THE NEXUS OF EXTERNAL DEBT, PRIVATE INVESTMENT AND FINANCIAL DEVELOPMENT: EVIDENCE FROM SELECTED SACU COUNTRIES.

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Abstract

This paper examines the dynamic causal relationship between financial development, external debt and investment in Lesotho, Namibia and Eswatini from 1980–2020 using a multivariate Granger–causality model. The study considers trade, savings and economic growth as intermittent variables in the analysis. Adopting the autoregressive distributed lag (ARDL) bounds testing approach, the study results show that the causal relationship between financial development, external debt and investment in Lesotho, Namibia and Eswatini from 1980–2020 is country-dependent. For Eswatini, both investment and financial development Granger cause external debt, both in the short run and in the long run. However, for Lesotho and Namibia, it is the contrary, with external debt Granger causing financial development both in the short run and in the long run. The exception is Lesotho, where external debt is also found to Granger cause investment, also both in the short run and the long run. The study, therefore, concludes that for Eswatini, immense efforts in promoting investment and financial development chiefly stimulate external debt and the real sector in both the short run and the long run. For Namibia and Lesotho, external debt drives financial development. In addition, for Lesotho, external debt also drives investment.

Keywords: Financial development, external debt investment, Lesotho, Eswatini, Namibia

JEL: G10; G20; O16

1. Introduction

External debt, private investment and financial development are the three most essential variables in macroeconomic policy formulation. The level of a country's overall economic development status heavily depends on these three variables. Understating the causal relationship pattern between these three variables is critical for achieving a country's economic development. The relationship remains inconclusive. Extensive empirical work has been undertaken in several countries. The studies have, however, yielded conflicting results. Unsurprisingly, the debate on how these variables causally precede each other still holds center stage in economic policy discussions.

Many variable-segmented studies have been conducted on the variables under investigation in this study. An example of such studies includes Opoku, Ibrahim and Sare (2019) and Muyambiri & Odhiambo (2017, 2018a, 2018b) investigating causality between private investment and financial development. Another study was conducted by Toktaş, Altiner and Bozkurt (2019) and Fandamu and Phiri (2017) observing causality between private investment and financial development. Maketha and Rantaoleng (2017) and Banday, Murugan and Maryam (2021) observed causality between foreign direct investment and trade.

There is significant inconsistency in the results of empirical studies on causality between external debt, financial development and private investment. All the possible causality scenarios (no causality, alternate unidirectional causality, and bidirectional causality) have been found to exist among the variables under investigation. However, of the studies that have been done, none, to our knowledge, has made a conclusive causal relationship analysis between external debt, private investment and financial development in developing countries using one multivariate framework in a comparative setup. Most studies have used either a bivariate or trivariate framework to examine the relationship between external debt, private investment and financial development.

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To address the evident gap in literature, this study intends to perform a trivariate framework analysis to examine the causal relationship between external debt, private investment and financial development in Lesotho, Namibia and Eswatini from 1980 to 2020 within a multivariate Granger–causality setting, using the much-more robust autoregressive distributed lag (ARDL) – bounds testing approach. Given the possible causality scenarios, the null hypothesis is that there is no causality among the investigated variables. The alternative hypothesis contents that there is at least some significant causality between the economic variables under investigation. The analysis considers economic growth, gross domestic savings, and trade openness as intermittent variables. The three countries are classified as developing countries and are members of the Southern African Customs Union (SACU) economic grouping. The study has ringfenced its analysis to these three countries in the entire SACU economic group. These countries have the lowest Human Development Index in the whole group and lowest GNP per capita (*See Appendix 1 and 2*).
Like most African countries, the countries rely on external debt as a funding source (Yameogo & Omojolaibi, 2021). Debt is acquired to accelerate private investment and economic growth. However, studies such as Górniewicz (2009) have shown that external debt has not always yielded the desired results in developing countries. Instead, it has had a negative impact on the economic conditions of these countries. Other studies, such as Turan and Yanıkkaya (2021), allude that external debt has also resulted in debt overhang in developing countries. Even when finance is available, either sourced externally or otherwise, Misati and Nyamongo (2011) purport that achieving desired economic objectives from funding depends on the state of the financial development of a country. If the financial markets cannot facilitate the movement of funds to the investment points in the economy, this may not spike private investment. It is, therefore, imperative that a study of this nature is undertaken. The results of this study will aid economic planning and economic policy formulation in the countries under observation. Besides SACU management committees, the results of this study can be used by entities such as the International Monetary Fund (IMF) and the World Bank. These two entities are a significant source of funds for developing countries (Muhumed & Gaas, 2016). The rest of the study is structured as follows: immediately following the introduction section is the empirical literature section, followed by the methodology, the empirical results and finally, the conclusions.

2. Empirical literature

Formulation and adoption of macroeconomic policies come at a cost. It is crucial that a proper analysis of the process that leads to the achievement of policy goals be adequately done. Otherwise, all the incurred costs could be in vain. The causal relationship analysis of the macroeconomic variable enhances anticipation of the policy success in leading to the intended policy goals.

Economic growth remains a critical macroeconomic goal for almost all economies. Makhetha and Rantaoleng (2017) examined the causal relationship between economic growth, foreign direct investment, and trade openness in Lesotho using data from 1980 to2011. The study indicated a unidirectional relationship running from trade openness to economic growth in the country. It also reportd a unidirectional relationship running from foreign direct investment to economic growth and causality running from foreign direct investment to trade openness in the country.
Trade openness has an impact on financial development in all the countries (Asghar & Hussain, 2014). Hossain and Mitra (2013) conducted a study that, among others, investigated causality between trade openness, private investment, long-term external debt, and economic growth using 1974 to 2009 data obtained from 33 highly aid-dependent African countries. The study uncovered a short-run bidirectional causality between economic growth and trade openness in these countries. It revealed a unidirectional causality running from external debt to domestic investment, from economic growth to external debt and causality running from economic growth and trade openness to external debt.

