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The nexus between Corporate Social Responsibility and Corporate Financial Performance: Evidence from Construction Companies listed on the Zimbabwe Stock Exchange

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Abstract

Corporate social responsibility has taken a centre stage at the heart of business strategies for sustainable growth. Many businesses have been observed being involved in sustainable investing and activities which exhibit corporate social responsibility (CSR). However, the relationship between CSR and firm performance remains unclear. Prior studies found varying results, the relationship was either positive, negative, or non-significant. Given the mixed and inconclusive results, it is hard for managers to decide whether to continue or stop sustainable investing. Many a time it puts decision-makers on the horns of an intractable dilemma. Thus, the study aims to reveal the relationship between CSR and financial performance in the context of construction companies in Zimbabwe. A distinguishing feature of this study is the dynamic analysis where variation in time is incorporated, unlike previous studies. In this regard, the most suitable model to use is the Error Correction Model which makes it possible to assess the relationship between the two variables both in the long and short run. The findings of this study help business leaders make informed dynamic not static decisions on corporate social responsibility initiatives which are supported by evidence-based management.

Keywords**:** *Corporate Financial Performance, Corporate Social Responsibility, Stakeholder Management, Vector Error Correction Model*

1. Introduction

In the modern business arena, one of the contentious matters is Corporate Social Responsibility. There are two matters of concern. (i) Firstly, there is no consensus on what it means, (ii) Secondly, an unclear nexus between CSR and firm performance has been long established by various researchers. Other studies found a positive relationship between CSR and CFP (Muhammad et al. 2022), while some reveal a non-significant or negative relationship (Shabbir et al. 2020; Nguyen et al. 2020; and Long et al. 2019). The relationship appears to be trapped in the binary opposition of "associates and opponents," where the CSR-CFP nexus is anticipated to be either positively or negatively connected. The study's interest in CSR stems from the latter issue of concern. Although the extant literature is replete with studies on relationship between CSR and CFP, many have ignored the effect of time variations. Prior studies modelled a static, not a dynamic relationship where changes are noticed in this relationship over time. It is very important to consider time variations in the relationship between CSR and CFP because other researchers recognised that, in

the short term the relationship is negative but positive in the long term (Wagner et al. 2009; and Lee, 2011).

Although few contemporary scholars have agreed that the relationship between CSR and CFP can be negative in the short term and positive in the long run, there has been no attempt to include the time fluctuations into a refined model capable of understanding the paradoxical dynamics. Thus, the aim this study is to identify and examine the complex and dynamic paradoxical relationship between CFP and CSR while accounting for time lags. To achieve this, Vector Error Correction Model (VECM) propounded by Engle and Granger (1987) was used on construction companies listed on the Zimbabwe Stock Exchange. (ZSE). Panel data was extracted from companies' annual reports and Bloomberg covering the period between 2015 to 2021 financial years.

The rationale for selecting the construction industry is that it is one of the crucial sectors of any functional economy and contributes about 15% of a country's gross domestic product (Nyathi et al. 2018). In a same vein, it is inherently liable for significant harmful effects on the environment. Lately, business leaders have been observed integrating CSR into their business sustainability strategies in the light of prior research that revealed mixed evidence for a relationship between CSR and financial performance (Wang et al. 2016). From this phenomenon, an intriguing question arises which is the subject of this investigation. The key question is on the connection between CSR and CFP. This study generates answers to the stated question which provide better insights and empirical evidence on the viability of integrating CSR into corporate strategies both in the short and long term, specifically in the construction industry. The findings of the study help corporate leaders make intelligent and dynamic strategic decisions on CSR. This supports evidence-based management that is based on data, as opposed to those that are static.

