

Research Article

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The effect of the environmental pillar on the financial performance of financial institutions in Cameroon

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Abstract: The global stage in the contemporary era has championed financial performance issues in business policies for the survival of financial institutions. This paper explores the impact of environmental compliance

expectations on the financial performance of financial institutions in Cameroon, highlighting the importance of sustainability in business strategies. Consequently, the main objective of this study is concerned with how the Environmental Pillar-EP (Emissions reduction, Resource reduction and Product innovation) influences the financial performance of financial institutions in Cameroon. From 418 registered and accredited financial institutions in Cameroon, 262 observations were selected using the snowball sampling technique based on cross-sectional data from questionnaires. The Cronbach Alpha and test-retest reliability were used to assess the questionnaire's reliability. Data was analyzed using the Maximum Likelihood Estimation Technique of Structural Equation Modeling with Principal Component Analysis as a variable reduction strategy. The findings revealed that the environmental pillar positively and significantly affects the financial performance of financial institutions in Cameroon at a 99% confidence level. Though the emissions reduction, resource reduction, and product innovation all had a positive effect, only the effect of emission reduction was significant at 1%. Therefore, to redefine key elements of the environmental pillar, policy recommendations were put forth with particular attention on meeting emission reduction strategies in the area of containing greenhouse gases and related climate degradation subjects either within the financial institutions or externally through the projects they fund. Therefore, some slack resources should be invested in promoting the emission reduction process either individually or in collaboration with all stakeholders of financial institutions as explained in the slack resource, resource dependency, stakeholder, and modern portfolio theories.

Keywords – Emissions reduction, Environmental pillar, Financial institutions, Financial performance, Product innovation, Resource reduction

1. INTRODUCTION

The fact that businesses exist in a specific environment wherein they affect and are affected by that environment cannot be disputed. Proper environmental management is achieved when financial institutions adopt a green environment that limits environmental degradation and climate change shocks. Financial institutions are ranked climate excellent when they conform with the key environmental indicators that have a direct bearing on the profitability of the institutions, (Angelia & Suriyaningsih, 2015; In et al., 2017). This is further confirmed by Whelan (2021) whose review of 1000 articles on environmental concerns indicates that 58% of institutions favour investments in the environment which improves financial performance (FP). However, other researchers believe that environmental management affects financial performance negatively while others hold that financial performance does not rely on environmental management. In the same idea above, 8% show that investing in environmental management depletes firm profits while 13% had a neutral view, (Muhammad & Reddy, 2015; Ponce & Wibowo, 2023; Hoang, 2024).

In South Africa, financial and related institutions in the early 1970s held the idea that environmental protection was an additional cost to their investments leaving these financial institutions with insufficient financial gains. Without ESG, banks' results are affected either positively or negatively by other factors, (Shuro, 2021). The past 20 years have however defied this postulation based on the fact that financial institutions that manage their environmental footprints properly attract the attention of the community and this improves their financial performance, (Marais, 2020). Nigerian banks defined green accounting as the impact of the bank on the environment and the impact of the environment on their Financial Performance, (Amosun & Akintoye, 2021). North African banks have also been proven to have an improved financial performance based on the fact that carbon emissions are managed properly, (Haibo & Manu, 2022). Stakeholders in financial institutions in developing countries and especially in Africa are making substantial effort to model emission reduction, resource reduction and innovative products into banking investments (Sonko & Sonko, 2023). Despite this view, other researchers see the environmental pillar (emissions reduction, resource reduction and product innovation) as negatively affecting financial performance on the one hand or having no effect at all on the financial results of financial institutions on the other hand.

Different scholars also have varied opinions about financial institutions in Cameroon. They believe that environmental accounting has a major impact on the financial performance of businesses in the Magzi industrial area (Visemih, 2021). Some 50 Cameroonian companies between 2016 and 2020 have proven that environmental compliance has a great contribution to the financial health of firms, (Alim, 2022). The low market penetration rates, non-performing loans, globalization, digital evolution, management shortcomings, and regulatory challenges have proven to the profitability of financial institutions in Cameroon. Limited funding sources due to inflation and a weak capital market result in higher demand rates and the possible collapse of MFIs, (Ofeh & Jeanne, 2017; Cheka, 2018). Inflation rates in CEMAC increased BEAC's demand rates for banks between February and September 2022 causing limited funding and a weak capital market. Despite a 7.7% increase in total assets, BEAC's net income dropped by 81.3% in 2018 and some MFIs lost accreditations (Benhamdane et al., 2018; Ewane, 2023). According to Ullah et al. (2021), and Ewane (2023), IMF and COBAC are implementing measures to stabilize financial institutions in Cameroon including; addressing global financial, economic, climate, and social shocks, controlling prudential regulations, encouraging prudent dividend strategies and protecting the sector through accrediting and updating MFIs, regulating liquidity, identifying risk management practices and introducing digital finance ecosystems. These efforts resulted only in a 12.78% return on equity on average in Cameroonian banks in 2022 dropping from above 19% in the year 2011 and falling below the expectation of return on equity in the banking sector in Cameroon (15% to 25%).

2. LITERATURE SURVEY

2.1. Literature survey

Theoretically, this study is founded on four principal theories; the stakeholder theory, the resource dependency theory, the slack resource theory, and the modern portfolio theory which place a lot of attention on relating emission reduction, resource reduction, and product innovation to the financial performance of financial institutions. The stakeholder theory looks at the firm from a broader perspective because it considers that the corporation has responsibility over a wider range of stakeholders with wider objectives. The resource dependency theory on its part advocates for social and environmental relationships to galvanise resources difficult by a single firm. It is built on the notion of power and dependence to acquire external resources. Use was also made of the slack resource theory which emphasises the use of a pool of resources available to an organisation above the minimum required to meet everyday operations improve on various sustainable projects that can improve financial performance. Above all, the modern portfolio theory (MPT) holds that when presented with two portfolios that have the same expected return, investors are risk-averse and will choose the less risky one. Investors will only take on more risk if it results in higher projected profits; that is, investors must take on more risk if they want larger predicted profits. The empirical review of this study therefore stems from the transmission mechanisms relating these theories to the variables.

