External Debt, Investment, and Financial Development in Botswana and South Africa: A Multivariate Causal Analysis

Brian MUYAMBIRI [1][2] , John-Baptiste MABEJANE [3]

Abstract

This paper employs a multivariate Granger-causality model to evaluate the causal relationship between external debt, financial development, and investment in Botswana and South Africa from 1980–2020. The study includes savings, trade, and economic growth as intermittent variables. Using the autoregressive distributed lag (ARDL) bounds testing approach; empirical results reveal that, for both Botswana and South Africa, there is no distinct short- and long-run Granger-causality relationship between external debt and either financial development and/or investment. However, for Botswana, there is a short-run unidirectional causal relationship from investment to financial development. While for South Africa, the opposite is true. That is, there is a short-run and long-run unidirectional causal relationship from financial development to investment. The policy implication for Botswana is to stimulate the real sector in the short run; immense efforts in promoting investment are recommended. Other results for Botswana support the concurrent promotion of investment, savings, and economic growth because these variables are found to have a short-run and long-run bidirectional causal relationship. For South Africa, it is primarily financial development that drives investment and economic growth. Therefore, policy should promote financial development to stimulate investment, both in the short and long run..

Keywords: Financial Development, External Debt, Investment, South Africa, Botswana
Jel Codes: G10; G20; O16

Botsvana ve Güney Afrika'da Dış Borç, Yatırım ve Finansal Gelişme: Çok Değişkenli Nedensel Analiz

Özet

Bu makale, 1980-2020 yılları arasında Botsvana ve Güney Afrika'da dış borç, finansal gelişme ve yatırım arasındaki nedensel ilişkiyi değerlendirmek için çok değişkenli bir Granger-nedensellik modeli kullanmaktadır. Çalışma kesintili değişkenler olarak tasarruf, ticaret ve ekonomik büyümeyi içermektedir. Otoregresif dağıtılmış gecikme (ARDL) sınır testi yaklaşımının kullanılması; ampirik sonuçlar, hem Botsvana hem de Güney Afrika için dış borç ile finansal gelişme ve/veya yatırım arasında belirgin bir kısa ve uzun vadeli Granger nedensellik ilişkisi olmadığını ortaya koymaktadır. Bununla birlikte, Botsvana için yatırımdan finansal gelişmeye doğru kısa vadeli tek yönlü bir nedensellik ilişkisi vardır. Güney Afrika için ise bunun tersi doğrudur. Yani finansal gelişmeden yatırıma doğru kısa ve uzun dönem tek yönlü bir nedensellik ilişkisi vardır. Botsvana için politika anlamı, kısa vadede reel sektörü canlandırmak; yatırımı teşvik etmek için muazzam çabalar tavsiye edilir. Botsvana için diğer sonuçlar, yatırım, tasarruf ve ekonomik büyümenin eş zamanlı teşvikini desteklemektedir çünkü bu değişkenlerin kısa vadeli ve uzun vadeli çift yönlü nedensel bir ilişkisi olduğu bulunmuştur. Güney Afrika için, yatırımı ve ekonomik büyümeyi yönlendiren temel olarak finansal gelişmedir. Bu nedenle, politika hem kısa hem de uzun vadede yatırımı teşvik etmek için finansal gelişmeyi teşvik etmelidir.

Anahtar kelimeler: Finansal Gelişme, Dış Borç, Yatırım, Güney Afrika, Botsvana
Jel Kodu: G10; G20; O16

[1] Senior Lecturer, Botswana Open University, School of Business and Management Studies, Department of Business Studies, Gaborone, Botswana
[2] Research Associate, University of Johannesburg, College of Business and Economics, Department of Finance & Investment Management, Johannesburg, South Africa
EMAIL: brianmuy@gmail.com **ORCID:** 0000-0003-0769-7261
[3] Lecturer, University of Johannesburg, College of Business and Economics, Department of Finance & Investment Management, Johannesburg, South Africa
EMAIL: jmabejane@uj.ac.za **ORCID:** 0000-0002-0558-213X

1. INTRODUCTION

The argument on the precedence of particular variables in macroeconomic policy transmission has received extensive attention in economic circles. However, there has been an incidence of conflicting results from such studies. The preferred mode of study has been the use of Granger-causality tests. Most of the earlier studies used bivariate causality tests and were encumbered with specific underlying econometric conditions that had to be satisfied before the actual tests. For example, variables had to be integrated into the same order, and the sample size had to be large enough to avoid spurious and/or not-so-robust regressions. Hence this study adopts a multivariate Granger causality model that helps to alleviate the weaknesses of past investigations on the causal relationship between external debt, financial development, and investment. Instead of using bivariate or even tri-variate causality tests, the study, by adopting a multivariate causality approach, avoids errors arising from omitted variable bias. This is also further reduced by including savings, trade, and economic growth as intermittent variables. Furthermore, adopting the ARDL bounds testing approach removes the need for all variables to be integrated into the same order. The ARDL bounds testing approach can be used for a combination of variables integrated to a maximum order of 1 and is still quite efficient for small sample regressions compared to the residual-based causality models widely used in earlier studies.

