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Article

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Financial Development and Investment Dynamics in Mauritius: A Trivariate Granger-Causality Analysis

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Abstract

This paper examines the causal relationship between both bank-based and market-based financial development and investment in Mauritius for the period from 1976 to 2014. The study assumes that investment and financial development have an accelerator-enhancing relationship. To accommodate the accelerator-enhancing relationship, the indicators for bank-based and market-based financial development are multiplied by the per capita GDP. In addition, to avoid variable omission bias, savings are used as an intermittent variable, thereby creating a trivariate Granger-causality model. The study makes use of the autoregressive distributed lag bounds testing approach. For both models, results indicate that both bank-based and market-based financial development Granger-cause investment, both in the short run and in the long run. The study, therefore, recommends that policies in Mauritius should focus mainly on promoting and strengthening banking sector and stock market development in order to spur investment.

Keywords: Mauritius, Investment, Bank-based financial development, Market-based financial development

JEL Classification: G10, G20, E22

1. Introduction

Mauritius is an interesting case study for a number of reasons. The country's financial development and economic performance have been a good example of progress in Africa and the world at large¹. Its intentional emphasis on improving financial development has enabled it to have one of the top financial sectors in Africa. However, one of the reasons for its policy stance is the inherent relationship between financial development and investment as a conduit

¹ See Muyambiri and Odhiambo(2016) for a fuller discussion of the chronological evolution of financial development in Mauritius

through which economic growth can be achieved (Muyambiri and Odhiambo, 2016, p. 91). Nevertheless, to the best of our knowledge, the causal relationship between bank-based financial development and investment, on the one hand, and market-based financial development and investment, on the other hand, in Mauritius has not been empirically ascertained. Furthermore, most, if not all, of the studies that have assessed the direction of causality between financial development and investment have not divided financial development into bank-based and market-based financial development. Most of these studies focused mainly on the bank-based side of financial development. Against this backdrop, this study seeks to evaluate the causal relationship between bank- and market-based financial development and investment in Mauritius during the period from 1976 to 2014.

This study contributes to existing literature by being one of the first studies to investigate the causality between finance and investment whilst dividing financial development into bank-based and market-based financial development. It is also one of the first studies to make use of composite indices of bank-based and market-based financial development in investigating the causal relationship between financial development and investment. In addition, it is the first study to the best of our knowledge to focus on Mauritius in assessing the finance-investment causality relationship. With respect to modelling, the study takes advantage of the trivariate causality model, which has been proven to perform better than the bivariate model, which suffers from omission of variable bias. In addition, it is one of the first studies to use the newly developed autoregressive distributed lag (ARDL) bounds testing procedure to assess the causal relationship between bank- and market-based financial development and investment.

The rest of the paper is organised as follows: Section 2 gives an overview of financial development and investment in Mauritius. Section 3 summarises the related literature on financial development and investment. Section 4 presents the empirical model specification, the estimation technique and the empirical results from the regression estimation and analysis, while Section 5 presents the conclusion to the study.

