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BUSINESS CONFIDENCE IN SOUTH AFRICA: IDENTIFYING KEY DOMESTIC DRIVERS AND THE NATURE OF THEIR IMPACT.

Abstract:

The primary objective of this paper is to empirically assess the magnitude, direction and significance of the impact of selected domestic macroeconomic fundamentals on business confidence index for the South African economy. This particular focus of the paper comes at a time in the history of the South African economy when the business climate and investor confidence is at its lowest. According to South African Chamber of Commerce and Industry (SACCI, 2016), the business confidence index reached a 22-year low record of 79.6 in December 2015 before slipping further down to its all-time low of 79.3 in May this year. The auto-regressive distributive lag (ARDL) model proposed by Pesaran et al (2001) is employed on quarterly data spanning the period 1975 – 2015 and 2002 – 2015 for two models; total business confidence and financial services business confidence respectively. We attempt to explore the relationship between business confidence and selected domestic macroeconomic indicators. Empirical results showed that real economic growth, interest rate, exchange rate, inflation outlook and stock market performance have significant impacts on business confidence. Hence, our study empirically supports the notion that macroeconomic stability drives business confidence. The results stress the need by the government to ensure that the business environment is conducive for doing business in order to boost business confidence. By instilling and preserving the needed business confidence in the financial sector and the larger economy, growth prospects and aspirations of a country improve.

Keywords:

business confidence, bounds testing, investor perception, investor sentiment, investor confidence, ARDL model.

1. Introduction

The aim of this paper is to analyze the transmission of domestic macroeconomic and financial shocks to business confidence in South Africa from an empirical perspective. The global economic recession that followed the 2007/2008 sub-prime financial crisis is often regarded as the “crisis of confidence”. According to Pellissier (2002, p. 51), business confidence means “the present mood or sentiment of business people in conducting their day to day business.” Confidence in the financial system and the economy at large is a critical driver of economic and financial instabilities. This is because business confidence affects the forces that drives the economy. If there is low confidence about the economy, consumers, the business sector, existing, potential local and foreign investors adopt the “wait and see” attitude due to fear of the unknown. Consequently expenditures intended for the present period is postponed into the future. Similarly, an increase in the confidence by economic agents implies that consumers and firms are confident to spend

at the prevailing economic conditions.

While a decrease in business confidence does not augur well for the economy, a deteriorating economic climate do not equally bode well for business confidence. The primary objective of this paper is to empirically assess the magnitude, direction and significance of the impact of selected macroeconomic and financial fundamentals on business confidence for the South African economy. This particular focus of the paper comes at a time in the history of the South African economy when the business climate and investor confidence is at its lowest. According to South African Chamber of Commerce and Industry (SACCI, 2016), the business confidence index reached an all-time low record of 79.3 in May 2016.

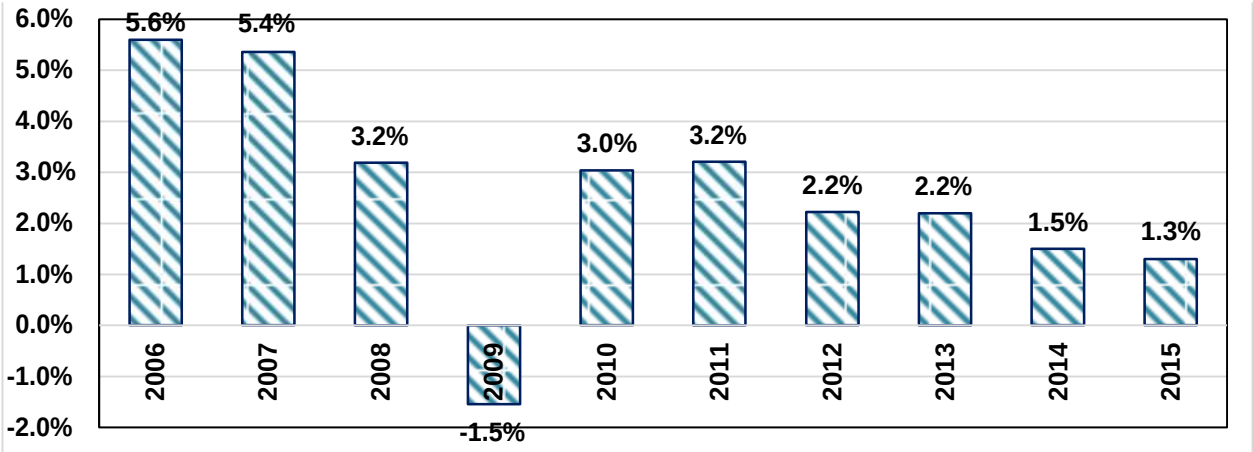
In this study we ask the following questions: *What fundamental domestic macroeconomic variables have a significant bearing on business confidence? What is the magnitude and direction of impact of these determinant factors? Are they any statistical significant financial sector variables that play a key role? What aspects of the macro-economy should policy makers target the most to boost consumer and business confidence.* To investigate these questions, two models are estimated to capture business confidence for the financial sector and for the all the firms in the economy. The financial sector was included because of its central role in the development process of an economy. This is the first ARDL bounds testing study to provide evidence of the impact of macroeconomic indicators on business confidence in South Africa. The conversation in this paper will be set out as follows: an overview of South Africa`s macroeconomic environment, methodology and data, discussion of estimated results and conclusion.