Researchers believe that environmental compliance positively impacts financial performance in financial institutions. Green investments, sustainable management, and climate change issues are crucial for improved performance. To them, innovative approaches are needed to manage the environment for improved bank profitability. The impact of environmental performance and CSR disclosure on financial performance was studied by Angelia and Suryaningsih (2015) using 17 listed businesses in the Indonesian Stock Exchange market. The results demonstrated that environmental performance had a significant impact on ROA and ROE and that environmental performance and Corporate Social Responsibility (CSR) disclosure simultaneously had a significant impact on ROA and ROE. On his part, Chang (2015) studied the impact of propensity disclosure and environmental performance (emission reduction, resource reduction and product innovation) on financial performance in 8 Chinese banking institutions between 2008 and 2012. Using panel data analysis, the results showed that environmental propensity significantly influences Tobin's Q value a 5% level while environmental performance significantly influences financial performance a 1% level.

Young et al. (2018) investigated the risk-return relationship between low-carbon investments and carbon-efficient businesses. They built a carbon-efficient-minus-inefficient portfolio using 74,486 samples from 736 US enterprises. The study found that long-term carbon-efficient enterprises and short-term carbon-inefficient firms generate abnormal returns of 3.5-5.4% annually, with positive returns since 2010. The study concluded that investing in the environmental pillar positively impacts corporate institutions' financial performance and sustainability. Also, Muchiri and Muigai (2019) examined the impact of environmentally friendly CSR activities on the financial health of financial institutions in Kirinyaga County. A sample of 171 employees was selected and the study found a significant link between financial performance and environmental CSR initiatives. The authors recommend that financial companies invest in sustainability to ensure wealth maximization in the short and long run.

Nizam et al. (2019) opined that the correlation between the financial performance of non-financial enterprises and their social and environmental performance (emission reduction, resource reduction and product innovation) is well established, yet there is conflicting information about the banking industry. This study looks at how funding for environmental issues (emission reduction, resource reduction and product innovation) and financial availability affect the global banking business's financial health. They discovered that access to credit considerably improves banks' profitability based on cross-sectional linear regressions and non-linear threshold regressions of 713 banks from 75 countries between 2013 and 2015. The expansion of loans and the caliber of management are the main drivers of improved financial success. They found out that access to funding considerably improves return on equity for banks with total assets under USD 2 billion. Moreover, the findings revealed that funding for

environmental sustainability also significantly improves the financial performance of financial institutions as reflected in their return on equity. It is therefore recommended that banks should invest more in environmental issues to better their ROE which defines their financial performance.

Dzomonda and Fatoki (2020) examined the relationship between environmental sustainability (emission reduction, resource reduction and product innovation) and financial performance of 32 South African businesses. The research used panel data and a panel regression analysis model. Results showed that reducing carbon emissions positively correlated with earnings per share and stock price. Additionally, environmental compliance positively correlated with earnings per share and share price. The study suggests that businesses can improve their financial performance by investing in environmental sustainability. Moreover, Azaouiat and Zsófia, (2022) investigated the relationship between environmental performance (EP) and financial performance (FP) of Chinese firms bearing in mind the effect of the COVID-19 outbreak using data collected from Refinitiv DataStream from 2017 to 2020. The novel dynamic panel bootstrap corrected fixed effects in addition to the fixed-effects regression and panel-corrected standard error methods were utilized to test the hypotheses. Two key findings were observed; there is weak evidence that higher EP increases firms' FP, and the relationship between EP and FP is positive in times of economic distress meaning that firms must continue investing in environmentally ethical and sustainable projects during the crisis. Above all, their findings added to this body of literature by demonstrating that an environmentally sustainable business strategy will benefit an organization's financial performance even during times of crisis like COVID-19.

XUE et al., (2017) did a study on corporate environmental performance (CEP) and found a positive association between EMP and Tobin's Q and a significant correlation between CEP and corporate financial performance. They recommend feasibility studies to identify areas of environmental management where resources can be invested to improve financial performance. In a purely different dimension, Machdar, (2017) conducted a study on 22 financial institutions between 2009 and 2015 and found that corporate financial performance positively impacts stock returns, while environmental performance negatively affects returns due to investors' dislike for environmental issues. Social performance, however, does not affect stock returns likely due to investor disinterest in social news. Equally, XUE et al. (2017) in their research revealed a negative association between an institution's risk and carbon performance indicating that investing in environmental sustainability, particularly in the service sector, can significantly impact an organization's financial performance and risk.

Some researchers disagree on the fact that the environmental pillar (emission reduction, resource reduction and product innovation) affects financial institutions' financial performance. Some argue that banks should focus on other factors while others believe ESG management is not crucial for a bank's financial performance. For a sample of the top 500 Indian corporate businesses from 2008 to 2018, Jha and Rangarajan, (2020) outlined the connection between corporate sustainability performance (CSP) to the environment and corporate firm performance (CFP). The Granger causality test and multiple regressions for panel data were used to assess the bidirectional causation and intensity of the CSP-CFP relationship. The author divided the corporate entities into several industries and conducted a sectoral trend study. The results showed that there is no causal relationship in either direction between CSP and CFP variables. CSP and CFP are found to have some insignificant associations at the individual level. In both instances, this association has a negative influence on the CSP-CFP correlation, indicating that Indian enterprises do not gain from investments made for sustainability in terms of improved financial performance. Their findings with generally insignificant results on this relationship also imply that financial performance will be similar for those with higher or lower CSP on ESG aspects. Therefore, it is not fundamental for a business to invest on environmental sustainability before financial performance is guaranteed. Awuor (2023) in his study looks into how Uganda's financial performance is affected by environmental issues and bank features. The commercial banking industry has shown voluntary adoption of environmental issues, even though the law does not require institutions to disclose them. The environmental pillar has a marginally positive impact on ROE and a marginally negative effort on ROA, according to the data, but these effects are not statistically significant. According to the

study, adopting environmental compliance requirements enforced by regulatory bodies is the best approach to guarantee sustainable practices. Longer time spans and individual environmental factor examinations could be the focus of future research.

This study was intended to close the gaps in the literature regarding the various categories of environmental compliances (emissions reduction, resource reduction and product innovation) and their implementation in financial institutions within the Cameroonian context. The study's unique features include conducting research in an underdeveloped economy that has received little attention previously, using primary data from questionnaires with financial institutions' actors rather than secondary data that many other researchers have used. The PCA was used to summarise proxies of the environmental pillar (emission reduction, resource reduction and product innovation) into indices and analysing the resulting structural equation models using the convenient maximum likelihood estimation technique. Equally, three software were used for analysis; Statistical Package for Social Sciences (SPSS), Stata, and Amos. This study's theoretical transmission mechanism made sure that every variable was explained by a related theory. Nevertheless, in light of the possibility that some articles may not have been published online or may have been available online but not accessed by this author, these gaps relied principally on the reviewed literature.