2. Financial Development and Investment in Mauritius

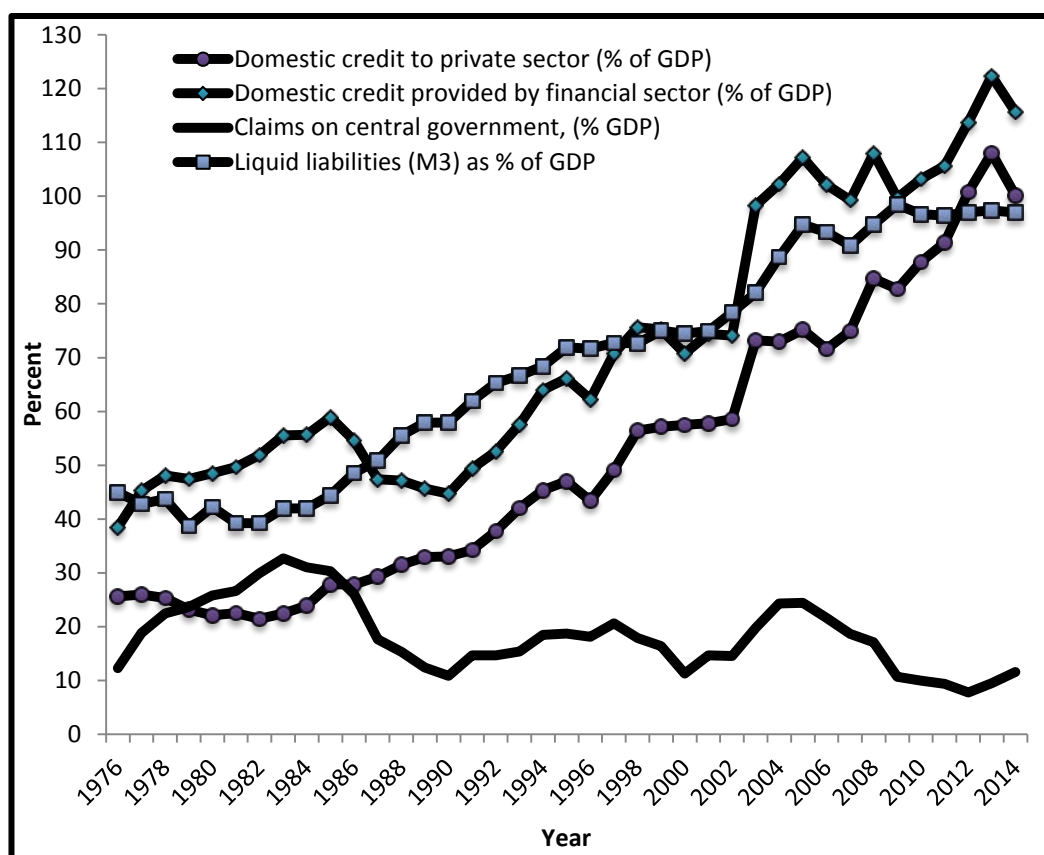
The Mauritian financial sector has a historical background that starts as far back as 1810, but the central bank of Mauritius was only created in 1967 after the Bank of Mauritius Act was enacted in 1966 (Muyambiri and Odhiambo, 2016, p. 94). The financial sector's inception was on the bank-based side of financial development. Market-based financial development began in 1989 through the Stock Exchange of Mauritius after the enactment of the Stock Exchange Act of 1988 (Jankee, 2006, p. 79).

Bank-based financial development, before the late 1980's, was hampered by a restrictive monetary policy stance that mainly focused on reducing increased credit provision and encouraging investment (Bank of Mauritius, 2005). Increased credit provision by the banks was controlled through high reserve requirements, while investment was promoted through provision of low interest rates to high priority sectors and an accommodative monetary policy stance (Muyambiri and Odhiambo, 2016). The preferred monetary policy stance led to significant achievement in the banking sector from 1967 to 1985.

The major entry into the market was the State Commercial Bank Ltd, which was established by the government in 1973 and was later renamed State Bank of Mauritius (Bank of Mauritius, 2006). After 1985, the government adopted financial liberalisation strategies. These included the removal of exchange rate controls on both current and capital transactions, replacement of the basket-peg regime with a flexible exchange rate regime and

institution of an indirect monetary policy stance (Seetanah, *et al.*, 2011). Figure 1 gives the trends in selected indicators of bank-based financial development from 1976 to 2012.

Figure 1: Evolution of Bank-Based Financial Development Indicators in Mauritius (1976-2014)



Source: World Bank (2016)