Notwithstanding the above-mentioned methodology-related issues, many of the causality studies have focused on developed countries. The studies done for South Africa and Botswana can be counted and have not included the breadth of variables in this study in one model. Furthermore, the success of the adopted macroeconomic policies in countries like South Africa and Botswana depends significantly on the causal connectivity of the macroeconomic variables under scrutiny. There is no doubt in economic circles about the importance of external debt, financial development, and investment as policy instruments. More so, several economic studies have also extensively and individually proven the significance of the intermittent variables – savings, trade, and economic growth – in framing economies. The inclusion of these variables as policy instruments follows some form of a transmission mechanism process that creates a path for transferring the stimuli from one point to the desired objective. This array of variables operates in a complex systematic framework (Aromolaran and Olebogeng, 2021). The proliferation of the policy benefits depends on the strength of the causal chain between the variables. Therefore, this study intends to investigate and compare the causal relationship between the aforementioned macroeconomic variables in South Africa and Botswana. These two countries are the dominant members of the Southern African Customs Union (SACU) setup. They are both middle-income countries and have a relatively higher gross domestic product (GDP) and GDP per capita than the other members, Eswatini, Namibia, and Lesotho. In addition, South Africa and Botswana are considered emerging market economies (Bhattarai, Chatterjee and Park, 2021; Mollah, Al Farooque and Karim, 2012) and have relatively stable economies and available data in Southern Africa. The economic status in SACU warrants their exclusive inclusion in this study.

Literature indicates that a causality investigation has been performed for Southern African countries. Muyambiri and Odhiambo (2018) investigated how Botswana's financial development and investment are related. Meyer and Sanusi (2019) undertook a causality analysis of the relationship between investment and economic growth in South Africa. Sindano and Kaakunga (2011) and Akinboade (1998) analyzed a causal relationship between financial development and economic growth in Namibia and Botswana, respectively. Aziakpono (2003) analyzed the causal relationship between financial development and economic growth in SACU and Common Monetary Area (CMA) countries. Menyah, Nazlioglu, and Wolde-Rufael (2014), Yucel (2009), and Tsaurai (2017) identified trade openness as one of the critical variables worthy of consideration, and Epaphra and Mesiet (2021) incorporated external debt.

From the studies above, the variables necessary to drive economic development are investment, financial development, savings, trade, external debt, and economic development. However, the evidence of contentions on causality between the variables considered in the study warrants further investigation. To mention a few, Amoateng and Amoako-Adu (1996) report a bidirectional causality between external debt and economic growth. Gokmenoglu and Rafik (2018) indicate a unidirectional causality from economic growth to external debt, and Lawal, Babalola, and Otekunrin (2016) report no causality between the two variables. These contentions have been explored extensively in the literature section of this study.

This study intends to estimate the causality model that incorporates all the indicated variables. Unlike previous studies, the study also performs a comparative analysis of the degree and nature of causality relationships between South Africa and Botswana. The rest of the study is organized as follows; in the next section, the economic review of Botswana and South Africa is presented, followed by the literature, a theoretical presentation of the model, the results, the discussion, and the conclusion.

1.1 Economic review: South Africa and Botswana

1.1.1 South Africa

South Africa is classified as a middle-income country. It is one of the two countries with sea access in the SACU setup. The country reported a 0.2 percent increase in real GDP in 2019. It hosts a most resilient banking sector that compares well with the banking sectors in the first world countries. The South African external debt decreased by 2.6 percent from 173.8 USD billion in 2021 and is expected to go down further to 169.3 USD billion in 2022 (Ceicdata, 2021). Figure 1 shows the trend of some key economic indicators. The downswing in the trend of the indicators during the COVID-19 pandemic period shows that the country's economic performance was negatively affected by COVID.

Figure 1: South African Economic Overview
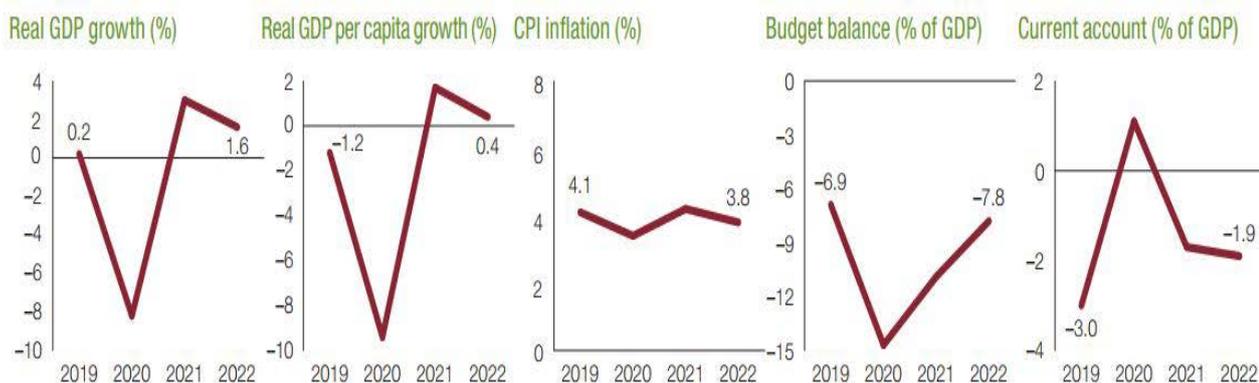
Source: African Development Bank (2022)

1.1.1 Botswana

Like Lesotho and Swaziland, the Republic of Botswana is also a landlocked country in Southern Africa. Botswana is one of the countries that have the most progressive economies in Africa. The country saw a 9.2 percent increase in GDP in 2021, further expected to increase by 4.7 percent and 4.4 percent in 2022 and 2023, respectively (Standard Bank, 2022). The country's external debt increased by 22.84 percent from 12 836.80 BWP Million to 15 768.90 BWP million in 2021 (Trading Economics,

2022). Figure 2 shows the trend of the economic indicators. Like South Africa, COVID-19 had a negative bearing on the economic performance of Botswana.