3. PROBLEM STATEMENT

The primary objective of financial institutions is to maximise returns on shareholders' wealth. For this to be attained, financial institution must resilient in financial prowess overcoming inherent challenges by maintaining a comfortable financial performance in both the short and long term. Financial performance in the banking sector is conveniently measured using return on equity given that it is the investment of shareholder capital that provides the largest income proportion in financial institutions. The expected Return on equity (ROE) for performant financial institutions ranges between 15% to 25% and given that banking institutions in Cameroon respect these international standards, it is expected that the ROE of Cameroon's financial institutions should meet these expectations, (Fernando, 2023). Commercial bank ROE in Cameroon as at 2022 was 12.78% evolving from 25.33% in 2000 while CamCCUL's (ROA) averaged 10.25%/ from 1982 to 2013, (Ofeh & Jeanne, 2017; Independent Evaluation Group. 2022 and MINFI, 2021). For example, in Ecobank Cameroon as of 2012, the ROE was 9% compared to 6.32% in 2011 while the return on assets (ROA) increased to 0.55% from 0.29% in 2011, (Tangmo *et al.*, 2022). The gap between expected financial performance and the reported situation from the financial statements of banks in Cameroon as at 2022 year end is an indication that financial institutions are not performant as expected.

Mainstreaming global financial, economic, climate, and social shocks in banking models are some critical steps taken by the IMF to stabilize the financial institutions for improved financial performance in Cameroon. Equally, COBAC controls prudential regulations, addresses NPLs situation, adopts a cautious dividend strategy, and sovereign risk management skills are encouraged by CEMAC, (Ewane, 2023). MINFI is protecting the sector by accrediting MFIs that meet financial performance targets. BEAC in consultation with banks does thorough liquidity analysis to regulate the volume of liquidity in circulation, identify workable risk management practices, recapitalizing weak banks, build interbank confidence, introducing digital finance ecosystem and updating deposit/loan interest rates to ensure the augmentation of ROE derived from encouraging equity investors to finance the banking sector (Ewane, 2023).

CamCCUL which existed as the lone MFI network is now competing with a growing number of MFI networks like RECCUCAM, Rainbow, A3C (Associations des Caisses Villageoises d'Epagne et le Credit du Centre-ACCC), MUFID Union, MUCADEC (Mutuelle Camerounaises d'Epagne et Credit) and NOWEFOCH (North West Farmers Organisation Credit House) all created with the aim to attain improved MFI profits from its shareholders' capital through proper regulation and supervision. The fall of COFINEST resulted in the evolution of commercial bank-MFI funding partnerships for MFIs (EB-ACCION/Ecobank, Afriland/MC2, SGBC/Advans). The number of accredited MFIs in Cameroon stood at 419 in 2019 making good the market penetration rate which improves

financial performance (MINFI, 2019). Afriland First Bank, SCB Cameroon, Société Générale Cameroun, and BICEC showed strong performance and contributed 67.9% of all loans provided in the first quarter of 2022 in the entire CEMAC region with 16 accredited commercial banks (Calderon et al., 2022).

Also, the government of Cameroon and the private sector have made efforts to improve the financial performance of financial institutions by reporting on environmental and ethical management practices, managing packaging wastes, human rights reviews, press freedom enforcement, rule of law, and employment rate with a plan to reduce CO₂ emissions by 47% in 2030 and zero emissions by 2040 (Ogbu, 2023; Ngong et al., 2022). Sustainable environmental accounting practices and reporting are encouraged (Muffee, 2021; Alim, 2022). Also, some empirical and theoretical research work though scanty and conflicting has been conducted on this issue in Cameroon as efforts made by researchers to improve on the financial performance of financial institutions.

Despite all the efforts made to improve on the financial performance and the incompleteness of some of these efforts, expected financial performance has not been attained given that CamCCUL for instance is experiencing disaffiliations; MFI and bank NPLs are increasing, accredited MFIs moved from 656 in 2000 to 490 in 2006, 419 in 2019 and to 402 in 2021. Moreover, commercial banks and microfinance institutions are not still meeting the expected financial performance measured by return on equity. This researcher is therefore anxious to find out whether the existing Environmental Pillar framework (emission reduction, resource reduction, and product innovation) adopted by the financial institutions in Cameroon can adequately improve their financial performance through shareholder profits (ROE). This study therefore attempts lasting solutions to the unmet financial performance of financial institutions in Cameroon through emission reduction, resource reduction, and product innovation given the presumed adverse effects of their financing of investors in agriculture, manufacturing, energy, housing, and extractive institutions on the environment in which these institutions operate using the following research objectives to guide the research procedure.

3.1. Research objectives

The main research objective is to examine the effect of the Environmental Pillar on the Financial Performance of Financial Institutions in Cameroon. This targets the following specific objectives which are to;

Evaluate the effect of resource reduction (RR) on the financial performance of Financial Institutions in Cameroon

Analyse the effect of Emissions Reduction (ER) on the financial performance of Financial Institutions in Cameroon

Account for the effect of Product Innovation (PI) on the financial performance of Financial Institutions in Cameroon.

4. RESEARCH METHODOLOGY OR METHODS

4.1. Scope, population, and sample

This study is limited to financial institutions in Cameroon that have demonstrated environmental sustainability practices; that is, issues related to product innovation, resource conservation, and emission reduction. Return on equity (ROE) was a metric used to assess financial performance. All deposit-taking and loan-granting financial institutions that are pursuing environmental sustainability practices fall under were considered in this study (BEAC, 2018; Ewane, 2023; MINFI, 2021). Researchers in the field of corporate finance generally agree that a good return on equity is between 15% and 25%. This suggests that a return on equity (ROE) of more than 25% is great and that an ROE of less than 15% is insufficient for the financial performance of the financial institutions. This is consistent with Fernando's (2023) arguments. Using snowball sampling and the Yaro Yamane sample size formula, data for this study was gathered from 262 financial institutions sampled from 402 MFIs and 16 commercial banks between July and August of 2023 using a questionnaire. The reliability of the questionnaire was tested using Cronbach's Alpha, (Gliem & Gliem, 2003). This agrees with the works of Ramić, (2019) and Naeem & Çankaya, (2022).