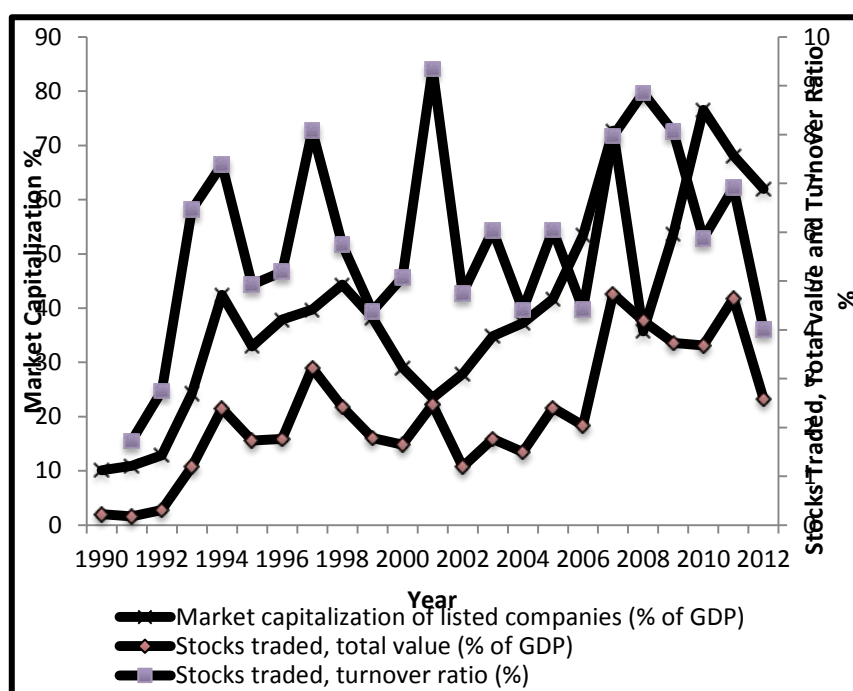
The trends in domestic credit to the private sector, domestic credit provided by the financial sector and claims on government, all as a share of gross domestic product, show that the government became less of a contributor in the credit market after 1986, as was the case before 1986. The decrease of total credit provided by the financial sector from 59% in 1985 to 45% in 1990 was mainly due to claims against government decreasing during the same period. From 1986 onwards (after financial liberalisation), the proportion of domestic credit provided to the private sector increased exponentially and became the main determinant of the level of credit provided by the financial sector in the Mauritian economy. Claims on government did not go beyond 25% after financial liberalisation as was the case before liberalisation; and total credit provision by the banking sector moved from below 50% of GDP in 1990 to above 110% by 2014. The increased credit provision in the Mauritian economy is evidence of increased financial deepening and development as a result of financial liberation.

In addition, trends in liquid liabilities confirm the same theory that financial liberalisation led to increased financial development and deepening. The ratio of M3 to GDP is a measure of financial development that shows the real size of the financial sector in a country. In addition, it measures financial deepening and the level of money supply relative to the economy. Therefore, given the steep increase in the M3 to GDP ratio, one can conclude that the

financial sector's size, depth and development increased systematically over the years under review.

On the market-based side of financial development, the same picture of improved financial intermediation and size relative to the economy, as in the bank-based side, is seen. Figure 2 presents the trends in the market capitalisation of listed companies as a percentage of GDP, the associated total value as a ratio of GDP and the percentage turnover ratio of stocks traded.