2. Literature review

Financial performance is determined by the ability to strike a balance between a firm's interests and stakeholders' interests. Only socially responsible firms try to meet the needs and interests of almost every stakeholder. This corporate attitude is likely to improve corporate financial performance. This line of reasoning is informed by the Stakeholder theory

2.1 Stakeholder Theory

Organizational management may explain stockholder expectations by using the stakeholder theory. According to Nguyen et al. (2020) stakeholders are any groups or individuals who have an impact on or the capacity to influence the firm's goals. He first proposed the theory in the 1980s. Stakeholder management determines the CSR performance of a company according to this theory. The study's emphasis on social responsibility is supported by the stakeholder theory. Stakeholder theorists consider companies, as part of a large social entity (Van Limburg et al. 2015). As a result, proponents of the stakeholder theory contend that managers who pay little heed to the expectations of other stakeholders are less likely to be successful than company leaders who successfully manage the interests of all constituencies. The stakeholder theory conjectures a positive relationship between CSR and CFP. However, critiques argue that the theory is oblivious to the fact that, in meeting stakeholders' expectations through being socially responsible a company increases its transaction costs. In this regard, corporate social responsibility tends to increase costs to the business. The argument is best explained by the transaction cost theory.

2.2 Transaction Cost Theory

Transaction cost theory was pioneered by another school of neoclassic thought, represented by Coase (1937; 1960) inter alia. It presents a scenario in which production is organized within enterprises, for instance through a hierarchy, while synchronizing production through the market has a higher transaction cost. The inference is that CSR should not be related to a firm's fiduciary obligations if it increases transaction costs. It is against this backdrop that Friedman (1970) made his famous statement that "the business of business is business". However, this school of thought was myopic in that, they based their argument on static +analysis rather than dynamic analysis. A negative relationship is therefore postulated by this theory. With these contrasting tenets in theories, it has been hard for managers to know the extent to which they must be involved in CSR. In this regard, empirics have tried to substantiate the tenets.

2.3 CSR-CSR

From a theoretical point of view, investigating on CSR-CFP relationship is challenging task. This is exacerbated by the contentions by various theorists. Again there is no agreement in empirical literature about this relationship. Further, the control variables to include in the model are not altogether self-evident. The research's capacity to be compared to one another is restricted by this lack of consistency, leaving the question of the connection between CSR and CFP unanswered. For instance, Agbedeyi and Igweze (2015) examined the impact of CSR on financial performance based on empirical evidence from the Ghanaian banking sector. The study used regression analysis and findings support that CSR and CFP are positively correlated. However, the extent of involvement in CSR initiatives is to a larger extent different between the banking sector and the construction industry.

Additionally, Liao et al. (2017) proposed a link between CSR and high CFP. The study includes cross-sectional samples of 1000 companies with 50 or more employees, of which 4 were randomly selected from the Don and Brad Street Global Million Dollar database's listings for Hong Kong, and Taiwan and China. To measure financial performance, the study used accounting-based performance measurement which is the return on equity. The relationship was evaluated using multi-group confirmatory factor analysis, and the findings showed a positive link for enterprises in China and Hong Kong but a negative relationship for firms in Taiwan. As it focuses on CSR and the use of accounting-based performance assessments as a quantitative measure for financial performance, the study is helpful to this research. However, due to inconclusive results, use of different methodologies, and differences in areas of study, enquiry on the CSR-CFP relationship has been an ongoing concern.

Babajee et al. (2022) assessed the impact of CSR activities on the financial performance of hotels. A sample of 43 hotels from the period of 2007 to 2018 were included in the study. It was done using a dynamic PVAR (panel vector autoregressive model). The study results demonstrate that CSR has a positive and significant influence on hotels' financial success. The study thus offers empirical support for the hypotheses underlying the association between financial performance and CSR. The relationship between CSR and financial performance is a dynamic process that changes over time, but this was not taken into consideration in the study.

Further, another similar study was carried by Riyadh et al. (2019). The study's objective was to investigate how board characteristics, such as independence, size, and gender diversity, affect

business success. Secondary data was examined using the smart partial least square method, a quantitative data analysis methodology. The worldwide energy corporations for the years of 2016, 2017, and 2018 made up the study's population. The results of the study showed that corporate social responsibility disclosure had little to no impact on financial performance. These findings conflict with those of Liao et al. (2017) and Babajee et al. (2017).

The extant literature has gradually recognised that the connection between CSR and CFP is not static but involve a dynamic process changing over time. For instance, a study by Wagner (2009) investigated the effect of time on the CSR-CFP relationship, similarly Inue and Lee (2011) revealed the impacts of CSR on profitability of firms in the short-term and future market evaluation. In this regard, it is apparent that, contemporary studies have acknowledged the existence of short or long term relationship between CSR and CFP. However, so far no study has attempted to integrate the short-term and long-term relationship into a refined model capable of explaining their paradoxical relationship. Therefore, the novelty of this study lies in its adoption of VECM to integrate the short-term and long-term paradoxical relationship between CSR and CFP.

