REMITTANCES, FINANCIAL DEPTH AND ECONOMIC GROWTH OF MALAYSIA

Chia Yee Ee
Labuan Faculty of International Finance
Universiti Malaysia Sabah

Abstract

The objective of this study is to investigate the effects of remittances inflows to Malaysia’s economy and does the financial sector development level have influence on remittances impact to economic growth of Malaysia. Time series technique has been adopted to explore long run effect of remittances, financial depth and growth in Malaysia using annual data for the period 1984-2013. The results showed that remittances and financial depth have positive and significant effect on growth in long run. Granger Causality tests are also used to explore the relationship between remittance-growth and financial development-growth. The findings revealed that there is an impact of remittances on economic growth of Malaysia via the influence of the country’s financial depth.

JEL Classification: O1, O16
Keywords: Remittances; Financial Development; Economic Growth; Malaysia

1. Introduction

Throughout the past decades, remittances transfers has been actively flown to developing countries to becoming one of the largest financial sources surpassing other financial generators such as official international aid flows, export revenues and private capital (Giuliano and Ruiz-Arranz, 2009) and comes second largest source for external finance after foreign direct investment (Aggarwal, Demirgüç-Künt, and Pería, 2011). According to the World Bank (2006), remittances have evidenced to be more vulnerable and robust to external shocks than other FDI sources since remittances have exceeded overseas flows.

1 Labuan Faculty of International Finance, Universiti Malaysia Sabah, Jalan Sungai Pagar, 87000 F.T. Labuan, Malaysia. Email: chiayeee@live.com.my
development assistance (ODA) as a source of foreign direct investment (FDI). Remittance is a transfer of money by a foreign worker to his or her home country whereas World Bank defined remittances as the total of workers’ remittances, compensation of employees and migrant transfers which are obtained from the balance of payments accounts of receivers and remitters. This practice of transferring or remitting money to a foreign worker’s home country resulting in positive impacts on recipient households such as poverty-alleviating and consumption-smoothing effects. According to World Bank estimates, remittances totaled US$414 billion in 2009 which US$316 billion went to developing countries that involved 192 million migrant workers. The inflows of remittance to developing countries are expected to increase up to US$516 billion in 2016 with an annual average growth of 8.4%. However, there is unrecorded with a huge amount of inward remittance that could be more than 54% coming from informal avenues like hand carried by friend or relatives and unofficial system (World Bank, 2006).

With regards to economic growth, remittances inflows are asserted to be one of the key components of economic development in receiving countries, mainly the developing nations (Giuliano and Ruiz-Arranz, 2011). Theoretically, remittances bestow a growth in economic performance of the receiving countries and to the livelihoods of people across the globe (Lucas and Stark, 1985). Based on King and Levine (1993) study on Africa shows that remittance transfers have positively encouraged access to financial services for the sender and recipient as the recipients have high propensity to own a bank account that increase financial and social inclusion. Moreover, remittance enhances foreign exchange earnings of balance of payments as a financial system determinant to improve financial markets to open up more access to financial services (King and Levine, 1993; Giuliano and Arranz, 2011). Furthermore, remittances increase growth through the increment in the Gross Domestic Product (GDP) components including investments, savings and consumption by rising aggregate demand and output. This increment will help to reduce poverty level in the recipient country and as well may aid in equalizing the income distribution (Lucas and Stark’s study on African countries in 1985).

Malaysia has recorded a growth in real gross domestic product (GDP) by an average of 6.5% per year from 1957 to 2005 and known as one of the best in Asia since independence in 1957. The fundamental role made responsible by foreign and domestic private investment as the economy diversified and modernized, the economy of Malaysia has undergone constant rapid growth by average of almost 8% annually when the performance reached peak point in the early 1980s through the mid-1990s. Securities Commission (SC) Chairman Tan Sri Zarina Anwar (2011) reviewed that the capital market of Malaysia has surpassed the RM2 trillion in late 2010. Due to speedy industry
development and well-built regulatory supervision that braces up the confidence of investors in the Malaysian capital market, an annually compounded growth rate of 11% from RM717 billion in 2000 has been achieved (Malaysia’s Securities Commission, 2011).