Figure 2: Stock Market Trends

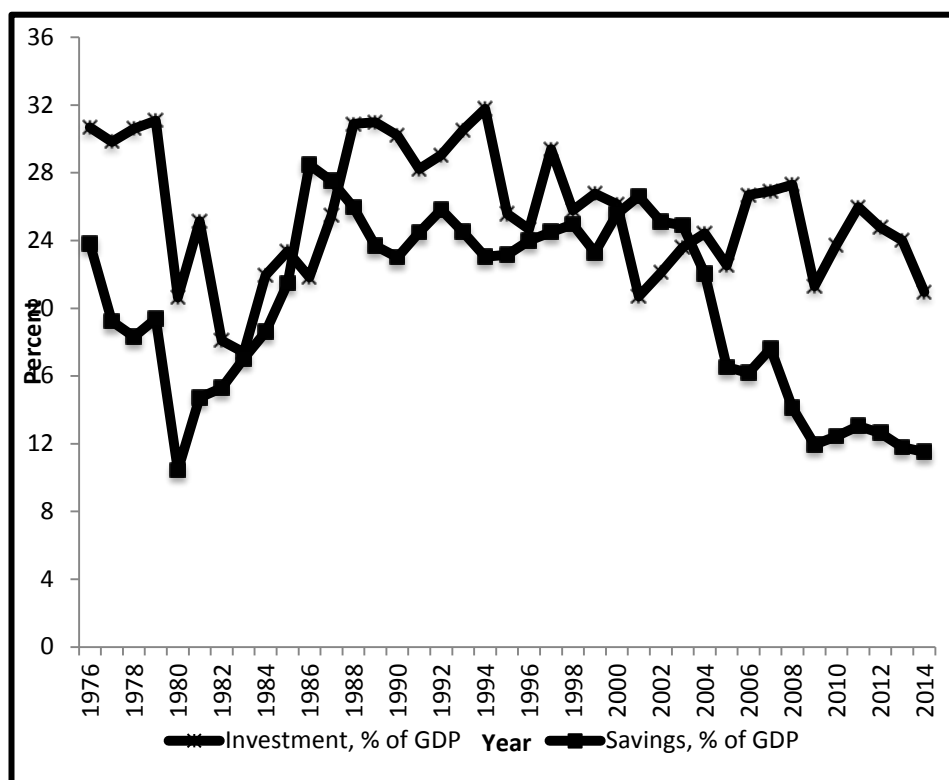


Source: Demirgüç-Kunt and Levine (2000, 2010); Čihák et al. (2012).

Despite having notable pitfalls in 2001 and 2008, the market capitalisation of the Mauritian stock market as a proportion of GDP increased from 10% in 1990 to 62% by 2012. Notwithstanding, starting at 2% and below 1% levels, the turnover ratio and the total value ratio averaged 6% and 2% respectively in the period 1990 to 2012.

Trends in investment and savings for the period 1976 to 2014 are given in Figure 3.

Figure 3: Investment and Savings (% of GDP)



Source: World Bank, 2016

From 1976 to 2000, trends in investment show a lagged reaction to trends in savings. For example, savings hit their minimum level during this period in 1980 (being 10% of GDP), investment followed suit only two years later in 1983, hitting its minimum level of 17%. The phenomenon is repeated for the maximum value of 28% for savings in 1986, which is translated as an increase in investment in 1988. However, after 2000, the relationship between investment and savings seems to change as no succinct relationship between the two can be deciphered from the plot, as depicted in Figure 3. As the savings ratio starts to gradually decrease the investment ratio maintains a relatively stable trend (above 20% but less than 28% levels). This may be attributed to the proliferation of other financing sources other than savings in the financial markets. However, investment trends seem to have improved when financial liberalisation policies were adopted in 1986. Furthermore, the 2001 slump in investment seems to have been connected to the stock market as the market capitalisation trends also suffered the same effect in the same year.

3. Literature Review

The direction of causality between financial development and investment has undergone limited investigation as studies have focused more on the causality relationship between finance and economic growth. Studies that specifically focused on the direction of causality between finance and investment include Rousseau (1999), Xu (2000), Rousseau and Vuthipadadorn (2005), Huang (2011), Odhiambo (2010), Lu *et al.* (2007), Hamdi *et al.* (2013), Asongu (2014), Muyambiri and Odhiambo (2017) and Ndako (2017). Of all the studies that have assessed the direction of causality between financial development and investment, only Muyambiri and Odhiambo (2017) divided financial development into bank-

based and market-based financial development. All of the studies focused mainly on the bank-based side of financial development.

Four of the studies found that financial development Granger-causes investment. These are Rousseau (1999), Xu (2000), Rousseau and Vuthipadadorn (2005) and Asongu (2014). Rousseau (1999) studied finance, investment and growth in the Meiji-era in Japan for the period 1880 to 1913. The variables of interest to this study that were included in Rousseau's (1999) study were non-intermediary holdings of corporate stocks and bonds; per capita GNP; gross domestic fixed investment; private domestic fixed investment; currency in circulation; mid-year population; assets of insurance companies; loan agricultural cooperatives, assets of savings institutions; assets of special banks; and assets of commercial banks. Rousseau (1999) made use of vector autoregressive (VAR) models in his econometric analysis.

Xu (2000) studied financial development, investment and economic growth in 41 countries for the period 1960 to 1993. In addition to macroeconomic variables, the study included only bank-based financial development indicators as part of the variables in the estimated econometric model. Variables in the study included real GDP, real domestic investment, a composite index of financial development, liquid liabilities/GDP and total bank deposits/GDP.

Rousseau and Vuthipadadorn (2005) evaluated the causal relationship between finance, investment and growth using time series evidence from 10 Asian economies. Variables used included difference between broadly defined and narrow money (M2- M1); credit allocated to the private sector; gross domestic product; and gross domestic fixed investment.

Asongu (2014) studied the causal linkages between investment flows and financial development of 16 African countries. The author used a number of financial development indicators.