2. An Overview of South Africa`s Macroeconomy

South Africa recently regained its position as the largest economy in Africa having lost the rank to Nigeria in 2014. South Africa is classified by World Bank (2016) as an upper

middle-income economy. South Africa is endowed with substantial natural resources, a modern telecommunications and transport infrastructure and a sophisticated industrial economy. Its financial system is the largest and the most advanced in the whole of Africa ranking among those of developed economies (AFD, 2011). However, at present, the general economic outlook is uncertain and the level of economic activity remain subdued. Among the macroeconomic challenges facing South Africa is declining economic growth, high unemployment levels, weak domestic and foreign direct investment, depreciating and volatile exchange rate, and rising inflation rate that recently breached the upper bound of 6 percent in the first quarter of 2016. Like other countries, South Africa is also facing challenges of commodity price fallout and weak external demand.

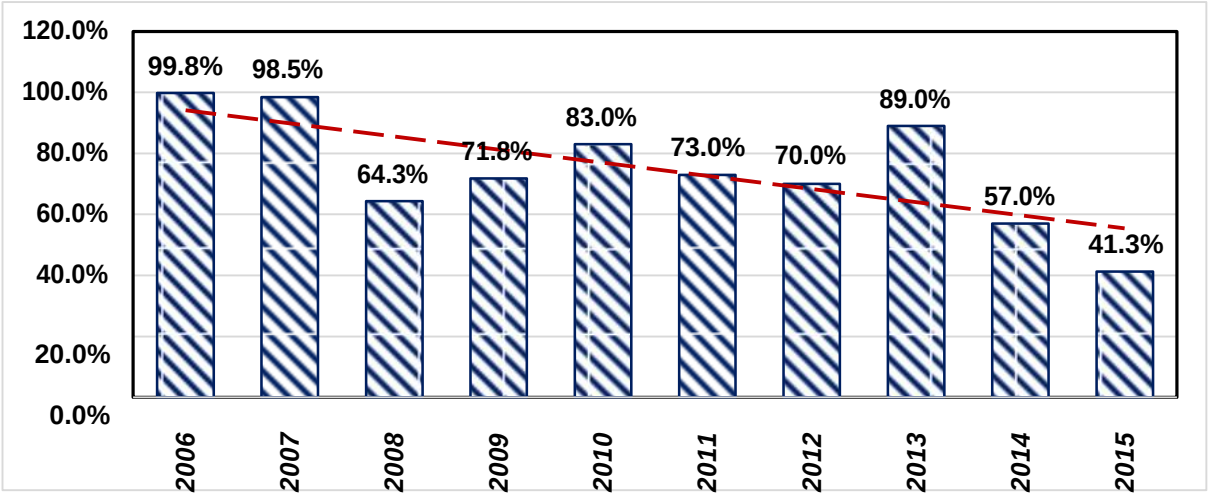
Figure 1: 10-year Review of South Africa`s Real Economic Growth



Source: Own computation based on Quantec data (2016)

