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Regulatory Constraints on Financial Performance of Insurance Firms in Egypt: Structural Equation Model

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ABSTRACT

The structural equation model is used to examine the relationship between regulatory constraints measured by investment to paid capital, cash to paid capital, government securities and certificate, and firm size (algorithm of total assets) on financial performance measured by liquidity, Return on equity and Return on assets of insurance industry in Egypt. The results showed that the relationship between regulatory constraints and return on equity is such that there is a significant negative effect of the construct the independent variables in terms of investment, cash, and government securities and secure certificates (X3), on the dependent proxy, return on equity. However, the later independent proxy of the algorithm of total assets (lnx4) has a positive impact on the dependent proxy in terms of return on equity and a significant negative impact of the independent proxies' investment, and cash on the dependent variables return on assets. However, the later independent variable of the algorithm of total assets (lnx4) has a positive effect on the dependent variable of return on assets. This validates the second research hypothesis, as the independent variables investment, cash, and algorithm of total assets (lnx4) have a significant effect on the dependent variable return on assets. Beside that there is a significant negative effect of the independent variables investment X1, and cash X2 on the dependent variable liquidity. However, the later independent variable of (lnx4) has a positive effect on the dependent variable liquidity. This validates the third research hypothesis, as the independent variables investment, cash, and algorithm of total assets have a significant effect on the dependent variable liquidity, but an insignificant relationship with government securities.

Keywords Regulatory Constraints Operating Objective (Profitability), Operating Policy (Liquidity)

1. Introduction

The insurance industry, as a financial intermediary, is very important to Egyptian economy, so, it is heavily regulated to provide efficient service and protection against financial risks. The Egyptian Financial Supervisory Authority issued bylaw (No.10) for the year 1981, amendment in 2008, to mitigate the risk of insurance sector in paid capital requirements raised up from 60M to 100M Egyptian pounds. The literature review has shown the effect of regulatory constraints of insurance industry on their performance, and products pricing, for instance **Martin F. Grace & Richard D. Phillips** [1] showed the levels of regulations in insurance sector, while for **Mathew L. Higgins & Paul Thistle** [2] tested the regulatory constraints on product pricing in insurance firms. Also **L. Nguyen & A. C. Worthington** [3] tested the industry regulation and efficiency. As for **Pablo G Gonzalez & Lars F. Anderson** [4] used a novel dataset to investigate financial constraints on capacity in Spanish insurance firms.

Though the regulatory constraints play a critical restricting role in insurance industry diversification portfolio, they are perceived as regulations for how insurance firms allocate and invest their funds, especially the Capital structure which has special importance, as a clause (28) of the Egyptian Law identifies. So, the main question is whether the regulatory constraints have improved resources

allocation in insurance industry in Egypt whereas the financial supervisory authority has increased paid up to (100M) Egyptian pounds although the sum of total assets for one company from 39 companies in Egypt like MISR Insurance Company is more than (10B). Nevertheless the ratios are still as the following:

In terms of the ratio of share, it is 10% to paid capital. Regarding to the bonds ratio, it is 10% to paid capital. While the investment in Real Estate ratio is 10% to paid capital; whereas the grants differences to guarantee commercial mortgages ratio is 10% to paid capital.

Although insurance firms have faced numerous challenges in the last decade, they are still required to maintain certain financial ratios. For instance, as per the regulations issued in 1981, the cash ratio should be at least 50% to paid-up capital, and the investment approved by the regulator ratio should be 10% of the paid-up capital.

Additionally, firms must hold government securities and secure certificates to at least 25% of the paid-up capital. This study draws on the impact of the financial constraints as government regulations on objectives (profitability) and corporate policy (liquidity). Although there is a lot of researches on this area, however in Egypt it is focused on banking sector, as **Nader Abler & Hatem Ramadan [5]** revealed the significant relationship between applying regulations and banking stability and banking efficiency, while **Lukas Ahnert et al [6]** measured banks performance in US and Europe by return on equity, return on assets and liquidity, which are consistent with the current paper.

Due to the importance of the insurance sector in Egypt, and lack of researches in this area, this study was carried out to highlight and draw attention to the role of the financial regulations on the financial performance.

2. Literature Review

A. Insurance

According to **Martin F. Grace & Richard D. Phillips [1]**, this article presented evidence of insurance demotic firms which have a great level of regulations and achieved a high level of profitability, but some of the small domestic insurance firms have less profitability than the others. **Mathew L. Higgins & Paul Thistle [2]** said the empirical results indicate the capacity constraint regarding premium surplus ratio impact on underwriting profit, but the relationship is nonlinear and dynamic profit has a negative relationship with the value of derivatives of property liability insurance firms. **Shan Ge [7]** tested the relationship between the financial constraints on product pricing in life insurance industry; the results concluded that life insurance prices change drastically in different directions with different scenarios and decisions, and the financial constraints and change in prices are greater. Moreover, this study highlighted that the insurance plays a significant role in the market as financial intermediation. **Minhua Yang [8]** by using ordinary least square analysis, he investigated the relationship between financial innovation regulation and financial performance in listed China firms; the result shows the financial regulations have a negative effect on financial performance. **L. Nguyen & A. C. Worthington [3]** used data development analysis to examine the relationship between the industry regulation and efficiency, the result shows the regulations and size affected the efficiency of Australian private insurer. **Pablo Gonzalez & Lars F. Andersson [4]** used novel dataset to investigate financial constraints on capacity in Spanish insurance firms, they found that the foreign insurance affected capacity of insurance firms, also most of the insurance firms raise their capital and find an approach to keeping balance their current accounts, beside that they found the knowledge became the key for growth and higher return

B. Banking

Swamy V. [9] presented a model for relationship associated between the regulations and bank

profitability of Indian banks; he concluded that an increase of one percent in capital ratio to risk weighted assets affected the interest income by 17 percent, and that means the relationship between the regulations with the profitability, which measured by Return on equity is positive. **Harald Benink et al [10]** studied the role of regulatory constraints in terms of Basel II according to the analysis of this role by using risk model; he revealed that this role has a direct effect on propensity for endogenous risk, and increased financial stability. **Lukas Ahnert et al [6]** investigated the financial regulations on US and European banks performance, the results indicated that the passing banks have positive significant abnormal equity returns of 58-52 points, but failing banks have negative abnormal (174) banks point release positive performance. **Yishu Fu et al [11]** by using disequilibrium equation model to test capital regulations on bank behavior, the results showed that the regulatory constraints have a significant and positive relationship with bank behavior and well capitalized bank, but the relationship with capital level is negative and significant in China. **Clifford A. Ball & Hans R Stoll [12]** using operator training simulator model to evaluate the capital regulations requirements, they documented the regulatory constraints requirements distort the investment decision, and it is adversely affected in incentive investment in US banks. **Ansgar Walther [13]** to answer the question about how to achieve efficiency in banks, the study analyzed the relationship between banks regulations and liquidity; it revealed that the efficiency can be achieved through establishing simple banks regulations, and can change systematic risk when implementing optimal policy with constraints in capital requirements adequacy. **Eric Monnet & Miklos Vari [14]** in terms of liquidity constraints they are used as tools to maintain low interest rate in banks to reduce borrowing that increase ability to purchase government securities, and this achieves the purpose of monetary policy. **Nader Alber & Hatem Ramadan [5]** to test the association of the impact of banking regulations with bank performance in MENA region, this paper conclusions indicated a significant impact of financial regulatory on banking performance in terms of profitability, banking efficiency and bank stability; moreover there is a significant impact of banking regulations on liquidity requirement provision policy, but there is a negative impact of non-performing loans and leverage requirements. **Prachi Mishra & Ariel Reshef [15]** investigated the effect of central bank governor in financial regulations, and the results showed that 20% form the research sample have a relationship with greater financial reform.