Trade openness can have a positive or a negative impact on the economy. Among others, the impact depends on the balance

between exports and imports. The studies investigating the causal relationship between trade and economic growth include Menyah, Nazlioglu and Wolde-Rufael (2014). The study was conducted using panel data on 21 African countries. The results indicated a one-way causal relationship running from trade to economic growth in Benin and South Africa. A bidirectional causality between the two variables is reported in the studies of Yameogo and Omojolaibi (2021) conducted in sub-Saharan countries. Duru (2021) conducted a similar study using data on MINT countries (Mexico, Indonesia, Nigeria and Turkey). The study results also suggested a bi-directional relationship between trade openness and economic growth in Nigeria and found no causality between the variables in Indonesia and Mexico.

According to the dual-gap economic theory, an optimal level of borrowing can enhance economic growth (Agyapong and Bedjabeng, 2019). Korkmaz (2015) conducted a study examining the relationship between external debt and economic debt in Turkey using the VAR method on data spanning from 2003 to 2014. The study reported a unidirectional causality running from economic growth to external debt in the country. In contrast, when testing causality between the same macroeconomic variables using Zambia, Fandamu and Phiri (2017) revealed a unidirectional causality relationship running from external debt to economic growth. Contradicting Fandamu and Phiri (2017) and Korkmaz (2015), Amoateng and Amoako-Adu (1996) and Shittu, Hassan, and Nawaz (2018) reported a two-way causality between external debt and economic growth in the sub-Saharan countries.

The Keynesian economic function recognizes investment as one of the critical variables in determining output (Gnos, 2005). Using data on Lesotho from 1982 to 2013 and the Granger causality test, Molapo and Damane (2015) established a causal relationship running from private investment to economic growth in Lesotho. Another study that reported a unidirectional relationship following the same order is Muyambiri (2020), using data from the Republic of Congo from 1960 to 2017. Using data on South Africa, Meyer and Sanusi (2019) reported a unidirectional relationship running from economic growth to investment in South Africa. Owusu (2021) also conducted a similar study examining the relationship between private investment and economic growth in Namibia. Mohsen (2015) reported a bidirectional causal relationship between investment and GDP in the short and long run.
A stable financial system is essential for creating opportunities and spurring economic growth in a country (Levine, 2011). Kar, Nazlıoğlu and Ağır (2011) conducted a study examining the causal relationship between financial development and economic growth using data from 1980- 2007 and Granger causality analysis with a panel data approach on Middle East and North Africa (MENA) countries. The results could not find a clear causal association between financial development and economic growth in the countries. Kagochi, Nasser and Kebede (2013), Fakudze, Tsegaye and Sibanda (2021) and Sindano and Kaakunga (2011) conducted the studies examining causality between the two economic variables in Sub-Saharan countries, Eswatini and Namibia, respectively. The studies reported a unidirectional relationship running from economic growth to financial development in sub-Saharan countries. Akinboade (1998) reported a bidirectional causal relationship between the two variables in Botswana.

The efficiency of the payment system is vital for enhancing international trade. Among others, the efficiency of the payment system depends on the level of the financial development of a country. The level of involvement in a country's international trade indicates the extent of its global integration. Aziakpono, Burger and Du Plessis (2009) examined the causality between financial integration and financial development in SACU countries. The study reported a bidirectional causal relationship running from financial integration to financial development in Lesotho. Tsaurai (2017) conducted a study that examined the causality between the two variables in Argentina. Contrary to Aziakpono *et al.* (2009), the study reported a one-way causality running from financial development to trade in the country. In contrast to the two studies, Chandio, Rehman, Jiang and Joyo (2017) reported a bi-causal relationship

between trade and financial development in Pakistan.

Financial development is also critical in advancing private investment. Nazlioglu, Yalama and Aslan (2009) conducted a study investigating the causality between investment and financial development in Turkey using data from 1987 to 2007. The study revealed a strong association between investment and financial development. The study uncovered that there was a bidirectional causality between private investment and financial development in Turkey. Muyambiri and Odhiambo (2018) indicated that the relationship between investment and financial development differed from country to country. The study further asserted that the result also depended on the methodology used in the analysis.

3. Methodology

For the cases of Lesotho, Namibia, and Eswatini, the study employs a multivariate Granger causality model within an ARDL-bounds testing framework to assess the causative relationship between financial development, foreign debt, and investment, as well as other intermittent factors. These three nations were included in the analysis because they tend to have similar characteristics, such as the lowest GNP per capita and Human Development Index in SACU.