Recently, IMF revised South Africa`s 2016 growth forecast originally projected at 1.7 percent down to 0.7 percent (IMF, 2016). According to StatsSA (2016), year on year real gross domestic product growth rate recorded in 2015 was 1.3 percent compared to 1.5 percent and 2.2 percent recorded in 2014 and 2013 respectively *see figure 1 above*. GDP is forecasted to remain subdued in 2016 and 2017 with moderate improvement in 2018. In the recent years social unrests and strikes and constant power outages due to electricity supply constraints have among other things been blamed for South Africa`s deteriorating economic prospects. In its budget review, National Treasury (2016, p.14) attributed the weaker economic outlook among other things to “diminished business and consumer confidence.”

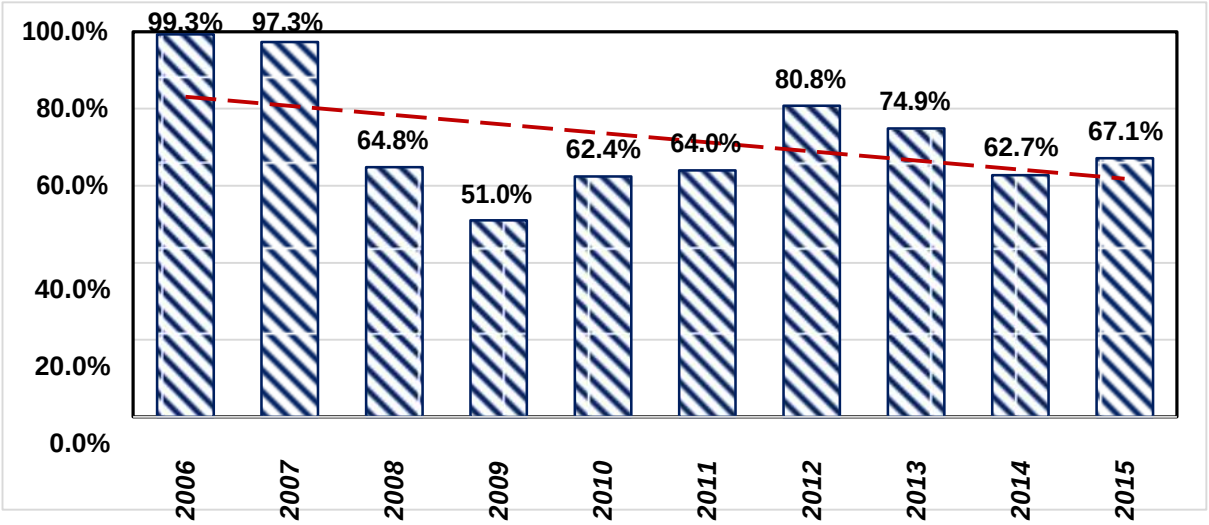
Figure 2: 10-year Review of South Africa`s Business Confidence Index: All Firms



Source: Own computation based on BER data (2016)

The BCI assumes values ranging from 0 to 100 where 0, 50 and 100 are indicators of extreme lack of confidence, neutrality and extreme confidence respectively. The business confidence index (BCI) in South Africa is reported by the Bureau for Economic Research (BER) and the South African Chamber of Commerce and Industry (SACCI). The BER BCI is calculated by assessing the level of optimism that manufacturers, wholesalers, retailers, building contractors, and new vehicle sales dealers have about prevailing conditions. It is therefore the unweighted average of indices from these five sectors. However, unlike BER the SACCI BCI does not reflect what respondents are saying "but what they doing and experiencing" (SACCI, 2016, p.1). The SACCI BCI is therefore a composite weighted compilation of thirteen sub-indices that reflect various economic and market indicators.

Figure 3: 10-year Review of South Africa`s Business Confidence Index: Financial Services



Source: Own computation based on BER data (2016)

3. Methodology & Data Analysis

3.1 Data

The study employed quarterly data to estimate two models: *total* business confidence (model I), and *financial services* business confidence (model II). Selected regressor variables included real growth, prime lending rate, exchange rate, inflation and the all-share price index. For model I, the sample covered the period 1975 – 2015 making a total of 164 observations. For model ll, the time frame was relatively shorter spanning 2002 – 2015. This was due to availability of the confidence index data which was only reported from 2002. However, the data set provided a total of 56 observations which is above the rule of thumb of a minimum of 30 observations. The data set was obtained from three sources within the Quantec database namely the Bureau for Economic Research (BER), South African Reserve Bank (SARB) and the International Monetary Fund (IMF). The descriptive statistics of the dataset are presented in **Table 1**.