C. Other

This part reviews the previous studies which addressed the financial constraints on financial performance in different sectors: **Karas, M., & Režňáková, M. [16]** sought to analyze the impact of financial constraints on financial variables in predicting small and medium-sized enterprises through using Cox semi-parametric model. The results show that incorporating financial constraints variables help in predicting default. **X. Chang et al [17]** investigated the financial constraints in their paper on Australia firms, and their captured results indicated that the financial constraints minimize the sensitivity of investment to internal resources, and increase the cash in hand to internally gains funds by using regression. According to **Xiang Zhang et al [18]**, the study result showed that the relationship between business development and cash holdings is negative, besides, the financial constraint mitigated the impact of institutional development. **Aaron lane [19]** conducted a study to use a structural model to test the relationship between regulatory constraint and innovation, and whether regulatory constraints are constraining innovation. **Guohua Cao et al [20]** examined the financial constraints and short selling with corporate fraud in China corporations; however, the short selling impacts the corporate fraud, but financial constraints less likely to impact corporate fraud. **Akamah, Herita T. et al [21]** documented that the relationship between the financial constraint and volatility of cash was a positive relationship; based on that result the paper recommended the increase the financial

constraint. **Siddarth Roche et al [22]**, concluded that the financial constraints reduce process innovations, so they recommended the mitigation of the financial constraints. Whereas the control variable (size of the firm) has a positive impact on process innovation in Australian firms. **Getaneh M. Ayele [23]** used panel regression model to examine the effect of the financial constraints (capital adequacy and legal reserve) with risk-taking in Ethiopia private banking sector, the conclusions refer to a positive relationship between capital adequacy and risk taking. However, there are different results in two periods: in the first, the relationship was negative with liquidity, and in second one it was a positive relationship. For **Xin Chang et al [24]**, the regression model results of this paper showed the net cash working capital is significant, and a positive relationship with short term debt, the financial constraint has a little impact on firm investment, but the severity financial constraint is negative with cash flow in Australians corporate. **Ralston, D. [25]** based on results of the model that developed in this paper, the regulatory reform has a significant effect on the allocation efficiency of both credit union stability and samples investigated in the portfolio performance in Australian firms also the regulatory reform has a potential allocation of efficiency in portfolio. **Sasan Bakhtiari et al [26]** investigated the role of the regulatory constraint on small medium enterprises to find its effect on growth business cycle and credit access in the Organization for Economic Co-operation and Development countries (OECD). **Margaret J. Greenwood & Lei Tao [27]** put forward that the costly regulatory intervention affected financial reporting quality, but agency theory increased financial reporting quality, according to the study. **Annalisa Ferrando & Alessandro Ruggieri [28]** presented the relationship between financial constraints with productivity in Euro companies; the findings referred to a negative significant relationship between them in small medium enterprise. **Ulf Von Kalckreuth [26]** conducted in UK manufactures to test the relationship between financial constraints and capacity restrictions, the study results indicated that the financial constraints have an effect on closed capacity gap, also for small companies closed capacity gap is faster than other large companies. **Thomas S. Y. et al [30]**, the topic of this article was to identify whether the regulatory constraints improved real allocations resources; it concluded that the regulatory constraints system succeeded in limiting system fragility and reducing the capital requirements. The important result in this paper determines the optimal size of the financial sector, using macro dynamic model. **Ornella W. Matetta & Vania Sena [31]** used the efficiency frontier to analyze the relationship between financial constraints and technical efficiency, they revealed that the regulatory constraints had a positive impact on technical efficiency in Italian producer cooperatives. **Michael Machokoto & Geofry Areneke [32]** used panel data analysis revealing that the financial constraints affected negatively the investment cash flow, however the credit constraint has a significant effect on changes in capital market. **Annick Pamen Nyola et al [33]** investigated the impact of regulation on European banks by dividing the sample into three categories: high income, middle income and low income. The findings indicate that the regulations have a positive, significant relationship with the high income level. However in the middle and low income categories, the activities decrease and entry requirements are affected. **Aviner Augusto S. Manoel et al [34]** investigated the relationship between the financial constraints on market value of Brazilian firms. The findings indicate that the financial constraint significantly affects market value but non constraints have little effect on the cash flow held by companies. **Ofoeda, I. et al [35]** conducted a study to test the impact of the regulatory constraints, financial inclusion with growth of economic in (52) African countries. They found that the financial inclusion and regulation have a strong and significant effect on economic growth using a regression model. **Georgios Efthymoulou & Prit Vahter [36]** used a Univariate Probit model to analyze the associated financial constraints on innovations performance. They indicate that a significant positive impact of the financial constraints with performance of innovation. **Daniel Paravisini [37]** tested the financial constraints on firms' access to external resources using novel data analysis of local bank in France. This paper conducted that when the lending

expands the profitability of bank portfolio in terms of lending does not decline, and total deposit increases. **Pablo G. G. Alez & Lars-F. Andersson [38]** applied the fire insurance in Spain to test the regulatory constraints on capitalization and capacity. The findings indicate that foreign reinsurers increasing capacity, and financial leverage has a positively significant relationship with reinsurance when loss ratio is significant with reinsurance but weakly correlated. **Fernando R. Chaddad & Jeffrey J. Reuer [39]** analyzed the associated the financial constraints on initial public offerings in US firms by dividing the study period into three periods and using econometric methodology. The findings indicate that in the first period there is no change in investment and cash flow; in the second there was a negative effect of financial constraints on cash flow and investment; and in third period, there was a decline in cash flow and investment. **Priya Nagarai & Chuanqian Zhang [40]** assessed the relationship between regulatory quality on cost of capital and equity by using multilevel mixed models. The conclusion indicates a negative relationship between the regulatory quality with cost of capital when applied in (55) countries over (13) years. **Timothy J. Riddiough & Zhonghua Wu [41]** investigated the associated investment and liquidity management with the cash constraint firms. They revealed that there is a smooth variation in cash flow with investment and financial constraints pushing the firms more sensitive towards cash constraints in firms listed in NYSE and NSADAQ. **Pateris Zilgalvis [42]** tested the regulatory effect on the financial innovation principle to determine prioritizing regulatory. The article revealed the most important result is regulatory protecting the investors from the fraud loss and risk and providing investors with information. **Weixi Liu & Ian Tonks [43]** analyzed the relationship between pension funding constraints and firms costs using GMM system. The findings suggest a negative association of pension funding constraints with firm dividends, the associated funding requirements with investment are sensitive in UK pension funding. **Pargati Priya & Chandan Sharma [44]** applied in (74) developing countries to investigate the relationship between the financial constraints and corruption and innovation capacity. The conclusions indicate that the financial constraints have an adverse effect on innovations capacity, and the relationship between financial constraints is positive with corruptions in developing countries. **Nina Budina et al [45]** tested liquidity constraints on investment performance using accelerators model in Bulgaria firms. The findings indicate that there is no association between the cash flow and investment, and liquidity constraints have a positive relationship with firm size but a negative relationship with debt. **Ali Gungoraydinoglu & Özde Öztekin [46]** examined the financial crises and banking regulations on corporate financing. The study findings show that there is a significant impact of financial crises on financial decision-making. Financial crises pushed the corporate corporations to depend on leverage, and the firms have difficulty issuing securities during the financial crises. This study used a multivariate regression model.

