all of the data were stationary at difference level. Thus, the analysis proceeds with the cointegration test known as the Autoregressive Distributed Lags (ARDL) bound test.

<table>
<thead>
<tr>
<th>Augmented Dickey-Fuller</th>
<th>Phillips-Perron</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level</strong></td>
<td><strong>1st Difference</strong></td>
</tr>
<tr>
<td>Intercept</td>
<td>Trend &amp; Intercept</td>
</tr>
<tr>
<td>HPI</td>
<td>-1.44</td>
</tr>
<tr>
<td>EXR</td>
<td>-1.465</td>
</tr>
<tr>
<td>POPG</td>
<td>-1.561</td>
</tr>
<tr>
<td>IR</td>
<td>-1.377</td>
</tr>
</tbody>
</table>

Note: * , ** , *** refers to the significant level at 10%, 5%, and 1%.

4.2 Autoregressive Distributed Lags (ARDL) – Bound Test

The ARDL model for Malaysian housing price is specified by equation (10):

\[
\Delta HPI_t = \beta_0 + \sum_{i=1}^{n} \beta_i \Delta HPI_{t-i} + \sum_{i=0}^{n} \delta_1 \Delta EXR_{t-i} + \sum_{i=0}^{n} \delta_2 \Delta FC_{t-i} + \sum_{i=0}^{n} \delta_3 \Delta GDPG_{t-i} + \sum_{i=0}^{n} \delta_4 \Delta HS_{t-i} + \sum_{i=0}^{n} \delta_5 \Delta INF_{t-i} + \sum_{i=0}^{n} \delta_6 \Delta IR_{t-i} + \sum_{i=0}^{n} \delta_7 \Delta POPG_{t-i} + \varphi_1 HPI_{t-1} + \varphi_2 EXR_{t-1} + \varphi_3 FC_{t-1} + \varphi_4 GDPG_{t-1} + \varphi_5 HS_{t-1} + \varphi_6 INF_{t-1} + \varphi_7 IR_{t-1} + \varphi_8 POPG_{t-1} + \mu_t \quad (10)
\]

Table 2 shows the results of the F-bound test for long-run relationship between Malaysian housing price and macroeconomic variables. Based on the results, the F-statistic value is 4.1712 which lies in the co-integrated region. This means that all of the macroeconomic variables are jointly significant at the 5 percent significant level, and implies a long run relationship between the
Malaysian housing price and the macroeconomic variables. In addition, all of the breakpoints for macroeconomic variables were excluded in the co-integration test due to statistically insignificant results.

<table>
<thead>
<tr>
<th>Significant Level</th>
<th>Lower Bound Critical Value</th>
<th>Upper Bound Critical Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>10%</td>
<td>2.024</td>
<td>3.079</td>
</tr>
<tr>
<td>5%</td>
<td>2.351</td>
<td>3.498</td>
</tr>
<tr>
<td>1%</td>
<td>3.034</td>
<td>4.426</td>
</tr>
<tr>
<td>F-statistic</td>
<td>4.1712</td>
<td></td>
</tr>
</tbody>
</table>

Table 3 shows the estimated coefficients of macroeconomic variables. Based on the results, we find statistically significant relationships between macroeconomic variables and the Malaysian housing price except for the gross domestic product growth. Meanwhile, EXR, FC, and IR are found to have negative relationships with Malaysian housing price. On the other hand, GDPG, HS, INF, and POPG were positively influenced Malaysian housing price.

Figure 4 shows the effects of changes in macroeconomic variables on the Malaysian housing price using the DiPasquale and Wheaton (1996) model. The statistically not-significant relationship for Malaysian GDP growth coefficient may be explained from the income perspective. In Malaysia, wage growth does not move together with growth in the economy (Xavier & Ahmad, 2012). Bank Negara Malaysia (2017) also noted that a slower increase in household income relative to housing prices may cause the household to not be able to afford purchasing a house. Moreover, Ong (2013) pointed out that while housing investment was a part of GDP, in Malaysia about 35 percent of the residential house transactions were carried out by foreign buyers. As a result, an inflow of real estate investment can be viewed as a two-edged sword - it can boost the country’s economic growth but on the other side, it could harm the domestic housing market by raising housing prices which translates into lower affordability (Marson & Hassan, 2016).

The results show that housing stock is statistically significant only at 10 percent (0.0968<0.10) significant level. This means that Malaysian housing stock seems to be ineffective in influencing Malaysian housing price. In addition, the assumption that unsold residential units in Malaysia increase with the increase in housing price corresponds with the findings of this study. The higher housing selling price implies poor and limited accessibility to housing markets that may cause unsold residential units to increase (Chang, 2018).