Research findings suggested no relationship between CRS and CFP using data from a panel of IBEX 35 firms, from 2003 to 2010 in Spain. Madorran and Garcia (2016) attributed the differences with other prior researches to cultural, sector and other factors. Vector Auto Regression (VAR) was employed in the study. However, this model does not show a dynamic relationship, rather it shows a static one where variations in time are ignored. The relevancy of this study to the current study is its application of panel data analysis and it enables the current study to improve on the model used such that time variation can be incorporated. Logistic regression analysis in a more recent study by Orlitzky (2019) revealed a negative relationship between CSR and financial performance. The study included other control variables namely; firm size, capital adequacy and some dummy variables to account for cross-industry differences. Nevertheless, the outcome from logistic regression is discrete, thus making it impossible to assess the CSR-CFP relationship over time.

3. Methodology

The methods utilized to accomplish the goals of this research are described in this section. It includes the study's sample population and research paradigm. The chapter also discusses the empirical model, measurement of variables, and research methodologies employed in this study, all of which were informed by the literature.

The relationship between CSR and CFP can be best examined by adopting the predictive approach. Under the positivism paradigm, it is permissible to use a predictive approach when variables in the study can be identified and measured. Further, under the positivism paradigm, it must be possible to evaluate a phenomenon by establishing a hypothesis and causal relationships between variables. Therefore, the appropriate research method or instrument to adopt is mathematical modelling since variables can be measured quantitatively. Mathematical modelling is appropriate for this research theme since the study is correlational. For this reason, Vector Error Correction Model will be used and panel secondary data sets.

3.1 Population and sample

The population consisted of construction companies on Zimbabwe Stock Exchange. The construction and engineering industry, the construction materials industry, and the construction and agricultural machinery industry were recognized as construction-related sectors based on the MSCI's Global Industry Classification Standard. In quantitative studies, the sample from the population provides an opportunity to extrapolate features to the complete population.

3.2 Sampling method

The study employed a stratified sampling method to come up with the study sample. A probabilistic sampling technique ideal for choosing businesses from a categorized population is stratified sampling. It is suitable for quantitative research, resulting in a high level of inferential precision without studying every element of the population (Bryman and Bell, 2015). Every component of the grouped population has an equal chance of being chosen in a random sampling. The study randomly picked three firms from each of the three classifications of the construction industry and came up with a sample of nine firms.

3.3 Variables

3.3 Dependent variable

CFP, as determined by Revenue, is the study's dependent variable (REV). There are a variety of indicators that are used to measure CFP, such as Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM). However, Revenue is widely used in the literature for instance Orlitzky (2019) and Garcia (2016) used it to measure financial performance. Further, REV is the more objective measure of CFP depending on the availability of data and considering stock market fluctuations (Lu et al. 2014). Therefore, the study used revenue as the dependent variable represented by the natural logarithm of revenue. Data on revenue was obtained from annual reports and published financial statements of construction companies.

3.3.2 Independent variables

In this study, the cost incurred on social corporate responsibility was used as a proxy to measure the variable. Data on CRS was obtained from companies' annual CSR reports. Factors that have a significant effect on CFP were included as control variables in the model.

Firm size

This variable was measured by using a natural logarithm of firm market capitalization (Orlitzky, 2019). Data on market capitalization was obtained from published financial statements of the listed construction companies in Zimbabwe.

Capital structure

This variable was measured by the debt/equity ratio. It can reveal financing preferences as well as a measure of a firm's risk (Madorran and Garcia, 2016). Similarly, data on capital structure was obtained from published financial statements of the listed construction companies in Zimbabwe.

Industry dummy variable

The construction industry in Zimbabwe comprises generally three subsectors. These subsectors include civil engineering, the development of huge constructions like highways, bridges, trains,

airports, and dams, as well as the construction of residential and commercial buildings. Finally, the specialized sector carries out tasks like clearing and demolishing. Since there are three construction-related industries in the sample, the study will create two dummy variables for industries to eliminate the effects of sub-industries.

