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Duduzile Ngobe
University of Eswatini, dudungobe10@gmail.com

Kalu O. Emenike
University of Eswatini, kalu@uniswa.sz

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RELATIONSHIP BETWEEN FOREIGN DIRECT INVESTMENT AND STOCK MARKET DEVELOPMENT IN A SMALL SOUTHERN AFRICA ECONOMY

Duduzile Ngobe
Postgraduate, Department of Accounting and Finance, Faculty of Commerce
University of Eswatini
dudungobe10@gmail.com, dngobe@fnb.co.sz

Kalu O. Emenike
Department of Accounting and Finance, Faculty of Commerce
University of Eswatini
kalu@uniswa.sz

Abstract

This paper investigates the relationship between foreign direct investment and stock market development in a small southern African economy. Specifically, the paper analyses long-run, short-run and causal relationships between foreign direct investment and stock market development in Eswatini for the 1990 to 2018 periods. Results of preliminary analyses of the variable show existence of positive skewness, fat-tailed, non-normal distribution, and I(1) order of integration for the foreign direct investment and stock market return series. Estimates from the ARDL model indicate evidence of a positive and statistically insignificant long-run relationship between foreign direct investment and stock market development in the kingdom of Eswatini. But in the short-run, there exist no relationship between foreign direct investment and stock market development in Eswatini. Estimates from Granger causality test do not show any evidence of causal relationship between foreign direct investment and stock market development in Eswatini. We recommend amongst others that capital market authorities should establish measures to increase the number of listings in the market so as boost investment options. In addition, there should be massive domestic investor-education on benefits of financing projects with a combination capital market funds, which has long-term tenor, and money market funds, which are of short-term nature.

Keywords: foreign direct investment, stock market development, ARDL bound test, pairwise granger causality, Eswatini

INTRODUCTION

The importance of foreign direct investment (FDI) in contributing to investment growth in developing countries and sustainable development in developed countries is well established in international finance literature. Wang et al. (2019) for example, emphasized the significance of FDI in economic growth of various countries in the world. There are many opinions concerning the several benefits of FDI inflows to host countries. Long-established opinion describes FDI as a movement of capital in response to differences in returns among different countries. A later opinion describes foreign capital inflows as a resource for economic development and integration with other economies, which improves the standard of living (Levin 2001). Modern opinions

in contrast describes FDI as not only a form of transfer of capital but also as supply of various forms of international sponsorship to a local firm consisting transfer of proprietary and intangible assets including technology, business techniques, and skilled personal (Johanson and Mattsson 2015; Saini and Singhania 2018). Emenike and Amu (2019) remarked that foreign investment provides real economic benefits to the domestic market through risk sharing between domestic and foreign investors. This risk sharing leads to acquisition of the knowledge assets of foreign firms and a reduction in the equity cost of capital of domestic firms since foreign investors are willing to pay a premium in order to obtain the diversification benefit. More so, FDI enhances liquidity in the domestic economy and may bring significant benefits by creating high-quality jobs, introducing modern production and management practices (Tsagkanos et al. 2019).

The stock market across the globe provides a platform for economic agents in need of funding and investors seeking profitable investment opportunities to interact. It performs major functions of price transparency, price discovery, reduced transaction costs and exchange regulation, which strengthen investors' confidence (Emenike 2017). Swaziland stock market was established in 1990 as a non-bank credit institution. It operated as an over the counter-single stockbroker facility till July 1999 when it became a fully-fledged dependent stock exchange, operating as a quasi-company within the Capital Markets Development Divisions of Financial Services Regulatory Authority. In January 2017, the Swaziland stock exchange became an independent institution. It introduced Automated Trading System as well as changed its name to Eswatini Stock Exchange (ESE) in February 2019. Although the ESE is effectively opened to the global business community, the number of listed securities is still few, which resulted from many years of dependence as government parastatal. With the new found independence, ESE is expected to perform the major functions of stock markets so as to attract foreign direct investment to Eswatini and reap the benefits thereof.