On the other hand, Odhiambo (2010), Hamdi *et al.*, (2013) and Muyambiri and Odhiambo (2017) found that investment Granger-causes financial development. Odhiambo (2010) studied the finance-investment-growth nexus in South Africa with the aid of an ARDL-bounds testing procedure. The author used three proxies to measure the level of financial development. These include liquid liabilities/GDP, private credit/GDP and M2/GDP. A trivariate causality model based on the ARDL-bounds testing procedure was employed in this study.

Hamdi *et al.* (2013) used a multivariate Granger-causality model to assess causality between financial development, investment and economic growth for Tunisia. As is the norm in almost all studies evaluated thus far, financial development was assessed using bank-based indicators. The author employed a multivariate Granger-causality model (based on the Vector Error Correction Model and cointegration techniques) to examine this linkage. Investment was found to Granger-cause financial development in the short run when financial development was measured using private sector credit to GDP. In the long run, financial development was found to Granger-cause investment when financial development was measured using private sector credit to GDP, banking deposit liabilities to GDP and the M3 to GDP.

Muyambiri and Odhiambo (2017) use composite market-based and bank-based financial indicators and investment for South Africa for the period 1976 – 2014. A multivariate causality model based on the ARDL-bounds testing procedure was employed in this study.

On the other hand, Lu *et al.* (2007), Huang (2011) and Ndako (2017) found that there was a two-way causality between investment and financial development. Lu *et al.* (2007) evaluated the causal relationship between financial development, capital accumulation and productivity

improvement in China. The study used the following financial development proxies: M2/GDP; bank deposit liabilities/GDP; and bank domestic credit /GDP. Huang (2011), on the other hand, studied the causal relationship between private investment and financial development in 43 countries. Panel Regression and causality testing using the common correlated effect approach were adopted to ascertain the causal relationship between financial development and investment. Ndako (2017) applied the standard Vector autoregression (VAR) framework of Johansen with an endogenous structural break model using annual data from 1960-2014 for Nigeria. Four variables are employed: Gross Domestic Product per capita (GDP), Investment (INV), and financial development represented by Domestic Credit Private sector (DCP), and Broad Money (LM2). The popular notion of measuring financial development with only bank-based financial indicators is also employed.

4. Data and Methodology

The set of ARDL-based cointegrating equations related to the causality model used in this study can be expressed as follows:

Model A: Investment and bank-based financial development

$$\Delta INV_t = \alpha_0 + \sum_{i=1}^n \alpha_{1i} \Delta INV_{t-i} + \sum_{i=0}^n \alpha_{2i} \Delta BFDG_{t-i} + \sum_{i=0}^n \alpha_{3i} \Delta SAV_{t-i} + \alpha_4 BFDG_{t-1} + \alpha_5 SAV_{t-1} + \alpha_6 INV_{t-1} + \varepsilon_{1t} \quad (4.1)$$

$$\Delta BFDG_t = \beta_0 + \sum_{i=1}^n \beta_{1i} \Delta BFDG_{t-i} + \sum_{i=0}^n \beta_{2i} \Delta INV_{t-i} + \sum_{i=0}^n \beta_{3i} \Delta SAV_{t-i} + \beta_4 BFDG_{t-1} + \beta_5 SAV_{t-1} + \beta_6 INV_{t-1} + \varepsilon_{2t} \quad (4.2)$$

$$\Delta SAV_t = \rho_0 + \sum_{i=1}^n \rho_{1i} \Delta SAV_{t-i} + \sum_{i=0}^n \rho_{2i} \Delta INV_{t-i} + \sum_{i=0}^n \rho_{3i} \Delta BFDG_{t-i} + \rho_4 BFDG_{t-1} + \rho_5 SAV_{t-1} + \rho_6 INV_{t-1} + \varepsilon_{3t} \quad (4.3)$$

