FINANCIAL MARKET PERFORMANCE: AN INFLUENCE OF PERSONAL REMITTANCES

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Abstract

This study examined the relationship between banking sector development and personal remittances in Zambia using the vector error correction model (VECM) approach with annual time series secondary data ranging from 1980 to 2014. Literature has found out that the relationship between financial sector development and remittances is fourfold: (1) financial sector development influences remittances inflow into the receiving country, (2) remittances positively influences financial sector development, (3) there is a feedback relationship between financial sector development and remittances inflow and (4) there is no or negligible relationship between the two variables. The study found out that there existed a long run causality relationship running from either banking sector development towards personal remittances or from personal remittances towards banking sector development in Zambia during the period under study. The short run causality from either side to another could not be confirmed in this study. It is against this background that the current study encourages Zambian authorities to stimulate banking sector development in order to increase personal remittances inflow. They should also design sustainable remittances harnessing policies as that will go a long way in as far as promoting banking sector development is concerned.

Keywords: Banking, Remittances, VECM, Zambia
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1. INTRODUCTION

Conflicting findings persist with regard to the relationship between financial sector development and remittances although it is generally agreed that the two variables are related. Some empirical studies say that there is a long run relationship between financial sector development and remittances whilst others state that the relationship between the two variables exist only in the short run. Majority of the empirical studies which focused on a similar subject matter differ sharply on the proxies that they used to carry out their studies. Some used stock market variables, others used banking sector variables whilst others used a combination of both stock and banking sector development variables to establish a link between financial sector development and remittances. Even on remittances, there are three different focus angles which include personal remittances, non-personal remittances and total remittances. The current study intends to contribute to the discourse by exclusively focusing on banking sector development versus personal remittances in Zambia.

The subject on the relationship between financial sector development and remittances is quite broad and has not been conclusively dealt with. In other words, there are still a lot of divergent views on the subject matter. Some empirical theorists argue that financial sector development is positively influenced by remittances whilst others say that it is remittances inflow that depends on the state of banking sector development in the receiving country. Others argue that both banking sector development and remittances affect each other whilst the remainder says that there is little or negligible relationship between the two variables. This lack of conclusive stand on the relationship between financial sector development and remittances prompted the author to carry out the current study using the VECM procedure. The results of this study will assist the Zambian authorities in coming up with the sustainable personal remittances harnessing polies and programmes and inform them about whether they need to develop their banking sector if they are to boost personal remittances received.

The rest of study is organized as follows: Part 2 focuses on the trend analysis between banking sector development and personal remittances in Zambia. Part 3 presents literature review whilst part 4 discusses the research methodology and the empirical results. Part 5 concludes the study.