Figure 2: Botswana Economic Overview
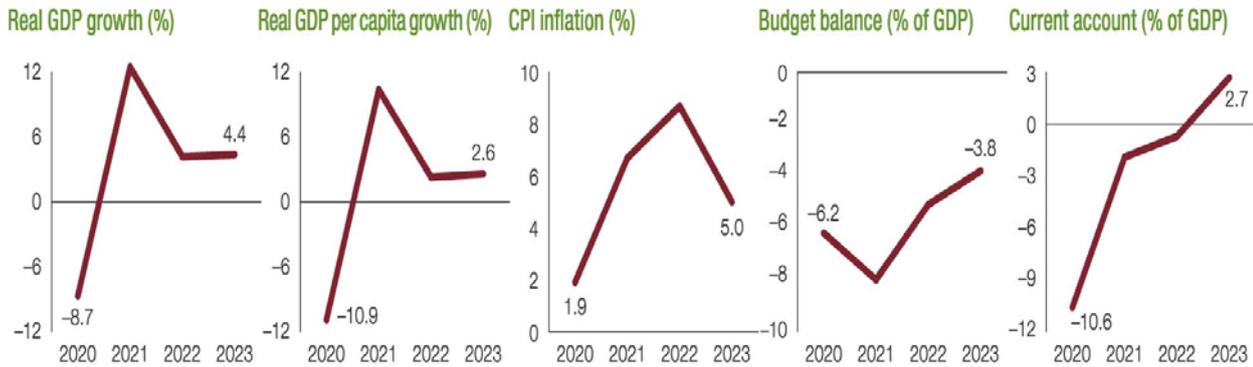
Source*: African Development Bank (2022)

2. RELATED WORKS

In this section, the study presents literature on the causality of savings, trade openness, economic growth, investment, external debt, and financial development. Developments in the financial sector activate investment by enabling the flow of funds in the economy (Tchamyou & Asongu, 2017). Muyambiri and Odhiambo, 2018) found a bi-directional Granger-causal relationship between financial development and investment in the short run and a unidirectional causal relationship running from investment to bank-based financial development in the long run for Botswana. The bi-directional causality is also reported in the study of Nazlioglu, Yalama, and Aslan (2009), also indicating that investment and financial development have a bi-directional causality relationship. The two-way causal relationship is further confirmed in the study of Huang (2011) and Asongu (2014). However, the findings of the studies of Majid (2008) and Marques, Fuinhas, and Marques (2013) conducted in Malaysia and Portugal, respectively, negate the reported bi-directional causal relationship.

According to economic theories, for both developed and developing economies, a reasonable level of debt is necessary to activate economic growth (Kharusi and Ada, 2018). Using data on African countries, Amoateng and Amoako-Adu (1996) find a bidirectional causality between external debt and economic growth. The findings are consistent with those of Shittu, Hassan, and Nawaz (2018) on Sub-Saharan Africa (SSA) countries. Using data from Zambia, Fandamu and Phiri (2017) report a significant causal relationship running from external debt to economic growth. Butts (2009) reports short- and long-run causality from economic growth to external debt for the 13 Latin and Caribbean countries. Butts' (2009) findings are consistent with Ndubuisi (2017) and Gokmenoglu and Rafik (2018), indicating a unidirectional causality running from GDP to external debt in Nigeria and Malaysia, respectively. Lawal et al. (2016) report no causality between Nigeria's external debt and economic growth.

External debt decreases the volume of private capital stock by crowding out investment (Epaphra and Mesiet, 2021). Ajisafe, Nassar, Fatokun, Soile, and Gidado (2006) report a bi-directional causal relationship between investment and external debt in Nigeria. Mabula and Mutasa (2019) report no significant causal relationship between external debt and investment in Tanzania. Sichula (2012)

finds no causality between debt and investment in the Southern African Development Countries (SADC).

Private investment is an essential component of economic development. Through investment, various production facilities are made available, thus providing an opportunity for optimal productivity and economic growth. (Suhendra and Anwar, 2014).) Molapo and Damane (2015) and Muyambiri (2020) indicate a unidirectional causality running from investment to economic growth in Lesotho and the Republic of Congo, respectively. Owusu (2021) reports a significant reciprocal causal relationship between investment and economic growth in Namibia. Although Chiwira and Kambeu (2016) found a significant long-run relationship between investment and economic growth, the study could not find a Granger-causal relationship between the two variables. Meyer and Sanusi's (2019) findings indicate a long-run relationship between domestic investment and economic growth in South Africa. The causality is reported to be running from economic growth to investment and is non-reciprocal.

A complete financial system with a complete financial sector is vital for channeling funds to economic production points. However, there are situations when financial development may negatively affect economic growth when the level of income is below some threshold (Aziakpono, 2011). Fakudze, Tsegaye, and Sibanda (2021), Kagochi, Nasser, and Kebede (2013), and Sindano and Kaakunga (2011) conducted a study investigating the relationship between financial development and economic growth. The study results show a unidirectional causality running from economic growth to financial development in Eswatini, sub-Saharan Africa, and Namibia, respectively. Kagochi et al. (2013) further indicate a two-way causal relationship between the stock, market development, and economic growth in sub-Saharan countries. A bi-directional causal relationship between the two variables is also reported in Akinboade's (1998) study conducted in Botswana.

International trade and trade openness reflects how the country is integrated with the rest of the world, indicating a unidirectional causality relationship running from financial development to trade for Sudan, Senegal, Niger, Burundi, and Malawi and causality running from trade to financial development in Gabon. Yucel (2009) and Chandio, Rehman, Jiang, and Joyo (2017) report a bi-causal relationship between trade openness and financial development in Turkey, Australia, and Pakistan, respectively. Aziakpono, Burger, and Du Plessis (2009) also confirmed a bi-directional causality between financial development and financial integration for SACU countries; the study uncovered that causality runs from financial integration to financial development in Lesotho. Tsaurai, K. (2017) investigated the relationship between financial development and trade. The results of the study indicate a weak positive unidirectional relationship running from financial development to trade in Argentina.