Model B: Investment and market-based financial development

$$\Delta INV_t = \omega_0 + \sum_{i=1}^n \omega_{1i} \Delta INV_{t-i} + \sum_{i=0}^n \omega_{2i} \Delta MFDG_{t-i} + \sum_{i=0}^n \omega_{3i} \Delta SAV_{t-i} + \omega_4 MFDG_{t-1} + \omega_5 SAV_{t-1} + \omega_6 INV_{t-1} + \varepsilon_{4t} \quad (4.4)$$

$$\Delta MFDG_t = \varphi_0 + \sum_{i=1}^n \varphi_{1i} \Delta MFDG_{t-i} + \sum_{i=0}^n \varphi_{2i} \Delta SAV_{t-i} + \sum_{i=0}^n \varphi_{3i} \Delta INV_{t-i} + \varphi_4 MFDG_{t-1} + \varphi_5 SAV_{t-1} + \varphi_6 INV_{t-1} + \varepsilon_{5t} \quad (4.5)$$

$$\Delta SAV_t = \gamma_0 + \sum_{i=1}^n \gamma_{1i} \Delta SAV_{t-i} + \sum_{i=0}^n \gamma_{2i} \Delta MFDG_{t-i} + \sum_{i=0}^n \gamma_{3i} \Delta INV_{t-i} + \gamma_4 MFDG_{t-1} + \gamma_5 SAV_{t-1} + \gamma_6 INV_{t-1} + \varepsilon_{6t} \quad (4.6)$$

Where INV is the annual growth rate of the gross fixed capital formation (a proxy for the level of domestic investment), $BFDG$ is the accelerator interaction term for bank-based financial development, $MFDG$ is the accelerator interaction term for market-based financial development, SAV is the gross domestic savings and ϵ is the error term. Three bank-based financial development indicators are used to calculate the bank-based financial development indicator ($BFDG$) – namely liquid liabilities as a ratio of GDP (M3), domestic credit to private sector as a ratio of GDP and domestic credit provided by financial sector (% of GDP) as a ratio of GDP. The resultant index is multiplied by the GDP per capita growth rate to get the accelerator-augmented index $BFDG$. Three market-based financial development indicators are used to calculate the market-based financial development indicator $MFDG$ – stocks traded, total value as a percentage of GDP; market capitalisation of listed companies as a ratio of GDP; and the turnover ratio. The resultant index is multiplied by the GDP per capita growth rate to get the accelerator-augmented index MG .

After confirmation of cointegration between financial development, investment and savings, the causal relationship between investment and either bank-based financial development or market-based financial development is investigated with the aid of the error correction-based Granger-causality approach. Following Nyasha (2015), Pradhan (2011) and Odhiambo (2010), the trivariate causality model is estimated as follows:

Model A: Investment and bank-based financial development

$$\Delta INV_t = \alpha_0 + \sum_{i=1}^n \alpha_{1i} \Delta INV_{t-i} + \sum_{i=1}^n \alpha_{2i} \Delta BFDG_{t-i} + \sum_{i=1}^n \alpha_{3i} \Delta SAV_{t-i} + \alpha_4 ECT_{t-1} + \mu_{1t} \tag{4.7}$$

$$\Delta BFDG_t = \beta_0 + \sum_{i=1}^n \beta_{1i} \Delta INV_{t-i} + \sum_{i=1}^n \beta_{2i} \Delta BFDG_{t-i} + \sum_{i=1}^n \beta_{3i} \Delta SAV_{t-i} + \beta_4 ECT_{t-1} + \mu_{2t} \tag{4.8}$$

$$\Delta SAV_t = \rho_0 + \sum_{i=1}^n \rho_{1i} \Delta INV_{t-i} + \sum_{i=1}^n \rho_{2i} \Delta BFDG_{t-i} + \sum_{i=1}^n \rho_{3i} \Delta SAV_{t-i} + \rho_4 ECT_{t-1} + \mu_{3t} \tag{4.9}$$

Model B: Investment and market-based financial development

$$\Delta INV_t = \omega_0 + \sum_{i=1}^n \omega_{1i} \Delta INV_{t-i} + \sum_{i=1}^n \omega_{2i} \Delta MFDG_{t-i} + \sum_{i=1}^n \omega_{3i} \Delta SAV_{t-i} + \omega_4 ECT_{t-1} + \mu_{4t} \tag{4.10}$$

$$\Delta MFDG_t = \varphi_0 + \sum_{i=1}^n \varphi_{1i} \Delta INV_{t-i} + \sum_{i=1}^n \varphi_{2i} \Delta MFDG_{t-i} + \sum_{i=1}^n \varphi_{3i} \Delta SAV_{t-i} + \varphi_4 ECT_{t-1} + \mu_{5t} \tag{4.11}$$

$$\Delta SAV_t = \gamma_0 + \sum_{i=1}^n \gamma_{1i} \Delta INV_{t-i} + \sum_{i=1}^n \gamma_{2i} \Delta BFDG_{t-i} + \sum_{i=1}^n \gamma_{3i} \Delta SAV_{t-i} + \gamma_4 ECT_{t-1} + \mu_{6t} \tag{4.12}$$

where:

$\alpha_0, \beta_0, \rho_0, \omega_0, \varphi_0$ and γ_0 are respective constants; Δ is the difference operator; $\alpha_1 - \alpha_4, \beta_1 - \beta_6, \rho_1 - \rho_6, \omega_1 - \omega_6, \varphi_1 - \varphi_6, \gamma_1 - \gamma_6$ are the respective coefficients; $\varepsilon_{1t} - \varepsilon_{6t}, \mu_{1t} - \mu_{6t}$ are the error terms and ECT_{t-1} is the error correction term lagged one period.

The statistical significance of the lagged error term, ECT_{t-1} validates the long-run relationship between the variables. The estimated error correction term shows the speed of convergence from the short-run towards the long-run equilibrium path in all models. The main advantage of the ECM based causality test over the traditional Granger-causality is that it aids in distinguishing between short-run and long-run causal relationships. A negative coefficient of the error correction term (ECT_{t-1}) assures the convergence of the estimated system of variables in the models and it also indicates the long-run causality among the variables (Shahbaz *et al.*, 2012.). However, only in situations where there is cointegration amongst the variables is the error correction term included in the above-illustrated regression. The t-statistic on the coefficient of the lagged error correction term is used to assess the significance of the long-run causal relationship among the variables. Short-run causality is gauged with the help of given differenced variables by using the F-statistic to assess the significance of the relationship.

5. Empirical Results

To ascertain that all the variables are integrated of an order equal to 0 or 1, the Augmented Dickey-Fuller Generalised Least Square and the Perron (1997) PPUroot unit root tests are employed. The ARDL bounds test can only be employed when all variables are integrated of an order equal to one or less. Results of the unit root tests are shown in Table 1 and confirm that all the variables under consideration are at most integrated of order 1.

Table 1: Unit Root Tests

Dickey-Fuller Generalised Least Square (DF-GLS)				
Variable	Stationarity in levels		Stationarity in differences	
	No trend	With trend	No trend	With trend
INV	-2.667***	-3.055**	-	-
BFDG	-2.588929**	-5.911834***	-	-
MFDG	-2.759***	-3.843***	-	-
SAV	-1.129	-1.512	-4.589***	-5.506***
Perron (1997) Unit Root Test (PPUroot)				
	Stationarity in levels		Stationarity in differences	
	No trend	With trend	No trend	With trend
INV	-6.876***	-7.148***	-	-
BFDG	-6.817410***	-6.952***	-	-
MFDG	-3.313	-3.907	-11,116***	-10.950***
SAV	-3.746	-3.543	-7.028*	-7.816*

Note: *, ** and *** denotes stationarity at the 10%, 5% and 1% significance levels respectively

Given the confirmation that the order of integration is at most 1, the next step is to test the possibility of cointegration among the variables using the ARDL bounds testing procedure. Savings ratio is added as an intermittent variable to form a trivariate Granger-causality model. The Granger-causality test is split into two models. The first model (Model A) tests the causality between investment- and bank-based financial development and has the following variables: investment, bank-based financial development and saving. The second model (Model B) examines the causal relationship between investment and market-based financial development and has the following variables: investment, market-based financial development and savings.

Before the causal relationship is examined, the first step is to establish the existence of cointegration, if any, among the variables of interest. To establish if there is cointegration in the variables under study, the bounds F-test is employed. If there is cointegration, the estimated causality model will contain the error correction term as one of the regressors, and the opposite is also true (no cointegration, no error correction term in the estimated model). The empirical results of the ARDL bounds F-test for both bank-based financial development (Model A) and market-based financial development (Model B) are given in Table 2.