However, the association of remittances and economic growth has been explored widely in previous literatures covering the impacts of remittances flows in improving the livelihoods and social development that enhance the economic growth of developing countries. In the case of Malaysia, many of the studies did not observe theoretically or empirically on the side of Malaysia as a remittance-receiving country, but mostly examine Malaysia as a remittance-sending corridor. Lack of studies relating remittances linkage to financial sector development, in general and especially Malaysia is one of the reasons for the formation of this paper. In particular, this paper will examine on how domestic financial sector development will impacts on a country’s competence in terms of financial sector development. Malaysia is selected as the case study for this paper because of the development, relatively liberalized and newly industrialized market economy. World Bank (2012) stated that the economy of Malaysia had positioned the 3rd ranking as the largest economy in South East Asia in 2007 and as the 28th largest economy in the world in terms of purchasing power parity with gross domestic product of $222 billion in 2008 with a growth rate of 5% to 7% since 2007. Thus, this paper hopes to contribute to the scholar and policy makers of this issue concerning Malaysia as a remittance-recipient country and its impact on financial sector development and economic growth.

This paper is organized as follows. The second section provides the financial system in Malaysia. The third section describes review of the literature while model specification, data and methodology is presented in section four. The empirical evidence is presented in section five and final section concludes the paper.

2. The Financial System in Malaysia

Financial services sector is the basic fundamental principle as a main facilitator of the economy as a whole by providing capital to facilitate the growth of all other industries and consumers in the economy. In Malaysia, the financial services sector covers both financial institutions (banks, insurance companies, brokerages and investment management firms) and financial markets (debt and equity markets). Malaysian financial system comprises of a diversified range of institutions to serve the more varied and complex needs of the domestic economy. Other than that, financial system consists of conventional financial system and Islamic financial system which co-exists and operates in parallel. Bank Negara Malaysia is the head of monetary and financial structure of the
country. The objective of the bank is to promote monetary and financial stability conducive to the sustainable growth of the Malaysian economy. Under the monitoring of BNM, there are 127 financial institutions (bank and non-bank institutions) within Malaysia and across the globe. The banking system, comprising commercial banks, investment banks, and Islamic banks is the primary mobilizer of funds and the main source of financing which supports economic activities in Malaysia. Banking institutions operate through a network of more than 2,000 branches across the country. With a high competition among banks and non-bank institutions, the costs of remittance services bear low transaction costs and thus benefit remitters and receivers who demand for low cost, fast and secure services.

Playing the role as an intermediary, the financial institutions act as agents for the savers (surplus units) and the borrowers (deficit units). In banking system, under the process of financial intermediation, many deposits products has been developed to meet the varying needs of the surplus units while loan products are developed for the needs of the deficit units. In principal, the purposes of the financial system are to assist the effective use of funds and to act as an intermediary to all resources in the economy (Beck, Demirguc-Kunt and Levine, 2009). The sources of funds are provided by savings in both private and public sectors as well as by the net inflow of funds from abroad. These funds are collectively channeled through intermediaries such as Commercial banks, Islamic banks, Investment banks, other non-financial institutions and other government agencies. This financial institutions’ function of intermediation engages in resources mobilization by offering the means to hold monetary and financial assets to savers simultaneously allocate these resources for productive investments. Productive investment entails the usage of funds for private investments, public sector investments, international reserves accumulation and diverse payments abroad. In fact, the intermediation process involves mobilizing funds from the economy’s surplus units to fund its deficit units to aid in enhancing economic development.

Malaysia positions rank at first worldwide out of 183 countries for the most accessible to credit for successive years in 2009, 2010 and 2011 as reported in the World Bank’s Doing Business Reports. In the World Economic Forum (The Global Competitiveness Reports 2010-2011 and 2011-2012), Malaysia’s standing at eighth (year 2011) for the acknowledgement of “Ease of Access to Loans”. For the overall Ranking, Malaysia’s global standing has improved seven notches from number 23 in 2011 to number 18 in 2012 (World Bank, 2012). These prove that Malaysia has been recognized across the globe as an upper middle-income developing country with a well-functioning financial system.
3. Literature Review

Most of the studies concern on either remittances impact on economic growth or remittance impact of financial development and fewer studies discussed about the aspect of interaction between remittances inflows and economic growth through financial sector.