Trade contributes to increasing productivity and enhancing economic activity in a country (Singh, 2010b). Menyah et al. (2014) investigated the relationship between trade openness and economic growth in 21 African countries. The study uncovered a unidirectional causal relationship running from trade to economic growth for South Africa and Benin. Using the Pairwise Dumitrescu Hurlin Panel Causality test, Yameogo and Omojolaibi (2021) found a bi-directional causal relationship between trade and economic growth in the Sub-Saharan African countries. Duru (2021) conducted a study on MINT countries (Mexico, Indonesia, Nigeria, and Turkey). The results of the study suggest a bi-directional relationship between economic growth and trade in Nigeria but report no causality between economic growth and trade liberalization in Mexico and Indonesia.

Adoption and implementation of policies geared towards free trade to improve investment. Eliminating trade tariffs enhances investment (Kiprop, Kalio and Kibet, 2018). Hossain and Mitra (2013) investigated the relationship between trade openness and investment. Their study revealed a short-run unidirectional causal relationship running from trade openness to domestic investment

in 33 African countries classified as highly aid-dependent countries. Dutta, Haider, and Das (2017) report a unidirectional causal relationship running from domestic investment to trade openness in Bangladesh. However, Mohsen (2015) reports a unidirectional long-run causal relationship running from trade openness to investment in Syria.

Domestic saving is critical in the network of variables that determine economic development. The neoclassical growth model pioneered by Robert Solow (1956) indicates that an increased level of savings positively affects both investment and economic growth. Using the innovation accounting approach, Singh (2010a) reveals a bidirectional causality between savings and economic growth in India. In contradiction, Mavrotas and Kelly (2001) report no evidence of causality between economic growth and savings in India but suggest evidence of bidirectional causality between savings and economic growth in Sri Lanka. Lira and Kalebe (2015) also confirmed causality between the two variables, indicating a Granger causality running from savings to economic growth in Lesotho.

There is also evidence of an association between savings on investment. Lira and Kalebe (2015) reveal a short-run and long-run Granger causality running from savings to investment in Lesotho. Afzal (2010) provides evidence showing that in the case of South Africa, there is a two-way causality between savings and investment. The study further shows that, in contrast, in Pakistan and Sri Lanka, there is a one-way causality running from savings to investment and reports no causality in India, the Philippines, and Malaysia. Irandoust (2019) found a bi-directional association between investment and savings in Russian Federation, Estonia, Latvia, Lithuania, Belarus, and Ukraine.

3. METHODOLOGY AND DATA

This study utilizes a multivariate Granger-causality model within an ARDL-bounds testing framework to examine the causal relationship between external debt, financial development, and investment in South Africa and Botswana, as well as other control variables. The following ARDL model is estimated.

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

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

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

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

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

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

The multivariate causality model is then presented as follows:

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

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

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

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

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

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

Where,

INV = gross fixed capital formation (a proxy for the level of domestic investment), BFD = bank-based financial development composite index, EXD = external debt (proxied by the ratio of external debt to GDP), GDP = growth rate of the real gross domestic product per capita, GDS = gross domestic savings to GDP, TRD is trade to GDP, ECT = error-correction term, $\propto_0, \beta_0, \rho_0, \gamma_0, \delta_0$ and ∂_0= respective constants, $\propto_1, \dots, \propto_{10}, \beta_1, \dots, \beta_{10}, \rho_1, \dots, \rho_{10}, \gamma_1, \dots, \gamma_{10}, \delta_1, \dots, \delta_{10}$ and $\partial_1, \dots, \partial_{10}$= respective coefficients, Δ = difference operator, n=lag length, ECT = error term and μ = white-noise error-term.

Following Ndikumana (2000) and Demirgüç-Kunt and Levine (1996), the bank-based financial development indicator (BFD) is a composite index of financial development calculated using the following formula.

$$BFD_t = \frac{1}{n}\sum_{i=1}^{n}\left[100 \times \left(\frac{FD_{it}}{FD_i}\right)\right]$$

Where,

FD_{it} is an indicator of financial development at time t, FD_i is the sample mean of the indicator, and n is the number of indicators. The index is calculated using eight financial development indicators for financial depth, efficiency, stability, and other 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 (%).

The choice of indicators to include in the composite index was guided mostly by the availability of data. However, the employed composite index covers multiple alternative measures of financial development and hence offers the uniqueness of multiple individual financial development indicator attributes. This study is one of the few that uniquely uses such an extensively composed financial development index for developing countries in Southern Africa.

The annual data from 1980 to 2020 used in this study were obtained from the World Bank's World Development Indicators and Global Financial Development Database (World Bank, 2022; Beck, Demirgü.-Kunt and Levine, 2000, 2010; Čihák, Demirgüç-Kunt, Feyen and Levine, 2012).

4. EMPIRICAL RESULTS

Since the ARDL bounds test is only employable when all our variables are integrated in an order equal to one or less, substantiating the order of integration is made with the help of unit root tests. This study conducted unit root tests using the Augmented Dickey-Fuller Generalised Least Square and the Perron (1997) PPURoot unit root tests. The null hypothesis being tested is that the relevant series is not stationary against the alternative that the series is stationary. The unit root results of the variables are shown in Table 1.

