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DETERMINANTS OF THE BRAZILIAN STOCK MARKET DEVELOPMENT

Sheilla Nyasha[1] and Nicholas M. Odhiambo

Abstract

In this paper, we examine the key determinants of stock market development in Brazil during the period from 1980 to 2016. The study was motivated by the growing important role of stock market development in economic development, on the one hand, and the conflicting findings on the determinants of stock market development, on the other hand. Unlike some previous studies that used cross-sectional data, the current study has used time-series techniques that take into consideration the Brazilian country-specific issues. Furthermore, the current study has also employed the ARDL bounds testing procedure to determine the determinants of stock market development in Brazil. This procedure is well known for its superior small sample properties; hence it is considered more suitable for this study. The results of the study reveal that the stock market development in Brazil is positively determined by trade openness, banking sector development and exchange rate, irrespective of whether the analysis is done in the long run or in the short run. Contrary to the results of some previous studies, investment and stock market liquidity are found to have a negative influence on the development of stock market in Brazil – both in the long run and in the short run. The study, therefore, recommends that policies that favour international trade, bank-based financial sector development and exchange rate stability should be pursued in Brazil, as this would translate into further stock market development.

Keywords: Stock Market Development; Drivers; Determinants; Brazil; ARDL Approach

JEL Codes: C22, E44, G23

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1. Introduction

It is now known that stock markets play a vital role is the economic growth process of an economy – through their role in liquidity provision, a reduction in transaction costs, price discovery and risk transfer (Garcia and Liu, 1999; Yartey and Adjasi, 2007; Levine and Zervos, 1996; Akinlo and Akinlo, 2009; Bernard and Austin, 2011). As economists battle in finding ways of stimulating economic growth, it becomes imperative to establish the drivers of stock market development as they have an ultimate bearing on the stimulants of economic growth. In recent years, studies on the stock market determinants have sprung up (Garcia and Liu, 1999; Kurach, 2010; Şükrüoğlu and Nalin, 2014; Bayar, 2016). However, their results are far from being conclusive. What turned out to be determinants in one study may not be in another study. Furthermore, most of these studies are based on various groups of countries, making the results general and deficient of country-specific effects consideration (Garcia and Liu, 1999; Kurach, 2010; Şükrüoğlu and Nalin, 2014). Only a handful of studies used time-series techniques, focusing on establishing determinants of stock market development in individual study country (El-Nader and Alraimony, 2013; Bayar, 2016). To the best of our knowledge, Brazil has not yet received coverage in this respect.

It is against this background that this study seeks to examine the determinants of stock market development in Brazil, during the period from 1980 to 2016, using the autoregressive distributed lag (ARDL) bounds testing approach. The results of the study are expected to take the Brazilian economy's specific effects into account, and will be useful in guiding relevant authorities in Brazil in coming up with policies and strategies that will lead to the growth of the country's stock market.

Brazil makes an interesting case study because it has not received much coverage on determinants of its stock market development despite being known as a lubricant of the Brazilian economy in more ways than one. These include the mobilisation of domestic savings to bring about the reallocation of financial resources from dormant to active agents, as well as the enhancement of the inflow of international capital (Nyasha and Odhiambo, 2013).

Brazil is one of the countries whose stock market has enjoyed years of growth and development, particularly during the 1990s and late 2000s. The history of the Brazilian stock market dates as far back to as the early 1800s when the first Brazilian stock exchange was inaugurated in 1817. To date, Brazil has numerous stock exchanges that formed slowly over the years; and also gradually

absorbed one another by merging over the years, giving rise to one big stock exchange, today known as the Brazil Bolsa Balcão "B3" (BM&FBovespa, 2018). According to the BM&FBovespa (2012; 2018), these stock exchanges, presented in the order of their existence in the Brazilian market-based financial space, were: The Rio de Janeiro Stock Exchange/Bolsa de Valores do Rio de Janeiro "BVRJ" (1820-2002); the São Paulo Stock Exchange/Bolsa de Valores de São Paulo "Bovespa" (1890-2008); the São Paulo Commodities Exchange "BMSP" (1917-1991); the Mercantile and Futures Exchange "BM&F" (1985-1991); the Brazilian Mercantile and Futures Exchange "BM&F" (1991-2008); the BM&FBOVESPA (2008-2017); and the Brazil Bolsa Balcão "B3" (2017 to date).