3. Methodology, Variable Definitions and Data Resources

Salah Eladly [47] used the structural equation model to test the multivariable relationships in risk performance on working capital management. The conceptual framework was investigated using AMOS23 and the Multivariate Detection model, which was also used by **Ali Gungoraydinoglu & Özde Öztekin [46]**, to analyze the relationship between multiple variables. For this study, data was collected from Egyptian Financial Supervisory Authority reports of financial position (balance sheet and income statements) for insurance firms under the financial authority form 1999 to 2019. **Dependent variables** were selected from the annual reports, as shown during the sample period: (Y1) Return on equity (ROE), which was measured by dividing net operating profit by equity; (Y2) Return on assets (ROA), measured by dividing net operating profit by total assets; and (Y3) Liquidity, which was measured by **Minhua Yang [8]** using ROE and ROA, and by **Nader Alber & Hatem Ramadan [5]** to measure banking performance. The Control variable was calculated based on total asset algorithm, which is a natural algorithm of total assets. The **Independent variables** were selected according to Law

NO. 10. As noted by **Annalisa Ferrando & Alessandro Ruggieri [28]**, which used investment constraints. This study used most of investment variables treated in Law 10 as mentioned before. **Ulf Von Kalckreuth [29]** measured financial constraints by investment restrictions and the firm size as control variable, consistent with this paper. The cash ratio to paid capital was 50%, and the ratio of bonds to paid capital was 10%. In terms of government securities and secure certificates ratio to paid capital was 10%, and the last variable in regulatory constraints was other approved investments by the regulator ratio to paid capital, which was 10%. This study concurs with **Pablo G. G. & Lars-F. Andersson [38]** in the applied filed of insurance to test the effect of regulatory constraints. Furthermore, this study was consistent with **Nina Budina et al [45]** to test liquidity constraints on investment, where the current study used liquidity as a proxy of financial performance as dependent variable. **Ansgar Walther [13]** studied the relationship among banks regulations and liquidity in this research.

Based on the previous literature review this paper has selected the following independent variables:

- (1) Investment to paid capital (X1), this ratio has been selected to express the percentage in the same ratio (10%). The second reason for selecting the investment ratio is that it expresses the proportion of bonds and shares. Cash to paid capital (X2).
- (2) Government securities and secure certificate (X3).
- (3) Algorithm of total assets (X4).

4. Hypotheses and Objectives

- (1) Regulatory constraints are positively associated with return on equity in Egyptian insurance firms.
- (2) Regulatory constraints are positively associated with return on asset in Egyptian insurance firms.
- (3) Regulatory constraints are positively associated with liquidity in Egyptian insurance firms.

Objectives:

- (1) To investigate the impact of the regulatory constraints on financial performance of insurance companies in Egypt.
- (2) To mitigate the effect of the regulatory constraints on investment channels and instruments for high level of profitability (if there).
- (3) Possibility to modify the ratios of investment instruments.

5. Empirical Results and Discussion

A. Summary of descriptive analysis

The following table 1 reports the basic descriptive analysis of the financial performance variables liquidity, ROE and ROA with regulatory constraints variables investment, cash and government securities, and secure certificate as independent variables. This paper used a sample of (23) firms for (21) years for (399) observations which have supervision under Financial Authority in Egypt. Table 1 reports the descriptive analysis where row-1 mean, row-2 median, row- 3 max, row-4 min. row-5 standard division, row-6 skewness row-7 Jarque- Bera and probability.

Table 1 shows the size and liquidity have been represented statically with a significant impact on financial performance. This study is consistent with **Salah Eladly [47]** and **Jing Ai Vickie Bajtelsmit Tianyang Wang [48]** both of whom showed a statistically significant relationship between the firm size with financial performance. But the negative relationship has been noticed in literature review, for example **X. Chang et al [17]** used a sample of (420) Australian firms to investigate the financial constraints on Australia's firms' performance, they captured the results that the financial constraints

on Australia's firms' performance, they captured the results that the financial constraints minimize the sensitivity of investment to internal resources and beside increase cash in hand to internally gains funds by using a regression model.

Table 1. Descriptive statistics for regulatory constraints with financial performance during the period study

tests	Investment	Cash	Shares	Ln _{x4}	ROE	ROA	Liquidity
Mean	0.017060	0.089519	0.043259	13.17006	0.138785	0.030481	0.844375
Median	0.015340	0.071977	0.038488	13.09981	0.139345	0.028420	0.851430
Maximum	0.044395	0.239380	0.114690	16.62014	0.474458	0.096811	0.997488
Minimum	0.000261	0.001307	0.000654	9.472166	-0.220321	-0.034591	0.595981
Std. Dev.	0.011564	0.059884	0.029442	1.507681	0.141172	0.024850	0.086929
Skewness	0.383055	0.313761	0.389552	0.240858	0.082026	0.208380	-0.440053
Kurtosis	2.236610	2.429707	2.229707	2.658386	2.899317	2.836910	2.877177
Jarque-Bera	19.44605	17.95589	19.95589	5.797972	0.615960	3.329772	13.12830
Probability	0.001***	0.001***	0.001***	0.055079	0.734930	0.189212	0.001410**
Observations	399	399	399	399	399	399	399

*** α Less than (0.001). ** α residual less than (0.01).

B. Univariate detection

Shan Ge [7] used Univariate analysis to test the relationship between financial constraints and product prices in life insurance; also **Salah Eladly [47]** used Univariate detection to analyze the relationship between risk performance and working capital management in insurance firms. However, both of them used this test to identify the presence of some outliers and extremes for each variable separately, omitted those outliers by using Box-and-Whisker Plots test for computing the values of both the lower quartile Q1 and the upper quartile Q3, then calculating the interquartile range $IQR = Q3 - Q1$, and finally excluding the values less than $(Q1 - 1.5IQR)$ and those higher than $(Q3 + 1.5IQR)$ to replace missing values by using linear interpolation and complete these missing values by using the transform command.

C. Multivariate detection

This paper used multivariate analyses, which include two variables and more. For instance **Ali Gungoraydinoglu & Özde Öztekin [46]** used a multivariate model to test multidimensional variables, so this paper requires a means to objectively measure the multidimensional position of each observation relative to some common point. This version is addressed by the Mahalanobis D2 measure, a multivariate evaluation of each observation across a multivariable. This approach measures each observation's distance in multidimensional space from the mean center of all observations, to provide a single value for each observation irrespective of the number of variables considered, and can remove observations in this multidimensional when higher D2 values represent observations farther removed from the general distribution.

The findings shown in the above Table 1, can be concluded that the normality distribution of this study proxies in terms of algorithm of total assets (ln_{x4}), return on equity (Y1), and return on assets (Y2) the Jarque-Bera used to test at a significant level $\geq (0.05)$. On the other side, this paper variables investment X1, cash X2, government securities and secure certificate X3, and liquidity Y3 have not normally distributed, since the significance of Jarque-Bera statistic is $\leq (0.05)$. But when the coefficient of the Pearson skewness is less than or equal (1) or greater than or equal to (-1), as shown on the above table 1,

the data are not significantly skewed based on the review of literature findings, which refer to a positive relationship between regularity constraints and financial performance as for **Nader Alber & Hatem Ramadan [5]**, **Lukas Ahnert et al [6]** and **Swamy V. [9]** in contrast to this study's finding that the negative relationship between regulatory constraints and financial performance is consistent with **Mathew L. Higgins & Paul Thistle [2]**.

D. Testing of Group unit root

In this section, a set of tests were used as shown in the following table 2 to assure that variance and mean are invariant: the unit root test to investigate over the period 1999 to 2019, the stationary time series of the study period, the covariance is computed of the ROE, ROA and liquidity, with regulatory constraints issued by Law 10 for the year 1981, used the following statistical techniques:

Table 2. Group unit root test for regulatory constraints and financial performance during the period study

Tests	Statistic	Obs	Cross-sections	Prob.**
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-13.8434	2777	7	0.001***
ADF - Fisher Chi-square	220.536	2777	7	0.001***
PP - Fisher Chi-square	211.054	2786	7	0.001***
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-6.69540	2777	7	0.001***

*** $\alpha < (0.001)$.

As shown in the above table, the result shows that the stationary of the time series of the ROE (Y1), ROA (Y2), liquidity ratio (Y3), investment X1, cash X2, government securities and secure certificate (X3), and algorithm of total assets (lnx4), at level 1 (0) based on the constant level, through to the following criteria; LLC, IPSW, PP, and ADF, at a $\rho \geq (0.001)$, in consistence with **Mathew L. Higgins & Paul Thistle [2]**.