Brown (1994) investigated the relationship between remittances, savings and investment in Tonga and Samoa base on micro-level analysis of the use of remittances by households. It is found that remittances make a significant contribution to savings and investment in the island economies. While other scholar examined the impacts of remittances on Tunisia using a life-cycle model and found that workers who have limited access to the financial market tend to use remittances to invest. Yang (2004) showed that remittances lead to improved child schooling, reduce child labor, increased education expenditure, and facilitate investment.

Chami et al. (2005) estimated cross-section and panel growth regressions to test whether the growth in real GDP per capita for 113 countries in the period 1970 to 1998 is influenced by the remittance inflows of their emigrant workers. Together with other standard controls, they consider alternatively remittances as a share of GDP and the change in the remittance-to-GDP ratio as determinants of economic growth. This showed that the level of remittance inflows is statistically insignificant while a change in the remittance-to-GDP ratio negatively
affects the growth of GDP. Clearly, endogeneity of remittances is a serious concern as higher growth rates in developing countries could stimulate more conspicuous transfers. In addition, both remittances and the rate of growth of the receiving economy might depend on some omitted factors. To overcome these problems, Chami et al. (2005) employ instrumental variable (IV) techniques, by using external instruments for remittances of income and real interest gaps between the receiving country and US considered as a representative host country. The results from IV estimations confirm that the net effect of an increase in remittance inflows on the economic development of receiving countries is negative.

Remittances could improve country creditworthiness and thereby enhance its access to international capital markets. World Bank (2006) points out that the calculation of country credit ratings by major international also depends on its magnitude of remittance flows. The higher the magnitude of remittance flows is the better credit rating rank the country could reach. This is another way to increase both physical and human capital investment in order to enhance economic growth. The inflows of remittance could generate positive effects to economic growth through multiplier-effect mechanisms. While there are backward and forward linkages in investment activities, an increase in investment of one household could generate income to other household. In the context of increasing returns, the expansion of one sector could increase the optimal size of other sectors (Jongwanich, 2007).

Fayissa (2010) examined the impact of remittances relative to the other external sources of capital such as foreign aid and foreign direct investment on the economic growth and development of Sub-Saharan African (SSA) countries. Panel data was used by exploring the aggregate impact of remittances on the economic growth of SSA countries within the conventional neoclassical growth model. The results has shown that remittances do positively impact the economic growth of African countries indicating a 10% increase in remittances lead to 0.3% increase in GDP per capita income.

For the study of remittance impact on economic growth through financial sector development, the work of Giuliano and Ruiz-Arranz (2009) on 100 developing countries have come to conclusion that remittances have encouraged growth in less financially developed countries by offering an alternative way to finance investment. By becoming a substitute for inefficient or inexisten credit markets, remittances favor in relieving credit constraints providing to enhance the allocation of capital and to develop economic growth. The results imply that there is an investment channel through which remittances can encourage growth where the financial sector does not meet the credit needs of the population. This findings also supported by
Fajnzylber and Lopez (2008), Ramirez and Sharma (2008), and Barajas, Gapen, Chami and Fullenkamp (2009) have provided verification of substitutability between remittances and financial development in promoting growth. The result is interpreted as a way that remittances compensate for inefficient credit markets, allowing recipients to accumulate financial resources to self-finance investments in physical and human capital. In contrast, when credit markets work properly, access to credit would no longer be an issue and remittances would go to subsidize recipients’ consumption and weaken incentives to work (Bettin and Zazzaro, 2011).

4. Model Specification, Data and Methodology

4.1 Data Collection
This paper carried out a time series analysis of the linkage between remittances and economic growth with the intermediate action by the financial sector development in the case of Malaysia from 1984 to 2013. All data are obtained from the World Development Indicator (WDI) and the Migration and Remittances Prospects from the World Bank databases.