The B3 was created in March 2017 by the merger of BM&FBOVESPA and Central of Custody and Financial Settlement of Securities (CETIP), which gave rise to a world-class financial market infrastructure company. It consolidated BM&FBOVESPA's activities in listed products trading and post-trading, and CETIP's activities in registration and depository services for over-the-counter (OTC) securities and financing. In 2018, B3 had over 400 listed companies and a market capitalisation of US$1.04 trillion – an increase from US$0.95 trillion recorded in 2017 (BM&FBovespa, 2018; World Bank, 2018). The stock market in Brazil is monitored and regulated by the Securities and Exchange Commission (CVM), which is a Federal agency forming part of the Ministry of Finance (CVM, 2018).

From the economic growth front, Brazil was one of the fastest-growing major economies in the world, between 2000 and 2012, with an average annual gross domestic product (GDP) growth rate of over 5%. Its economy ranks higher than most other South American countries (World Bank, 2018). However, since 2010, Brazil registered a negative growth rate of -3.8% for the first time in 2015. In 2016, the Brazilian economy contracted again by 3.6%. Historically, from 1980 until 2016, Brazil's GDP growth rate averaged 2.5%, reaching an all-time high of 9.1% in 1980 and a record low of -4.4% in 1981 (World Bank, 2018). The International Monetary Fund growth forecast for Brazil for 2017 was 1%, with growth expected to accelerate in 2018 (IMF, 2017).

The rest of the paper is organised as follows: Section 2 reviews literature and section 3 discusses the methodology employed to examine the determinants of stock market development in Brazil. Section 4 presents and analyses the results of the study while section 5 presents the conclusions of the study.

2. Literature Review

Garcia and Liu (1999) examined the determinants of stock market development in 15 industrial and developing countries using the panel data analysis methods. They found real income level, the saving rate, financial intermediary development and stock market liquidity to be positive determinants of stock market development. In the same vein, El-Wassal (2005) assessed the determinants of emerging stock market development in 40 emerging economies. Based on the fixed effects of panel data analysis technique, the results revealed that economic growth, financial liberalisation policies and foreign portfolio investment are positive drivers of stock market development in emerging market economies.

Ben Naceur *et al.* (2007) also studied the drivers of stock market development in 12 Middle Eastern and North African (MENA) countries based on panel data analysis. The saving rate, stock market liquidity, and financial intermediary development were found to be positively affecting stock market development. However, on the contrary, macroeconomic instability was found to be a negative determinant of stock market growth. Yartey (2007) carried out the same study in 13 African countries, but used fixed and random effects of panel data analysis techniques. The results revealed that income level, domestic savings, domestic investment, financial intermediary development, stock market liquidity and institutional quality are positive determinants of stock market development in these 13 African countries.

Billmeier and Massa (2009) carried out an identical study in 17 emerging market economies, with the aim of establishing what really drives stock market development – institutions, remittances or natural resources? Based on a panel data approach to data analysis, they found institutions and remittances to have a positive impact on stock market capitalisation. They, therefore, concluded that it is institutions and remittances that positively drive stock market development. In the same year, Law and Habibullah (2009) examined the determinants of stock market development in 27

economies using generalised method of moments and pooled mean group estimation techniques. The results of the study revealed that the determinants of stock market development are trade openness, institutional quality and financial liberalisation.

In 2010, Yartey (2010) carried out another study on the determinants of stock market development – this time in 42 emerging economies – using the generalised method of moments estimation techniques. The study found income level, gross domestic investment, banking sector development, private capital flows, and stock market liquidity to be positive determinants of stock market development. In the same year, Kurach (2010) studied what drives stock market development in 13 Central and Eastern European economies. Using panel data, the results showed that economic growth, banking sector development, market liquidity, fiscal balance and European Union (EU) membership were positive determinants of stock market development. Cherif and Gazdar (2010) also set out to investigate the drivers of stock market development in 14 MENA economies, using panel data analysis techniques, and found that the saving rate, banking sector development, stock market liquidity and income are positive determinants of stock market development in the study countries while the interest rate was a negative determinant.