E. The model of Co-integrating equation

The purpose of this test is to measure the existence of long-term equilibrium relationship with non-stationary time series proxies ROE (Y1), ROA (Y2), liquidity (Y3), investment (X1), cash X2 government securities and secure certificate X3, and algorithm of total assets lnx4; this paper used Engle–Granger Co-integration tests in the following Table 3:

Table 3. The model of Co-integrating for financial performance with regulatory constraints

Variables	tau-statistic	Prob.*	z-statistic	Prob.*
ROE (Y ₁)	-15.92248	0.001***	-317.8018	0.001***
ROA (Y ₂)	-7.545909	0.001***	-101.1017	0.001***
L (Y ₃)	-8.353389	0.001***	-120.0785	0.001***
Investment (X ₁)	-8.795828	0.001***	-130.7136	0.001***
Cash (X ₂)	-7.869344	0.001***	-108.2697	0.001***
GOV. (X ₃)	-13.79549	0.001***	-263.3513	0.001***
LNX4	-8.654998	0.001***	-110.0235	0.001***

*** $\alpha < (0.001)$.

As shown in above Table 3, where panel A is dependent and independent variables, panel B Tau test panel C Prob. Panel D Z test shows that a long-run equilibrium associated among the (ROE Y1, ROA Y2, Liquidity Y3), and independent variables (X1, X2, X3, lnx4) from 1999 to 2019, based on the Tau-statistic, and z-statistic, at a significant level less than (0.001).

F. The Pearson correlation matrix tests

Table 4. Pearson correlation matrix to measure a significant linear relationship between the constructs of both regulatory constraints and financial performance variables

Constructs	ROE	ROA	Liquidity	Investment	Cash	Gov. Securities	Algorithm of total assets
ROE	1						
ROA	0.398***	1					
L	0.441***	0.439***	1				
Investment	-0.456***	-0.444***	-0.455***	1			
Cash	-0.491***	-0.493***	-0.384***	0.488***	1		
Gov. securities	-0.513***	-0.460***	-0.360***	0.484***	0.469***	1	
Algorithm of total assets	0.524***	0.522***	0.436***	-0.541***	-0.591***	-0.587***	1

*** $\alpha < (0.001)$.

Table 4 shows negative and significant linear correlations with the construct dependent variables ROE Y1, ROA (Y2), and liquidity (Y3) and the construct of the variables investment (X1), cash (X2), and government securities and secure certificate (X3), at a $\rho \geq (0.001)$. Also, there are positive and significant linear associated with the construct dependent variables in ROE (Y1), ROA (Y2), and liquidity (Y3) with the construct of algorithm of total assets (lnx4) at a $P \geq (0.001)$.

G. The model of SEM:

Salah Eladly [47] used structural equation model to investigate the multivariate functional data and conceptual framework using AMOS23. And **Kuang Y Lee & Lexin Li [49]** also used the structural equation model for estimating multivariate data. So, this paper has selected SEM because this technique provides the most efficient estimation techniques consisting of a series of separate multiple regression equations estimated simultaneously where constructs could be represented by a summated scale. Also SEM clearly distinguishes between unobserved theoretical constructs and imperfect empirical measures, and it is covariance-based rather than variance-based.

The following figure 1 shows SEM for investigating the construct of the independent proxies in terms of investment, cash, government securities and lnx4 on the construct of the dependent variables in terms of Return On Equity Y1, Return On Assets Y2, and Liquidity Y3.

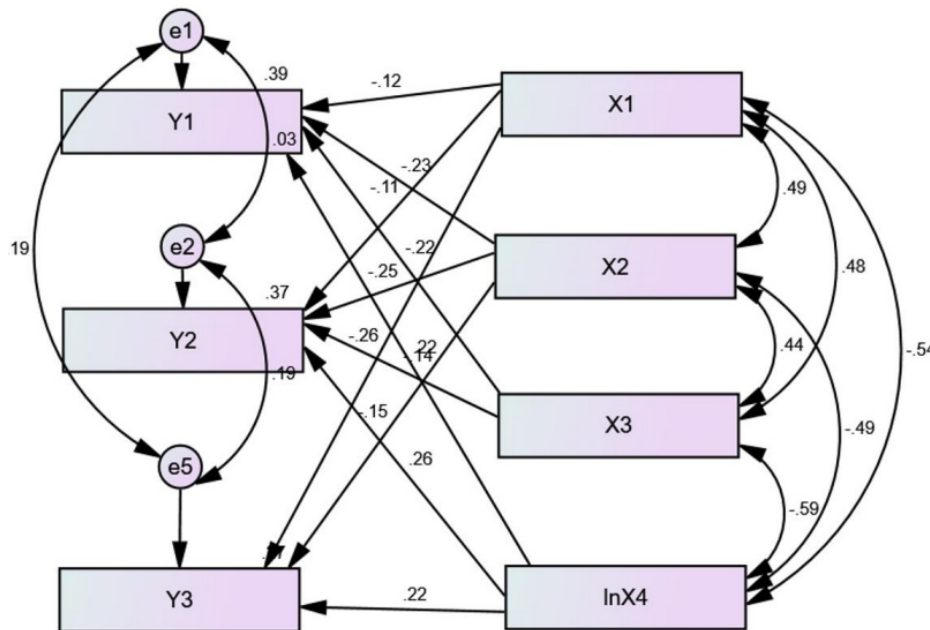


Figure 1. Structural Equation Model

Table 5. Regression weights for testing the effect of the construct of investment, cash, government securities and lnX4 on the construct of ROE, ROA, and liquidity for estimating Maximum Likelihood

	Path		Standardized estimate	Unstandardized estimate	S.E.	C.R.	SIG.
Y3	<---	X1	-.264	-.184	.031	-5.876	0.001***
Y1	<---	X2	-.230	-.221	.038	-5.755	0.001***
Y1	<---	X3	-.223	-.208	.039	-5.360	0.001***
Y2	<---	X3	-.139	-.137	.042	-3.290	0.001***
Y2	<---	lnX4	.257	.234	.041	5.669	0.001***
Y3	<---	lnX4	.222	.142	.029	4.928	0.001***
Y2	<---	X2	-.253	-.256	.041	-6.218	0.001***
Y1	<---	lnX4	.216	.186	.038	4.846	0.001***
Y3	<---	X2	-.147	-.105	.031	-3.384	0.001***
Y2	<---	X1	-.110	-.109	.042	-2.593	0.001***
Y1	<---	X1	-.120	-.113	.039	-2.876	0.004**

Normed Chi-Square=1.888 probability level=0.169 GFI=0.999 AGFI=0.973 NFI=0.999 IFI=0.999 TLI=0.987 CFI=0.999 RMSEA=0.040 RFI=0.973, RMR= 0.006

*** $\alpha < (0.001)$. ** $\alpha < (0.01)$.

The results show for testing as following.