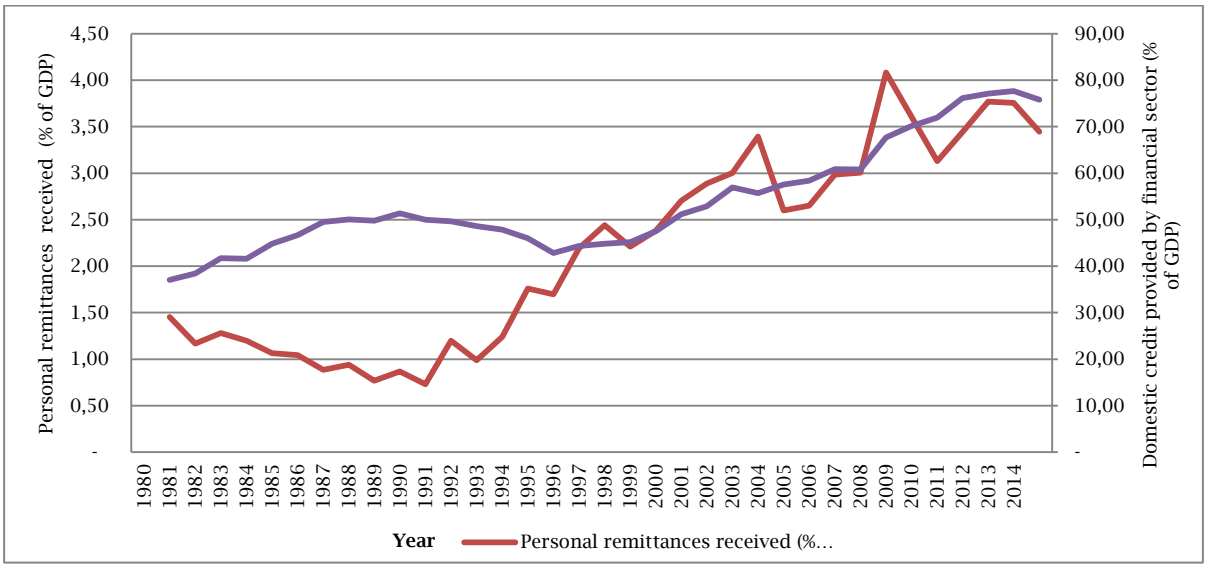
2. FINANCIAL SECTOR DEVELOPMENT AND REMITTANCES IN ZAMBIA

Domestic credit provided by financial sector ratio to GDP went up by 26.07 percentage points, from 37.03% in 1980 to 46.68% in 1985 whilst personal remittances received as a ratio of GDP declined by 28.23 percentage points during the same time frame. During the period from 1985 to 1990, domestic credit provided by financial sector ratio to GDP

further went up by 7.06 percentage points whereas personal remittances received as a ratio of GDP further went down by 30.07 percentage points, from 1.04% in 1985 to 0.73% in 1990. The same time period saw domestic credit provided by financial sector ratio to GDP going up from 46.68% in 1985 to 49.97% in 1990.

Moreover, personal remittances received as a ratio of GDP increased by a massive 132.58% percentage points, from 0.73% in 1990 to 1.79% in 1995 whilst domestic credit provided by financial sector ratio to GDP declined by 14.24 percentage points (from 49.97% in 1990 to 42.86% in 1995). However, the five year period between 1995 and 2000 saw both domestic credit provided by financial sector ratio to GDP and personal remittances received as a ratio of GDP going up. The former went up by 19.43 percentage points whilst the latter increased by 59.24 percentage points during the period from 1995 to 2000. Domestic credit provided by financial sector ratio to GDP increased from 42.86% in 1995 to 51.19% in 2000 whilst personal remittances received as a ratio of GDP surged from 1.70% in 1995 to 2.70% in 2000.

Figure 1. Personal remittances received and financial development trends for Zambia (1980 to 2014)



Source: World Bank (2015)

The five year period between 2000 and 2005 saw personal remittances received as a ratio of GDP plummeting by 1.88 percentage points while domestic credit provided by financial sector ratio to GDP increased by 14.02 percentage points. Personal remittances received as a ratio of GDP declined from 2.70% in 2000 to 2.65% in 2005. The same timeframe saw domestic credit provided by financial sector ratio to GDP firming from 51.19% in 2000 to 58.36% in 2005. The time frame spanning from 2005 to 2010 saw both domestic credit provided by financial sector ratio to GDP and personal remittances received as a ratio of GDP increasing by significant margins. The former went up by 23.27 percentage points, from 58.36% in 2005 to 71.94% in 2010 whereas the latter increased by 18.03 percentage points (from 2.65% in 2005 to 3.13% in 2010). The upward trend of both the domestic credit provided by financial sector ratio to GDP and personal remittances received as a ratio of GDP persisted during the five year period between 2010 and 2014. Domestic credit provided by financial sector ratio to GDP went up by 5.34 percentage points, from 71.94% in 2010 to 75.79% in 2014. Personal remittances received as a ratio of GDP significantly increased by 10.09 percentage points, from 3.13% in 2010 to 3.45% in 2014.

3. LITERATURE REVIEW

Four views on the relationship between remittances and financial sector development, namely that the two variables affect each other, there is no relationship at all between remittances and financial sector development, a unidirectional causality running from remittances to financial sector development and financial sector development-led remittances hypothesis.

Empirical studies which support the remittance-led financial development were done by several authors. Rana and Tasneem (2016) examined the relationship between remittances and financial development in five South Asian countries which include India, Nepal, Pakistan, Sri Lanka and Bangladesh using error correction model and dynamic OLS estimation technique with data ranging from 1990 to 2014. Their study found out that remittances were critical in enhancing the total deposit base, M2 money supply and private credit in all the countries studied. Ee (2014) examined the relationship between remittances, financial development and economic growth in Malaysia with time series data from 1984 to 2013 using ordinary least squares (OLS) regression technique. The study showed that remittances influences economic growth indirectly through financial development.