4.2. Model specification

Inspired by the research of Mansour *et al.*, (2022). the model utilized for this study was a linear function relating financial performance (FP) measured by ROE to the various proxies of the environmental pillar (EP). The stakeholder, resource dependency, slack resource, and modern portfolio theories all supported the study's model.

$$FinP = \beta_1 PI_i + \beta_2 ER_i + \beta_3 RR_i + \beta_4 X_i + \mu_i \quad 1$$

$$FinP = \beta_5 EP_i + \beta_6 X_i + \mu_i \quad 2$$

The models specified above represent the relationship between the environmental pillar and financial performance of financial institutions in Cameroon. Equation 1 looks at the relationship between the environmental pillar through its indicators and financial performance while equation 2 is a composite model derived from equation 3.1. Worth noting is the fact that the models do not have a constant because the data was standardised and all constants became zero. Model 1 related the three proxies of the environmental pillar to the financial performance of financial institutions.

Where:

FinP=Financial Performance of financial institutions

β =Coefficients of the independent and control variables (parameters under study)

EP=Environmental Pillar (ESG Pillars Indicator)

PI=Product Innovation

ER=Emission Reduction

RR=Resource Reduction

X=Control variables (Other determinants of financial performance not included)

μ =Error term

i =Cross-sectional Data (Data collected across financial institutions at a point in time)

The relationships established in models 1 and 2 above analysed using the maximum likelihood estimation (MLE) technique of structural equation modelling (SEM). The variable types, their codes, nature, and expected signs are summarised in the variables description table below.

Table 1: Description of the Variables

Variable	Code	Description	Expected sign
Dependent Variable			
Financial Performance Index	Finp	Continuous	Na
Independent Variables			
Environmental Pillar Index	Ep	Continuous	+
Resource Reduction index	RR	Continuous	+
Emission Reduction index	ER	Continuous	+
Product Innovation Index	PI	Continuous	+
Control Variables (X)			
Age(1 if 5 years and above, 0 otherwise)	Age	Binary	+/-
ESG Report(1 if esg report, 0 otherwise)	esg report	Binary	+/-
Number of Branches	Branches	Continuous	+/-

Institution (1 if commercial bank, 0 otherwise)	com inst	Binary	+/-
Education of Staff (1 if having obtained Degree, 0 otherwise)	Degree	Binary	+/-

Source: Researcher, 2024

Techniques of Estimation Technique

Principal Component Analysis (PCA) was employed to select pertinent question responses which were then used to construct indices for the indicators of the dependent and independent variables. Each of the study's three indicators had more than three questions and there were more than 100 respondents in the sample (262 respondents in total). This is consistent with other researchers (Zelege et al., 2023; Balogun et al., 2015). The structural equation modeling (SEM) through Maximum Likelihood (ML) Estimation Technique was employed for the analysis due to its ability to address the shortcomings of the Ordinary Least Squares (OLS) and given the large sample size. This is consistent with the research conducted by Benassi et al (Benassi et al., 2023).

5. DATA ANALYSIS AND DISCUSSIONS

Presentation of Findings

Pre-Test Results

The data used in this study was reviewed for reliability using the Apla Cronbach Value and the findings indicated that the data was reliable. The results of the test for multicollinearity using the variance inflation factor (VIF) indicated that there was none because the components of the independent variable (the social pillar) did not significantly correlate with one another.

Inferential Statistics

Test for the Measure of Sampling Adequacy (MSA)

Table 2: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.847
Bartlett's Test of Sphericity	Approx. Chi-Square	2764.329
	Df	153
	Sig.	.000

Source: Computed by Author using SPSS version 23, 2024

The result in Table 2 shows the result of KMO and Bartlett's test of sphericity. It measures the overall significance of the correlation matrix. It was used to assess the measure of sampling adequacy (MSA). In other words, KMO and Bartlett's test are very important in establishing correlation structure. The findings revealed evidence of a strong hypothesized conceptual framework as the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) was well above the cut-off criteria of 0.6. A KMO value of 0.874 is reasonable to conduct a factor analysis. The p-value of Bartlett's test (0.000), which is below 0.05, is significant at the 99% confidence level. According to Hair *et al.*, 2018, a statistically significant Bartlett's test of sphericity (significant 0.50) indicates that sufficient correlations exist among the variables to proceed.

Principal Component Analysis (PCA) Results

Out of the 7 emission reduction (ER) items selected for the study, 5 had commonalities of 0.5 and above and were therefore selected through PCA as retained items of ER for further analysis while 3 of the 7 product innovation (PI) items included in the study were retained to proceed with further analysis given that they met the commonality cut-off criteria of 0.5 that permits items to be retained as measures of a construct in a study. The resource reduction (RR) being the third measure of the environmental pillar-EP (independent variable) had 5 of its 6 items selected for the study retained for further analysis using the PCA as a variable (item) reduction technique. All 5 measures of the return on equity (ROE), a measure of financial performance-FP (dependent variable) selected for this study were

deemed reliable for further analysis and were, therefore, all retained based on the fact that their communalities were well above the 0.5 cut-off point as illustrated in the table (Appendix 1).

The next table in Appendix 2 shows the total variance explained by the components extracted. Out of the 19 possible components that were presumed to measure the various concepts envisaged in the study, the result of the test revealed four components with cumulative rotation sums of squared loadings of 65.614. In other words, the four components captured roughly 66% of the variation in the hypothesized model. The results indicate that component 1 explained 41.88% of the shared variance, with a corresponding Eigenvalues of 7.958. Also, 11.48% of the variance was explained by Component 2, 6.47% by Component 3, and 5.78% by Component 4, (Appendix 2).