El-Nader and Alraimony (2013) explored the determinants of stock market development in Jordan using multivariate cointegration and variance decomposition analysis techniques. They found the positive determinants of stock market development to be banking sector development, stock market liquidity, investment, and inflation. However, GDP and net remittances were found to be negative determinants of stock market development in Jordan.

Şükrüoğlu and Nalin (2014), using dynamic panel data analysis, examined the drivers of stock market development in 19 European countries. While the results revealed that income, stock

market liquidity and the saving rate have a positive impact on stock market development, they also showed that the monetisation ratio and the inflation rate have a negative impact on stock market development. Bayar (2016) assessed the determinants of stock market development in Turkey. Based on the autoregressive distributed lag (ARDL) bounds testing approach, the study found positive determinants of stock market development to be economic growth and stock market liquidity while inflation was found to be a negative determinant.

Ho and Odhiambo (2017) investigated the macroeconomic drivers of stock market development in Hong Kong during the period from1992Q4 to 2016Q3 using the ARDL bounds testing procedure. The results revealed that, both in the long and the short run, banking sector development and economic growth are positive determinants while the inflation rate and the exchange rate are negative determinants of stock market development in Hong Kong. Further, the results indicated that while trade openness had a positive influence on stock market development in the long run, it had a negative influence in the short run.

The empirical literature reviewed in this study shows that determinants of stock market development seem to vary depending on region or country of study, the possible determinants tested and the empirical examination techniques employed. Most of the studies focused on both macroeconomic and institutional determinants (Garcia and Liu, 1999; El-Wassal, 2005; Ben Naceur *et al*., 2007; Yartey, 2007; Billmeier and Massa, 2009; Law and Habibullah, 2009; Yartey, 2010; Kurach, 2010; Cherif and Gazdar, 2010), while a handful only considered macroeconomic determinants (El-Nader and Alraimony, 2013; Şükrüoğlu and Nalin, 2014; Bayar, 2016; Ho and Odhiambo, 2017). Most of the former group studies found institutional factors studied to be positive determinants of stock market development.

3. Estimation Techniques

3.1 ARDL bounds testing procedure for cointegration

The determinants of stock market development in Brazil are explored using the recently developed ARDL bounds-testing approach, advanced by Pesaran *et al*. (1996), Pesaran and Shin (1999), and Pesaran *et al*. (2001). The approach has gained popularity because of its numerous favourable properties over orthodox estimation techniques, such as the residual-based technique and the Full-Maximum Likelihood (FML) test (see Odhiambo, 2008; Majid, 2008). First, the ARDL technique can be applied to variables that are integrated of order zero [I(0)] or order one [I(1)], or a mixture of the two, as it does not impose the restrictive assumption that all the variables need to be integrated of the same order. Second, the ARDL-based co-integration method gives unbiased long-run estimates and valid t-statistics – even when some of the regressors are endogenous (Odhiambo, 2008). Third, this preferred techniques, unlike other cointegration tests that are sensitive to the sample size, the ARDL bounds test is appropriate even when the sample size is small (see Pesaran *et al.,* 2001). Fourth, the ARDL approach takes a sufficient number of lags to capture the data-generating process in a general-to-specific modelling framework to obtain optimal lag length per variable. The technique is becoming widely used in recent years. This technique has also been increasingly used in empirical research of late. The ARDL model utilised in this study is expressed as follows:

$$\begin{aligned}\Delta SD_t = \alpha_0 &+ \sum_{i=1}^{n} \alpha_{1i}\,\Delta SD_{t-i} + \sum_{i=0}^{n} \alpha_{2i}\,\Delta y_{t-i} + \sum_{i=0}^{n} \alpha_{3i}\,\Delta TO_{t-i} + \sum_{i=0}^{n} \alpha_{4i}\,\Delta BD_{t-i} + \sum_{i=0}^{n} \alpha_{5i}\,\Delta SL_{t-i} \\ &+ \sum_{i=0}^{n} \alpha_{6i}\,\Delta IN_{t-i} + \sum_{i=0}^{n} \alpha_{7i}\,\Delta IF_{t-i} + \sum_{i=0}^{n} \alpha_{8i}\,\Delta ER_{t-i} + \vartheta_1 SD_{t-1} + \vartheta_2 y_{t-1} + \vartheta_3 TO_{t-1} \\ &+ \vartheta_4 BD_{t-1} + \vartheta_5 SL_{t-1} + \vartheta_6 IN_{t-1} + \vartheta_7 IF_{t-1} + \vartheta_8 ER_{t-1} + \varepsilon_t \ldots . (1)\end{aligned}$$

Where **y** is economic growth; **TO** is trade openness; **BD** is banking sector development; **SL** is stock market liquidity; **IN** is investment; **IF** is inflation rate; **ER** is exchange rate; α_0 is a constant; $\boldsymbol{\alpha_1}$ to $\boldsymbol{\alpha_8}$ are short-run coefficients; $\boldsymbol{\vartheta_1}$ to $\boldsymbol{\vartheta_8}$ are long-run coefficients; $\boldsymbol{\varepsilon_t}$ is the error term; Δ is the first-difference operator; **t** is time period; and **n** is the number of lags.

The ARDL bounds testing approach to cointegration testing is carried out in two steps. The first step is to determine the order of lags on the first differenced variables in Equations (1); while the second step is the application of bounds F-test to Equation (1) to establish the existence of a long-run relationship between the variables under study. The null hypothesis of no co-integration, expressed as: H0: $\vartheta_1 = \vartheta_2 = \vartheta_3 \ldots = \vartheta_8 = 0$ is tested against the alternative hypothesis of co-integration, expressed as H1: $\vartheta_1 \neq \vartheta_2 \neq \vartheta_3 \ldots \neq \vartheta_8 \neq 0$.

The calculated F-statistic is compared with the critical values by Pesaran *et al*. (2001). If the calculated F-statistic is above the upper bound level, the null hypothesis of no co-integration is rejected, implying the presence of cointegration among the variables in question. However, if the calculated F-statistic is below the lower-bound level, the null hypothesis of no cointegration is accepted, implying the absence of cointegration among the variables in question. In the event that the calculated F-statistic has fallen within the upper and the lower bounds, the cointegration results are deemed inconclusive.

Based on the ARDL model specified in equations (1) the ARDL-based error-correction model is specified as follows:

$$\Delta SD_t = \alpha_0 + \sum_{i=1}^{n} \alpha_{1i}\, \Delta SD_{t-i} + \sum_{i=0}^{n} \alpha_{2i}\, \Delta y_{t-i} + \sum_{i=0}^{n} \alpha_{3i}\, \Delta TO_{t-i} + \sum_{i=0}^{n} \alpha_{4i}\, \Delta BD_{t-i} + \sum_{i=0}^{n} \alpha_{5i}\, \Delta SL_{t-i}$$
$$+ \sum_{i=0}^{n} \alpha_{6i}\, \Delta IN_{t-i} + \sum_{i=0}^{n} \alpha_{7i}\, \Delta IF_{t-i} + \sum_{i=0}^{n} \alpha_{8i}\, \Delta ER_{t-i} + \delta ECM_{t-1} + \varepsilon_t \ldots\ldots (2)$$

where $\boldsymbol{ECM}$ is the error-correction term and $\boldsymbol{\delta}$ is its coefficient.

3.2 Data description and source

To measure stock market development (**SD**), this study utilises the size of the stock market as measured by the market capitalisation ratio – which is the value of listed domestic shares on the domestic exchange as a ratio of GDP. This proxy has been extensively used as a measure of stock market development in a lot of other empirical studies (see Yartey, 2010; Ho and Odhiambo, 2017). Economic growth (**y**) is measured by the GDP growth rate, which is the rate at which the economy grows on an annual basis. This proxy has been widely utilised in studies such as these to measure the development of the economy; and its coefficient is expected to be positive (see Carp, 2012; Nyasha and Odhiambo 2015).