The model fit is evaluated in terms of ten indices as following as the table includes:

1. Where the value was 1.88, indexed value of Chi-Square with cut-off values $\geq (5)$
2. The value of Normed Fit Index (NFI. Value .999
3. The value of Goodness-of-fit index (GFI) value .999
4. The value of Tucker-Lewis Index .987
5. The value of -Adjusted Goodness of Fit Index .973

6. Relative Fit Index (RFI) value .973
7. The value Incremental Fit Index .999
8. The value Comparative Fit Index .999
9. The value of Root Mean Square Residual Approximation .040
10. The value of Root Mean Square Residual .006, if CFI > 0.95 then a model is satisfactory, GFI > 0.90, RMR < 0.08 and RMSEA < 0.08

The above table 5 shows the rejection of the first hypothesis. The result of first hypotheses shows that testing of the relationship between the financial constraint and ROE shows a significant negative impact of the construct of investment (X1), cash (X2), and government securities and secure certificate (X3) as independent proxies on the construct of the dependent proxy in terms of return on equity (Y1), at a significant level less than (0.01), but the later the proxy of the algorithm of total assets (lnx4) has a positive impact on the proxy ROE (Y). This validates the first research hypothesis; the independent variables investment (X1), cash (X2), government securities and secure certificate (X3) and the algorithm of total assets (lnx4) have a significant impact on the ROE (Y1), with the regression model as the follows:

$$y_1 = -0.120x_1 - 0.230x_2 - 0.223x_3 + 0.216lnx_4$$

The exogenous proxies were accepted, investment (X1) cash, (X2) government securities and secure certificate (X3) and algorithm of total assets lnx4, in structural equation model explain (39.4%) from total variation of the variable; ROE (Y1), the rest percent comes from either the random error in the regression model or other Independent proxies excluded from regression model. This study is consistent with **Aviner Augusto S. Manoel et al [34]** and **Minhua Yang [8]** on the effect of the financial constraints on cash holding or ability to reinvest their profit on contrast of this paper as for **Shan Ge [7]** revealed that the financial constraints affected directly product prices, also this result is consistent with **Siddarth Roche et al [22]** that the firm size is a significant positive with regulatory constraints. On the other hand **Martin F. Grace & Richard D. Phillips [1]** and **Minhua Yang [8]** presented evidence of insurance domestic firms have high level of profitability. Regarding to the second hypothesis, the results show that they are rejected. The result shows a negative and significant impact of the construct of the independent variables investment (X1), cash X2, and government securities on the construct of the dependent variables return on assets, at a $P \geq (0.01)$, but the later independent variable of the algorithm of total assets (lnx4) has a positive effect on the dependent variable of return on assets. This validates the second research hypothesis: the relationship between (investment X1, cash X2, government securities and secure certificate X3 and algorithm of total assets* lnx4) as the independent variables are a significant impact on return on assets as dependent variable in a regression model as follows:

$$y_2 = -0.110x_1 - 0.253x_2 - 0.139x_3 + 0.257lnx_4$$

The exogenous proxies were accepted, investment (X1), cash X2, government securities and secure certificate (X3) and algorithm of total assets (lnx4,) in structural equation model explain (37.1%) from total variation of dependent variable ROA (Y2), the rest percent comes from other the random error in the regression model and independent variables excluded from regression model, as for **Clifford A Ball & Hans R Stoll [12]** using operator training simulator model to evaluate the capital regulations requirements, documented the regulatory constraints requirements distort the investment decision and it is adversely affected in incentive investment in us banks but the difference in scope of applying on contrast with this study. For **Georgios Efthvoulou & Prit Vahter [36]** whose

whose finding refers to the positive relationship, contrast that study with Swamy V. [9], where the relationship between the financial regulations is positive with turn on equity.

The third hypothesis result shows that there is a significant negative impact of the construct of the independent proxies investment X1, and cash X2 on the construct of the dependent variables in terms of liquidity (Y3), at a $\rho \geq (0.001)$, but the later independent variable of algorithm of total assets $\ln x_4$ is a significant and positive impact on the dependent proxy of liquidity (Y3). This validates the third research hypothesis; regulatory constraints variables of investment (X1), cash (X2), and the algorithm of total assets ($\ln x_4$) have a significant effect on liquidity (Y3), with the regression model as follows:

$$Y_3 = -0.264X_1 - 0.147X_2 + 0.222\ln X_4$$

The exogenous variables were accepted, investment X1, cash X2, and the algorithm of total assets ($\ln x_4$) in SEM explain (27.3%) of the total variation of dependent variable; liquidity (Y3); the rest of percent comes from either the random error in the regression model or other independent variables excluded from the regression model.

The test of the Root Mean Square Residual Approximation (RMSEA) and Root Mean Square Residual (RMR) less than (0.08), which refers a close fit of the theoretical model to the actual model. Results consistent with **Weixi Liu & Ian Tonks [43]** concluded the negative relationship between the financial constraints with corruption, and the positive relationship with investment, and **X. Chang et al [17]** however, the government securities and secure certificate have insignificant relationship X3 with liquidity Y3.

6. Conclusions

This study used a sample structural equation model of regulatory constraints issued by Egyptian Financial Supervisory Authority under Law 10 for the year 1981 to examine the financial performance of Egyptian insurance firms measured by return on equity, return on assets and liquidity:

(1) The first hypothesis result shows that the relationship between regulatory constraints and return on equity is such that there is a significant negative effect of the construct the independent variables in terms of investment, cash, and government securities and secure certificates (X3), on the dependent proxy, return on equity, at a significant level less than (0.01). However, the later independent proxy of the algorithm of total assets ($\ln x_4$) has a positive impact on the dependent proxy in terms of return on equity. This validates the first research hypothesis, as the independent variables investment, cash, government, secure certificate, and algorithm of total assets have a significant effect on the dependent variable return on equity (Y1), which is consistent with **Minhua Yang and Siddarth Roche et al [8, 22]** in controlling for the variable size of the firm. This result contrast with **Martin F. Grace & Richard D. Phillips [1]**, is also consistent with **X. Chang et al [17]**. This article presented evidence of insurance demotic firms which have a great level of regulations and achieved a high level of profitability, but some of the small domestic insurance firms have less profitability than the others.

(2) The Second hypothesis result shows a significant negative impact of the independent proxies investment, and cash on the dependent variables return on assets, at a significant level less than (0.001). However, the later independent variable of the algorithm of total assets ($\ln x_4$) has a positive effect on the dependent variable of return on assets. This validates the second research hypothesis, as the independent variables investment, cash, and algorithm of total assets ($\ln x_4$) have a significant effect on the dependent variable return on assets. On other hand, for **Nader Alber & Hatem Ramadan [5]** in banking sector, the result was positive in terms of liquidity constraints in banking performance.

(3) The third hypotheses finding indicates that a significant negative effect of the independent variables investment X1, and cash X2 on the dependent variable liquidity, at a significant level less than (0.001).

However, the later independent variable of $(\ln x_4)$ has a positive effect on the dependent variable liquidity. This validates the third research hypothesis, as the independent variables investment, cash, and algorithm of total assets have a significant effect on the dependent variable liquidity, but an insignificant relationship with government securities. This result was contrast with L. Nguyen & A. C. Worthington [3]. The result showed the regulations and size affected the efficiency of Australian private insurer.

Recommendations

- (1) The paper results conducted to investigate the negative relationship between the regulatory constraints and financial performance so the Egyptian financial authority should mitigate the Regulatory constraints in terms of investment channel and the investment ratio.
- (2) Future studies should test the suggestion ratio on financial performance.