The result shows the factor loadings that were extracted using the principal component analysis and Varimax rotation method. The study adopts an orthogonal rotation method of extraction called VARIMAX to optimize the variance of the factor loadings as recommended by Hair *et al.* (2018) as the most widely used method. The reason for selecting this method of rotation is because of its proven track record of identifying orthogonal structures or pattern in set of data. The rotated component matrix shows that 5 items load under the factor return on equity (ROE) and ordered in terms of factor loadings as follows; ROE2, ROE1, ROE5, ROE3 and ROE4. On its part, 5 items captured ER and based on their factor loadings, they were ordered in descending order as follows; ER5, ER4, ER1, ER3 and ER2. Also, 5 items loaded under resource reduction-RR (RR3, RR1, RR4, RR5 and RR2) while product innovation (PI) was captured by 3 items only (PI2, PI3 and PI1). Worth noting is the fact that all the items retained from the questionnaire have factor loadings of more than 0.50 (See Appendix 3).

The Hypothesized Structural Equation Model (SEM)

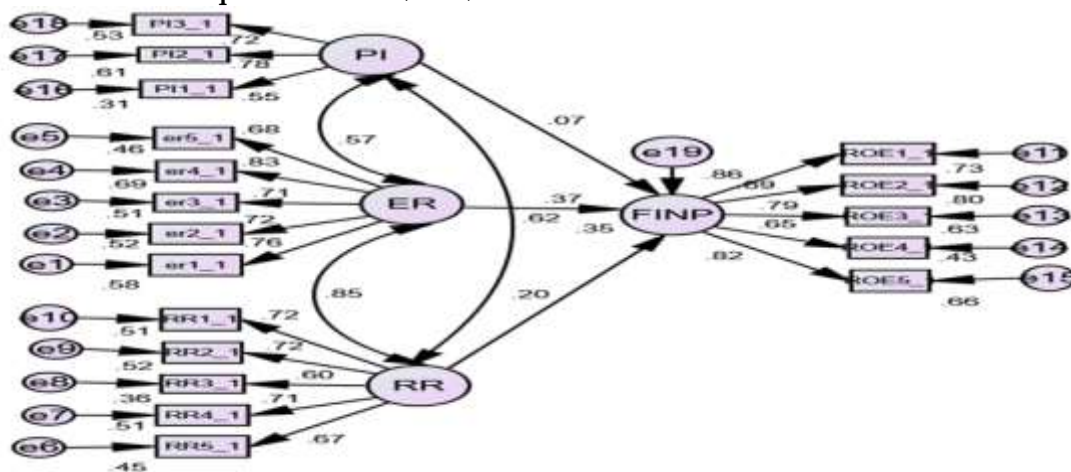


Figure 1: Hypothesized Model of Environmental Pillar
Source: Compute6d by Author using SPSS version 23, 2024

The latent exogenous variable PI, ER and RR in Figure 1 have three (3), five (5) and five (5) reflexive indicators while the endogenous construct; financial performance of financial institutions was measured by five (5) reflexive indicators of return on equity (ROE). Each of the indicators has an error measurement which accounts for measurement error induced endogeneity. The two-headed arrows indicate the correlation between the constructs while the one-headed arrows indicate the regression path. The result of the model in Figure 1 revealed strong evidence of construct (extent of a test accurately measuring what it is intended to measure) and convergence validity (limited differences in the test results) as all the loading factors were well above the minimum cut-off criteria of 0.50. Thus, there is evidence of nomological validity (confirmation of constructs of interest by theoretical predictions). The model was improved upon by constraining the error measurement of the observed variable ER1 and ER5 and control variables included in the constrained model as presented below.

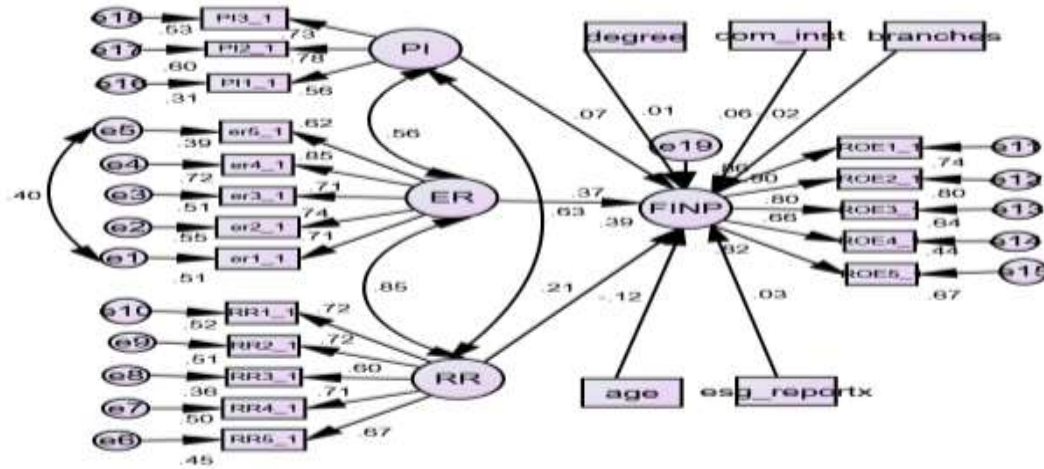


Figure 2: Competing Hypothesized Model of Environmental Pillar

Source: Computed by Author Using SPSS Version 23, 2024

Figure 2 shows the constrained model. The effect of RR and ER was improved upon by 1 point from the initial model. This model was better-off in terms of its predictability compared to the model in Figure 1 and therefore was retained as the main model. We proceeded into the fitting of the full fledge structural model as observed in Figure 3.