In most studies, cointegration between the variables has been tested using a sizable number of cointegration procedures, which typically call for each series to be integrated of the same order. Engle and Granger (1987), Johansen and Juselius (1990), and Phillips and Hansen (1990) are a few examples of these methods. Compared to other classic cointegration methodologies, the ARDL limits testing approach is considerably more suitable because it is not restrictive on the stationarity qualities of the variables and offers effective and reliable empirical evidence for data from small samples. Variables that are stationary at I (1), I (0), or I (1)/I (0) may be included. Several studies, such as Nyasha and Odhiambo (2015), Muyambiri and Odhiambo (2018), Owusu (2021), and Elneel and AlMulhim (2022) used the same methodology. To test for the presence of cointegration, the following ARDL model is estimated:

$$\begin{aligned}\Delta INV_t = \propto_0 + \sum_{i=1}^{n} \propto_{1i} \Delta INV_{t-i} \\ + \sum_{i=0}^{n} \propto_{2i} \Delta BFD_{t-i} \\ + \sum_{i=0}^{n} \propto_{3i} \Delta EXD_{t-i} \\ + \sum_{i=0}^{n} \propto_{4i} \Delta GDP_{t-i} \\ + \sum_{i=0}^{n} \propto_{5i} \Delta GDS_{t-i} \\ + \sum_{i=0}^{n} \propto_{6i} \Delta TRD_{t-i} + \alpha_7 INV_{t-1} \\ + \alpha_8 BFD_{t-1} + \alpha_9 EXD_{t-1} \\ + \alpha_{10} GDP_{t-1} + \alpha_{11} GDS_{t-1} \\ + \alpha_{12} TRD_{t-1} + \varepsilon_{1t} \dots\dots\dots\dots 1\end{aligned}$$

$$\begin{aligned}\Delta BFD_t = \beta_0 + \sum_{i=1}^{n} \beta_{1i} \Delta BFD_{t-i} \\ + \sum_{i=0}^{n} \beta_{2i} \Delta INV_{t-i} \\ + \sum_{i=0}^{n} \beta_{3i} \Delta EXD_{t-i} \\ + \sum_{i=0}^{n} \beta_{4i} \Delta GDP_{t-i} \\ + \sum_{i=0}^{n} \beta_{5i} \Delta GDS_{t-i} \\ + \sum_{i=0}^{n} \beta_{6i} \Delta TRD_{t-i} + \beta_7 BFD_{t-1} \\ + \beta_8 INV_{t-1} + \beta_9 EXD_{t-1} \\ + \beta_{10} GDP_{t-1} + \beta_{11} GDS_{t-1} \\ + \beta_{12} TRD_{t-1} + \varepsilon_{2t} \dots\dots\dots\dots 2\end{aligned}$$

$$\Delta GDS_t = \rho_0 + \sum_{i=1}^{n} \rho_{1i}\Delta GDS_{t-i} + \sum_{i=0}^{n} \rho_{2i}\Delta INV_{t-i} + \sum_{i=0}^{n} \rho_{3i}\Delta BFD_{t-i} + \sum_{i=0}^{n} \rho_{4i}\Delta EXD_{t-i} + \sum_{i=0}^{n} \rho_{5i}\Delta GDP_{t-i} + \sum_{i=0}^{n} \rho_{6i}\Delta TRD_{t-i} + \rho_7 GDS_{t-1} + \rho_8 BFD_{t-1} + \rho_9 EXD_{t-1} + \rho_{10} INV_{t-1} + \rho_{11} GDP_{t-1} + \rho_{12} TRD_{t-1} + \varepsilon_{3t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3$$

$$\Delta EXD_t = \delta_0 + \sum_{i=1}^{n} \delta_{1i}\Delta EXD_{t-i} + \sum_{i=0}^{n} \delta_{2i}\Delta INV_{t-i} + \sum_{i=0}^{n} \delta_{3i}\Delta BFD_{t-i} + \sum_{i=0}^{n} \delta_{4i}\Delta GDP_{t-i} + \sum_{i=0}^{n} \delta_{5i}\Delta GDS_{t-i} + \sum_{i=0}^{n} \delta_{6i}\Delta TRD_{t-i} + \delta_7 BFD_{t-1} + \delta_8 INV_{t-1} + \delta_9 EXD_{t-1} + \delta_{10} GDP_{t-1} + \delta_{11} GDS_{t-1} + \delta_{12} TRD_{t-1} + \varepsilon_{5t} \ldots\ldots\ldots\ldots 5$$

$$\Delta GDP_t = \gamma_0 + \sum_{i=1}^{n} \gamma_{1i}\Delta GDP_{t-i} + \sum_{i=0}^{n} \gamma_{2i}\Delta INV_{t-i} + \sum_{i=0}^{n} \gamma_{3i}\Delta BFD_{t-i} + \sum_{i=0}^{n} \gamma_{4i}\Delta EXD_{t-i} + \sum_{i=0}^{n} \gamma_{5i}\Delta GDS_{t-i} + \sum_{i=0}^{n} \gamma_{6i}\Delta TRD_{t-i} + \gamma_7 GDP_{t-1} + \gamma_8 BFD_{t-1} + \gamma_9 EXD_{t-1} + \gamma_{10} INV_{t-1} + \gamma_{11} GDP_{t-1} + \gamma_{12} TRD_{t-1} + \varepsilon_{4t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 4$$

$$\Delta TRD_t = \partial_0 + \sum_{i=1}^{n} \partial_{1i}\Delta TRD_{t-i} + \sum_{i=0}^{n} \partial_{2i}\Delta INV_{t-i} + \sum_{i=0}^{n} \partial_{3i}\Delta BFD_{t-i} + \sum_{i=0}^{n} \partial_{4i}\Delta GDP_{t-i} + \sum_{i=0}^{n} \partial_{5i}\Delta GDS_{t-i} + \sum_{i=0}^{n} \partial_{6i}\Delta EXD_{t-i} + \partial_7 BFD_{t-1} + \partial_8 INV_{t-1} + \partial_9 EXD_{t-1} + \partial_{10} GDP_{t-1} + \partial_{11} GDS_{t-1} + \partial_{12} TRD_{t-1} + \varepsilon_{6t} \ldots\ldots\ldots\ldots 6$$

The alternative hypothesis contends that the coefficients of the lagged independent variables are significantly different from zero, contrary to the null hypothesis of no cointegration for each equation. Using the lower and upper critical constraints provided by Pesaran, Shin and Smith (2001), the estimated F-statistic is assessed. The results are inconclusive (if the calculated F-statistic falls between the constraints) or indicate no evidence of cointegration (if it is below the lower critical bounds). Otherwise, if the calculated F-statistic is greater than the upper critical bound, then there is evidence of cointegration.