REFERENCES

- [1] Martin F. Grace & Richard D. Phillips, *The Allocation of Governmental Regulatory Authority: Federalism and The case of insurance Regulations*, *The Journal of Risk and Insurance*, Vol. 74, No. 1, pp. 207-238, 2007, <https://doi.org/10.1111/j.1539-6975.2007.00208.x>.
- [2] Mathew L. Higgins & Paul Thistle, *Capacity constraints and the dynamic of underwriting profit*, *Economic Inquiry*, Vol. 38, No. 3, pp. 442-457, 2000, <https://doi.org/10.1111/j.1465-7295.2000.tb00028.x>.
- [3] L. Nguyen & A. C. Worthington, *Industry regulation, fund characteristics, and the efficiency of Australian private health insurers*, *Accounting and Finance*, Vol. 61, No. 1, pp.781-801, 2021, <https://doi.org/10.1111/acfi.12593>.
- [4] Pablo G conzalez & Lars F. Andersson, *Managing financial constraints: undercapitalization and underwriting capacity in Spanish fire insurance*, *Economic History Review*, Vol.71, No. 2, pp. 567-592, 2018, <https://doi.org/10.1111/ehr.12529>
- [5] Nader Alber & Hatem Ramadan, *The Effect of Applying Banking Regulations on Banking Performance of MENA Region Countries*, *European Journal of Business and Management Research*, Vol. 7, No. 1, pp. 170-185, 2022, <http://dx.doi.org/10.24018/ejbmr.2022.7.1.1258>.
- [6] Lukas Ahnert, Pascal Vogt, Volker Vonhoff &F. Weiner, *Regulatory stress testing and bank performance*, *European Financial Management*, Vol. 26, No. 5, pp. 1449-1488, 2020, <https://doi.org/10.1111/eufm.12267>.
- [7] Shan Ge, *How Do Financial Constraints Affect Product Pricing? Evidence from Weather and Life Insurance Premiums*, *The Journal of the Finance*, Vol. 72, No. 1, pp. 449-503, 2022, <https://doi.org/10.1111/jofi.13093>.
- [8] Minhua Yang, *financial innovation regulations and firm performance: Evidence from Chinese listed firms*, *Austrian Economic Paper*, Vol. 61, No. 1, pp. 24-41, 2022, <https://doi.org/10.1111/1467-8454.12231>.
- [9] Swamy V., *Basel III capital regulations and bank profitability*. *Rev Finance Econ.*; Vol. 36, No. 4, pp. 307-320, 2018. <https://doi.org/10.1002/rfe.1023>.
- [10] Harald Benink, Jon D. & Asgeir Jonson, *On the Role of Regulatory Banking Capital*, *Financial Market Institution and Instrument*, Vol. 17, No. 1, pp. 85-96, 2008, <https://doi.org/10.1111/j.1468-0416.2007.00134.x>.
- [11] Yishu Fu, Shih c lee, Lie Xu & Ralf Z, *The Effectiveness of Capital Regulation on Bank Behavior in China*, *International of Review Finance*, Vol. 15, No. 3, pp. 321-345, 2015. <https://doi.org/10.1111/irfi.12045>.
- [12] Clifford A. Ball & Hans R Stoll, *Regulatory Capital of Financial Institutions: A Comparative*

Analysis, Financial Market Institution and Instrument, Vol. 7, No. 3, pp. 1-57, 1998, <https://doi.org/10.1111/1468-0416.00020>.

[13] Ansgar Walther, *Jointly Optimal Regulation of Bank Capital and Liquidity, Journal of Money, Credit and Banking, Vol. 48, No. 2-3, pp. 415-448, 2016,*

[14] Eric Monnet & Miklos Vari, *A Dilemma between Liquidity Regulation and Monetary Policy: Some History and Theory, Journal of Money, Credit and Banking, Vol. 55, No. 4, pp. 915-944, 2023, <https://doi.org/10.1111/jmcb.12930>.*

[15] Prachi Mishra & Ariel Reshef, *how do Central Bank Governors Matter r? Regulation and the Financial Sector, Journal of Money, Credit and Banking, Vol. 51, No. 2-3, pp. 369-402, 2019, <https://doi.org/10.1111/jmcb.12578>.*

[16] Karas, M., & Režňáková, M., *The role of financial constraint factors in predicting SME default. Equilibrium. Quarterly Journal of Economics and Economic Policy, Vol. 16, No. 4, pp.859–883, 2021, DOI: 10.24136/eq.2021.032.*

[17] Xin Chang, Tek Jun Tan, George Wong, Hongfeng Zhang, *Effects of financial constraints on corporate policies in Australia, Accounting and Finance, Vol. 47, No. 1, pp. 85-108, 2007, doi: 10.1111/j.1467-629x.2007.00200.x.*

[18] Xiang Zhang, Zongyi Zhang & Han Zhou, *Grabbing hand or financial constraint mitigation effect? A re-examination of the relationship between institutional development and cash holdings, Accounting and Finance, Vol. 63, No. 1, pp.631-655, 2023, DOI: 10.1111/acfi.12928.*

[19] Aaron lane, *Regulatory Constraints on Public Sector Innovation: A Case Study on Queensland's Independent Public School Program, Australian Journal of Public Administration, Vol. 77, No. 4, pp. 685–699, 2017, doi:10.1111/1467-8500.12307.*

[20] GuoHua Cao, WenJun Geng, Jing Zhang and Qi Li, *Financial constraints, short selling and corporate fraud: Evidence from China, Austrian Economic Paper, Vol. 62, No. 1, pp. 297-320, 2022, <https://doi.org/10.1111/1467-8454.12284>.*

[21] Akamah, Herita T. and Omer, Thomas C. and Shu, Sydney Qing, *Financial Constraints and Future Tax Outcome Volatility, Journal of Business, Finance & Accounting, Vol. 48, No. 3-4, pp. 1-44, 2020, <http://dx.doi.org/10.2139/ssrn.2803563>.*

[22] Siddarth Roche, Sizhe, Sizhong Sun and Riccardo Welters, *Do Financial Constraints Reduce Process Innovation? Evidence from Australian Firms, ECONOMIC RECORD, Vol. 98, No. 323, pp. 335-353, 2022, <https://doi.org/10.1111/1475-4932.12703>.*

[23] Getaneh M. Ayele, *Does bank regulatory requirements affect risk-taking behaviour of private banks in Ethiopia?, International Journal of Finance and Economics, Vol. 26, No. 3, pp. 4482-4492, 2019, <https://doi.org/10.1002/ijfe.2026>.*

[24] Xin Chang, Tek J Tan, G. Wong & H. Zhang, *Effects of financial constraints on corporate policies in Australia, Accounting and Finance, Vol. 47, No. 1, pp. 85-108, 2007, <https://doi.org/10.1111/j.1467-629x.2007.00200.x>.*

[25] Ralston, D., *The impact of regulatory reform on the portfolio performance of Australian credit unions. Economic Record, Vol. 77, No. 237, pp. 167-182, 2001, <https://doi.org/10.1111/1475-4932.00012>.*

[26] Sasan Bakhtiari, R. Breunig & Lisa Magnani, *Financial Constraints and Small and Medium Enterprises: A Review, ECONOMIC RECORD, Vol. 96, No. 315, pp. 506–523, 2020, <https://doi.org/10.1111/1475-4932.12560>.*

[27] Margaret J. Greenwood & Lei Tao, *Regulatory monitoring and university financial reporting quality: Agency and resource dependency perspectives, Financial, Accounting & Management, Vol. 37, No. 2, pp. 163-183, 2019, <https://doi.org/10.1111/faam.12244>.*

[28] Annalisa Ferrando & Alessandro Ruggeri, *"Financial constraints and productivity: Evidence*