3.4 Diagnostic Tests

The study carried the following test:

3.4.1 Multicollinearity Test

Multicollinearity exists when explanatory variables move together in a systematic way. Its presence makes it difficult to isolate the effects of individual explanatory variables on the dependent variable. Moreover, coefficients of explanatory variables will have high standard errors and low significant levels thus they cannot be estimated with accuracy (Greene 2003). It can be detected by various methods but this study used the Variance Inflation Factor (VIF). Greene (2003) noted that if VIF is greater than 5, then correlation among independent variables is high. Table 3.1 shows the Variance Inflation Factor for all explanatory variables used in this study.

3.4.2 Heteroscedasticity Test

When the error term's variance varies with time, this is referred to as heteroscedasticity. Because of their inefficiency, estimators are no longer the Best Linear Unbiased Estimator (BLUE). As a result of the exaggerated standard error, its existence will lead to inaccurate findings for significance tests and confidence intervals. Breush-Pagan, Langrange Multiplier (LM), and White tests are used to evaluate it. However, the Breush-Pagan test was applied in this study.

3.4.3 Panel Unit Root Test

The sample's panel data was verified for stationarity. This is one of the most important tests in time series analysis. The outcomes of the unit root tests performed on the series by Levin, Lin, and Chu (LLC), Im, Pesaran, and Shin (IPS), and Breitung panel are thus shown in Table 4.2.

3.5 Panel Vector Error Correction Model

To determine the long-term link between CSR and CFP, the co-integration test was carried out. The empirical model for this test is based on the equation shown below and is derived from the (VECM) proposed by Engle and Granger (1987):

$$REV_{it} = \beta_1 CSR_{it} + \beta_2 FirmSize_{it} + \beta_3 CapitalStructure_{it} + \beta_4 Industry_{it} + \mu_{it} \quad (3.1)$$

Where the subscript i indicates individual firm, t represents the time, REVit is the dependent variable, CSR_{it} is the independent variable- CSR, control variables (e.g capital structure, firm size and industry, β_2 to β_4 be the coefficients, β_1 is the constant term, and μ_{it} is labelled as an error term. The error term includes other explanatory variables which affect CFP for example skills of workers, but not included in the model.

In order to further evaluate the short run dynamics of the co-integrated series, VECM (Vector Error Correction Model) was applied to test if co-integration has been detected between the series tested in equation 3.1. The first-order error correction model is shown in equation 3.2.

$$\Delta REV_{it} = \beta_1 \Delta CSR_{it-1} - \rho\,(REV_{it-1} - \alpha_0 - \alpha_1 CSR_{it-1}) + \gamma C_{it} + \mu_{it} \ldots\ldots\ldots \quad (3.2)$$

Where the subscript *i* indicates individual firm, t represents the time, ΔREV_{it} and CSR_{it-1} are the first-difference operators of the dependent variable, one-year lag of the independent variable, C_{it} is for all the control variables, β_1, γ and α_1 are the coefficients of ΔCSR_{it-1}, C_{it}, and, CSR_{it-1} and μ_{it} is the serially uncorrelated error term. $REV_{it-1} - \alpha_0 - \alpha_1 CSR_{it-1}$ is called error correction term (ECT), and ρ is the coefficient of the error correction term. So, equation (3.2) can be shown as follows:

$$\Delta REV_{it} = \beta_1 \Delta CSR_{it-1} - \rho \times \text{ECT} + \gamma C_{it} + \mu_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (3.3)$$

Where ECT is short for error correction term$REV_{it-1} - \alpha_0 - \alpha_1 CSR_{it-1}$).

4. Results

4.1 Multicollinearity Test results

The result of the multicollinearity test among the explanatory variables is reported in Table 1. Greene (2003) noted that if VIF is greater than 5, then correlation among independent variables is high.

Table 1: Variance Inflation Factor results for Multicollinearity

Variable	**VIF**	**1/VIF**
Firm Size	2.03	0.493797
Capital Structure	1.69	0.590864
Industry dummy	1.53	0.651910
Mean VIF		1.736571

There was no evidence of multicollinearity as VIF for all explanatory variables is less than 5.