Table 2: Bounds F-Test for Cointegration

Model A: Investment (INV), Bank-Based Financial Development (BFDG) and Savings (SAV)				Model B: Investment (INV), Market-Based Financial Development (MFDG) and Savings (SAV)			
Dependent Variable	Function	F-statistic	Cointegration Status	Dependent Variable	Function	F-statistic	Cointegration Status
INV	F(INV BFDG, SAV)	6.111**	Cointegrated	INV	F(INV MFDG, SAV)	5.099**	Cointegrated
BFDG	F(BFDG INV, SAV)	1.759	Not Cointegrated	MFDG	F(MFDG INV, SAV)	4.901**	Cointegrated
SAV	F(SAV INV, BFDG)	2.009	Not Cointegrated	SAV	F(SAV INV, MFDG)	0.368	Not Cointegrated
Asymptotic Critical Values							
<i>Pesaran et al 2001:300 Table CI(iii) Case III</i>	1%		5%		10%		
	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)	I(1)
	5.15	6.36	3.79	4.85	3.17	3.14	4.4

Note: *, ** and *** denotes stationarity at the 10%, 5% and 1% significance levels respectively

Results from Table 2 show that three out of the six equations to be estimated have cointegrated variables. All this is confirmed by the respective F-statistics of each function vis-à-vis the asymptotic critical values.

Upon confirmation of the cointegration relationships, the direction of causality between investment and financial development, both bank- and market-based, is investigated. Table 5 gives the results of the trivariate Granger-causality model for Mauritius.

Table 3; Granger-Causality Test Results

Model A: Investment (INV), Bank-Based Financial Development (BFDG) and Savings (SAV)				
Dependent Variable	F-statistics (probability)			ECT_{t-1} [t-statistics]
	ΔINV	$\Delta BFDG$	ΔSAV	
ΔINV	-	2.902* (0.098)	2.562 (0.120)	-0.640*** [-4.338]
$\Delta BFDG$	1.3512 (0.274)	-	0.596 (0.557)	-
ΔSAV	1.209 (0.313)	1.129 (0.337)	-	-
Model B: Investment (INV), Market-Based Financial Development (MFDG) and Savings (SAV)				
Dependent Variable	F-statistics (probability)			ECT_{t-1} [t-statistics]
	ΔINV	$\Delta MFDG$	ΔSAV	
ΔINV	-	4.072** (0.040)	0.010 (0.990)	-0.667** [-2.500]
$\Delta MFDG$	1.031 (0.386)	-	3.088* (0.083)	-0.823*** [-3.746]
ΔSAV	1.970 (0.174)	0.133 (0.876)	-	-

*, ** and *** denote significance at the 10%, 5% and 1% significance levels respectively

The results of the Granger-causality test reported in Table 3 for Model A show the existence of unidirectional causality from bank-based financial development to investment for both the short run and the long run. The short-run causality is confirmed by the significance of the F-statistic for bank-based financial development in the investment equation, while the long-run causality is confirmed by the significance of the error correction term using the associated t-statistics.

On the other hand, Model B results show short-run and long-run unidirectional causality from market-based financial development to investment. The short-run causality is confirmed by the significance of the F-statistic for market-based financial development in the investment equation while the long-run causality is confirmed by the significance of the error correction term using the associated t-statistics. Other results show that savings have a unidirectional causality effect on market-based financial development in both the short run and the long run.

In summary, the results imply that, in Mauritius, both bank-based and market-based financial development drive investment in the short run and the long run. Therefore, for Mauritius, accelerator-enhancing term for both bank-based and market-based financial development Granger-causes investment in the short run and the long run. The results are consistent with findings by Rousseau (1999), Xu (2000), Rousseau and Vuthipadadorn (2005) and Asongu (2014).

6. Conclusion

In this paper, the causal relationship between bank- and market-based financial development and investment in Mauritius has been empirically investigated using data from 1976 to 2014. The assessment of the causal effect of financial development on investment has been done within a trivariate causality setting. The study makes use of two models, namely Model A and Model B. Model A is composed of the accelerator-augmented index for bank-based financial development, investment and savings, while Model B is composed of the accelerator-augmented index for market-based financial development, investment and savings. The accelerator-augmented indices for bank- and market-based financial

development are constructed from an array of bank- and market-based financial development indicators. The savings ratio has been included as an intermittent variable in order to address the problem of omission of variable bias. The findings of this study reveal that for Mauritius, financial development drives investment, both in the short run and in the long run. This applies irrespective of whether the financial development is proxied by bank-based or market-based indicators. It is, therefore, recommended that policies aimed at promoting and strengthening banking sector and stock market development should be intensified in Mauritius in order to spur investment.

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