Trade openness (**TO**) in this study is proxied by the sum of exports and imports of goods and services as a ratio of GDP. The more open the economy the more developed the stock market (see Law and Habibullah, 2009; Niroomand *et al*., 2014). The coefficient is expected to be positive. Banking sector development (**BD**) is proxied by domestic credit provided by the financial sector to the private sector as a ratio of GDP, and is a widely used proxy to measure the level of development of the banking system in a given economy (see Levine *et al*., 2000; Beck *et al*., 2007; Bayar, 2016). Its coefficient is expected to be positive.

Stock market liquidity (**SL**) is measured by turnover ratio – which is a ratio that measures the liquidity of the stock market. The turnover ratio is found by dividing the value of the trades in domestic shares on the domestic exchange by the value of listed domestic shares. A number of studies also employed this proxy, and the coefficient of stock market liquidity is expected to be positive (Levine and Zervos, 1996; Cherif and Gazdar 2010; El-Nader and Alraimony, 2013; Bayar, 2016). Investment (**IN**) is proxied by the ratio of gross fixed capital formation to GDP. Several other studies have also utilised this proxy in related studies, and its coefficient is expected to be positive (see Yartey, 2010; El-Nader and Alraimony, 2013).

The inflation rate (**IF**) is proxied by the Consumer Price Index (CPI), where the CPI is the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services. The coefficient of inflation is expected to be negative (Şükrüoğlu and Nalin, 2014). The exchange rate (**ER**) is measured by the real effective exchange rate index; and its coefficient is also expected to be negative (see Ho and Odhiambo, 2017).

All the data used in this study were sourced from the World Bank Databank (World Bank, 2018).

4. Empirical results

4.1 Results of unit root test

In order to check the pre-condition of the ARDL procedure – that variables should be integrated of order one and below – unit root tastes were carried using the Dickey-Fuller Generalised Least Square (DF-GLS) and the Phillips-Perron (PP) unit root tests. The results based on these two tests for stationarity are reported in Table 1.

Table 1: Stationarity Tests for all Variables

Dickey-Fuller Generalised Least Square (DF-GLS)				
Variable	**Stationarity of variables in levels**		**Stationarity of variables in first difference**	
	Without Trend	With Trend	Without Trend	With Trend
SD	-1.132	-3.904***	-4.799***	-
y	-1.890*	-4.294***	-	-
TO	-1.420	-2.198	-5.333***	-5.676***
BD	-1.405	-2.465	-2.608**	-3.599**
SL	-1.412	-2.741	-7.050***	-7.114***
IN	-2.340*	-2.896*	-	-
IF	-3.104***	-3.375**	-	-
ER	-2.319**	-2.407	-	-5.043***
Phillips-Perron (PP)				
Variable	**Stationarity of all Variables in Levels**		**Stationarity of all variables in First Difference**	
	Without Trend	With Trend	Without Trend	With Trend
SD	-2.160	-4.044**	-11.207***	-
y	-4.992***	-4.978***	-	-
TO	-1.405	-2.349	-5.650***	-5.541***
BD	-2.789*	-2.772	-	-7.689***
SL	-1.885	-2.602	-7.298***	-7.184***
IN	-2.664*	-2.743	-	-5.547***
IF	-3.110**	-3.309*	-	-
ER	-2.311	-2.332	-5.191***	-5.097***

Note: *, ** and *** denote 10%, 5% and 1% significant levels, respectively

Unit root test results reported in Table 1 reveal that some of the variables in this study are integrated of order zero while others are integrated of order one. The data, therefore, satisfies the stationarity property requirement for ARDL bounds testing procedure.

4.2 Results of cointegration test

After establishing that the variables used in this study are stationary in either levels or first difference, the cointegration test was conducted using the ARDL bounds testing procedure. The results of the cointegration test are reported in Table 2.