After determining if cointegration between the variables is present or not, the direction of causality is examined. The accepted ARDL multivariate causality model allows the predicted variable to endogenously explain itself by the related residuals, the error correction term (only if cointegration exists), as well as its own lags and the lags of independent variables. The following is a presentation of the multivariate causality model:

$$\Delta INV_t = \alpha_0 + \sum_{i=1}^{n} \alpha_{1i}\Delta INV_{t-i} + \sum_{i=1}^{n} \alpha_{2i}\Delta BFD_{t-i} + \sum_{i=1}^{n} \alpha_{3i}\Delta EXD_{t-i} + \sum_{i=1}^{n} \alpha_{4i}\Delta GDP_{t-i} + \sum_{i=1}^{n} \alpha_{5i}\Delta GDS_{t-i} + \sum_{i=1}^{n} \alpha_{6i}\Delta TRD_{t-i} + \alpha_7 ECT_{t-1} + \mu_{1t} \quad \ldots\ldots 7$$

$$\Delta BFD_t = \beta_0 + \sum_{i=1}^{n} \beta_{1i}\Delta INV_{t-i} + \sum_{i=1}^{n} \beta_{2i}\Delta BFD_{t-i} + \sum_{i=1}^{n} \beta_{3i}\Delta EXD_{t-i} + \sum_{i=1}^{n} \beta_{4i}\Delta GDP_{t-i} + \sum_{i=1}^{n} \beta_{5i}\Delta GDS_{t-i} + \sum_{i=1}^{n} \beta_{6i}\Delta TRD_{t-i} + \beta_7 ECT_{t-1} + \mu_{2t} \quad \ldots\ldots 8$$

$$\Delta GDS_t = \rho_0 + \sum_{i=1}^{n} \rho_{1i}\Delta INV_{t-i} + \sum_{i=1}^{n} \rho_{2i}\Delta BFD_{t-i} + \sum_{i=1}^{n} \rho_{3i}\Delta EXD_{t-i} + \sum_{i=1}^{n} \rho_{4i}\Delta GDP_{t-i} + \sum_{i=1}^{n} \rho_{5i}\Delta GDS_{t-i} + \sum_{i=1}^{n} \rho_{6i}\Delta TRD_{t-i} + \rho_7 ECT_{t-1} + \mu_{3t} \quad \ldots\ldots 9$$

$$\Delta GDP_t = \gamma_0 + \sum_{i=1}^{n} \gamma_{1i}\Delta GDP_{t-i} + \sum_{i=1}^{n} \gamma_{2i}\Delta INV_{t-i} + \sum_{i=1}^{n} \gamma_{3i}\Delta BFD_{t-i} + \sum_{i=1}^{n} \gamma_{4i}\Delta EXD_{t-i} + \sum_{i=1}^{n} \gamma_{5i}\Delta GDS_{t-i} + \sum_{i=1}^{n} \gamma_{6i}\Delta TRD_{t-i} + \gamma_7 ECT_{t-1} + \mu_{4t} \quad \ldots\ldots 10$$

$$\Delta EXD_t = \delta_0 + \sum_{i=1}^{n} \delta_{1i} \Delta EXD_{t-i} + \sum_{i=1}^{n} \delta_{2i} \Delta INV_{t-i} + \sum_{i=1}^{n} \delta_{3i} \Delta BFD_{t-i} + \sum_{i=1}^{n} \delta_{4i} \Delta GDP_{t-i} + \sum_{i=1}^{n} \delta_{5i} \Delta GDS_{t-i} + \sum_{i=1}^{n} \delta_{6i} \Delta TRD_{t-i} + \delta_7 ECT_{t-1} + \mu_{5t} \dots\dots\dots\dots 11$$

$$TRD_t = \partial_0 + \sum_{i=1}^{n} \delta_{1i} \Delta TRD_{t-i} + \sum_{i=1}^{n} \partial_{2i} \Delta INV_{t-i} + \sum_{i=1}^{n} \partial_{3i} \Delta BFD_{t-i} + \sum_{i=1}^{n} \partial_{4i} \Delta GDP_{t-i} + \sum_{i=1}^{n} \partial_{5i} \Delta GDS_{t-i} + \sum_{i=1}^{n} \partial_{6i} \Delta EXD_{t-i} + \partial_7 ECT_{t-1} + \mu_{5t} \dots\dots\dots\dots 12$$