Table 1: Descriptive statistics for the dataset

	Model I				
	Mean	Maximum	Minimum	Std. Dev.	Obs.
LBCT	1.594	1.957	0.991	0.234	164
LGDP	6.269	6.486	6.073	0.122	164
LINT	1.147	1.407	0.929	0.129	164
LEXC	0.535	1.192	-0.173	0.383	164
LINF	1.147	1.407	0.929	0.129	164
LALS	1.508	2.331	0.475	0.531	164
	Model II				
	Mean	Maximum	Minimum	Std. Dev.	Obs.
LBCF	1.868	2.000	1.602	0.099	56
LGDP	5.813	5.893	5.699	0.056	56
LINT	1.047	1.230	0.929	0.096	56
LEXC	0.917	1.192	0.751	0.101	56
LINF	0.808	1.058	0.512	0.123	56
LALS	2.076	2.331	1.770	0.158	56

3.2 Empirical Model

This study applies the auto-regressive distributed lag (ARDL) technique developed by Pesaran, Shin and Smith (2001) to business confidence in general and business confidence for financial services. The ARDL is a single-equation model approach for estimating short-run and long-run relationships. Two empirical models were specified as a function of selected macroeconomic and financial variables as follows:

***Model I*:**

$$\Delta LBCT_t = \beta_1 + \beta_2 \sum_{i-1}^{p} \Delta LBCT_{t-i} + \beta_3 \sum_{i-1}^{p} \Delta LGDP_{t-i} + \beta_4 \sum_{i-1}^{p} \Delta LINT_{t-i} + \beta_5 \sum_{i-1}^{p} \Delta LEXC_{t-i} + \beta_6 \sum_{i-1}^{p} \Delta LINF_{t-i} + \beta_7 \sum_{i-1}^{p} \Delta LALS_{t-i} + \alpha_1 LBCT_{t-1} + \alpha_2 LGDP_{t-1} + \alpha_3 LINT_{t-1} + \alpha_4 LEXC_{t-1} + \alpha_5 LINF_{t-1} + \alpha_6 LALS_{t-1} + \varepsilon_t \quad \textbf{(1)}$$

***Model II*:**

$$\Delta LBCF_t = \beta_1 + \beta_2 \sum_{i-1}^{p} \Delta LBCF_{t-i} + \beta_3 \sum_{i-1}^{p} \Delta LGDP_{t-i} + \beta_4 \sum_{i-1}^{p} \Delta LINT_{t-i} + \beta_5 \sum_{i-1}^{p} \Delta LEXC_{t-i} + \beta_6 \sum_{i-1}^{p} \Delta LINF_{t-i} + \beta_7 \sum_{i-1}^{p} \Delta LALS_{t-i} + \alpha_1 LBCF_{t-1} + \alpha_2 LGDP_{t-1} + \alpha_3 LINT_{t-1} + \alpha_4 LEXC_{t-1} + \alpha_5 LINF_{t-1} + \alpha_6 LALS_{t-1} + \varepsilon_t \quad \textbf{(2)}$$

Where:

LBCT	:	*Logarithm of total business confidence*
LBCF	:	*Logarithm of financial services business confidence*
LGDP	:	*Logarithm of gross domestic product*
LINT	:	*Logarithm of prime overdraft rate*
LEXC	:	*Logarithm of prime exchange rate*
LINF	:	*Logarithm of GDP deflator*
LALS	:	*Logarithm of the JSE all-share index*

4. Estimation & Discussion Of Results

4.1Unit root tests

We first perform unit root tests on the data series to establish whether the series are stationary or not. A crucial preliminary step in the process of building a robust econometric model is to understand the time series properties and characteristics of the data involved. It is therefore crucial to test for stationarity of each time series to be used in the estimation to determine that none of the variables are I(2). The augmented Dickey-Fuller and Phillips-Perron test were employed and the results are reported in **Table 2**.