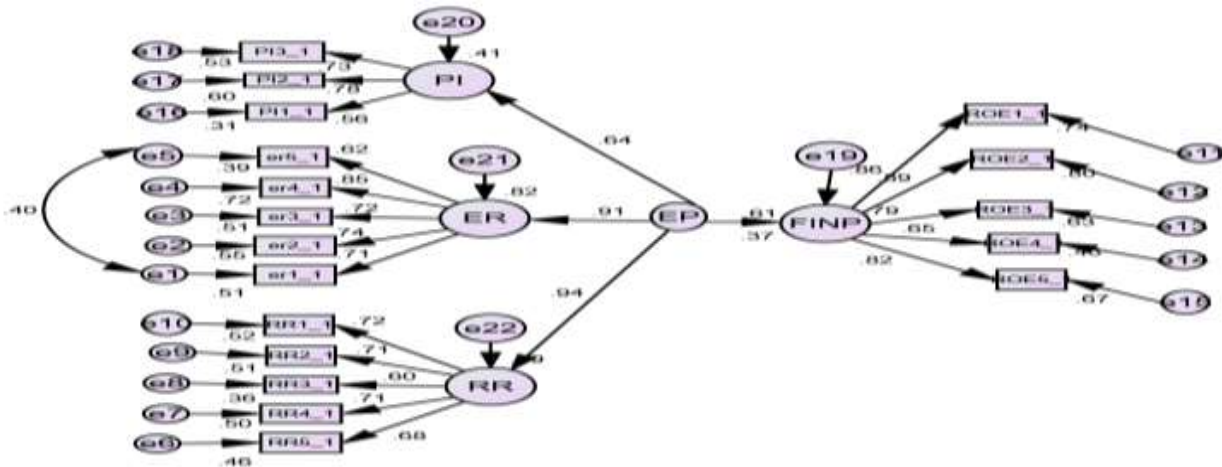


Figure 3: Hypothesized Structural Model of Environmental Pillar

Source: Computed by Author using SPSS version 23, 2024

The result in Figure 3 shows the causal effect of the environmental pillar on the financial performance of financial institutions in Cameroon. The model also shows the causal effect of the environmental pillar on its various dimensions as well as the relationship between the observed indicators and the latent constructs. The oval circle represents the latent variables while the rectangle shape represents the observed variables. All the causal effects are estimated simultaneously. The result revealed that the environmental pillar is most significantly predicted by resource reduction (RR), followed by emissions reduction (ER) and lastly by product innovation. The finding satisfied the necessary and sufficient conditions to fit the hypothesized model. The regression weight for EP in the prediction of ER is 0.91, meaning when EP goes up by 1, ER goes up by 0.91, RR goes up by 0.94, and PI goes up by 0.64. The result in Figure 3 revealed that resource reduction (RR) is the most significant predictor of the environmental pillar, followed by emission reduction (ER) and lastly by product innovation (PI) as earlier mentioned.

Descriptive Statistics Results

Table 3: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Finp	262	.6028996	.2056527	0	1
Ep	262	.6647506	.1860517	0	1
Rr	262	.6127038	.2169457	0	1
Er	262	.6218348	.2389528	0	1
Pi	262	.76961	.209241	0	1
Age	262	.935	.247	0	1
esg report	262	.198	.4	0	1
Branches	262	12.275	25.885	0	350
com inst	262	.061	.24	0	1
Degree	262	.989	.107	0	1

Source: Computed by Author using STATA version 14, 2024

The results in table 3 indicate that on average there are 12 branches of financial institutions per region with the highest being 350. The results also show that 98.9% of the total respondents are degree holders. This implies that there is high level of academic achievement amongst the respondents. On average, 19.8% actually indicated that they carried out esg-reporting in their institution while 6.1% of the 262 respondents were from commercial banks operating in the Cameroon banking industry.

Correlation Results

Table 4: Pairwise Correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) finp	1.000									
(2) ep	0.548*	1.000								
(3) rr	0.470*	0.865*	1.000							
(4) er	0.531*	0.874*	0.659*	1.000						
(5) pi	0.353*	0.757*	0.497*	0.469*	1.000					
(6) age	-0.075	-0.059	-0.073	0.029	-0.124*	1.000				
(7) esg_reportx	-0.220*	-0.398*	-0.379*	-0.439*	-0.145*	0.015	1.000			
(8) branches	-0.084	-0.013	-0.025	-0.029	0.027	0.047	-0.052	1.000		
(9) com_inst	0.003	-0.077	-0.079	-0.069	-0.041	0.067	-0.007	0.056	1.000	
(10) degree	0.049	0.100	0.099	0.087	0.062	-0.028	-0.036	-0.025	0.027	1.000

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Source: Computed by Author using STATA version 14, 2024

The result of correlations in Table 4 shows the association between the variables. The correlation results indicate that the environmental pillar has a significant positive effect on the measure of financial performance of financial institutions in Cameroon. Product innovation, emission reduction and resource reduction were found to be positive and significantly associated with financial performance with emission reduction having the highest correlation value with financial performance. ESG reporting was also found to be significant though negatively. Commercial institutions and degree were found to be positively correlated with the measure of financial performance of financial institutions in Cameroon.

The Regression Results

Table 5: Regression Results

	Col.1	Col.2	Col.3	Col.4
	Robust Check	Robust Check	Fitted Model	Fitted Model
VARIABLES	(OLS) FinP	(OLS) FinP	(ML-SEM) FinP	(ML-SEM) FinP
Ep	--	0.266*** (0.0256)	--	0.477*** (0.050)
Rr	0.237*** (0.0840)	--	0.215 (0.170)	--
Er	0.401*** (0.0787)	--	0.312*** (0.131)	--
Pi	0.128* (0.0727)	--	0.109 (0.131)	--
Age	-0.0304** (0.0151)	-0.0311** (0.0149)	-0.013*** (0.005)	-0.012*** (0.005)
esg_reportx	0.100 (0.338)	-0.0536 (0.319)	0.050 (0.100)	0.048 (0.100)
Branches	-0.00320 (0.00332)	-0.00369 (0.00298)	-0.001 (0.002)	-0.001 (0.002)
com_inst	0.417 (0.404)	0.397 (0.412)	0.183 (0.167)	0.191 (0.167)
Degree	0.160 (1.144)	0.187 (1.156)	0.085 (0.376)	0.086 (0.377)
Constant	0.899 (1.167)	0.935 (1.178)	--	--
Observations	262	262	262	262
R-squared	0.335	0.322	0.335	0.335
Mean VIF	1.37	1.11	NA	NA
Ramsey Test	2.18(0.0912)	2.86(0.036)	NA	NA

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Computed by Author using AMOS version 23 and STATA Version 14, 2024

The result in column 3 of Table 5 revealed that emission reduction (ER) was a significant predictor of financial performance (FinP) in financial institutions. That is, an increase in ER by 1 point will increase FinP by 0.312 points and this result is positively significant at 99% confidence level. Product innovation (PI) and resource reduction (RR) were found not to be significant. However, the prior expected signs for PI and RR were positive as suggested in the literature. The result in column 4 shows that the composite index used to proxy for an environmental pillar (EP) has a positive significant effect on the financial performance (FinP) of financial institutions in Cameroon. This implies that an increase on the environmental pillar (EP) by 1 point increases financial performance (FinP) by 0.477 points and the result is positively significant at 99% confidence level.