Table 2: Bounds test F-test for cointegration

Dependent variable	**Function**				**F-statistic**	**Cointegration status**
SD	F(SD|y, TO, BD, SL, IN, IF, ER)				4.561***	Cointegrated
Asymptotic critical value						
Pesaran *et al*. (2001), p. 300, Table CI(iii), Case III	1%		5%		10%	
	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
	2.96	4.26	2.32	3.50	2.03	3.13

Note: *** denotes significance at 1%.

The results of the ARDL bounds test for cointegration presented in Table 2 show that the calculated F-statistic of 4.561 is higher than the critical values reported by Pesaran *et al*. (2001) in Table CI(iii) Case III. The results, therefore, support the conclusion that the variables in the specified model are cointegrated; hence, the empirical model can be estimated.

4.3 Results of long-run and short-run coefficients

The optimal lag was selected based on the Akaike information criterion (AIC) as it is this criterion that produced a parsimonious model. The optimal lag-length selected based on AIC is ARDL(1,0,0,0,2,1,0,2). The long-run and short-run coefficients of the model in this study are reported in Table 3 Panel A and Panel B, respectively.

Table 3: The Long-Run and Short-Run Results of the Selected Model

Panel A: Long-run coefficients; Dependent variable is SD				
Regressor	**Coefficient**	**Standard error**	**T-ratio**	**Probability**
y	0.495	1.241	0.399	0.694
TO	0.857***	0.664	4.300	0.000
BD	0.223*	0.109	2.052	0.053
SL	-0.015	0.149	-0.102	0.920
IN	-0.847**	2.917	-2.690	0.014
IF	0.003	0.005	0.579	0.569
ER	0.912***	0.325	3.118	0.005
INPT	24.272	54.334	0.447	0.660
Panel B: Short-run coefficients; Dependent variable is ΔSD				
Regressor	**Coefficient**	**Standard error**	**T-ratio**	**Probability**
Δy	0.448	1.146	0.391	0.699
ΔTO	0.586**	0.973	2.658	0.014
ΔBD	0.202**	0.086	2.365	0.026
ΔSL	-0.769***	0.176	-4.377	0.000
ΔSL1	-0.2654	0.159	-1.664	0.109
ΔIN	0.332	1.913	0.174	0.864
ΔIF	0.003	0.004	0.605	0.551
ΔER	0.961***	0.343	2.804	0.010
ΔER1	0.818***	0.246	3.320	0.003
ECM (-1)	-0.905***	0.224	-4.032	0.000
R-Squared	0.740	R-Bar-Squared	0.578	
SE of Regression	11.098	F-Stat F(10,24)	5.964[0.000]	
Residual Sum of Squares	258.3	DW statistic	2.158	
Akaike Info. Criterion	-138.958	Schwarz Bayesian Criterion	-149.846	

Notes: *, ** and *** denote 10%, 5% and 1% significant levels, respectively;
Δ = first-difference operator.

The regression results reported in Table 3, Panel s A and B, reveal that in Brazil, trade openness (**TO** and **ΔTO**), banking sector development (**BD** and **ΔBD**) and exchange rate (**ER** and **ΔER**) are positive determinants of stock market development (**SD** and **ΔSD**) both in the long run and in the short run. The long-run results are confirmed by the coefficients of TO, BD and ER in Panel A that are positive and statistically significant, while the short-run results are validated by the

coefficients of ΔTO, ΔBD and ΔER in Panel B, that are also positive and statistically significant. These results are consistent with expectation and other previous results on the stock market determinants (see Law and Habibullah, 2009; Yartey, 2010; El-Nader and Alraimony, 2013; Ho and Odhiambo, 2017).

The regression results further show that while investment (**IN** and Δ**IN**) has been found to be a negative determinant in the long run and to be neutral in the short run; stock market liquidity (**SL** and Δ**SL**) was found to be a negative determinant of stock market development in Brazil only in the short run, and was found to be neutral in the long run. Although the negative influence of investment and stock market liquidity on stock market development was not expected, it is not unusual. These results find support in the work of Thanh *et al*. (2017). Economic growth (**y**) and inflation (**IF**) were, however, found to be statistically insignificant. The coefficient of the error-correction term [**ECM(-1)**] was also found to be negative and statistically significant, as expected, confirming the existence of a long-run cointegration relationship among the variables in the specified model.