Numerous empirical studies have investigated the interactions between foreign direct investment and stock market development both in developing and developed countries (see for example, Karthik 2011; Shahbaz et al. 2013; Meman 2016; Ramirez 2018; Arikpo and Ogar 2018; Tsagkanos et al. 2019). These empirical studies have documented important findings that inform policy actions and contributed to knowledge which have aided sound international finance and stock market decisions. There is however no study on the interaction between foreign direct investment and stock market using Eswatini data. The few available studies on foreign direct investment in Eswatini include Masuku and Dlamini (2009) and Joubert (2012). Joubert (2012), for example, examined benefits and drawbacks of foreign direct investment in relation to small enterprise and entrepreneurship development in Swaziland, whereas Masuku and Dlamini (2009) studied the determinants of foreign direct investment inflows in Swaziland. Understanding the relationship between foreign direct investments and stock return returns is very essential for stock market and foreign investment policy-making because of the mobility foreign investment and impact of return-chasing speculators whose decisions can exacerbate stock market instability (Emenike and Amu 2019). It is thus important to document evidence-based knowledge of the interaction between stock market development and foreign direct investment in Eswatini.

The purpose of the study was to evaluate the relationship between foreign direct investments on stock market development in Eswatini. Evidence-based knowledge of the

relationship between foreign direct investments on stock market development is vital for stock market regulation and investment policy-making. The study findings can therefore benefit the stock market policy-makers in Eswatini to develop, implement and monitor necessary institutional framework and internal policies required to position Eswatini stock market to attract required foreign investments for its development. Foreign investors can also gain information to aid investment decisions from the findings. More so, the empirical findings of this study will contribute to the body of knowledge on the interactions between of foreign direct investment and stock market development in developing economies as well as provide basis for future studies to sustain or debunk its findings. The remainder of the paper is organised as follows. Section 2 presents review of related empirical literature. Section 3 embodies methodology and data. Section 4 presents the results and discussions, and Section 5 provide the conclusions.

LITERATURE REVIEW

A considerable amount of literature has been published on relationship between foreign investment and stock markets. Most of these studies were conducted to evaluate the effect of institutional framework and internal policies established to attract foreign investments on stock market investors. Masuku and Dlamini (2009) for example studied the determinants of foreign direct investment inflows in Swaziland over the period of 1980 to 2001 using cointegration and error correction model to identify factors influencing FDI inflows. the study showed that FDI inflows in Swaziland is mainly determined by openness of the Swazi economy to foreign trade, which suggests that Swaziland Government needs to consider a policy that allows enhances foreign investment. Bhasin and Manocha (2016) examined the determinants of FDI inflows into India with a special focus on the role of bilateral investment treaties (BITs) using panel data span over the period 2001–2012. The results confirmed positive role of BITs in attracting FDI inflows into India. The results also provided support for the large size of the economy and a more liberal FDI regime as other factors facilitating FDI. In a later study on determinants of FDI, Saini and Singhania (2018) used panel data analysis on static and dynamic modeling for 9 developing and 11 developed over the 2004-2013 periods to report that in developed countries, FDI seeks policy-related determinants (GDP growth, trade openness, and freedom index), and in developing country FDI showed positive association for economic determinants (gross fixed capital formulation (GFCF), trade openness, and efficiency variables).

There are also studies that aim to identify the major contributing factors to the development of stock market with emphasis on the role of FDI. The question concerned is whether FDI play a significant role in the stock market development. Karthik (2011) investigated on the impact of foreign direct investment on stock market development in India using ARDL approach was applied for testing co-integration on annual data. The findings portrayed, amongst others, a positive and statistically relationship between FDI and market capitalization thus reflecting the complementary role of FDI in the stock market development of India. In a similar study, Raza et al. (2012) evaluated the role of foreign direct investment on stock market development in Pakistan using annual time series data from 1988 to 2009. The study included macroeconomic variables like domestic savings, exchange rate and inflation rate to moderate foreign direct investment inflows, and documented evidence of a positive significant impact of foreign direct investment on stock market development in Pakistan. Using ARDL on sample data from 1971 to 2006, Shahbaz et al. (2013) also reported, amongst

others, a significant positive relationship between FDI and stock development in Pakistan in the long-run. Meman (2016) applied, Granger causality test, Johansen cointegration test and vector error correction model to show unidirectional causality from Indian stock market to foreign investment for the January 2005 to June 2016 study periods. In a cross-country study, Ramirez (2018) analysed the impact of FDI inflows on the size and liquidity of 14 developing country stock markets over the period 2007-2016 using the panel regression model, and found that there is no significant impact of FDI inflows on the size and liquidity of the emerging stock markets but there is statistically negative contemporaneous impact of FDI inflows on market index returns. In a recent study, Tsagkanos et al. (2019) examine relationship between foreign direct investment and stock market development in Greece by dividing the study period into two: 1988 to 2001 emerging period, and 2002 to 2014 developed periods. They report a statistical strong long-term relationship in the emerging period and statistically insignificant long run relationship in the developed period.