Where, in the model, INV = Gross Fixed Capital Formation (GFCF) used in the study as a proxy indicating the level of domestic investment. BFD indicates financial development index, EXD is the external debt calculated as a ratio of external debt to gross domestic product (GDP). GDP is the growth rate of the real GDP per capita, GDS is the gross domestic savings, TRD is trade/GDP indicating trade openness. ECT is the error correction term ……..$\propto_0$, β_0, ρ_0, γ_0 and δ_0 are the respective constants, $\propto_1, \dots, \propto_{10}, \beta_1, \dots, \beta_{10}, \rho_1, \dots, \rho_{10}, \gamma_1, \dots, \gamma_{10}$ and $\delta_1, \dots, \delta_{10}$ are the respective coefficients, Δ is the difference operator, n indicates the lag length, ε = error term and μ = white-noise error-term. Following Muyambiri and Odhiambo (2018a), the financial development index is calculated, based on data availability, using eight financial development indicators for financial depth, financial efficiency, financial stability, and other financial indicators. The financial indicators included in the composite financial development indicator are private credit by deposit money banks to GDP (%); deposit money banks' assets to GDP (%); liquid liabilities to GDP (%); financial system deposits to GDP (%); private credit by deposit money banks and other financial institutions to GDP (%); credit to government and state-owned enterprises to GDP (%); bank credit to bank deposits (%) and bank deposits to GDP (%).

4. Empirical results

Although the ARDL-bounds test does not require that all variables are integrated in the same order, it requires all variables to be integrated to an order less than 2, otherwise, it disintegrates and gives spurious results. There is hence the need for unit root tests to ensure that this condition is met. In this study, the unit root tests are conducted using the Ng-Perron Modified Unit Root Test and the Perron (1997) PPURoot unit root tests. The Perron (1997) PPURoot unit root test is employed because it takes into account the presence of structural breaks. The unit root results of the variables are shown in *Table 1*. Table 1 confirms that the ARDL bounds testing procedure is appropriate for the data and it is therefore employed. The ARDL bounds testing approach to cointegration tests the existence of cointegration between the variables for the existence of a long-run relationship. The empirical results of the ARDL bounds tests for cointegration are reported in Table 2. The results indicate that the cointegration condition holds when external debt, GDP and private investment are used as dependent variables in the case of Eswatini. In the case of Namibia, cointegration holds when bank financial development and private investment are used as dependent variables. In the case of Lesotho, cointegration holds when bank financial development, private investment and trade are used as dependent variables. Table 3: provides results for the estimated regression model following the procedure shown in the methodology section of this study. For ease of interpretation, the results are further summarized in Table 4 followed by the interpretation and discussion.

Table 1. *Unit Root Tests*

Perron (1997) Unit Root Test (PPURoot)

Variable	ESWATINI				NAMIBIA				LESOTHO			
	Stationarity in levels		Stationarity in first differences		Stationarity in levels		Stationarity in first differences		Stationarity in levels		Stationarity in first differences	
	Without trend	With trend	Without trend	With trend	Without trend	With trend	Without trend	With trend	Without trend	With trend	Without trend	With trend
EXD	-4.083	-4.9	-6.5***	-6.3***	-1.38	-4.65	-4.98*	-5.54*	-6.6***	-5.41*	-	-
GDP	-6.7***	-7***			-4.69	-5.24	-8.3***	-8.3***	-2.403	-3.4	-11.22	-11.03
GDS	-3.54	-4.44	-7.82***	-7.82***	-4.34	-5.53*	-8.23***	-8.1***	-4.7	-4.6	-5.6**	-5.7**
BFD	-3.45	-2.41	-5.4**	-6.4***	-4.62	-5.14	-7.4***	-8***	-3.9	-6**	-7***	-6***
TRD	-3.23	-3.28	-7.8***	-7.7***	-5.6**	-5.5*	-	-	-11***	-19***	-	-
INV	-4.28	-4.27	-7.5***	-7.3***	-3.23	-4.89	-6.3***	-6.2**	-2.51	-3.46	-5.3**	-5.4*

Associated Breakpoints Perron (1997) Unit Root Test (PPURoot)

Variable	ESWATINI				NAMIBIA				LESOTHO			
	Stationarity in levels		Stationarity in first differences		Stationarity in levels		Stationarity in first differences		Stationarity in levels		Stationarity in first differences	
	Without trend	With trend	Without trend	With trend	Without trend	With trend	Without trend	With trend	Without trend	With trend	Without trend	With trend
EXD	1989	1987	2002	2002	2014	2006	2007	2007	2002	2002	-	-
GDP	1990	1990	-	-	2015	2015	2004	2004	2014	2011	1999	2000
GDS	1999	1989	1990	1990	2011	2008	2006	2006	1999	1999	2008	1989
BFD	2004	2004	2001	2003	2011	2016	1995	2000	2011	2002	2004	2004
TRD	2005	2005	2004	2004	2006	2007	-	-	1991	2001	-	-
INV	1997	1997	1986	1988	2015	2012	2014	2014	1998	1996	1991	1991

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

Ng-Perron Modified Unit Root Test

MZa

Variable	ESWATINI				NAMIBIA				LESOTHO			
	Stationarity in levels		Stationarity in first differences		Stationarity in levels		Stationarity in first differences		Stationarity in levels		Stationarity in first differences	
	Without trend	With trend	Without trend	With trend	Without trend	With trend	Without trend	With trend	Without trend	With trend	Without trend	With trend
EXD	-3.611	-8.82	-19.3***	-19.3**	3.73	-6.028	-12.6**	-21.9**	-2.489	-3.4	-19***	-19**
GDP	-11***	-89***	-	-	-10**	-12.34	-13.1**	-15.2*	-0.63	0.7	-13**	-16*
GDS	-33***	-1.27	-	-18.8**	-5.17	-10.6	-12.4**	-15.6*	-10.1**	-14.*	-	-
BFD	-3.84	-4.5	-18.7***	-17.5*	1.22	-5.48	-7.19*	-15.2*	-4.47	-5.08	-17***	-18**
TRD	-0.73	-8.01	-19***	-19**	-17***	-17**	-	-	-4.09	-8.5	-8.96**	-15.3*
INV	-2.09	-9.67	-16***	-33***	-9.72**	-13.05	-12.5**	-151***	-4.87	-6.22	-16***	-16*