Baah-Kumi (2015) investigated the impact of remittances on the level of credit provided by the banking sector in Sub Saharan Africa using panel data analysis for a period spanning from 1990 to 2012. After controlling macro-economic variables that are normally at the centre of affecting financial development, the study observed that remittances played an instrumental role in positively influencing the level of credit offered by the banking sector of Sub Saharan African countries. This means that countries in the Sub Saharan African region should implement strategies to boost remittances inflow if it is to enhance banking sector development.

Noman and Uddin (2011) studied the relationship between GDP, remittances and banking sector development in South Asia using multivariate Granger causality tests with data ranging between 1976 and 2005. Their findings are twofold: (1) Banking sector development and remittances jointly positively influenced GDP in all the four South Asian countries which were under study and (2) banking sector development had no impact at all on the level of remittances in the South Asian countries. Using a system approach, Coulibaly (2015) studied the relationship between remittances and financial development in Sub-Saharan African countries with data from 1980 to 2010. Remittances was found to have had a positive effect on financial development when liabilities was used as a measure of financial development in Niger, Sierra Leone, Sudan and Niger whilst financial development positively impacted on remittances in Gambia only. Remittances were found to have had a positive impact on financial development in Sudan only when credit was used as a proxy of financial development. Overally, financial development whichever proxy was used was found not to be important in influencing remittances in SSA countries. On the other hand, weak evidence was observed on the impact of remittances on financial development in SSA countries, disregarding the proxy of financial development used.

Crayen et al (2013) examined the impact of remittances on the insurance sector in South Africa using regression analysis approach. They noted that households which receive remittances from their relatives who are based in foreign countries tended to shun formal insurance thereby supporting the notion that remittances are a form of self- insurance. Investigating the relationship between remittance and credit levels of the banking sector development in Bangladesh using vector error correction (VECM), Al-Mukit and Islam (2016) found out that remittance flow played a key role in increasing the amount of credit offered by the banking sector in Bangladesh. They also observed that higher levels of banking sector development attracted more remittances in Bangladesh.

Ojapinwa and Bashorun (2014) studied the influence of remittances on financial sector development in SSA countries using generalized methods of moments (GMM) with annual data spanning from 1996 to 2010. Using private credit as a proxy of financial sector development, their study noted that remittances positively and significantly influenced financial development. Kunt et al (2009) also examined the relationship between remittances and banking sector development in Mexico. They observed that remittances had a strong positive and significant impact on bank accounts per capita, number of bank branches and deposits to gross domestic product ratio in Mexico.

Githaiga and Kabiru (2014) also investigated how financial sector development was influenced by remittances in 31 countries using GMM estimation technique with data ranging from 1980 to 2012. They found out that remittances (1) could only positively and significantly influence on financial sector development if the financial sector is effective and efficient in the conversion of deposits to credit provision, (2) positively but non-significantly influenced the quantity of bank deposits and (3) they negatively affected domestic credit to the private sector across the 31 countries studied. Oke et al (2011) examined the influence of remittances on financial sector development in Nigeria using OLS regression analysis with data from 1977 to 2009. When ratio of supply to GDP proxy of financial sector development was used, they found out that remittances played a critical role in enhancing financial sector development in Nigeria.

Femi et al (2016) studied the relationship between remittances flow and banking sector development in Nigeria using Likelihood test and Toda-Yamamoto Granger causality test with data from 1984 to 2014. They noted that there is a long run relationship between banking sector development and remittances in Nigeria during the period under study. A uni-directional causality running from banking sector development towards remittances was also observed. However, a feedback effect was noted between the two variables when bank size was used as a proxy of the banking sector development and efficiency in remittance flow was used as a measure of international remittance inflows in Nigeria.

Sami (2013) studied the interrelationship between remittances, economic growth and banking sector development in Fiji using VECM approach with annual data spanning from 1980 to 2010. Economic growth and remittances were found to have had a joint impact on banking sector development. Remittances on its own had a positive influence not only on economic growth but on banking sector development as well in Fiji. Moreover, Tarus (2015) investigated if remittances affected banking sector development in SSA using panel data analysis with annual data from 1994 to 2009. Apart from inflation, human capital development and level of political stability, remittances were found to have played a paramount role in enhancing the level of banking sector development in SSA.