The linkage between foreign direct investment and stock market has equally received attention from African scholars. Idenyi et al. (2016) examined the impact of foreign direct investment on stock market growth in Nigeria using cointegration, vector error correction model and pair wise Granger causality for the 1984–2015 periods. The results show existence of a long run equilibrium relationship between the stock market growth and foreign direct investments, export and import. The findings did not show any evidence of causal relationship between FDI and stock market growth. A similar study by Wanjiru (2017) reported existence of positive correlation between foreign direct investment and stock market development in Kenya for the period 1982 to 2016. A related study by Abubakar and Danladi (2018) using ARDL cointegration bound test for the 1981 to 2016 periods show absence of a significant relationship between foreign direct investment and stock market development in Nigeria. On the other hand, Arikpo and Ogar (2018) concluded that a significant positive relationship exist between foreign direct investment and stock market performance in Nigeria for the period of 1972 to 2016. Wang et al. (2019) investigated the impact of foreign direct investment on stock market development in Ghana using secondary data from 1991 to 2017 using ARDL approach to cointegration. They reported that in the long-run foreign direct investment impact negatively on stock market development but in the short-run foreign direct investment positively and significantly affect stock market development. In a related study, Emenike and Amu (2019) evaluated how foreign portfolio investment and foreign direct equity investment influence stock market volatility using GARCH-X (1,1) model on monthly data from January 2007 to July 2017. They reported amongst others, that stock market volatility responds to changes in foreign portfolio investment but that changes in foreign direct equity investment do not influence stock market volatility.

The synthesis of literature review highlights the import of FDI in contributing to investment growth and sustainable development in the long-run. This implies a positive association between FDI and stock market development in the long-run. Consequently, absence of long-run positive relationship between FDI and stock market development in developing economies should call for stimulating policies to ensure positive alignment. But evidence on the FDI and stock market development in Eswatini is not available in literature. Hence, this study hypothesize as follows:

H_{a1}: *There is significant long run relationship between foreign direct investment and stock market development in the Kingdom of Eswatini*.

H_{a2}: *There is significant short run relationship between foreign direct investment and stock market development in the Kingdom of Eswatini*.

H_{a3}: *There is significant causal relationship between foreign direct investment and stock market development in the Kingdom of Eswatini.*

RESEARCH METHODOLOGY

Method of Data Analysis

To achieve the purpose of this study, preliminary and inferential analyses were conducted. The preliminary analysis was conducted using descriptive statistics and unit roots tests. The descriptive analysis describes the coefficients that summarize the data set. Both level series and first difference series of all the variables were subjected to descriptive analysis using mean, standard deviation, skewness, kurtosis and Jarque-Bera statistics.

The Augmented Dicker Fuller (ADF) test for unit root was applied to establish the order of integration of the variables. The rule of thumb is that the hypothesis is tested in order to reject or accept the null hypothesis, if the ADF p=1 there is a unit root so the data series under study is non stationery while if the absolute value of ADF p >0 the series data under study is stationery however if ADFp > 1 it means the data series understudy is explosive. The general ADF model:

$$\Delta Y_t = a_0 + p_1 Y_{t-1} + a_2 T + \sum_{i-1}^{k} a_i \Delta Y_{t-i} + u_t \text{ .....(1)}$$

Where, Y_t is random walk variable at time t, ΔY_{t-1} is $(Y_{t-1} - Y_{t-2})$ express the first difference, a_0, a_1 & a_i are coefficients to be estimated, P is probability value, the one we want to determine, K is lag values of ΔY to control for higher order correlation, and U_t is the error term.