MZt

Variable	ESWATINI				NAMIBIA				LESOTHO			
	Stationarity in levels		Stationarity in first differences		Stationarity in levels		Stationarity in first differences		Stationarity in levels		Stationarity in first differences	
	Without trend	With trend	Without trend	With trend	Without trend	With trend	Without trend	With trend	Without trend	With trend	Without trend	With trend
EXD	-1.31	-2.02	-3.1***	-3.1**	1.64*	-1.41	-2.37**	-3.27**	-1.10	-1.29	-3.1***	-3.1**
GDP	-.29**	-6.7***	-	-	-2.03**	-2.18	-2.37**	-2.71*	-0.34	0.24	-2.18**	-2.67*
GDS	-4.1***	-0.79	-	-3.05**	-1.42	-2.30	-2.47**	-2.74*	-2.2**	-2.6*	-	-
BFD	-1.23	-1.45	-2.37**	-2.62*	0.85	-1.65	-1.87*	-2.65*	-1.41	-1.56	-2.9***	-3.0**
TRD	-0.35	-1.99	-3.1***	-3.12**	-2.8***	-2.86*	-	-	-1.41	-2.06	-1.99**	-2.9**
INV	-0.84	-2.17	-2.9***	-4.1***	-2.12**	-2.38	-2.5***	-8.7***	-1.52	-1.76	-2.8***	-2.85*

MSB

Variable	ESWATINI				NAMIBIA				LESOTHO			
	Stationarity in levels		Stationarity in first differences		Stationarity in levels		Stationarity in first differences		Stationarity in levels		Stationarity in first differences	
	Without trend	With trend	Without trend	With trend	Without trend	With trend	Without trend	With trend	Without trend	With trend	Without trend	With trend
EXD	0.36	0.23	0.16***	0.16**	0.44	0.23	0.18**	0.14**	0.44	0.38	0.15***	0.16**
GDP	0.19**	0.07**	-	-	0.18**	0.17*	0.18**	0.17*	0.54	0.35	0.16***	0.17**
GDS	0.12***	0.62	-	0.16**	0.27	0.21	0.19**	0.15**	0.22**	0.18*	-	-

BFD	0.32	0.32	0.13***	0.15**	0.69	0.30	0.26*	0.18*	0.32	0.31	0.16***	0.16**
TRD	0.48	0.24	0.16***	0.16**	0.16***	0.16**	-	-	0.34	0.24	0.15***	0.18*
INV	0.40	0.22	0.17***	0.12***	0.21**	0.18*	0.19***	0.05***	0.31	0.28	0.17***	0.17*

MPT

Variable	ESWATINI				NAMIBIA				LESOTHO			
	Stationarity in levels		Stationarity in first differences		Stationarity in levels		Stationarity in first differences		Stationarity in levels		Stationarity in first differences	
	Without trend	With trend	Without trend	With trend	Without trend	With trend	Without trend	With trend	Without trend	With trend	Without trend	With trend
EXD	6.78	10.61	1.42***	4.78**	26.03	14.75	2.45**	4.37**	9.76	26.6	1.34***	4.9**
GDP	2.6**	1.04***	-	-	3.33*	8.91	2.54**	6.24*	18.7	38.9	3.25*	6.61*
GDS	0.77***	71.17	-	4.91**	5.17	8.6	2.05**	6.06*	2.6**	6.51*	-	-
BFD	6.46	19.8	3.49*	5.62**	38.6	16.6	3.4*	6.49*	5.61	17.7	1.5***	4.9**
TRD	15.6	11.37	1.26***	4.68**	1.7***	5.73*	-	-	6.01	10.7	2.16**	4.99**
INV	10.13	9.52	1.5***	2.7***	2.82**	7.90	1.9**	0.6***	5.1	14.6	1.6***	5.69*

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

Table 2. *Bounds F-Test for cointegration*

		ESWATINI		**NAMIBIA**		**LESOTHO**	
Dependent Variable	Function	F-statistic	Cointegration Status	F-statistic	Cointegration Status	F-statistic	Cointegration Status
EXD	F(EXD| GDP, BFD, INV, GDS,TRD)	7.7432***	Cointegrated	2.7579	Not Cointegrated	3.0501	Not Cointegrated
GDP	F(GDP| EXD, BFD, INV, GDS,TRD)	3.7820*	Cointegrated	1.8499	Not Cointegrated	2.6484	Not Cointegrated
BFD	F(BFD| GDP, EXD, INV, GDS,TRD)	1.0001	Not Cointegrated	5.5787***	Cointegrated	4.3955**	Cointegrated
INV	F(INV| GDP, BFD, EXD, GDS,TRD)	3.4057*	Cointegrated	3.3518*	Cointegrated	3.6202*	Cointegrated
GDS	F(GDS| GDP, BFD, INV, EXD,TRD)	2.1021	Not Cointegrated	0.68372	Not Cointegrated	1.2281	Not Cointegrated
TRD	F(TRD| GDP, BFD, EXD, GDS,INV)	2.5998	Not Cointegrated	1.6095	Not Cointegrated	4.1027**	Cointegrated
	Asymptotic Critical Values						