4.2 Model Specification
This section provides the models implied to estimate the impact of remittances on economic growth through the interaction of remittances and financial depth by using ordinary least squares (OLS) linear regression technique. As remittances have the possibility to influence economic activity through a passage of channels, one particular nexus between remittances and growth is observed in a set of regression, specifically that working through financial markets. The hypothesis would be on whether the impact of remittances on growth is affected by the level of financial depth of Malaysia. The regression to be estimated as the following:

\[
\ln RGDP_{it} = \beta_0 + \beta_1 \ln Rem_{it} + \beta_2 \ln FinDev_{it} + \\
\beta_3 (Rem_{it} \cdot FinDev_{it}) + \epsilon_{it}
\]

(1)

where \(\ln RGDP_{it}\) denotes as logarithm of real GDP per capita, \(\ln Rem_{it}\) denotes the ratio of logarithm remittances to GDP (REM/GDP), \(\ln FinDev_{it}\) denotes logarithm financial sector development proxied by the ratio of domestic credit provided by banking sector to GDP (CREDIT/GDP), and \(Rem_{it} \times FinDev_{it}\) is the multiplication of remittances and credit by banking sector to capture the non-linear effect of the financial sector’s size on growth.
5. Empirical Results

5.1 Unit Root Test
The augmented Dickey–Fuller (ADF) test was applied in this study to determine the time series properties of the data. In order to select an optimum lag length for the model, Akaike Information Criteria are chosen. If the null hypothesis cannot be rejected, then the variable is non-stationary. If the null hypothesis that \( \alpha = 0 \) can be rejected, then the time series variable is stationary. The results are presented in Table 1 and show that all of the variables are non-stationary with respect to the level and stationary at the first difference.

Table 1
ADF Unit root test for stationarity

<table>
<thead>
<tr>
<th>Variables</th>
<th>Level</th>
<th>1st Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intercept</td>
<td>Intercept and Trend</td>
</tr>
<tr>
<td>InRGDP</td>
<td>-2.2605</td>
<td>-1.9754</td>
</tr>
<tr>
<td>InRem</td>
<td>-1.1836</td>
<td>-3.3465</td>
</tr>
<tr>
<td>InFinDev</td>
<td>-2.0966</td>
<td>-2.1809</td>
</tr>
<tr>
<td>InRemCdt</td>
<td>-1.0396</td>
<td>-3.0952</td>
</tr>
</tbody>
</table>

Note: ** denotes significant at 5% significance levels. The optimum lag length selected based on Akaike Information Criterion (AIC).

5.2 Johansen Cointegration Test
After variables are confirmed to be stationary at first differences meaning that both variables contain a stochastic trend and these variables are cointegrated. Cointegration exists when those variables have a long-term or equilibrium relationship between the variables (Granger, 1986). Hence, Johansen-Juselius Cointegration test is established and results show in Table 2.

\[
\begin{align*}
H_0 &: r = 0 \text{ (No cointegration)} \\
H_1 &: r \neq 0 \text{ (Cointegration exists)} \\
\end{align*}
\]

Based on Table 2, the result shows that both of Trace test and Max-Eigen Test are statistically significant to reject the null hypothesis of \( r = 0 \) at 5% significance level. This is because the trace statistics and max-eigen values are both exceeded their respective critical values. On the other hand, for the null hypothesis of \( r \leq 1 \), \( r \leq 2 \) and \( r \leq 3 \) are failed to be rejected in this study. This implies that there appear to be one cointegrating vector among the variables in the long-run for real GDPPC. Hence, it can be concluded from Table 2 that there appear to be one cointegrating vector among variables and entails that the integration between all variables occurred.
Table 2
Johansen-Juselius Cointegration Test Results