The inferential analysis was conducted to establish whether there is long-run and short-run relationships between foreign direct investment and stock market development in the Kingdom of Eswatini, as well as whether a causal relationship exist between them. The autoregressive distributed lag (ARDL) bounds testing approach was applied to evaluate whether there are long-run and short-run relationships between foreign direct investment and stock market development in the Kingdom of Eswatini. The ARDL model is justified because it depicts both long-run and short-run relationship between variables. More so, it applies irrespective of whether underlying variables are purely *I(0)*, *I(1)* or mutually cointegrated (Engle and Granger 1987; Park 1990; Phillips and Ouliaris 1990). The ARDL can be specified as follows:

$$SMC_t = a_0 + a_1 \sum_{i=1}^{p} FDI_{t-1} + a_2 \sum_{i=1}^{p} EXC\, t_{-1} + a_3 \sum_{i=1}^{p} INF\, t_{-1} + a_4 \sum_{i=1}^{p} INT\, t_{-1} + SMC_{t-1} + FDI_{t-1} + EXC_{t-1} + INF_{t-1} + INT_{t-1} + €_{t-1} \text{.....(2)}$$

Where, a is intercept, t is time, t-1 is lag, and $€_{t-1}$ is error term, assumed to be serially uncorrelated and homoscedastic. The error correction dynamics is denoted by summation sign. The equation 2 corresponds to the long run relationship. The ARDL Long run form bound test is used to investigate the long run relationship among the series. The null hypothesis of no cointegration is rejected if the calculated *F*-test statistics exceeds the upper critical bound (UCB) value. The results are said to be inconclusive if the *F*-test statistics falls between the upper and lower critical bound values. Lastly, the null hypothesis of no cointegration is accepted if the *F*-statistics is below the lower critical bound (LCB).

If the study finds evidence of long run relationship between foreign direct investment and stock market development in

Eswatini, the study will continue to estimate the error correction term and short run relationship by employing the following model:

$$\Delta SMC_t = a_{0+} a_1 \sum_{i=1}^{p} \Delta FDI\, t_{t-1} + a_2 \sum_{i=1}^{p} \Delta EXC\, t_{t-1} + a_3 \sum_{i=1}^{p} \Delta INT\, t_{-1} + a_4 \sum_{i=1}^{p} \Delta INF\, t_{-1} + nEC_{t-1} + €_{t-1} \ldots\ldots\ldots \textbf{(3)}$$

The error correction model denoted by nEC_{t-1} shows the speed of adjustment needed to restore the long run equilibrium following a short run shock. The *n* is coefficient of error correction term in the model that indicates the speed of adjustment. The long run model is replaced by the error correction model.

If there is no long run cointegration we will simply estimate the short-run ARDL bound test without estimating the error correction term. The short-run ARDL test can be specified as follows:

$$\Delta SMC_t = a_{0+} a_1 \sum_{i=1}^{p} \Delta FDI\, t_{t-1} + a_2 \sum_{i=1}^{p} \Delta EXC\, t_{t-1} + a_3 \sum_{i=1}^{p} \Delta INT\, t_{-1} + a_4 \sum_{i=1}^{p} \Delta INF\, t_{-1} + €_{t-1} \ldots\ldots\ldots\ldots \textbf{(4)}$$

The pairwise Granger causality test was employed to evaluate whether a causal relationship exist between foreign direct investment and stock market development in the Kingdom of Eswatini. The Granger causality test can be specified as follow:

$$Y_t = \sum_{i=1}^{n} \alpha_i Y_{t-i} + \sum_{j=1}^{n} \beta_j X_{t-j} + u_{1t}$$

$$X_t = \sum_{i=1}^{n} \lambda_i Y_{t-i} + \sum_{j=1}^{n} \sigma_j X_{t-j} + u_{2t} \quad \ldots\ldots\ldots \textbf{(5)}$$

Where, *n* is the maximum number of lagged observations included in the estimation. Sample *f*-test is applied to examine causality between foreign direct investment and stock market development in Eswatini. A significant *f*-statistic implies that lagged changes in a variable *Y* Granger cause changes in variable *X*. Unidirectional causality exists from foreign direct investment to stock market capitalization if foreign direct investment granger cause stock market capitalization but stock market capitalization does not cause foreign direct investment cause. If each of the variables causes the other, then a mutual feedback exists between the variables. If neither of them causes the other, then the two-time series are statistically independent (Granger, 1980; Emenike 2015).