Table 1: Unit Root Tests

Augmented Dickey-Fuller Generalised Least Square							
BOTSWANA				**SOUTH AFRICA**			
Variable	**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
EXD	-1.572	-1.899	-5.252***	-5.579***	1.35887	-1.883	-6.942***	-7.420***
GDP	-4.484***	-5.466***	-	-	-2.676***	-2.845	-5.986***	-6.450***
GDS	-1.335	-1.679	-4.452***	-5.482	-0.769	-1.826	-2.059**	-5.220***
BFD	0.666	-1.630	-4.164***	-4.806***	-0.549	-2.340	-6.325***	-6.781***
TRD	-1.098	-1.929	-5.681***	-5.700***	-1.768*	-2.387	-5.404***	-6.213***
INV	-2.147**	-2.531	-5.352***	-5.473***	-1.142	-2.208	-3.793***	-3.952***
Perron (1997) Unit Root Test (PPURoot)							
BOTSWANA				**SOUTH AFRICA**			
Variable	**Stationarity in levels**		**Stationarity in first differences s**		**Stationarity in levels**		**Stationarity in first differences**	
	Without trend	With trend	Without trend	With trend	Without trend	With trend	Without trend	With trend
EXD	-5.247**	-4.853	-6.849***	-6.598***	-3.821	-7.13***	-7.92***	-8.62***

GDP	-5.976***	-5.877**	-	-	-4.120	-4.683	-6.020***	-5.541*
GDS	-2.604	-2.916	-6.497***	-6.4801***	-4.957*	-3.973	-6.931***	-7.229***
BFD	-2.614	-2.722	-5.471**	-5.3029*	-3.931	-3.860	-5.081*	-7.505
TRD	-2.728	-3.258	-6.867***	-6.593***	-3.857	-3.624	-7.454***	-7.296***
INV	-5.836**	-6.193**	-	-	-4.235	-3.2287	-5.7414**	-5.699**

	Associated Breakpoints Perron (1997) Unit Root Test (PPURoot)							
	BOTSWANA				**SOUTH AFRICA**			
Variable	**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
EXD	2008	2008	2009	1990	2011	2002	2002	2002
GDP	1988	2009	-	-	1994	2009	1992	1994
GDS	2007	1989	1990	1995	2001	2000	1992	2004
BFD	2006	1987	2008	2009	1991	1991	1991	2002
TRD	2006	2010	2013	2013	1999	2008	2008	2008
INV	2006	2007	-	-	2005	2005	2008	2008

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

Since all variables are integrated to a maximum order of 1, as confirmed in Table 1, the ARDL bounds testing procedure can be employed for our data. 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.

Table 2: Bounds F-Test for Cointegration

Dependent Variable	**Function**	**BOTSWANA**		**SOUTH AFRICA**	
		F-statistic	**Cointegration Status**	**F-statistic**	**Cointegration Status**
EXD	F(EXD| GDP, BFD, INV, GDS,TRD)	0.86682	Not Cointegrated	0.60343	Not Cointegrated
GDP	F(GDP| EXD, BFD, INV, GDS,TRD)	3.7130*	Cointegrated	2.4893	Not Cointegrated
BFD	F(BFD| GDP, EXD, INV, GDS,TRD)	2.0788	Not Cointegrated	1.1447	Not Cointegrated
INV	F(INV| GDP, BFD, EXD, GDS,TRD)	3.5415*	Cointegrated	4.1131**	Cointegrated
GDS	F(GDS| GDP, BFD, INV, EXD,TRD)	4.3145**	Cointegrated	1.6367	Not Cointegrated
TRD	F(TRD| GDP, BFD, EXD, GDS,INV)	1.9758	Not Cointegrated	1.8692	Not Cointegrated
Asymptotic Critical Values	**1% level**		**5% level**		**10% level**
Pesaran et al. (2001:301) Table CI(iii) Case III	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

For Botswana, results show three cointegration scenarios (for equations for economic growth, investment, and savings) and evidence of no cointegration in the remaining three equations (i.e., for external debt, financial development, and trade equations). For South Africa, results show only one cointegration scenario (for the investment equation) and evidence of no cointegration in the

remaining three equations (i.e., for economic growth, savings external debt, financial development, and trade equations).

Having ascertained the cointegration status of all variables for both countries in the study, the next step is to test for the causality between the variables used. Table 3 gives the results of causality tests for both Botswana and South Africa.

Table 3: Granger-Causality Test Results

BOTSWANA							
Dependent Variable	F-statistics (probability)						ECT_{t-1}
	ΔEXD_t	ΔGDP_t	ΔINV_t	ΔGDS_t	ΔTRD_t	ΔBFD_t	[t-statistics]
ΔEXD_t		0.083 (0.920)	1.534 (0.234)	0.827 (0.448)	0.641 (0.535)	1.345 (0.278)	
ΔGDP_t	0.710 (0.623)		3.070** (0.040)	0.291 (0.595)	3.225* (0.088)	2.271 (0.147)	-0.986* [-1.816]
ΔINV_t	0.334 (0.719)	4.156** (0.052)		4.690 (0.040)	0.119 (0.888)		-0.462** [-2.188]
ΔGDS_t	1.434 (0.257)	1.664 (0.210)	2.755* (0.083)		0.871 (0.431)	0.294 (0.747)	-0.162* [-2.213]
ΔTRD_t	4.005** (0.030)	0.804 (0.458	0.823 (0.450)	0.001 (0.999)		1.365 (0.273)	
ΔBFD_t	1.605 (0.220)	0.243 (0.785)	2.539* (0.098)	1.8145 (0.183	0.621 (0.545)		
SOUTH AFRICA							
Dependent Variable	F-statistics (probability)						ECT_{t-1}
	ΔEXD_t	ΔGDP_t	ΔINV_t	ΔGDS_t	ΔTRD_t	ΔBFD_t	[t-statistics]
ΔEXD_t		0.243 (0.786)	0.205 (0.815)	0.390 (0.681)	0.375 (0.690)	1.030 (0.371)	
ΔGDP_t	0.183 (0.833)		3.385* (0.077)	2.723 (0.110)	0.821 (0.450)	0.718 (0.491)	
ΔINV_t	0.763 (0.477)	0.977 (0.390)		0.273 (0.763)	3.794** (0.036)	2.645* (0.091)	-0.053*** [-3.301]
ΔGDS_t	1.716 (0.199)	0.333 (0.719)	0.100 (0.904)		0.729 (0.492)	1.360 (0.274)	
ΔTRD_t	0.167 (0.847)	3.839** (0.035)	0.836 (0.444)	0.544 (0.587)		5.302** (0.012)	
ΔBFD_t	1.524 (0.237)	1.429 (0.258)	1.271 (0.297)	4.056** (0.029)	0.060 (0.942)		

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

The results from the causality tests are summarised in Table 4.