- from euro area companies," *International Journal of Finance & Economics*, Vol 23, No. 3, pp. 257-282, 2018, <https://doi.org/10.1002/ijfe.1615>.
- [29] Ulf Von Kalckreuth, . *Financial Constraints and Capacity Adjustment: Evidence from a Large Panel of Survey Data*, *Economica*, Vol. 73, No. 292, pp. 691-724, 2006, <https://doi.org/10.1111/j.1468-0335.2006.00514.x>.
- [30] Thomas S. Y. HO, Miguel Palacios & Hans R. Stoil, *Dynamic Financial System: Complexity, Fragility and Regulatory Principles*, *Financial Market Institution and Instrument*, Vol. 22, No. 1, pp. 1-42, 2013, <https://doi.org/10.1111/fmii.12002>.
- [31] Ornella W. Matetta & Vania Sena, *Financial constraints and technical efficiency some empirical evidence for Italian producers cooperatives*, *Annals of Public and Cooperative Economics*, Vol. 81, No. 1, pp. 21-38, 2010, <https://doi.org/10.1111/j.1467-8292.2009.00404.x>
- [32] Michael Machokoto & Geofry Areneke, *Does innovation and financial constraints affect the propensity to save in emerging markets? Journal of International Research Business and Finance*, Vol. 52, 2020, DOI: 10.1016/j.ribaf.2020.101185.
- [33] Annick Pamen Nyola Alain Sauviat & Amine Tarazi, *how does regulation affect the organizational form of foreign banks' presence in developing versus developed countries?*, *International Journal of Finance and Economics*, Vol. 27, No. 2, pp. 2367-2419, 2020, <https://doi.org/10.1002/ijfe.2278>.
- [34] Aviner A S. Manoel, Marcelo B. da C. Moraes & Juliano A de Araujo, *The effects of financial constraints on the market value of cash in a mandatory dividend context*, *International Journal of Finance & Economics*, 21USP International Conference of Accounting, pp. 1-30, 2022, <https://doi.org/10.1002/ijfe.2719>.
- [35] Ofoeda, I., Amoah, L., Anarfo, E. B., & Abor, J. Y., *Financial inclusion and economic growth: What roles do institutions and financial regulation play?* *International Journal of Finance & Economics*, pp. 1–17, 2022, <https://doi.org/10.1002/ijfe.2709>.
- [36] Georgios Efthyvoulou & Prit Vahter, *FINANCIAL CONSTRAINTS, INNOVATION PERFORMANCE AND SECTORAL DISAGGREGATION*, *The Manchester School* Vol. 84, No. 2, pp. 125–158, 2016, doi: 10.1111/manc.12089.
- [37] Daniel Paravisini, *Local Bank Financial Constraints and Firm Access to External Finance*, *Journal of the Finance*, Vol. 63, No. 5, pp. 2161-2193, 2008, <https://doi.org/10.1111/j.1540-6261.2008.01393.x>.
- [38] Pablo G. G. & Lars-F. Andersson, *Managing financial constraints: undercapitalization and underwriting capacity in Spanish fire insurance*, *Economic History Review*, Vol. 71, No. 2, pp. 567-592, 2018, <https://doi.org/10.1111/ehr.12529>.
- [39] Fernando R. Chaddad & Jeffrey J. Reuer, *Investment dynamics and financial constraints in IPO firms*, *Strategic Entrepreneurship Journal*, Vol. 5, No. 1, pp. 29-45, 2009, <https://doi.org/10.1002/sej.65>.
- [40] Priya Nagarai & Chuanqian Zhang, *Regulatory quality, financial integration and equity cost of capital*, *Review of International Economics*, Vol. 27, No. 3, pp. 916-935, 2019, <https://doi.org/10.1111/roie.12403>.
- [41] Timothy J. Riddiough & Zhonghua Wu, *Financial Constraints, Liquidity Management and Investment*, *Real Estate Economics*, Vol. 37, No. 3, pp. 447-481, 2009, <https://doi.org/10.1111/j.1540-6229.2009.00248.x>.
- [42] Pateris Zilgalvis, *The Need for an Innovation Principle in Regulatory Impact Assessment: The Case of Finance and Innovation in Europe*, *Policy and Internet*, Vol. 6, No. 4, pp. 377-392, 2014, <https://doi.org/10.1002/1944-2866.POI374>.
- [43] Weixi Liu & Ian Tonks, *Pension Funding Constraints and Corporate Expenditures*, *Oxford Bulletin of Economics and Statistics*, Vol. 75, No. 2, pp. 235-258, 2013, <https://doi.org/10.1111/j.1468->

-
- [44] Pargati Priya & Chandan Sharma, *Do financial constraints and corruption limit firms' innovation capability? Evidence from developing economies*, *Managerial and Decision Economics*, Vol. 44, No. 4, pp. 1935-1961, 2023, <https://doi.org/10.1002/mde.3792>.
- [45] Nina Budina, Harry G & Eelke D, Jong, *Liquidity constraints and investment in transition economies*, *Economics of Transition and Institutional Change*, Vol. 8, No. 2, pp. 453-475, 2000, <https://doi.org/10.1111/1468-0351.00051>.
- [46] Ali Gungoraydinoglu & Özde Öztekin, *Financial crises, banking regulations, and corporate financing patterns around the world*, *International Review of Finance*, Vol. 22, No. 3, pp. 506-539, 2022 <https://doi.org/10.1111/irfi.12381>.
- [47] Salah Eladly, *risk performance on working capital management of insurance firms in Egypt*, *Universal Journal of Accounting and Finance*, Vol. 10, No. 1, pp. 47-61, 2022, <http://dx.doi.org/10.13189/ujaf.2022.100106>.
- [48] Jing Ai Vickie Bajtelsmit Tianyang Wang, *the Combined Effect of Enterprise Risk Management and Diversification on Property and Casualty Insurer Performance*, *The Journal of Risk and Insurance*. Vol. 85, No. 2, pp. 513–543, 2018, DOI: 10.1111/jori.12166.
- [49] Kuang Y Lee & Lexin Li, *Functional structural equation model*, *Journal of the Royal Statistical Society Series B: Statistical Methodology*, Vol. 84, No. 2, pp. 600–629, 2022, <https://doi.org/10.1111/rssb.12471>.

The Growth and Profitability of Life Insurance Industry in India – A Comparative Analysis between Public and Private Sector Companies

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ABSTRACT

Life Insurers are operating in the public and private sectors in India. A substantial number of policyholders have invested their income in these companies. A company with a proper investment policy and profitability along with the safety of the funds will grow and sustain in the long run. This study aims to help prospective policyholders in choosing a growing life insurer to ensure the safety of their premium money and increased bonus at the time of maturity/claim. Moreover, the present study may provide useful tips for the newly added private sector companies in the industry. The current study reflects on Private Sector Life Insurers to learn from the consistent and smooth growth in profitability of the Public Sector and search for solutions. This paper also compares the investment profitability and profit analysis of the private and public sector insurance companies located in India. Profitability was measured using investment yield and income as two variables. Data collected from life insurance companies operating in India from 2010-11 to 2020-21 was compared. The secondary data was obtained from the companies' annual reports for analysis and comparison. Data was analyzed by using T-Test and significance was determined at 5% confidence. Equal and unequal variances were determined by using the F-Test. The results showed growth in the amount, income, and yield of investment of the Public and Private sectors, but the two sectors did not significantly differ in their investment. By observing the pattern of growth and consistency of public sector, private sector life insurance companies can improve themselves. The study particularly belongs to India but the results and findings can be used by other life insurance companies operating in different countries as well.

Keywords *Life Insurance, Public Sector, Private Sector, India, Investment Growth, Investment Profitability*

1. Introduction

It is well known that establishing and developing an insurance sector in a country leads to establishing a causal relationship with the country's economic growth [1]. Hence, to understand the economic growth of a nation, the growth of insurance companies must be looked upon. Experiencing significant growth at the rate of 32-34% per year, the Indian insurance industry became the 5th largest industry in the emerging global market of insurance [2]. The credit for such an advancement goes to the revolutionary structural changes that took place in the Indian life insurance sector in the year 2000. The changes helped the sector to become more organized, smooth, and competitive in the international market. The dominance of the public sector life insurance (PuSLI) companies started diminishing with more and more introduction of private sector life insurance (PvSLI) companies, which has made significant structural changes in the industry [3]. Regulatory authorities have ensured that financial liabilities and performances of life insurance companies must be fair and healthy since they were considered investment custodians of individuals [4]. The companies who have raised funds during a certain period must explore different avenues to invest. The funds raised in a limited duration determine the nature of the investment, hence, non-life insurers reserve short-term insurance for short-term investment to maintain liquidity. However, life insurance companies can invest their funds for sufficiently longer

periods because their insurance reserves are for longer durations. However, the unconscious use of insurance reserves by insurance companies may cause a lack of funds to cover insurance claims [5]. It is, therefore, to safeguard the returns, safety, and liquidity, these companies must prudently invest the funds [6]. Policy formulation and investment administration are distinct phenomena, but a strong interrelationship exists and was observed by most life insurance companies, consequently, investment administration is considered responsible for policy formulation [7].