Table 2: *Augmented Dickey-Fuller & Phillips-Perron Unit root tests*

VARIABLES		ADF			PP			ORDER
		ADF_{STAT}	ADF_{CRIT}	P-value	PP_{STAT}	PP_{CRIT}	P-value	
LBCT	*I*	-7.271	-3.471***	0.0000	-12.460	-3.471***	0.0000	I(1)
	T & I	-7.249	-4.016***	0.0000	-12.427	-4.016***	0.0000	
	None	-7.292	-2.579***	0.0000	-12.492	-2.579***	0.0000	
LBCF	*I*	-3.557	-7.670***	0.0000	-3.557	-7.670***	0.0000	I(1)
	T & I	-4.137	-7.623***	0.0001	-4.137	-7.623***	0.0000	
	None	-2.608	-7.742***	0.0000	-2.608	-7.742***	0.0000	
LGDP	*I*	-8.437	-3.471***	0.0000	-8.636	-3.471***	0.0000	I(1)
	T & I	-8.447	-4.016***	0.0000	-8.639	-4.016***	0.0000	
	None	-4.455	-2.579***	0.0000	-6.988	-2.579***	0.0000	
LINT	*I*	-8.040	-3.471***	0.0000	-7.985	-3.471***	0.0000	I(1)
	T & I	-8.049	-4.016***	0.0000	-8.049	-4.016***	0.0000	
	None	-8.064	-2.579***	0.0000	-8.008	-2.579***	0.0000	
LEXC	*I*	-5.753	-3.471***	0.0000	-11.504	-3.471***	0.0000	I(1)
	T & I	-5.717	-4.016***	0.0000	-11.467	-4.016***	0.0000	
	None	-5.231	-2.579***	0.0000	-11.090	-2.579***	0.0000	
LINF	*I*	-10.679	-3.474***	0.0000	-31.207	-3.473***	0.0000	I(0)
	T & I	-10.718	-4.020***	0.0000	-33.763	-4.018***	0.0000	
	None	-10.714	-2.580***	0.0000	-26.614	-2.580***	0.0000	
LALS	*I*	-10.523	-3.471***	0.0000	-10.521	-3.471***	0.0000	I(1)
	T & I	-10.515	-4.016***	0.0000	-10.511	-4.016***	0.0000	
	None	-10.108	-2.579***	0.0000	-10.112	-2.579***	0.0000	

Source: Authors` own computation

Having performed the necessary unit root test and confirmed that there is no unit root present and that no variable is **I**(2), we proceed to the next step. The next step is to choose the appropriate lag length. The impact of a regressor on the dependent variable is not always instantaneous, it is usually distributed over time. Hence the selection of the appropriate lag length is an important exercise in the construction of an ARDL model. We utilized the EViews five information criteria namely the likelihood ratio (LR), final prediction error (FPE), Aikaike (AIC), Schwartz (SC), and Hannan-Quinn criterion (HQ).

4.2 Lag Selection & Bounds Testing for Cointegration

Table 3: *Lag Selection Model I*

Lags	LogL	LR	FPE	AIC	SC	HQ
0	529.827	NA	0.000	-7.275	-7.152	-7.225
1	1823.663	2461.882	0.000	-24.745	-23.879*	-24.393*
2	1859.931	65.988	7.21e-19*	-24.749*	-23.140	-24.095
3	1882.290	38.817	0.000	-24.560	-22.208	-23.604
4	1910.773	47.077	0.000	-24.455	-21.362	-23.198
5	1945.644	54.727*	0.000	-24.439	-20.603	-22.881
6	1970.860	37.475	0.000	-24.290	-19.711	-22.429
7	1994.267	32.834	0.000	-24.115	-18.794	-21.953
8	2012.577	24.159	0.000	-23.869	-17.806	-21.405

Table 4: *Lag Selection Model II*

Lags	LogL	LR	FPE	AIC	SC	HQ
0	278.180	NA	0.000	-10.346	-10.198	-10.289
1	518.197	434.749	0.000	-18.800	-18.056*	-18.513*
2	536.311	30.075*	7.53e-4*	-18.879*	-17.541	-18.365
3	543.849	11.379	0.000	-18.560	-16.627	-17.817

As shown in **Table 3 & 4**, the optimal number of lags chosen as suggested by the AIC and most of the chosen criterion was 2 for both models. Having defined that p_1 = 2 and p_1 = 2, an unrestricted error correction model (UECM) is constructed in order to test for the existence of a long run relationship. We then applied the bounds testing technique to the UECM (*eq. 1 and eq. 2*) using two test statistics. In the first step, we utilized the Wald coefficient test that uses the F-statistic to determine the significance of the lagged level variables of the UECM.