<table>
<thead>
<tr>
<th>Hypothesized No. of CE(s)</th>
<th>Trace Statistic</th>
<th>Max-Eigen Statistic</th>
<th>Critical values (5%) Trace</th>
<th>Max-Eigen</th>
</tr>
</thead>
<tbody>
<tr>
<td>r=0</td>
<td>57.5621**</td>
<td>28.3328**</td>
<td>47.8561</td>
<td>27.5843</td>
</tr>
<tr>
<td>r ≤ 1</td>
<td>29.2293</td>
<td>18.5374</td>
<td>29.7971</td>
<td>21.1316</td>
</tr>
<tr>
<td>r ≤ 2</td>
<td>10.6919</td>
<td>8.4932</td>
<td>15.4947</td>
<td>14.2646</td>
</tr>
<tr>
<td>r ≤ 3</td>
<td>2.1987</td>
<td>2.1987</td>
<td>3.8415</td>
<td>3.8415</td>
</tr>
</tbody>
</table>

Note: ** denotes significant at 5% significance level.

5.3 Vector Error Correction Model (VECM)

Since cointegration exists in the model, therefore the VECM long run model is carried out. An error correction model is a dynamical system with the characteristics that the deviation of the current state from its long-run relationship will be fed into its short-run dynamics. For VECM model, this study discusses the long-run relationship of the variables. If cointegration exists, VECM long-run model can be preceded. From the cointegration test, there existed one cointegration equation. The empirical results of VECM show in Table 3 as follows:

Table 3
Results of Vector Error Correction Model (VECM)
Dependent variable: InRGDP

<table>
<thead>
<tr>
<th>Explanatory variable</th>
<th>Coefficients</th>
<th>Standard error</th>
<th>T-Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>0.1951</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>InRem</td>
<td>5.5143</td>
<td>1.2665</td>
<td>4.3540</td>
</tr>
<tr>
<td>InFinDev</td>
<td>4.9026</td>
<td>1.1968</td>
<td>4.0964</td>
</tr>
<tr>
<td>InRemCdt</td>
<td>4.3607</td>
<td>1.1359</td>
<td>3.8390</td>
</tr>
</tbody>
</table>

Diagnostic tests

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>JB</td>
<td>1.88 (0.3899)**</td>
<td></td>
</tr>
<tr>
<td>Serial Correlation</td>
<td>0.77 (0.6793)**</td>
<td></td>
</tr>
<tr>
<td>White test</td>
<td>12.27 (0.1985)**</td>
<td></td>
</tr>
<tr>
<td>Ramsey RESET</td>
<td>0.05 (0.8209)**</td>
<td></td>
</tr>
</tbody>
</table>

Note: ** denote significant at 5% significance levels. The values in brackets represent p-values.

The long run linkage between remittances and economic growth indicates a positive and significant relationship with 1% increase in remittances will increase 5.5143% of GDP per capita in Malaysia. This result also consistent with the findings of Kumar (2013), Aggarwal (2011), Kipyegon et al. (2012), Chowdury (2011), and Das, A. and Paul (2011). While, the coefficient of financial development is also statistically significant with a positive sign. Specifically, 1% increase in
financial development will lead to a 4.9026% increase in GDP per capita. In this study, financial development proxies by the ratio of domestic credit provided by banking sector to GDP (CREDIT/GDP) which measures how much intermediation is performed by the banking system, including credit to the public and private sectors. In fact, the inflow of remittance influences the growth of financial development mostly in developing countries (Aggarwal et al., 2011). So, it is possible to convert the remittance into deposits resulting in more funds available for lending by commercial bank to the private sector credit. As a result, financial development can enhance economic growth (Misati & Nyamongo, 2011). Remit x FinDev is the multiplication of remittances and credit by banking sector to capture the non-linear effect of the financial sector’s size on growth (Rioja and Valev, 2004). The association between remittances and financial development is to be positive because increasing trend of remittance flows may directly enhance deposit, credit and money availability (Chowdhury, 2011). This implies that remittance inflow is positively and significantly enhancing growth through the financial development. Hence, the robustness of the model has been confirmed by several diagnostic tests such as Jarque-Bera normality test, Breush-Godfrey serial correlation Lagrange multiplier test, Heteroskedasticity test, and Ramsey RESET specification test. All the tests demonstrated that the models are normally distributed, the residuals are serial uncorrelated, homoscedasticity and have a correct functional form at 5% significance level. Therefore, the empirical results reported are valid for reliable interpretation.