Table 4: Summary of Granger-causality test results

BOTSWANA			
DEPENDENT VARIABLE	**DIRECTION OF CAUSALITY AND SIGNIFICANT VARIABLES**	**PERIOD OF CAUSALITY**	
		Short Run	**Long Run**
EXD	$\Rightarrow$TRD	✔	
GDP	$\Rightarrow$INV*	✔	✔
INV	$\Rightarrow$GDP*, GDS*	✔	✔
INV	$\Rightarrow$BFD	✔	
GDS	$\Rightarrow$INV*	✔	✔
TRD	$\Rightarrow$GDP	✔	✔
SOUTH AFRICA			
Dependent Variable	**DIRECTION OF CAUSALITY AND SIGNIFICANT VARIABLES**	**PERIOD of Causality**	
		Short Run	**Long Run**
GDP	$\Rightarrow$TRD	✔	
INV	$\Rightarrow$GDP	✔	
GDS	$\Rightarrow$BFD	✔	
TRD	$\Rightarrow$INV	✔	✔
BFD	$\Rightarrow$INV	✔	✔
BFD	$\Rightarrow$GDP	✔	
BFD	$\Rightarrow$TRD	✔	

Note: GDP=Economic growth, GDS=Savings, INV=investment; BFD=bank-based financial development; EXD=external debt, TRD=trade; $\Rightarrow$indicates direction of causality; ✔indicates the presence of causality in the respective period; *indicates bidirectional causality.

The results in Table 4 reveal that, for Botswana, there is no causality between external debt and either investment or financial development, irrespective of whether the causality is estimated in the short or long run. However, a short-run unidirectional causal relationship exists between investment and financial development. This is contrary to the results found by Akinboade's (1998) study for the same case in Botswana. Akinboade (1998) employed a different data set and a bivariate causality model methodology which are different and less efficient than the ones used in this study hence the difference in the results.

Other results for Botswana show that there is both a short-run and long-run bi-directional causal relationship between economic growth and investment and between savings and investment. External debt only Granger causes trade in the short run, while in turn, trade only Granger causes economic growth in the short run and in the long run.

For South Africa, as also found for Botswana, there is no causality between external debt and either investment or financial development, irrespective of whether the causality is estimated in the short or long run. Nonetheless, there is evidence of a short-run and long-run unidirectional causal relationship from financial development to investment. This is opposite to what was found for Botswana.

Other South African results show short-run causality from economic growth to trade openness, investment to economic growth, and financial development to economic growth. In addition, the study finds a short-run and long-run causal relationship running from trade to investment in South Africa.

The results indicate a lack of causality between investment and external debt in Botswana and South Africa. The finding is consistent with Mabula and Mutasa (2019) and Sichula (2012), who also found no causality between debt and investment in the SADC countries.

5. CONCLUSIONS

In this study, the causal relationship between external debt, financial development, and investment in Botswana and South Africa from 1980–2020 is based on a multivariate Granger-causality model. The study includes savings, trade, and economic growth as intermittent variables. The study finds that, for Botswana and South Africa, there is no distinct short- and long-run Granger-causality relationship between external debt and financial development and/or investment. However, for Botswana, there is a short-run unidirectional causal relationship from investment to financial development. While for South Africa, the opposite is true. That is, there is evidence of a short-run and long-run unidirectional causal relationship from financial development to investment. Based on these results, it can be concluded that it is primarily investment that drives financial development, rather than external debt, that drives investment in Botswana. Thus, the policy implication is that for the economy of Botswana, immense efforts in promoting investment are recommended to stimulate the real sector in the short run. Other results for Botswana support the need for the concurrent promotion of investment, savings, and economic growth because these variables are found to have a short-run and long-run bi-directional causal relationship.

For South Africa, based on the results, it can be concluded that it is primarily financial development that drives investment. Therefore, policy should work to promote financial development to stimulate investment both in the short run and in the long run. Other results for South Africa support the promotion of financial development as it is also found to drive economic growth in the short run. Financial development is found to be mostly driven by savings in the short run, while investment is revealed as a driver of economic growth. Therefore, the transmission mechanism for South Africa, as revealed by the findings of this study, postulates that savings precede financial development in the short run. Financial development precedes investment both in the short run and in the long run and also precedes economic growth in the short run. Investment precedes economic growth in the short run. Therefore, the promotion of financial development in South Africa, accordingly, drives both investment and economic growth in South Africa.

Furthermore, the study has uncovered some similarities between the two economies. For both, investment granger causes economic growth in the short run and the absence of any causal relationship between external debt and financial development and investment.

REFERENCES

AFDB. (2022). *Botswana economic outlook*, African Development Bank, Viewed 10 October 2022, https://www.afdb.org/en/countries/southern-africa/botswana/botswana-economic-outlook.

AFDB. (2022). *South Africa economic outlook*, African Development Bank, Viewed 10 October 2022,https://www.afdb.org/en/countries/southern-africa/south-africa/south-africa-economic-outlook.