4. RESEARCH METHODOLOGY

Times series annual data spanning from 1980 to 2014 was used for the purposes of the current study. Personal remittances received (% of GDP) was used as a measure of remittances whilst banking sector development was proxied by domestic credit provided by financial sector as a ratio of GDP. The World Development Indicators (WDI) was the source of the secondary data used. The two data variables were found to stationary at first difference (see Table 1).

Table 1. Stationarity Tests of Variables on first Difference

Variable	Test Statistic – Trend &Intercept	Critical Values	
Stationarity Tests of Variables on first Difference - Augmented Dickey-Fuller - Test			
DREMIT	-5.1345	-3.1453*	-2.2598**
DFINCREDIT	-7.3748	-4.3521*	-4.1243**
Stationarity Tests of Variables on first Difference – Phillips-Perron (PP) Test			
DREMIT	-8.9843	-5.3849*	-4.8453**
DFINCREDIT	-9.3964	-6.3947*	-2390**
Stationarity Tests of Variables on levels – Dickey-Fuller GLS (ERS) Test			
DREMIT	-6.8945	-4.2374*	-4.1434**
DFINCREDIT	-7.3482	-3.7700*	-3.3427**

Source: Eviews 8
Note:
*1) * and ** denote 1% and 5% levels of significance, respectively.*
*2) * MacKinnon critical values for rejection of hypothesis of a unit root.*
3) The truncation lag for the PP tests is based on Newey and West (1987) bandwidth.
4) Critical values for Dickey-Fuller GLS test are based on Elliot-Rothenberg-Stock (1996, Table 1).

Where REMMIT stands for personal remittances received as a ratio of GDP whilst FINCREDIT represents the domestic credit provided by financial sector as a ratio of GDP. The study found out that 1is the optimal lag length of both variables under study.

The current study made use of the Johansen co-integration test to investigate the presence of a long run relationship between banking sector development and remittances in Zambia. The approach uses the trace and maximum eigenvalue tests to investigate the number of co-integration vectors. The Maximum Eigenvalue test equation is represented by the following equation.

$$LR_{max}(r/n+1) = -T * \log(1-\lambda) \quad (1)$$

λ is the Maximum Eigenvalue and T represents the sample size.

The trace statistic test is represented by the following equation:

$$LR_{tr} = -T * \sum_{i=r+1}^{n} \log(1-\lambda) \quad (2)$$

The statistic examines the null hypothesis of *r* co-integrating relations against the alternative *n* co-integrating relations, where *n* is the number of variables in the system for r = 0, 1, 2…n-1. The trace test statistic is used ahead of the maximum eigenvalue if the two statistics produce different conclusions, in line with a recommendation by Alexander (2001).

Table 2. Unrestricted Co-integration Rank Test (Maximum Eigenvalue)

Maximum Eigen Statistic	*5% Critical Value*	*Hypothesized No. of CE(s)*	*Probability***
11.3456	23.4534	None *	0.1342
8.2348	15.2312	At most 1	0.1436

Source: Eviews 8
***MacKinnon-Haug-Michelis (1999) p-values*

The results in Table 2 show that there is a long run relationship between remittances and banking sector development in Zambia during the period under study. In other words, at least one co-integrated equations exist between remittances and banking sector development because (1) the critical value is more than the max-eigen statistic and (2) the probability in the (at most 1 case) is more than 5%. This means that the study cannot reject the null hypothesis which states that there exists at least one co-integrated equation between banking sector development and remittances.

The trace test statistic found similar results (see Table 3), as evidenced by the trace statistic which is less than the critical value. The fact that the probability is greater than 1 shows that the study cannot reject the null hypothesis which says that there is at least one co-integrated equation between the two variables under study.

Table 3. Unrestricted Co-integration Rank Test (Trace)

Trace Statistic	*5% Critical Value*	*Hypothesized No. of CE(s)*	*Probability***
21.6493	25.4837	None *	0.0934
16.4598	19.3490	At most 1	0.2234

Source: Eviews 8
***MacKinnon-Haug-Michelis (1999) p-values*

This study used the vector error correction framework (see equation 3) to investigate the causal relationship between banking sector development and personal remittances in Zambia. This stage can be investigated since a long run relationship between banking sector development and personal remittances has already been established using Johansen Co-integration test.

$$\Delta y_t = \gamma_0 + \gamma_{yt-1} + \gamma_1 \Delta y_{t-1} + \gamma_2 \Delta y_{t-2} + \gamma_p \Delta y_{t-p} + e_t \quad (3)$$

where: Δ - first difference operator of a non-stationary variable; subscripts t and t-i represents time periods; γ is a matrix with elements γ_{jk} such that one or more elements of γ_{jk} are not equal to 0 and that; (γ_{yt-1}) is the error correction representation of variables in y_t; e_t is the error term.