5.4 Granger Causality Test

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>Independent Variables</th>
<th>$\chi^2$ - statistics of lagged 1st differenced term</th>
<th>ECT (t-statistics)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ΔLRGDP</td>
<td>ΔLRGDP</td>
<td>- 14.53***</td>
<td>-1.4983***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[0.000]</td>
<td>(-3.6479)</td>
</tr>
<tr>
<td>ΔLREM</td>
<td>ΔLREM</td>
<td>- 1.19</td>
<td>2.6745</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[0.103]</td>
<td>(0.9406)</td>
</tr>
<tr>
<td>ΔLFinDev</td>
<td>ΔLFinDev</td>
<td>- 2.3</td>
<td>2.0981</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[0.550]</td>
<td>(1.6227)</td>
</tr>
<tr>
<td>ΔRemCdt</td>
<td>ΔRemCdt</td>
<td>- 3.5601</td>
<td>(1.2484)</td>
</tr>
</tbody>
</table>

Note: *** and ** denotes significant at 1% and 5% significance level, respectively. The figure in the parenthesis (...) denote as t-statistic and the figure in the squared brackets [...] represent as p-value.
After the VECM estimation, Granger Causality results based on VECM is performed in Table 4 to examine the nexus between remittance, financial development and growth in the case of Malaysia. Since, the variables are cointegrated in the long run, there exists an error correction term which brings together the long run relationship and its short run dynamic adjustments. The coefficients of ECT$_{t-1}$, which measures the speed of adjustment back to the long-run equilibrium value, are statistically significant at 5% level and correctly signed, that is, negative. The coefficient of -1.4893 indicates high rate of convergence to equilibrium. This study finds that the flow of remittance and the expansion of financial sector drive the growth in real GDP per capita in the long run (Uddin and Sjo, 2013). The empirical results also show a unidirectional causality running from remittances to real GDP per capita and financial development does granger cause real GDP per capita in short run.

6. Conclusion

In brief, the analyses of stationarity of the time series variables are regarded as the initial stage of analyzing the progression that verifies the existence of unit root problem. The results of the ADF unit root test in this paper imply that all the series variables under concern are non-stationary in the level form, but stationary in the first difference.

According to the findings using Johansen cointegration estimation, there is at least one cointegrating vector presence in all four variables. For the both of Trace test and Max Eigen test are statistically significant to reject the null hypothesis of $r = 0$ at 5% significance level. This implies that there appear to be one cointegrating vector among the variables in the long-run for real GDP per capita.

The outputs gained from the usage of VECM model show the impacts of remittances on economic growth of Malaysia via the influence of the country’s financial depth. The correlation between growth and the measure of financial development that is proxied by the domestic credit provided by the banking sector to GDP is positive. Previous studies such as Giuliano and Ruiz-Arranz, 2009; and Bettin and Zazzaro, 2011 assert that the sign of the interacted coefficient provides information regarding the nature of remittances. In particular, a positive interaction term reveals that they are complementary and a well-functioning financial system enhances the impact of remittances (Giuliano and Ruiz-Arranz, 2009. When $\beta_1 > 0$ and $\beta_3 < 0$, remittances promote growth only in receiving countries whose financial system is poorly functioning (Bettin and Zazzaro, 2011). In the case of Malaysia, the result shows a positive and significant coefficient of remittance and financial sector development towards on economic growth. This outcome indicates the impact of remittances on growth is high when the
financial sector is less developed. This finding also supported by Giuliano and Ruiz-Arranz (2009) where remittance encouraged growth in less financially developed countries by providing an alternative way to finance investment while, in more developed financial systems, remittances do not seem to magnify their growth impact. Malaysia is seen as an upper-middle income country that has the ability to generate productivity and growth with its diversified economic activities such as manufacturing industry and services sector without having to depend on the inflows of remittances into the country.

References:


IMF World Economic Outlook, pp. 69–107 (Chap.2), Washington.