4.2 Heteroscedasticity test results

Table 2: Heteroscedasticity test results

Chi 2 (1) = 0.10	Prob .> Chi (2) = 0.7479

The results show that error is homoscedastic or constant when using the Breusch Pagan test for heteroscedasticity since the probability value of 0.10 is higher than 0.05. Thus, it follows that the model will generate the most accurate, unbiased, linear estimates (BLUE).

4.3 Panel Unit Root Test results

Table 3 Panel unit root test results. LLC—Levin, Lin, and Chu; IPS—Im, Pesaran, and Shin

	Level			First Difference		
Variable	LLC	IPS	Breitung	LLC	IPS	Breitun
REV_{it}	−3.722	−0.5888	19.3691	4.6989 ***	11.2507 ***	11.4125 ***
CSR_{it}	2.3064 **	−5.0158 **	6.6183 ***	10.3483 ***	−1.9179 ***	5.5218 ***
$FirmSize_{it}$	10.9627 ***	2.0029 **	−5.0563 ***	31.5992 ***	6.6973 ***	21.2659 ***
$CStructure_{it}$	11.3535 **	−1.9939	−3.1378	25.0645 ***	5.3924 ***	−15.6298
$Industry_{it}$	16.3238 ***	17.3452	−2.2262 ***	11.1084 ***	5.3924 ***	22.7296 ***

* represent significance at 1%, and ** represent significance at 5%, *** represent significance at 10% respectively.

Results of the Breitung panel root test, Im, Pesaran, and Shin (IPS), and Levin, Lin, and Chu (LLC) tests show that the variables' integration qualities vary between I(0) and I. (1). According to the LLC test, only REV_{it} is integrated in order one, while the other four variables are all integrated in order zero. In contrast, REV_{it} and $CStructure_{it}$ are integrated of order one according to the IPS and Breitung tests, whereas the remaining members of the series are integrated of order zero. Our choice of the Vector Error Correction Model estimate is supported by the fact that the variables in our model are integrated of orders zero and one.

4.4 Johansen test for cointegration results

Panel unit root test in table 4.3 indicate that some variables are integrated of order one, thus, to verify further the relevancy of the model, it is necessary to test for cointegration.

Table 4: Johansen test for co-integration results

Hypothesised No. of CE(s)**	Trace Statistics	p-value	Max-Eigen Statistics	p-value
None	446.8*	0.0000	405.5*	0.0000
At most 1	184.3*	0.0000	184.3*	0.0000

**indicates the test statistics are significant at the 1% level **CE= co-integration equations(s), denotes rejection of the hypothesis at the 5% level. Trace test and max-eigenvalue test indicate 2 co-integration equations(s) at the 5% level*

The results in Table 4 show that the CSR and CFP series have a long-term relationship, and the null hypothesis that there is no cointegration equation is rejected at the 1% level of significance (i.e., 99% confidence level).

4.5 Granger causality test results

The Johansen cointegration findings in table 4.4 demonstrate that the variables in this research are connected and may thus be merged linearly. It suggests that even if there are shocks in the near run that may change how each series moves, they would eventually converge over time. The

estimation of both short run and long run require Vector Error Correction Model. The results for the VECM are shown in table 4.5.

Table 5: Granger causality test results by Vector Error Correction Model (VECM)

Dependent Variable ΔLnREVit				
Variable	**Coefficient**	**Std. Error**	**t-statistic**	**p-value[2]**
ECT[1]	-0.0947 (c(1))	0.0149	-6.3357	0.0000***
ΔCSR (it-1)	-0.0237 (c(3))	0.0130	-1.8270	0.0681`
Wald Test[3]		**Value= 3.3379**		**0.0677`**
R-squared[4]				0.2239
Adjusted R-squared				0.1944
Durbin-Watson Stat				1.4683

*Notes: (1) ECT represents the error correction term. (2) P-value of the estimates is reported in brackets. `, *, **, *** indicates significance at the 1%, 5%, and 10% levels respectively. (3) Wald test is for the coefficient of ΔCSRit−1, the null hypothesis is c(3)=0. (4) Control variables are included in this model which are not shown.*

The VECM was utilized to examine the dynamic relationship between CSR and CFP since the variables are co-integrated, as shown in table 4.4. (Vector Error Correction Model). The amplitude of the long-term causality effects is explained by lagged error correction statistics, but the short-term causality between CSR and CFP is explained by the Wald test.