Both models in columns 3 and 4 were estimated using the maximum likelihood (ML) estimation method of structural equation modeling (SEM). Based on the findings, the null hypothesis of the study which states that the environmental pillar (EP) does not have a significant positive effect on the financial performance (FinP) of financial institutions in Cameroon can be rejected. In other words, the models in columns 3 and 4 were estimated using the maximum likelihood (ML) estimation technique of structural equation modeling (SEM). The results indicated that the composite variable; environmental pillar (EP) has a significant positive effect on the financial performance (FinP) of financial institutions in Cameroon. The significance of the effect of the environmental pillar (EP) on the financial performance (FinP) of financial institutions in Cameroon permits us to reject null hypothesis of the study which states that the environmental pillar (EP) does not contribute to the financial performance (FinP) of financial

institutions in Cameroon. Following the result of the coefficient of determination (R^2), the Environmental Pillar accounts for 33.5% of the total variation of the financial performance of financial institutions in Cameroon.

Though the age and number of branches of financial institutions hurt the financial performance of financial institutions in Cameroon, only the effect of age was significant. The status of the financial institutions (commercial banks or MFI), the level of education of the personnel, and the reporting of ESG activities by financial institutions all had a positive effect though the effect was not significant. The robustness check was conducted using the ordinary least square estimation technique using the STATA software. Firstly, all the items that load under the different factors were used in constructing the index under the corresponding factors. The four indices constructed were emissions reduction (ER), product innovation (PI), resource reduction (RR), and the composite variable; environmental pillar (EP). The result in column 1 of Table 5 shows the effect of the various components of the environmental pillar (EP) and control variables on the financial performance of financial institutions in Cameroon. The results of the OLS which were used in ascertaining the robustness of the fitted model show that the directions of the variables have not changed though the magnitudes did change. This therefore differs slightly from the corresponding findings in column 3. Based on these findings, there are pieces of evidence of robustness in the analysed data. The OLS results in column 2 also show strong pieces of evidence of robustness.

6. RESEARCH IMPLICATIONS

Environmental Pillar (EP) and the Financial Performance (FinP) Model

The study evaluated the effect of the environmental pillar (EP) on the financial performance of Cameroon's financial institutions using emissions reduction, resource reduction, and product innovation as proxies. Results showed that improving the environmental pillar strategies by 1 point could improve financial performance by 0.477 points. The emission reduction proxy was the most significant factor explaining the environmental pillar coefficient at 99% confidence level. The study found that emission reduction (ER) is a significant predictor of financial performance in Cameroon's financial institutions. A 0.312 coefficient indicates that improving emission reduction by 1 point can increase their financial performance by 0.312 points. Implementing environmental compliance plans, reporting on emission reduction programs, and implementing an insurance policy for operational staff accidents can also significantly improve financial performance. This suggests that reducing (GHG) emissions can significantly enhance financial performance in financial institutions in Cameroon.

To improve the financial performance of financial institutions, green resorts, and solid waste disposal facilities should be encouraged in operation areas and made available in head and branch offices. Stakeholders should handle emission reduction issues appropriately. Studies like those of Young et al. (2018), Ramić (2019), Dzomonda and Fatoki (2020), Naeem and Ankaya (2022), and Azaoui and Zsófia (2022) suggest that implementing appropriate environmental management strategies can positively affect financial performance. However, Machdar (2017) and Velte (2017) disagree with them arguing that investing in emission reduction strategies doesn't significantly impact financial performance or affects it negatively. These results however agree with the stakeholder, slack resource, resource dependency and the modern portfolio theories which advocate for collaborative effort in sustainable profit making in financial institutions.

The resource reduction (RR) proxy for the environmental pillar with a coefficient of 0.215 shows a positive but insignificant effect on financial performance. The low pairwise correlation value of 0.470 between resource reduction and financial performance and a mean descriptive statistics score of 61.3% concur with this coefficient. The study found that resource reduction (RR) has a positive but insignificant effect on financial performance, possibly due to insufficient effort by financial institutions to encourage environmentally friendly suppliers, use of renewable energy sources, replace high-pollutant equipment, and manage water and packaging waste. This aligns with Cameroon's policy on combating non-biodegradable plastic wastes though with little or inappropriate effort. Efficient resource management is crucial for improving financial performance in financial institutions. Stakeholders should focus on resource management strategies to maintain or improve their situation. Studies have shown that

investing in resource management positively impacts financial performance in financial institutions. The findings are in agreement with the works of Nizam et al. (2019) and Awuor (2023) whose effects of the resource reduction were positive but not significant. From his perspective, Velte (2017) suggests that resource reduction has a neutral effect on the financial performance of financial institutions, suggesting that investing in efficient resource use is not significantly a necessity.

Product innovation denoted by PI had a coefficient of 0.109 and a positive effect on the financial performance of financial institutions in Cameroon but this effect was not significant. This agrees with the pairwise correlation results (0.353) and the mean score (76.96%) of PI in the EP-FinP model. The study suggests that the insignificance of PI in improving financial performance may be due to unsuitable determinants and inadequate project management. Some financial institutions are already investing in monitoring equipment to track environmental violations, but the results suggest these issues are not appropriately managed or not reported as expected. Most financial institutions have not invested sufficiently in environmentally friendly communication platforms such as software and social media which encourage virtual transactions and reduce transportation-related emissions. However, these platforms have the potential to improve financial performance and should be encouraged. Sustainable financial institutions must adapt to this trend or risk losing income on wasteful transportation and environmental hazards. This is supported empirically by the findings of Chang (2015) and Xue et al. (2017) who believe that innovation is indispensable for the attainment of expected financial performance in financial institutions. These results are however divergent from the views of Machdar (2017) who believes that innovation rather increases the expenses of financial institutions without corresponding incomes, thus reducing their profits while Jha and Rangarajan (2020) posit that product innovation does not affect the financial performance in financial institutions.