	Pesaran et al. (2001:301) Table CI(iii) Case III					
	1% Level		5% Level		10% Level	
	3.41	4.68	2.62	3.79	2.26	3.35

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

Table 3. *Granger-Causality test results*

ESWATINI							
Dependent Variable	F-statistics (probability)						ECT_{t-1} [t-statistics]
	ΔEXD_t	ΔGDP_t	ΔINV_t	ΔGDS_t	ΔTRD_t	ΔBFD_t	
ΔEXD_t		5.4267** (0.011)	3.9351** (0.033)	0.13731 (0.872)	1.6216 (0.123)	4.5928** (0.020)	-0.14542*** [-5.3969)
ΔGDP_t	2.2170 (0.129)		2.4383* (0.096)	.49881 (0.613)	1.4998 (0.232)	.49649 (0.614)	-0.93291** [-2.3299]
ΔINV_t	0.10167 (0.755)	2.6229* (0.080)		1.6484 (0.228)	1.2003 (0.330)	1.4325 (0.268)	-0.76095** [-2.4010]
ΔGDS_t	3.7948** (0.036)	0.6973 (0.507)	2.7090* (0.085)	-	2.2520 (0.125)	0.9703 (0.392)	-
ΔTRD_t	0.49207 (0.617)	3.8590 (0.034)	0.64767 (0.531)	0.5980 (0.557)	-	5.6658*** (0.009)	
ΔBFD_t	2.4752 (0.104)	0.39492 (0.678)	0.09902 (0.906)	0.23288 (0.794)	0.12129 (0.886)	-	-
NAMIBIA							
Dependent Variable	F-statistics (probability)						ECT_{t-1} [t-statistics]
	ΔEXD_t	ΔGDP_t	ΔINV_t	ΔGDS_t	ΔTRD_t	ΔBFD_t	
ΔEXD_t		0.15395 (0.859)	0.52310 (0.602)	0.42226 (0.663)	0.053219 (0.948)	0.65257 (0.534)	
ΔGDP_t	1.5723 (0.238)		0.31305 (0.703)	1.4149 (0.272)	1.7472 (0.206)	1.3794 (0.280)	
ΔINV_t	0.4669 (0.637)	4.4608* (0.055)		2.1341 (0.168)	1.0294 (0.429)	1.0284 (0.429)	-0.72060*** [-3.6468]
ΔGDS_t	0.32965 (0.724)	0.15022 (0.862)	0.50069 (0.615)		1.7826 (0.200)	1.6039 (0.232)	
ΔTRD_t	3.2228* (0.067)	0.32170 (0.729)	0.98025 (0.397)	3.4930* (0.055)		0.90356 (0.425)	

$\Delta \boldsymbol{BFD_t}$	3.7206* (0.070)	0.98700 (0.334)	1.7606 (0.200)	0.16947 (0.845)	2.0039 (0.174)		-0.36528*** [-3.1225]
LESOTHO							
Dependent Variable	F-statistics (probability)						ECT_{t-1} [t-statistics]
	ΔEXD_t	ΔGDP_t	ΔINV_t	ΔGDS_t	ΔTRD_t	ΔBFD_t	
$\Delta \boldsymbol{EXD_t}$		1.2584 (0.301)	0.17254 (0.842)	0.18557 (0.832)	1.2982 (0.290)	1.8376 (0.179)	
$\Delta \boldsymbol{GDP_t}$	0.70019 (0.506)		0.25442 (0.777)	0.46473 (0.633)	0.12845 (0.880)	0.76494 (0.476)	
$\Delta \boldsymbol{INV_t}$	3.8869** (0.034)	3.0737* (0.064)		0.54937 (0.584)	0.80880 (0.457)	1.5776 (0.226)	-0.13623*** [-2.6044]
$\Delta \boldsymbol{GDS_t}$	2.3822 (0.112)	2.5511* (0.097)	2.0546 (0.148)		2.2160 (0.129)	3.9495** (0.032)	
$\Delta \boldsymbol{TRD_t}$	0.28638 (0.754)	2.1714 (0.125)	1.4335 (0.261)	7.9944** (0.011)	1.6684 (0.199)		-0.10860** [-2.7039]
$\Delta \boldsymbol{BFD_t}$	2.8171* (0.079)	0.62403(0.544)	0.16885 (0.846)	1.8257 (0.182)	0.043708 (0.957)		-0.60290*** [-3.6023]

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

Table 4. Summary of Granger-causality test results

ESWATINI			
DEPENDENT VARIABLE	DIRECTION OF CAUSALITY AND SIGNIFICANT VARIABLES	PERIOD OF CAUSALITY	
		Short Run	Long Run
GDP	⇒ INV*, EXD	✓	✓
INV	⇒GDP*, EXD	✓	✓
	⇒GDS	✓	
EXD	⇒GDS	✓	
BFD	⇒EXD	✓	✓
BFD	⇒TRD	✓	
NAMIBIA			
DEPENDENT VARIABLE	DIRECTION OF CAUSALITY AND SIGNIFICANT VARIABLES	PERIOD OF CAUSALITY	
		Short Run	Long Run
EXD	⇒TRD	✓	
	⇒BFD	✓	✓
GDP	⇒INV	✓	✓
GDS	⇒TRD	✓	
LESOTHO			
DEPENDENT VARIABLE	DIRECTION OF CAUSALITY AND SIGNIFICANT VARIABLES	PERIOD OF CAUSALITY	
		Short Run	Long Run
EXD	⇒INV, BFD	✓	✓
GDP	⇒INV	✓	✓
	⇒GDS	✓	
GDS	⇒TRD	✓	✓
BFD	⇒GDS	✓	