Nature and Sources of Data

The data for this study consists of annual stock market capitalization (SMC) data, which is proxy for stock market development, obtained from Eswatini stock exchange. Foreign direct investment (FDI) data was obtained from the Central Bank of Eswatini. The macroeconomic variables including include, exchange rate (EXC), interest rate (INT) and inflation rate (INF) data were obtained from the World Bank Group. The study period begins from 1990 and ends in 2018. This yields a total of 29 time series observations. The data were obtained as annual basis from their various sources and transformed to natural logs using EViews 11 software. Transformation to natural logs was to improve interpretability. Natural logs also helped to re-scale the data and make variance more constant to overcome common statistical problem of heteroscedasticity and make positively skewed distribution closer to normal distribution (Brooks 2014). The variables were transformed to natural log thus:

$$SMC_{t,} FDI_{t,} EXC_{t,} INF_{t,} INT_t = ln\, P_t - ln\, P_{t-1} (SMC_t, FDI_{t,} EXC_{t,} INF_{t,} INT_{t,}) \ldots\ldots \textbf{(6)}$$

Where, SMC is stock market capitalization, FDI is foreign direct investment inflows, INF is inflation rate, INT is interest rate, *t* is time period, and *ln* is natural logarithm, The SMC is the total value of listed shares in the Kingdom of Eswatini. SMC is the dependent variable which the study

Table 1
Descriptive Statistics For Return Series

	SMC	FDI	EXC	INT	INF
Mean	0.157	0.102	0.058	-0.012	-0.035
Std. Dev.	0.485	0.166	0.124	0.119	0.432
Skewness	0.392	1.347	-1.409	-0.492	0.015
Kurtosis	3.493	3.566	2.421	-0.125	-1.122
Jarque-Bera	14.955	23.321	16.114	1.152	1.470
Probability	0.001	0.000	0.000	0.562	0.479

Note: SMC, FDI, EXC, INF, and INT are stock market capitalisation, foreign direct investment, exchange rate, inflation rate, and interest rate.

explained. The FDI included all the foreign capital coming from all sectors in the Kingdom of Eswatini. The EXC, INF and INT are moderator variables that affect the strength of the relationship between the foreign direct investments on stock market development in the Kingdom of Eswatini.

RESULT AND DISCUSSION

Preliminary Analysis

This section includes descriptive statistics; unit root test and vector autoregression (VAR) lag length selection criteria. The descriptive statistics are presented in Table 1. Notice from the *Table* that the average rate of change for stock market development (0.16) is greater than that of foreign direct investment (0.10). Similarly, the rate of dispersion from the average is higher for stock market development (0.49) than foreign direct investment (0.17). On the degree of symmetry of the return series, the foreign direct investment is asymmetric (1.3), whereas stock market development, interest and inflation rates are symmetric. The kurtosis showed the peakedness or flatness of the distribution. Notice from Table 1 that the return series of stock market development (3.5), foreign direct investment (3.6) and exchange rate are fat-tailed. In a normally distributed series, the excess kurtosis is 0 but these series are greater than 3 except for inflation and interest rates. One major implication of a fat-tailed distribution is that is that extreme observations are much more likely to occur (Emenike 2015). The Jarque–Bera statistics measures the difference of skewness and kurtosis of each of the variables with those of normally distributed. As can be seen from Table 1, the inflation and interest rate appear to be normally distributes whereas the other series are not.

Unit Root Test

The Augmented Dickey Fuller (ADF) test through Akaike Information Criterion (AIC) with constant is performed for each series to test for stationarity. This is because the nature of stationarity of the data series is essential before performing any regression analysis. Combination of data series with different order of integration leads to spurious regression, hence, the caution. The null hypothesis ADF is that the data series have a unit root while the alternative hypothesis state that the data series does not have unit root .If the null hypothesis is rejected, the ADF test is then run at first difference to be stationary as estimated in Table 2. Notice from Table 2 that only inflation rate series is stationary at level (i.e., $I(0)$). The ADF test statistic for inflation rate is greater in absolute

Table 2
Augmented Dicker Fuller (ADF) Test Results

	Level series		**First difference**	
	5% Critical t	Computed t	5% Critical t	Computed t
LNSCM	-1.953	1.555	-1.953	-3.929*
LNFDI	-1.953	3.022	-1.953	-4.001*
LNEXC	-1.953	2.016	-1.953	-3.285*
LNINF	-1.953	-0.890	-1.953	-5.144*
LNINT	-1.953	-0.999	-1.953	-6.918*

Note: *, **, *** indicates ADF test value is significant at 1%, 5% and 10% level of significance respectively.