Table 5: Results of ARDL Cointegration test

Model I			**Model II**		
	PSS critical values			*PSS critical values*	
3.702	1%	4.68	3.733	1%	4.68
	5%	3.79		5%	3.79
	10%	3.35*		10%	3.35*

Notes: For k = 5, the PSS critical values shown are the upper bound limits at each significance level. [***]/ (**) / * indicates significance at 1%, 5% and 10% respectively. See Pesaran et al (2001).

Against a null hypothesis of $\alpha_1 = \alpha_2 = \alpha_3 = \alpha_4 = \alpha_5 = \alpha_6 = 0$, we run the Wald test which produced an F-statistic value of 3.702 and 3.733 for model I and model II respectively. In the second step, the computed F-statistic for each model is then compared with bounds critical values developed by Pesaran, Shin and Smith (PSS) (2001). As depicted in **Table**

5, the F-statistic values in both models exceeded the 90% upper critical value of 3.35 indicating existence of a long run relationship between the underlying variables in the models. After empirical confirmation of existence of cointegration using the bounds testing technique, an ECM (-1) variable was built into the model. Adopting a general to specific approach, we then re-estimated our ARDL models. Variables that exhibited insignificant results were eliminated. After developing the final ARDL models, diagnostic and stability tests were applied to establish if the required conditions regarding serial correlation, homoscedasticity, normality, and stability were satisfied.

4.3 Discussion of Results

The diagnostic tests and final models are reported in **Table 6**, and **Table 7**. Apart from serial correlation, a key assumption of the ARDL model is that the model must be stable. The CUSUM stability tests was conducted and the results are depicted in **Figure 4**.

Figure 4: CUSUM test of Stability Model I

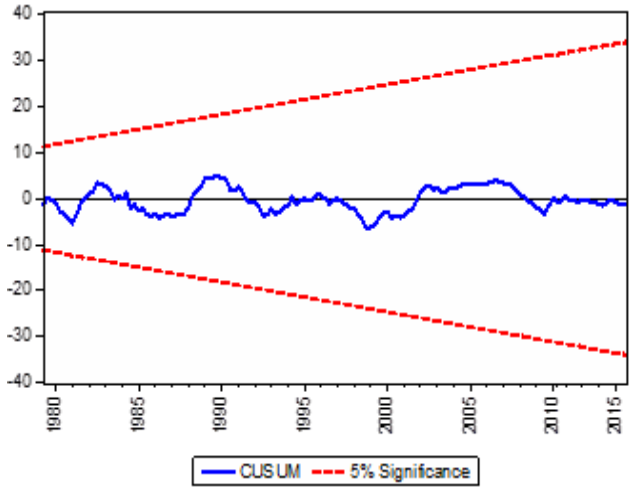
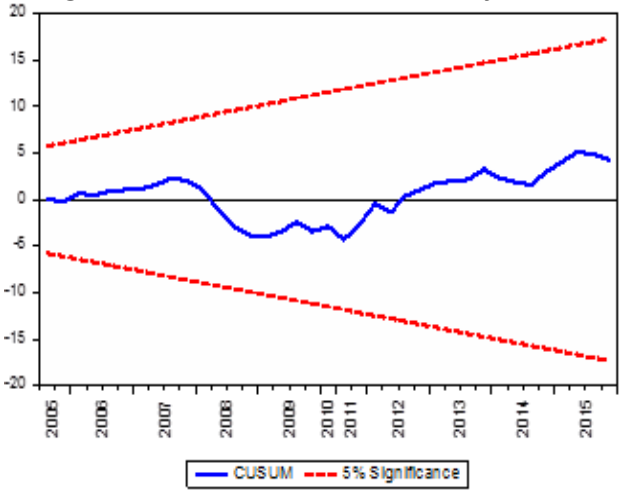


Figure 5: CUSUM test of Stability Model II



The cumulative sum of residuals (CUSUM) line as depicted in **Figure 4** and **Figure 5** is contained within the 5 percent critical lines indicating that both models are stable. The fundamental diagnostic test for an ARDL model which are serial correlation and stability are summarized in **Table 6** below.