NB: GDP=Economic growth, GDS=Savings, INV=investment; BFD=financial development; EXD=external debt, ⇒indicates direction of causality, ✓indicates presence of causality in respective period, *indicates directional causality.
Source: Author's own work

Table 4 indicates that there is a unidirectional short run and long run relationship running from GDP to investment in Lesotho and Namibia. These results contradict Molapo and Damane (2015), who reported a causal relationship running from investment to GDP in Lesotho and Owusu (2021) who reported a bidirectional causality between GDP and investment in Namibia. Consistent with Owusu (2021), but for the case of Eswatini, the results of the study also report a bidirectional causality between GDP and investment. The results also indicate a causal relationship running from GDP to external debt in Eswatini in the short and long run. The result does not show the causality of any nature between economic growth and trade openness in any of the three countries under observation.

The study shows that there is a unidirectional a causal relationship running from investment to external debt in the short run and the long run in Eswatini. Ajisafe, Nassar, Fatokun, Soile and Gidado (2006) reported a bidirectional causal relationship between the two variables for Nigeria. The study reveals a causal relationship running from external debt to investment and financial development for both the short run and the long run in Lesotho. The study could not establish any causal relationship between investment and external debt in Namibia.

External debt has been found to have a unidirectional causal relationship with gross domestic savings. The causality is found to run from external debt to gross domestic savings in Eswatini in the short run. The relationship between the two could not be proven in Lesotho and Namibia.

Financial development is also a very important factor in macroeconomic policy. The results show a short run and long run unidirectional causal relationship running from financial development to external debt in Eswatini, the relationship does not hold in the other two countries. The study further confirms that financial development has a short run causal relationship running from financial development to trade openness in Eswatini, this relationship is unique to Eswatini. The relationship was also confirmed by Tsaurai (2017) for Argentina.

Financial development is found to have a shorter unidirectional relationship running from financial development to gross domestic savings for Lesotho. This relationship was also reported in the study of Shahbaz, Afza, and Shabbir (2013). This relationship does not hold in Namibia and Eswatini. The study finds that gross domestic savings Granger causes trade openness in Lesotho and Namibia. This finding was supported by Sahoo and Dash (2013).

5. Conclusion

In this paper, the causal relationship between financial development, investment and external debt, savings and economic growth has been empirically examined for the period from 1980 to 2020 for the SACU region (Lesotho, Eswatini and Namibia) with the aid of a multivariate Granger-causality model. The study has established a causal relationship between financial development, external debt, and investment in Lesotho, Namibia, and Eswatini. It has shown that the degree and direction of causality between the variables considered for analysis in the study are unique for the countries under observation. The study has found that in Eswatini, investment and financial development Granger cause external debt. The analysis has shown that the relationship holds both in the short and the long run. However, in the case of Lesotho and Namibia, the study has shown that external debt granger causes financial development in the short and the long run. The study has further provided evidence that external debt causes investment in Lesotho in the short and long run.

The policy implication is that for the economy of Eswatini, immense efforts in promoting investment and financial development are recommended, to stimulate external debt and the real sector in both the short run and the long run. For Namibia, the opposite is true – external debt should be prioritised to enhance financial development. Strategies to enhance economic growth should be highlighted since it precedes investment. For Lesotho, it can be concluded that it is primarily external debt that drives financial development and investment. Therefore, policy should work to promote the use of external debt to stimulate financial development and investment both in the short run and the long run.

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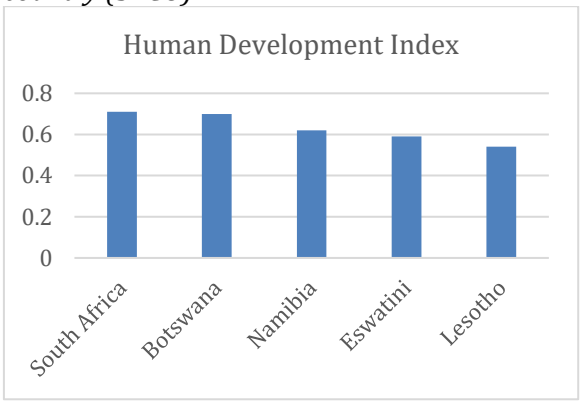
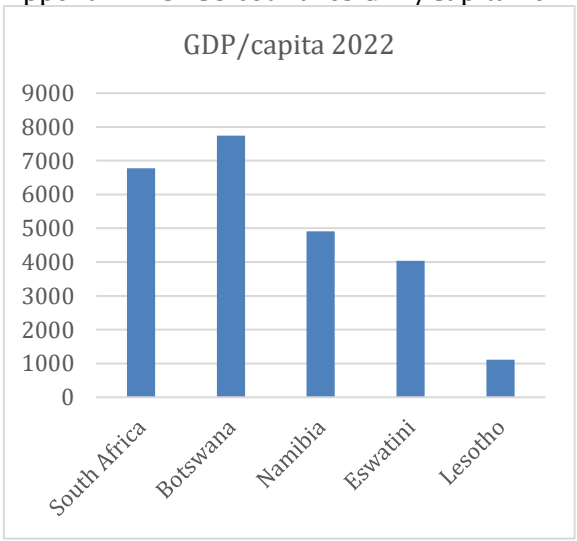
Appedices

Appendix 1: *Human Development Index by country (SACU)*



Source: Statista

Appendix 2: SACU countries GDP/Capita 2022



Source: The World Bank