This study also shows that interest rate is not the most significant factor to influence the Malaysian housing price, and an increase in interest rate would not be effective in reversing the upward trend of house prices in Malaysia (Geok & Lean, 2017). Riddle (2004) explained that interest rate is less likely to influence purchases of households who already own houses, and only influence purchases by households who plan to enter the housing market.
4.3 Error Correction Model (ECM)

Error Correction Model (ECM) is a model that include both short run and long run relationships between the dependent variable and independent variables. The Error Correction Model of this study is specified as below:

\[
\Delta HPI_t = \beta_0 + \sum_{i=1}^{n} \beta_i \Delta HPI_{t-i} + \sum_{i=0}^{n} \delta_1 \Delta EXR_{t-i} + \sum_{i=0}^{n} \delta_2 \Delta FC_{t-i} + \sum_{i=0}^{n} \delta_3 \Delta GDP_{t-i} + \sum_{i=0}^{n} \delta_4 \Delta HS_{t-i} + \sum_{i=0}^{n} \delta_5 \Delta IR_{t-i} + \sum_{i=0}^{n} \delta_6 \Delta POP_{t-i} + \lambda ECT_{t-1} + \mu_t
\]  

(11)
Table 5 shows the result of the Error Correction Model. Based on the results, the Error Correction Term (ECT) was recorded as -0.8535. This means that the speed of adjustment is 85.35 percent in order to return to the equilibrium level. The Error Correction Term was significant at 1 percent significant levels (0.0012<0.01) and support the short-run and long-run relationships between the macroeconomic variables and the Malaysian housing price.

Table 5: Error Correction Model

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>t-statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECT(-1)</td>
<td>-0.8535***</td>
<td>-3.4164</td>
</tr>
</tbody>
</table>

Note: *, **, *** refers to the significant level at 10%, 5%, and 1%.

4.4 Diagnostic Checking Result

Table 6 shows the results of diagnostic checking for both the co-integration test (ARDL model) and the Error Correction model. Based on the results, both models are found to be free from any econometric problems. This implies that the models’ adequacy are sufficient and correctly specified in a linear model.

Table 6: Diagnostic Checking Result

<table>
<thead>
<tr>
<th>Serial Correlation Test</th>
<th>Autoregressive Distributed Lags (ARDL) Model</th>
<th>Error Correction Model (ECM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prob. Chi-Square</td>
<td>0.3547</td>
<td>0.1033</td>
</tr>
<tr>
<td>Normality Test</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jarque-Bera</td>
<td>0.0769</td>
<td>0.4724</td>
</tr>
<tr>
<td>Probability</td>
<td>0.9623</td>
<td>0.7896</td>
</tr>
<tr>
<td>Heteroscedasticity Test</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prob. Chi-Square</td>
<td>0.5736</td>
<td>0.2927</td>
</tr>
<tr>
<td>Stability Test</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CUSUM Test</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>CUSUM of Square</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>RESRT Test</td>
<td></td>
<td></td>
</tr>
<tr>
<td>t-statistic</td>
<td>0.8764</td>
<td>0.3165</td>
</tr>
<tr>
<td>F-statistic</td>
<td>0.8764</td>
<td>0.3165</td>
</tr>
</tbody>
</table>

5. Conclusion

This study aims to examine the relationship between macroeconomic variables and housing price in Malaysia. The Cointegration test (ARDL model) and Error Correction Model estimated the long run and short run relationships between the Malaysian housing price and macroeconomic variables. Based on the results, there is evidence to suggest the existence of jointly long run relationship between housing price and macroeconomic variables. In addition, exchange rate, financial crisis, and interest rate are found to have negative effects on the Malaysian housing price. However, housing stock, inflation rate, and population growth are found to have positive effects on the Malaysian housing price except gross domestic products growth. Moreover, the coefficient of ECT was found to have negative value and statistically significant. This means that short-run relationship between macroeconomic variables and Malaysian housing price exists, and the speed of adjustment was found to be 85.35 percent in order to return to the long run equilibrium. Further, both the ARDL model and Error Correction Model do not suffer from any diagnostic problems. This means that the adequacy of both models are sufficient and the models are correctly specified as linear models.
Our findings show that interest rate seems to be ineffective in reversing the upward trend of housing prices in Malaysia. Thus, policymakers may need to be cautious in the implementation of monetary policy to ensure consistency with the stability of the Malaysian economy, and to provide long term sustainability of the housing industry. Our findings also show that foreign developers, homebuyers, and investors may play important roles in affecting the local housing price. Tightening foreign real estate investment may be one way to curb rising housing prices.

References