Afzal, M. (2010). Savings and investment in developing countries: Granger-causality test. Philippine Review of Economics, 44(2), 99-110

Ajisafe, R., Nassar, M., Fatokun, O., Soile, I., & Gidado, O. K. (2006). External debt and foreign private investment in Nigeria: A test for causality. African Economic and Business Review, 4(1), 1109-5609.

Akinboade, O. A. (1998). Financial development and economic growth in Botswana: A test for causality/développement financier et croissance économique au botswana: Un test de causalité. Savings and Development, 331-348.

Amoateng, K., & Amoako-Adu, B. (1996). Economic growth, export, and external debt causality: The case of African countries. Applied Economics, 28(1), 21-27.

Aromolaran, O., & Olebogeng, D. D. (2021). Macroeconomic policy directions in the Southern African Customs Union. International Journal of Economics and Finance, 13(2), 327-360.

Asongu, S. A. (2014). Linkages between investment flows and financial development: Causality evidence from selected African countries. African Journal of Economic and Management Studies, 5(3), 269-299

Aziakpono, M. (2003), Financial intermediation and economic growth in an economic and monetary union: The case of SACU and CMA. Paper presented at the ESSA Conference, Lord Charles Hotel, Somerset West, 19 September 2003.

Aziakpono, M. J. (2011). Financial development and economic growth: Theory and a survey of evidence. Studies in Economics and Econometrics, 35(1), 15-43.

Aziakpono, M., Burger, P., & Du Plessis, S. (2009). Is financial integration a complement or substitute for domestic financial development in a developing country? Evidence from the SACU countries. Studies in Economics and Econometrics, 33(3), 39-67.

Beck, T., Demirgü.-Kunt, A. and Levine, R. (2000). A new database on the structure and development of the financial sector. The World Bank Economic Review, 14(3), 597- 605.

Beck, T., Demirgü.-Kunt, A. and Levine, R. (2010), Financial institutions and markets across countries and over time: the updated financial development and structure database. The World Bank Economic Review, 24(1), 77-92.

Bhattarai, S., Chatterjee, A., & Park, W. Y. (2021). Effects of US quantitative easing on emerging market economies. Journal of Economic Dynamics and Control, 122, 104031.

Butts, H. C. (2009). Short-term external debt and economic growth—Granger-causality: Evidence from Latin America and the Caribbean. The Review of Black political economy, 36(2), 93-111.

Ceicdata.(2021), South Africa External Debt, Ceicdata, viewed, 10 October 2022, https://www.ceicdata.com/en/indicator/botswana/external-debt.

Chandio, A. A., Rehman, A., Jiang, Y., & Joyo, M. A. (2017). Financial development, trade openness and economic growth in Pakistan: A Granger-causality approach. International Journal of Advanced and Applied Sciences, 4(4), 73-80.

Chiwira, O., & Kambeu, E. (2016). Foreign direct investment and economic growth in Botswana: A dynamic causality test. British Journal of Economics, Management & Trade, 11(3), 1-8.

Čihák, M., Demirgüç-Kunt, A., Feyen, E., & Levine, R. (2012). Benchmarking financial systems around the world. World Bank policy research working paper, (6175).

Demirgüç-Kunt, A., & Levine, R. (1996). Stock market development and financial intermediaries: stylized facts. The World Bank Economic Review, 10(2), 291-321.

Duru, I. U. (2021). Trade Liberalization and Economic Growth: The Scenario of the MINT Economies. Economy, 8(2), 35-48.

Dutta, C. B., Haider, M. Z., & Das, D. K. (2017). Dynamics of economic growth, investment, and trade openness: Evidence from Bangladesh. South Asian Journal of Macroeconomics and Public Finance, 6(1), 82-104.

Epaphra, M., & Mesiet, W. (2021). The external debt burden and economic growth in Africa: a panel data analysis. Theoretical & Applied Economics, 28(2), 175-206

Fakudze, S. O., Tsegaye, A., & Sibanda, K. (2021). The relationship between financial development and economic growth in Eswatini (formerly Swaziland). African Journal of Economic and Management Studies, 13(1), 15-28

Fandamu, L. D. S. K. H., & Phiri, C. (2017). The impact of external debt on Zambia's economic growth: An ARDL approach. Journal of Economics and Sustainable Development, 8(8), 55-68.

Gokmenoglu, K., Rafik, R.A.M. (2018). Determinants of External Debt: The Case of Malaysia. Ozatac, N., Gökmenoglu, K. (eds) Emerging Trends in Banking and Finance. Springer Proceedings in Business and Economics. Springer, Cham. https://doi.org/10.1007/978-3-030-01784-2_2

Hossain, S., & Mitra, R. (2013). The Determinants of Economic Growth in Africa: A Dynamic Causality and Panel Cointegration Analysis. Economic Analysis and Policy, 43(2), 217–226.

Huang, Y. (2011). Private investment and financial development in a globalized world. Empirical Economics, 41(1), 43-56.

Irandoust, M. (2019). Saving and investment causality: implications for financial integration in transition countries of Eastern Europe. International Economics and Economic Policy, 16(2), 397-416.

Kagochi, J. M., Nasser, O. M. A., & Kebede, E. (2013). Does financial development hold the key to economic growth? The case of Sub-Saharan Africa. The Journal of Developing Areas, 61-79.

Kharusi, S. A., & Ada, M. S. (2018). External debt and economic growth: The case of emerging economy. Journal of economic integration, 33(1), 1141-1157.

Kiprop, I. J. K. S., Kalio, A., & Kibet, L . (2018). The Effect of Regional Integration on Private Investment in East African Community: A Panel Data Approach, International Journal of Development and Economic Sustainability, 6 (4), 51-62,

Lawal, A. I., Babalola, M. B., & Otekunrin, A. O. (2016). External debt and economic growth: Evidence from Nigeria.AUDŒ, 12(6), 179-194.