Inferring from these proxies, the environmental pillar has a positive effect on financial performance in Cameroon financial institutions with the most significant effect from emission reduction. This rejects the null hypothesis, making the environmental pillar a necessary predictor of financial performance. Implementing appropriate environmental management strategies can improve end-of-year returns on shareholder capital (return on equity). Therefore, focusing on environmentally friendly investments by shareholders can significantly improve financial performance. These results of the overall EP-FinP model are supported by existing researchers (Angelia & Suryaningsih, 2015; Chang, 2015; Young et al., 2018; Muchiri & Muigai, 2019; Nizam et al., 2019; Dzomonda & Fatoki, 2020; Azaouiat & Zsófia, 2022; XUE et al., 2017). The stakeholder theory (SHT), the slack resource theory (SRT), the modern portfolio theory (MPT) and the resource dependency theory (RDT) also agree with these findings. Machdar (2017), amongst others however have a divergent view and believe on investing funds for shareholder benefits and not on extended investments in stakeholders who contributed little or no capital in the businesses but are expected to benefit for such capital. The results are also in disagreement with the findings of Velte (2017) and Jha and Rangarajan (2020) who believe in a neutral effect of the environmental pillar on financial performance in financial institutions.

7. CONTRIBUTIONS TO SCIENTIFIC COMMUNITY AND FUTURE RESEARCH

Financial institutions in Cameroon should promote green investments by integrating climate change and environmental sustainability issues in their products and services. Adopting green financing and environmental accounting practices can lead to short and long-term business profits. The Central Bank-BEAC should encourage environmental compliance plans, emission reduction programs and regular reporting to ensure sustainable investments. Cameroon's microfinance industry should adopt green microfinance models, focusing on climate change-related goods and services. The industry's impoverished clients rely on natural resources which are rapidly depleted due to climate variability. Green microfinance can therefore improve financial performance and help the impoverished recover from climate change shocks. Stakeholders like BEAC, COBAC, MINFI, banks and MFIs can adopt the Latin America and Bangladesh model by ensuring sustainable approaches to financial performance

through the designation of products such as microcredit for energy efficiency, microcredit for renewable energy and microcredit for sustainable environmental management. Green Microfinance should be implemented from the models used in Bangladesh and South America to keep natural resources sustainable.

Financial institutions in their capacity as funders of several projects should work in synergy with the National Observatory on Climate Change (NOCC), a government institution in Cameroon that has the responsibility to monitor and evaluate the socioeconomic and environmental impact of climate change by developing climate-friendly banking and financial policies to attain the milestone GHG emission reduction of 35% by 2030 for improved financial performance in financial institutions. This synergy should be extended to the Ministry of Environment and nature protection, NGOs, local authorities, farmers, investors, scientists and manufacturing companies. Financial institutions should therefore incorporate waste emissions-related risks into their staff health insurance policies to protect them against harmful greenhouse gas emissions. Environmentally friendly waste disposal facilities and sustainable green resorts can improve financial performance. Cameroon's government should fund decarbonisation through subsidies for green investments and increase taxes on high-emission business projects. Such taxes should be levied per unit of any pollutant that negatively affects the environment. Renewable energy sources should replace pollutant sources to reduce emissions and improve business profits.

8. CONCLUSION

On the basis of the above findings, the objective of this research was appropriately accomplished and the research queries were given efficacious answers. Adequate empirical and theoretical evidence has given applicable explanations for the validity of these findings prompting the researcher to give results-based recommendations guided by the magnitude and signs of these results. All the financial institutions in Cameroon are therefore required to adopt a holistic approach in the management and reporting of the environmental pillar which has proven to be a fundamental predictor of the financial performance of financial institutions in Cameroon. There is therefore need to improve on the emission reduction strategies by adopting workable emission reduction programmes through the implementation of emission reduction compliances especially on greenhouse gases. Green resorts and appropriate waste and resources management have proven in the results to be some excellent measures the financial institutions can adopt to attain emission reduction, thus improving the financial performance of financial institutions.

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APPENDICES

Appendix One: Result of Test of Communalities

Item	Initial	Extraction
er1_1	1	0.675
er2_1	1	0.59
er3_1	1	0.618
er4_1	1	0.704
er5_1	1	0.777
PI1_1	1	0.624
PI2_1	1	0.689
PI3_1	1	0.717
ROE1_1	1	0.773
ROE2_1	1	0.817
ROE3_1	1	0.72
ROE4_1	1	0.57
ROE5_1	1	0.761
RR1_1	1	0.667
RR2_1	1	0.503
RR3_1	1	0.593
RR4_1	1	0.56
RR5_1	1	0.613

Extraction Method: Principal Component Analysis (PCA)

Source: Computed by Author using SPSS version 23

Appendix Two: Rotated Component Matrix

	Component			
	1	2	3	4
ROE2_1	.866			
ROE1_1	.855			
ROE5_1	.830			
ROE3_1	.736			
ROE4_1	.701			
er5_1		.834		
er4_1		.678		
er1_1		.675		
er3_1		.671		
er2_1		.554		
RR3_1			.733	
RR1_1			.733	
RR4_1			.646	
RR5_1			.569	
RR2_1			.525	
PI2_1				.760
PI3_1				.748
PI1_1				.709

Extraction Method: Principal Component Analysis; Rotation Method: Varimax with Kaiser Normalization. A
Rotation converged in 7 iterations.

Source: Computed by Author using SPSS version 23

Appendix Three: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.958	41.883	41.883	7.958	41.883	41.883	3.804	20.019	20.019
2	2.182	11.483	53.366	2.182	11.483	53.366	3.477	18.299	38.318
3	1.229	6.470	59.836	1.229	6.470	59.836	3.114	16.388	54.706
4	1.098	5.778	65.614	1.098	5.778	65.614	2.072	10.908	65.614
5	.991	5.215	70.829	--	--	--	--	--	--
6	.808	4.250	75.079	--	--	--	--	--	--
7	.685	3.607	78.685	--	--	--	--	--	--
8	.559	2.942	81.627	--	--	--	--	--	--
9	.533	2.808	84.435	--	--	--	--	--	--
10	.501	2.639	87.074	--	--	--	--	--	--
11	.459	2.415	89.490	--	--	--	--	--	--
12	.414	2.181	91.671	--	--	--	--	--	--
13	.334	1.760	93.431	--	--	--	--	--	--
14	.280	1.474	94.906	--	--	--	--	--	--
15	.253	1.331	96.236	--	--	--	--	--	--

16	.234	1.230	97.467	--	--	--	--	--	--
17	.198	1.044	98.511	--	--	--	--	--	--
18	.178	.939	99.450	--	--	--	--	--	--
19	.105	.550	100.000	--	--	--	--	--	--

Extraction Method: Principal Component Analysis.

Source: Computed by Author using SPSS version 23