Table 3
VAR lag Order Selection Criteria Results

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-22.18	NA	0.00	2.01	2.25	2.08
1	60.36	128.39	0.00	-2.25	-0.81*	-1.82
2	99.39	46.26*	3.30e-08*	-3.29*	-0.65	-2.50*

Note: * indicates lag order selected by the criterion.

value than its associated critical values, thus suggesting significance at 5%, level. Hence we reject the null hypothesis that the series has unit root. The other variables are not stationary at level but become stationary at first difference. This is shown by their *p*-values which are less than the 5 percent significance level ($\propto$=0.05), hence we reject the null hypothesis of non-stationarity and conclude that at first difference all series are stationary. This indicates that they are integrated of order one (i.e., *I*(1)) series.

VAR Lag Order Selection Criteria

The order of optimal lag length was decided using the standard VAR order selection criteria including Likelihood ration (LR) for sequentially modified LR test statistic, Final prediction error (FPE), Akaike information criterion (AIC), Schwarz information (SC), and Hannan-Quinn information criterion (HQ) to select the optimal lag length between the variables. The appropriate Lag order is also the key instrument to avoid serial correlation of the error correction terms (Lütkepohl 2007). As per the rule of thumb, the study selected appropriate lag following AIC because it had the lowest value. Table 3 depict that 2 lags should be opted for *F*-statistics computation to reveal the cointegration relationship between the variables.

Inferential Analysis

The analysis in this subsection was conducted to establish the long-run, short-run, and causal relationships between stock market development and foreign direct investment in the Kingdom of Eswatini. As outlined in Section 3.2, the ARDL test was performed for long-run and short-run relationships between stock market development and foreign direct investment in the Kingdom of Eswatini. In line with ARDL long-run form, the variables are stationery at level *1*(0) and *1*(1), which contrast with the traditional cointegration tests of Engle and Granger (1987), Phillips and Ouliaris (1990), Park

Table 4
ARDL Long Run Form And Bound Test Results

K	F-statistic	Significant	Lower bound I (0)	Upper bound I (1)
4	12	10%	2.45	3.52
		5%	2.86	4.01
		2.50%	3.25	4.49
		1%	3.74	5.06

Table 5
Long-Run Estimates Of ARDL Bound Approach Test Results

Variable	Coefficient	*t*-statistic	*p*-value
LNFDI	1.24	1.96	0.06
LNEXC	-0.14	-0.17	0.87
LNINF	-0.13	-0.32	0.75
LNINT	1.19	1.26	0.22
C	7.79	1.28	0.21

(1990), or Johansen (1991, 1995), that require all variables of interest to be *1*(1). More so, the apt lag length has been selected. The estimates ARDL long-run form and bound test are presented in Table 4. The guidelines are that once the *F*-statistic is computed, it is compared to two asymptotic critical values corresponding to polar cases of all variables being purely I(0) or purely I(1). If the test statistic is below the lower critical value, accept the null hypothesis of no cointegration. In contrast, if the test statistic is above the upper critical value, reject the null and conclude that there is existence of cointegration between the variables. Alternatively, if the test statistic falls between the lower and upper critical values, testing is inconclusive.