Lira, P. S., & Kalebe, M. K. (2015). Savings, investment and economic growth in Lesotho: An empirical analysis. Journal of Economics and International Finance, 7(10), 213-221.

Mabula, S., & Mutasa, F. (2019). The effect of public debt on private investment in Tanzania. African Journal of Economic Review, 7(1), 109-135.

Majid, M.S.A. (2008). Does Financial Development Matter for Economic Growth in Malaysia? an Ardl Bound Testing Approach. Journal of Economic Cooperation, 29 (1): 61–82.

Marques, L.M., J.A. Fuinhas, and A.C. Marques. (2013). Does the Stock Market Cause Economic Growth? Portuguese Evidence of Economic Regime Change. Economic Modelling 32: 316–324.

Mavrotas, G., & Kelly, R. (2001). Old wine in new bottles: Testing causality between savings and growth. The Manchester School, 69, 97-105.

Menyah, K., Nazlioglu, S., & Wolde-Rufael, Y. (2014). Financial development, trade openness and economic growth in African countries: New insights from a panel causality approach. Economic Modelling, 37, 386-394.

Meyer, D. F., & Sanusi, K. A. (2019). A causality analysis of the relationships between gross fixed capital formation, economic growth and employment in South Africa. Studia Universitatis Babes-Bolyai Oeconomica, 64(1), 33-44.

Mohsen, A. S. (2015). Effects of trade openness and economic growth on the private sector investment in Syria. Journal of Applied Management and Investments, 4(3), 168-176.

Molapo, S., & Damane, M. (2015). Determinants of private investment in Lesotho. European Scientific Journal, 11(34), 473-491.

Mollah, S., Al Farooque, O., & Karim, W. (2012). Ownership structure, corporate governance and firm performance: Evidence from an African emerging market. Studies in Economics and finance, 29(4), 301-319.

Muyambiri, B. (2020). The Finance-Investment-Growth Causal Connection: Evidence from the Republic of Congo. Dutch Journal of Finance and Management, 4(1), em0061.

Muyambiri, B., & Odhiambo, N. M. (2018). Financial Development and Investment in Botswana: A Multivariate Causality Test. Folia Oeconomica Stetinensia, 18(2), 72-89.

Nazlioglu, S., Yalama, A., & Aslan, M. (2009). Financial development and investment: cointegration and causality analysis for the case of Turkey. International Journal of Economic Perspectives, 3(2), 107-119.

Ndikumana, L. (2000). Financial determinants of domestic investment in Sub-Saharan Africa: Evidence from panel data. World development, 28(2), 381-400.

Ndubuisi, P. (2017). Analysis of the impact of external debt on economic growth in an emerging economy: Evidence from Nigeria. African Research Review, 11(4), 156-173.

Owusu, E. L. (2021). The relationship between foreign direct investment and economic growth: A multivariate causality approach from Namibia. International Journal of Finance & Economics, 26(2), 2990-2997.

Perron, P. (1997). Further evidence on breaking trend functions in macroeconomic variables. Journal of econometrics, 80(2): 355-385.

Pesaran, M. H., Shin, Y., & Smith, R. (2001). Bound testing approaches to the analysis of level relationship. Journal of Applied Econometrics, 16 (3): 289-326.

Shittu, W. O., Hassan, S., & Nawaz, M. A. (2018). The nexus between external debt, corruption and economic growth: evidence from five SSA countries. African Journal of Economic and Management Studies, 9(3), 319-334.

Sichula, M. (2012). Debt overhang and economic growth in HIPC countries: The case of Southern African development community (SADC). International Journal of Economics and Finance, 4(10), 82-92.

Sindano, A. N., & Kaakunga, E. (2011). The direction of possible causal relationship between financial development and economic growth in Namibia. Journal of Economic and Financial Sciences, 4(2), 351-366.

Singh, T. (2010a). Does domestic saving cause economic growth? A time-series evidence from India. Journal of Policy Modeling, 32(2), 231-253.

Singh, T. (2010b). Does international trade cause economic growth? A survey. The World Economy, 33(11), 1517-1564.

Solow, R. M. (1956). A contribution to the theory of economic growth. Quarterly Journal of Economics, 70, 65– 94.

Standard Bank. (2022). Botswana: Economic and Political Overview. Standard bank. Viewed on 10 November 2022 on https://www.tradeclub.standardbank.com/portal/en/market-potential/botswana/economical-context

Suhendra, I., & Anwar, C. J. (2014). Determinants of private investment and the effects on economic growth in Indonesia. GSTF Journal on Business Review (GBR), 3(3), 1-6.

Tchamyou VS, Asongu SA (2017) Information sharing and financial sector development in Africa. Journal of African Business, 18(7):24–49

Trading Economics.(2022), Botswana world bank indicators , Trading Economics, viewed 10 October 2022 https://tradingeconomics.com/botswana/indicators-wb-data.html?g=external+debt

Tsaurai, K. (2017). Investigating the relationship between financial development, trade openness and economic growth in Argentina: A multivariate causality framework. Acta Universitatis Danubius. Œconomica, 13(3).

World Bank (2022). World Development Indicators 2022. Washington, DC: World Bank. doi: 10.1596/978-1-4648-0163-1. License: Creative Commons Attribution CC BY 3.0 IGO.

World Bank. (2022). Global Development Finance (Washington: World Bank).

Yameogo, C. E. W., & Omojolaibi, J. A. (2021). Trade liberalisation, economic growth and poverty level in sub-Saharan Africa (SSA). Economic Research-Ekonomska Istraživanja, 34(1), 754-774.

Yucel, F. (2009). Causal relationships between financial development, trade openness and economic growth: the case of Turkey. Journal of Social Sciences, 5(1), 33-42.