Table 6: Diagnostic tests

Diagnosis	Tests	Model I	Model II
Serial correlation	Breusch-Godfrey LM	*p*-value = 0.5063	*p*-value = 0.8067
Stability	CUSUM	*Stable at 5%*	*Stable at 5%*

Table 7: ARDL ECM Results

Variable	Model I: LBCT ARDL (2, 2, 0, 2, 0, 1)		Model II: LBCF ARDL (2, 2, 0, 2, 0, 1)	
	Coefficient	***P-value***	***Coefficient***	***P-value***
Constant	-0.004	*0.593*	-0.006	*0.333*
∆LBCT(-1)	0.081	*0.266*	0.441***	*0.001*
∆LBCT(-2)	0.187**	*0.012*	0.031	*0.769*
∆LGDP(-1)	0.647	*0.241*	1.469**	*0.013*
∆LGDP(-2)	1.152**	*0.035*	0.751	*0.176*
∆LINT(-1)	-0.450*	*0.072*	-0.236	*0.390*
∆LALS(-2)	0.014**	*0.936*	0.093	*0.459*
∆LALS(-2)	0.517***	*0.003*	0.098	*0.445*
∆LEXC	-0.813***	*0.001*	-0.814***	*0.000*
∆LINF(-1)	-0.148**	*0.046*	-0.008	*0.891*
ECT(-1)	-0.163***	*0.000*	-0.335**	*0.013*

Notes: [***]/ (**) / * indicates significance at 1%, 5% and 10% respectively.

The estimated coefficient of the ECM term has the correct negative sign, statistically significant, and less than unity. For model I, the size of the error correction term obtained was 0.163 implying that 16.3 percent of the disequilibrium in the model is corrected within a quarter period. The speed of adjustment coefficient for model 2 was much higher than model I at 33.5 percent. The Wald test was then applied to determine the joint significance of short run causal effects of first and second lagged regressor variables on business confidence. For instance regarding 1st and 2nd lagged variables of business confidence, their joint causal effect on current business confidence was found to be positive and significant at 5% for both models. Lagged 1st and 2nd quarter real growth had a positive and significant causal effect on current business confidence at 10% and 5% level for model I and model II respectively. For model I, interest rates which was used as a monetary policy proxy variable exhibited a negative and significant causal effect at 10% level in accordance with our earlier hypothesis. However in spite of carrying the expected sign, interest rates was insignificant in model II. Furthermore, 1st and 2nd lagged variables of stock market performance exhibited the expected positive causal effect on business confidence at 5% in model I. However the despite carrying the hypothesized sign, the JSE variable had insignificant causal effect on financial services business confidence. Lastly in line with our earlier expectations, rand depreciation and inflation outlook exerted a significant and detrimental effect on business confidence. On the contrary, Hanival and Maia (2008) suggests otherwise arguing that it's actually the rand appreciation that is detrimental via its impact on export-oriented industries particularly the manufacturing

sector. The results illustrates the crucial dependence of business confidence on a country`s macroeconomic fundamentals.

5. Conclusion

Studies on business confidence in South Africa are limited. This paper has made a key contribution in this space by modelling selected macroeconomic and financial drivers of business confidence in South Africa. The ARDL approach to cointegration was applied on quarterly time series for the period 1975 – 2015 and 2002 – 2015 for *total* business confidence and *financial services* business confidence respectively. The empirical results showed that real economic growth, interest rate and exchange rate behavior, stock market performance and inflation outlook have significant impacts on business confidence. Hence, our study empirically supports the notion that macroeconomic stability drives business confidence. The results stress the need by the government to ensure that the business environment is conducive for doing business in order to boost business and investor confidence. By instilling and preserving the needed business confidence in the financial sector and the larger economy, growth prospects and aspirations of a country improve.

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