Observe from Table 4 that the *F*-statistics is 12 which, when compared with the asymptotic critical values, lower bound and upper bound that corresponds to the polar cases of all variables being purely I (0) or purely I(1) respectively, is higher than the upper bound I(1) at 1%, 2.5% 5% and 10% significance level. Hence, the results indicate evidence of long-run relationship among the variables. The results also imply that the long-run relationship coefficient can be estimated, and proceed to find the error term which shows the speed of adjustment needed to restore the long run equilibrium following a short-run shock. This finding is similar to Shahbaz et al. (2013) who reported a significant relationship between FDI and stock development in Pakistan in the long-run. Idenyi et al. (2016) equally reported evidence of long-run relationship between the stock market growth and foreign direct investment in Nigeria. The finding is also related to Wang et al. (2019) who found evidence of a long-run relationship among the foreign direct investment and stock market but the error correction term indicated that in the long run foreign direct investment negatively affect stock market development while in the short run foreign direct investment positively and significantly affect stock market development.

The long-run parameters are shown in *Table* 5. The corresponding p-values of the coefficients in all the independent variables show that foreign direct investment is

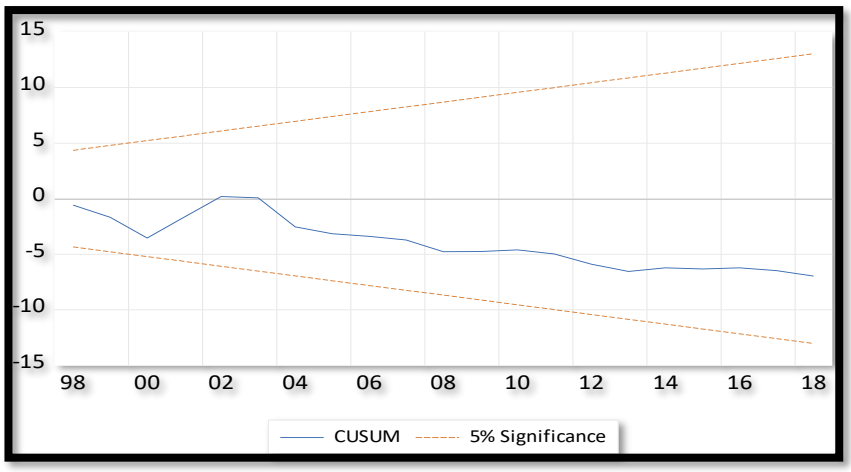

Figure 1: Graph Of Model Stability Diagnosis

statistically significant in affecting the stock market development at conventional significant level. However, the exchange rate and inflation rate have negative but insignificant relationship with stock market development. Similarly, interest rate has a positive sign does not appear to influence stock market development. The study uses the long run elements to create the error correction model which later replace them in the short run equation as depicted by equations 4. The rule of thumb is that it must be negative and statistically significant. Table 6 shows that ECM (-1) which is the error correction term is -0.41 and the corresponding *p*-value is 0.01. This means that it suffices to explain that 42% of the long run disequilibrium in the system is corrected in the short run.

Long-run Model Stability Diagnosis

Model stability diagnosis became essential to test whether coefficients are statistically significant using the CUSUM test. The null hypothesis is that the model is correctly specified and cannot be rejected if the plot of these statistics remains within the critical bounds of the 5% significance level.

Notice from *Figure* 1 that the graph of model stability diagnosis shows that the blue trend line lies within the boundary. Hence, the ARDL bound test model for long-run is mostly stable. The findings can be applied in policy making.

Short-run Relationship between Foreign Direct Investment and Stock Market Development

The ARDL bound short-run test specified in Equation 5 was computed to analysis the short-run relationship between foreign direct investment and stock market development in Eswatini and the results are shown in *Table* 6. Notice from *Table* 6 that the coefficients of foreign direct investment, exchange rate, inflation rate, and interest rate are not statistically significant at any conventional significance. This suggests that foreign direct investment and the selected macroeconomic variables do not relate with stock market development in the short-run. Absence of short-run relationship between FDI and stock market development may be explained by the few listed securities in the bourse, which gives investors limited investment options. This finding calls for policies to encourage foreign

Table 6
Short-Run Estimates Of ARDL Bound Test

Variable	Coefficient	*t*-statistic	*p*-value
C	0.18	1.57	0.13
D (LNFDI (-1))	0.13	0.23	0.82
D (LNEXC (-1))	-0.48	-0.61	0.55
D (INF (-1))	0.02	0.88	0.39
D (INT (-1))	0.00	-0.07	0.95
ECM (-1)	-0.42	-2.45	0.02
Panel B: Diagnostic Test			
		Coefficient	*p*-value
Test for Residual Autocorrelation	Chi-Square (4)	10.138	0.038
ARCH LM test	Chi-Square (4)	1.355	0.851

investment as well as to sustain domestic investors' participation in the stock market. More so, there should be massive investor-education on the benefit of financing investment projects with a combination capital market financing, which has long-term tenor, and money market funds, which are of short-term nature.