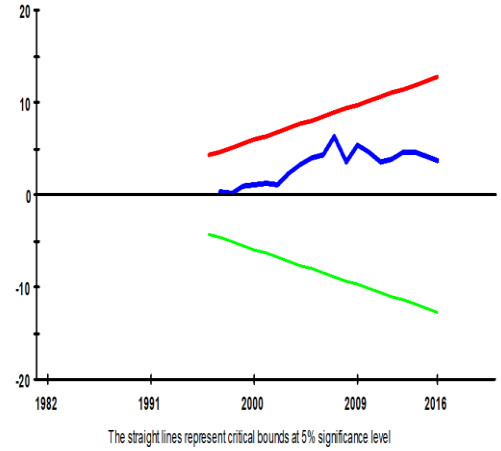
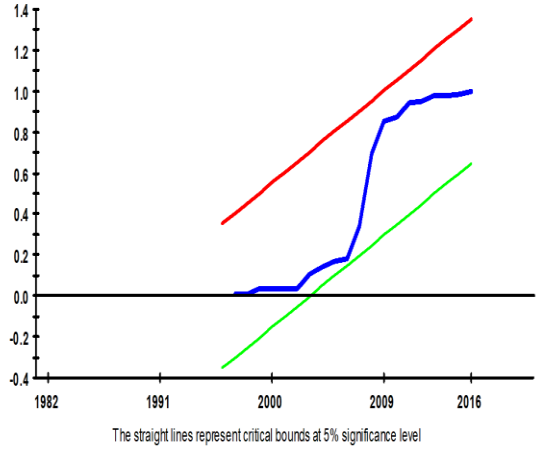
The regression for the underlying ARDL model fits well as indicated by an R-squared of 74%. The results of the diagnostic tests carried out for serial correlation, functional form, normality and heteroscedasticity, presented in Table 5, show that the model passed all tests.

Table 5: Diagnostic Tests

LM Test Statistic	**Results [Probability]**
Serial Correlation: CHSQ(1	2.758[0.102]
Functional Form: CHSQ(1)	0.393[0.513]
Normality: CHSQ (2)	2.049[0.114]
Heteroscedasticity: CHSQ (1)	1.381[0.160]

The Cumulative Sum of Recursive Residuals (CUSUM) and the Cumulative Sum of Squares of Recursive Residuals (CUSUMSQ) graphs in Figure 1 reveal that there is stability and that there is no systematic change identified in the coefficients at 5% significance level over the study period. Therefore, the CUSUM and CUSUMSQ graphs confirm the stability of the parameters in the model over the sample period.

Figure 2: Plot of Cumulative Sum of Recursive Residuals

Plot of Cumulative Sum of Recursive Residuals	Plot of Cumulative Sum of Squares of Recursive Residuals
	

5 Conclusion

This paper has examined the determinants of stock market development in Brazil during the period from 1980 to 2016. The study was motivated by the growing important role of stock market development in economic development, on the one hand, and the conflicting findings on the determinants of stock market development, on the other hand. Unlike some of the previous studies that relied mainly on cross-sectional data, the current study has used time-series techniques that take into consideration the Brazilian country-specific issues. Furthermore, the current study has also employed the ARDL bounds testing procedure to determine the determinants of stock market development in Brazil. This procedure is well known for its superior small sample properties,

hence it is considered more suitable for this study. The results of the study revealed that in Brazil, stock market development is positively determined by trade openness, banking sector development and exchange rate, irrespective of whether the analysis is done for the long run or in the short run. Contrary to the expectation of this study, investment and stock market liquidity were found to have a negative influence on stock market development in Brazil – both in the long run and in the short run. The study results further show that economic growth and inflation have no significant short-run and long-run influence on stock market development in Brazil. Based on these results, it would be prudent for Brazil to pursue policies that favour international trade, bank-based financial sector development and exchange rate stability, as this would translate into further development of the Brazilian stock market.

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