Table 6: Short and long run equilibrium

Equilibrium	ΔCSR (it-1)			ECT		
	Coefficient	t-stat	p-value	Coefficient	t-stat	p-value
Short run	-0.0238	-1.8270	0.0681`			
Long run				-0.0947	-6.3357	0.0000***

*, **, *** indicates significance at the 1%, 5%, and 10% respectively

The estimated coefficient of ΔCSR*it*−1 is -0.0238, and it is significant at the 10% level. This signifies the short-term equilibrium. The Wald test results in Table 4.3 show that CSR has large and momentary short-term negative effects on CFP. This lends credence to the idea that there is a negative short-term correlation between CSR and CFP. These outcomes support the conclusions made by (Ajina et al., 2020; and Liu and Zhang 2017). Even if ECT restores equilibrium or corrects disequilibrium in the variables (CSR and REV), its sign should be notably negative. The coefficient, which is negative (-0.0947) and significant at the 1% level as indicated in Table 4.4, suggests that Granger's CSR performance over the long term influences REV. According to the ECT adjustment coefficients, the system corrects the disequilibrium from the preceding era at a rate of 9.47% every year. Thus, the hypothesis that the long term link between CSR and CFP is positive is therefore supported. Further, our findings support a previous study by (Javeed and Lefen, 2019; Hajawiyah, 2020; Hofman et al., 2017 and Lins et al., 2017) but challenge the findings of (Shabbir et al. 2020; Nguyen et al. 2020; and Long et al. 2019).

5. Discussion of findings

This research integrated the unclear connection between CSR and CFP into a new understanding to explain their paradoxical dynamics. Previous studies found that the link between CSR and CFP is either positive, negative or neutral. However, to gain market share and, ultimately, sustainable development, construction companies use CSR as a sort of "soft power." For construction business, we find a negative relationship between CSR programmes and CFP in the short term but in the long term it is positive. The findings of this research offers a new viewpoint to the contentious issue on the relationship between CSR and CFP. What makes this area of analysis so interesting is that with each answer, new and exciting questions emerge. An intriguing question that can be asked is, what is the need for corporate social responsibility (CSR) if businesses provide valuable goods to customers and price them affordably, generating money in the process? In answering this question, one has to bear in mind that, business is not all about making money only but ethical behaviour is paramount for sustained growth. Corporate social responsibility maximises short and long term profits through building a “good name.” As put by the new world of CRS “doing good to do well.” While traditionalists see a trade-off between CSR and profit maximisation, they give a blind eye on time dimension and ways of promoting sustainability in business. Recent studies have shown that CSR is no longer an option or a luxury but rather a necessity. As a result, it is becoming a key business function that is essential to the success of the company as a whole.

Some scholars have misunderstood Friedman (1970), assuming he was against CSR when he famously argued that socially desirable goals, if at the expense of profitability, should be disconnected from a company’s fiduciary responsibilities. According to this study, CSR could save transaction costs with discretionary management and ultimately improve the company's financial performance. This could be achieved by building positive relationships with stakeholders to acquire important resources or by building a reputation to land enough construction jobs. Therefore, company stakeholders should not be hesitant to invest in CSR; instead, they should concentrate on how to effectively manage CSR to enhance CFP in accordance with good management practice.

6. Conclusion

It has been suggested that CSR may not instantly result in improved financial success but instead may have a short-term detrimental influence on a company's financial performance. Therefore, when considering CSR strategies, managers are urged to adopt a long-term perspective. This research has shortcomings despite its contributions. First of all, it was conducted in a small, industry-specific company sector. Future studies can examine the speculative paradoxical relationship between CSR and CFP in a broader context in order to generalize the findings or possibly use them to construct a theory. Second, although the relationship between CSR and CFP has been revealed through the use the VECM model, it is still unknown when and how CSR initiatives would improve CFP. Thirdly, the "long" and "short" terms cannot be precisely defined when using the VECM model technique. Future research to conduct another study using different statistical techniques to determine the time period in which CSR investments pay off, assisting managers in improving their discretionary judgment.

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