This finding is summilar to that of Abubakar and Danladi (2018) who report that some foreign investors in Nigeria are not investing in stock market rather they prefer to invest in the oil and gas sector of the Nigerian economy, which resulted in positive but stastically insignificant finding. On the other hand, Raza et al. (2012) found a strong relationship between foreign direct investments and increase in stock market development.

Autocorrelation and ARCH-LM tests were used as diagnostic tests to examine stability of the short-run model. The Chi-square significance levels for the tests for the residuals are more than the 5% significant level for the ARCH-LM test. The null hypothesis of homoscedasticity cannot be rejected. There is therefore no sign of autoregressive conditional heteroscedasticity, the data points vary about the same distance from the regression line. This implies that the ARDL model is appropriate to describe the relationship between foreign direct investment and stock market development in Eswatini.

Causal Relationship between Foreign Direct Investment and Stock Market Development

This sub-section displays result of the pairwise Granger causality test conducted to investigate whether any causal relationship exist between foreign direct investment and stock market development the Kingdom of Eswatini. The maximum number of lag length included in the test is 2, and the *F*-statistics with the corresponding p-values were used to determine whether to accept or reject the null hypothesis. The decision rule is to accept the null hypothesis of no causal relationship between foreign direct investment and stock market development if the p-value is greater than 0.05 (P > 5%) significant level.

Observe from *Table* 7 that there is no causal relationship between foreign direct investment and stock market development in the Kingdom of Eswatini. This is evident in the p-value being greater than any conven-

Table 7
Pairwise Granger causality results

Null Hypothesis:	Obs	F-Statistic	Prob.
DLNFDI does not Granger Cause DLNSMC	26	0.58	0.57
DLNSMC does not Granger Cause DLNFDI		0.22	0.80

tional level of significance. Foreign direct investment and stock market development appear therefore to be statistically independent for the study period. This finding concurs with Meman (2016) and Idenyi et al. (2016) who reported that foreign direct investment does not granger cause stock market development, and that there is also no long run causality from stock market development to foreign direct investment.

CONCLUSION

Foreign investments have been established to exhibit significant influence in the economic development of developing economies. This study examines the relationship between foreign direct investment and stock market development in the Kingdom of Eswatini using autoregressive distributed lag (ARDL) model and Granger causality tests for the 1990 to 2018 period. Estimates from the ARDL model indicate evidence of a positive and statistically significant long run relationship between foreign direct investment and stock market development in the kingdom of Eswatini. But in the short-run, there exist no relationship between foreign direct investment and stock market development in the Kingdom of Eswatini. The results of Granger causality test do not show any evidence of causal relationship between foreign direct investment and stock market development in Eswatini. Hence, foreign direct investment and stock market development relate only in the long-run in the Eswatini. This conclusion has practical stock market development implication.

We recommend therefore that capital market authorities should establish measures to increase the number of listings in the market so as boost investment options. Again, there is need to activate an international standard electronic platform for trading, holding, and settlement of quoted securities, so that investors can transact from any part of globe. One of the possible explanations of the test results is that an increase in FDI would enhance development of the stock market, which is a source of long-term finance. This will in-turn boost the financing capacity of the market. Eswatini stock market authorities should therefore provide incentives to attract prospect foreign investments as well as take proactive steps to protect existing investors. Such incentives must also be aimed at sustaining domestic investors' participation in the stock market. In addition, there should be massive domestic investor-education on benefits of financing projects with a combination capital market funds, which has long-term tenor, and money market funds, which are of short-term nature.

A major limitation of this was the smallness of sample period as a result of data availability. This limitation did not however affect the robustness of the finding as we employed an econometric technique suitable for small samples.

The study recommends that future studies must look at how other factors such as level of technology, political stability, privatization of state-owned companies, financial institutions etc. can help in attracting foreign direct investment which can boast economic growth and stock market in the Kingdom of Eswatini.

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