Granger causality comes via error correction term whilst the differenced dependent variables of FINCREDIT and REMIT are affected by the short term differenced lagged variables (Δy_{t-1} and Δy_{t-p}) and long term error correction term (γ_{yt-1}).

Table 4. Dependent Variable – REMITTANCES

	co-efficient	*standard error*	*t-statistic*	*Probability*
C(1)	-0.6723	0.3534	-1.9024	0.0023
C(2)	-0.0853	0.3498	-0.2439	0.4532
C(3)	0.2134	0.2476	0.8619	0.3972
C(4)	0.3498	0.3904	0.8960	0.1484
C(5)	0.0934	0.2103	0.4441	0.3782

Source: Eviews 8

C(2), C(3), C(4) and C(5) represents short run co-efficient whereas C(1) stands for the co-efficient in the long run hence it should be negative and significant if the co-integrating relationship exist between the variables. Table 4 results indicate that C(1) co-efficient is negative and significant (probability is less than 1%) thereby confirming that there is a significant long run causality running from independent variable towards the dependent variable (banking sector development towards personal remittances) in Zambia during the period under study.

4.1. Short run causality running from FINCREDIT towards REMIT?

Table 5. Wald Test

Statistic	*Value*	*Probability*
t-statistic	0.4076	0.7598
F-statistic	0.1678	0.7598
Chi-square	0.1678	0.6534

Source: Eviews 8

Using the Wald statistic, the null hypothesis is that there is no short run causality from banking sector development towards personal remittances. In Table 5, the probability is greater than 5%. This means that the null hypothesis which states that short run causality running from banking sector development towards personal remittances is absent cannot be rejected.

Table 6. Dependent Variable – FINCREDIT

	co-efficient	*standard error*	*t-statistic*	*Probability*
C(1)	-0.4657	0.3096	-1.5042	0.0034
C(2)	-0.1825	0.3985	0.4580	0.4356
C(3)	0.2498	0.2948	0.8474	0.3290
C(4)	0.3984	0.4298	0.9269	0.1987
C(5)	0.0398	0.2398	0.1660	0.2965

Source: Eviews 8

Since C (1) is negative and significant, there is a long run causal relationship running from personal remittances towards banking sector development in Zambia.

4.2. Short run causality running from REMIT to FINCREDIT?

Table 7. Wald Test

Statistic	*Value*	*Probability*
t-statistic	0.3782	0.6189
F-statistic	0.1975	0.5378
Chi-square	0.2134	0.4581

Source: Eviews 8

The null hypothesis of the Wald statistic is that there is no short run causality from personal remittances towards banking sector development in Zambia during the period under study. The null hypothesis cannot be rejected since probability of the chi-squared test is more than 5%.

Table 8. Summary of causality in both long and short run

	FINCREDIT→REMIT	*REMIT→ FINCREDIT*
Long run	Yes	Yes
Short run	No	No

Source: Eviews 8

5. CONCLUSION

This study examined the relationship between banking sector development and personal remittances in Zambia using the VECM approach with annual time series secondary data ranging from 1980 to 2014. Literature has found out that the relationship between financial sector development and remittances is fourfold: (1) financial sector development influences remittances inflow into the receiving country, (2) remittances positively influences financial sector development, (3) there is a feedback relationship between financial sector development and remittances inflow and (4) there is no or negligible relationship between the two variables. Unlike most prior studies on the similar subject, the current study utilized the VECM framework and focused exclusively on how banking sector development relates with personal remittances. The study found out that there existed a long run causality relationship running from either banking sector development towards personal remittances or from personal remittances towards banking sector development in Zambia during the period under study. The short run causality from either side to another could not be confirmed in this study. It is against this background that the current study encourages Zambian authorities to stimulate banking sector development in order to increase personal remittances inflow. They should also design sustainable remittances harnessing policies as that will go a long way in as far as promoting banking sector development is concerned.

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