2. Review of Literature

While using an increased number of offices, renewed policies, underwritten premiums, and individual and group death claims as parameters, Nagalaxmi and Mathiraj [8] studied the growth and performance of life insurance sectors from 2013 to 2018. Nagalaxmi and Mathiraj [8] reported Compound Annual Growth Rate (CAGR) of the Premium underwritten by Life Insurance Corporation (LIC) to be 0.0676 as against 0.1269 for the PvSLI companies. Verma and Bala [9] presented a research paper on emerging horizons in business management in India at a national conference on the growth of insurance companies during India's pre- and post-liberalization. The new policies issued, premium underwritten, insurance penetration and insurance density were used by them as variables. The study was divided into two periods: pre-liberalization (1988-89 to 1999-2000) and post-liberalization (2000-01 to 2011-2012). The Annual Growth Rate (AGR) and CAGR of the two periods were compared and the hypothesis was tested at 5% confidence. The authors found a significant difference between the CAGR in terms of total premium underwritten from one period to the other. Devanand and Prasad [10] used number of offices, commission expense ratio and operating expenses ratio in addition to the number of policies and amount of premium underwritten as variables to measure the performance of insurance companies. They concluded that many private players entered the insurance market to promote their sales, but public sector insurance companies showed preponderance leading the market as an emerging leader. Parida and Acharya [11] suggested a panel data model to find factors determining the efficiency-driven profitability of Indian insurance companies. They found firm size, leverage, GDP, and inflation as significant profitable determinants. On the other hand, they cited underwriting risks, market structure, and efficiency as insignificant determinants of profitability. While studying the impact of several determinants of Investment by the LIC (India) over 14 years (2011 to 2014), Nikita [12] found that underwritten premiums and claims positively impacted the investment of LIC (India). Adam [13] reported a positive correlation between the investment earnings of life insurance firms and their organizational structures in New Zealand, which corroborated with the company size, predominance, leverage, and underwriting risks involved. According to them, LIC companies holding proportionately more financial assets have higher investment yields than those having low investment yields. Similarly, Chen and Hamwi [14] found reinsurance companies in the USA to have higher mean values of yield on investment than other primary insurance companies. Over five years (2016 to 2020), Husain [15] made comparisons of the beneficial position of Indian PuSLI & PvSLI companies. In his comparative study, the ratio of premiums underwritten by private companies was different from the public sector companies. While making a comparative analysis of public and private companies in India, Kumar and Singh [16] found significant differences between premium income, paid benefits, market share, and new individual policies. According to them, the differences remained the same for PuSLI & PvSLI companies. As reported by Basu and Aithal [17], the performance of the private insurance players was unsatisfactory concerning earnings and financial health for ten years (2010 to 2020).

Based on the above literature review the following hypotheses were framed: We hypothesize that the Compound Annual Growth Rate (CAGR) of Investment of Public Sector Life Insurance Companies was statistically indifferent from PvSLI in India. We also set our hypothesis to insignificant differences between the CAGR of Investment Income of PuSLI & PvSLI companies in India. Additionally, we also

hypothesized that no significant differences between the CAGR of Investment Yield of PuSLI & PvSLI companies occur in India. The LIC started working in 1956 as a Public Sector Life Insurance Company but the entry of the PvSLI companies became possible only after the recommendation of the Malhotra Committee in the year 2000. In India, the gross investment made by the insurance industry was ₹ 44 trillion during the 2021 financial year as compared to ₹ 39 trillion during 2020 [18].

2.1. Purpose of the Study

Investment funds of life insurance companies constitute a substantial amount; therefore, the growth and profitability of these funds cannot be ignored. It is evident from the literature review that many studies about the profitability of life insurance companies in India and overseas determined the effects of premium underwritten and claims settlement. Few researches were made on the profitability of investment in the insurance sector, but none has compared the growth pattern of investment yield of the two sectors. Therefore, it is imperative to analyze industrial growth in terms of the profitability of investment. Additionally, problems can be identified and resolved as these questions are further investigated. Based on the literature review three hypotheses have been framed. 1. Growth in Investment Funds of Public Sector and Private Sector Companies did not differ significantly over the last decade (2011-2021). 2. Growth in investment income of PuSLI and PvSLI companies was not significantly different. 3. Growth in investment yield of PuSLI and PvSLI companies did not differ significantly. The objectives of the present study were to analyze the investment growth and profitability position of the PuSLI & PvSLI companies in India over ten years (2011-2021) about investment.

3. Materials and Methods

3.1. Scope and Sample of the Study

The present study was focused on PuSLI & PvSLI companies operating in India until the end of March 31, 2021, when 24 life insurance companies were operating; one was in the public sector, whereas 23 companies were designated as private. The sample size was constituted of twenty-four life insurance companies, operating in India from their inception until March 31, 2021. However, a sample of all the companies for a period of 10 years (2011-2021) was considered for the present research.

3.2. Data Collection and Statistical Tools

The data was secondary and collected from the published annual reports of IRDA and LIC of India. If the Data was unavailable in the Annual Reports, then it was obtained from the Handbook of Indian Insurance Statistics published by the IRDA of India. Statistical analysis of the data was made by determining the range (minimum and maximum), mean, and standard deviations. The hypotheses were tested by determining T values and the significance of differences/ similarities was made at 5% confidence. For accurate application of the T-Test, equal and unequal variances were determined and F – Test was applied.

3.3. Variables and Their Measurements

3.3.1. Annual Growth Rate (AGR)

The AGR is an increased or decreased value of a variable over the previous year. The AGR is defined as follows. Annual Growth Rate (%) = [Current Year's Value / Previous Years' Value] X 100

3.3.2. Compound Annual Growth Rate (CAGR)

The CAGR is the average growth rate of a variable over a specific time that is greater than one year. The following mathematical formula was used to accurately calculate and determine returns of individual assets/investments that fluctuate in value over a period [19].

$$\text{CAGR} = (\text{VE} / \text{VB})^{1/t} - 1 \quad (1)$$

[VE = Value at the End; VB = Value at the Beginning; t = Time in Years]

3.3.3. Investment Yield

The investment yield is expressed as a percentage and defined as the income of investment returns over time such as interest received on holding a security. Investment Yield (%) = [Investment Income / Total Investment] X 100.

4. Results and Discussion

Table 1 shows the yearly growth of investment by both the sectors in terms of AGR and CAGR. To know whether the variance is equal or unequal, the F-Test was applied before the T-Test to test the hypotheses. Table 2 shows that the value of F (5.857996315) is greater than the Critical Value of F (3.178893104). Therefore, an unequal variance may be assumed.

Table 3 shows t Stat (-1.960563472) less than the t Critical Value of two tails (2.17881283). The calculated P value is 0.073560055 (P > 0.05). It is, therefore, due to the insignificant difference between CAGR of Investment of PuSLI companies and PvSLI companies in India the hypothesis was accepted at 5% confidence level.

Table 1. Investment by Life Insurance Companies in India

(₹ in Crores)						
Year	LIC (Public Sector)			Private Sector		
	Investment	AGR (%)	CAGR	Investment	AGR (%)	CAGR
2010-11	1148589	***	***	281528	***	***
2011-12	1269070	10.49	0.1049	312188	10.89	0.1089
2012-13	1402991	10.55	0.1052	341902	9.52	0.1020
2013-14	1574296	12.21	0.1108	383169	12.07	0.1082
2014-15	1786312	13.37	0.1167	461210	20.37	0.1313
2015-16	2009119	12.47	0.1183	492949	6.88	0.1186
2016-17	2275277	13.25	0.1207	578917	17.44	0.1277
2017-18	2526923	11.06	0.1192	662137	14.37	0.1300
2018-19	2760658	9.25	0.1159	772485	16.67	0.1345
2019-20	3070852	11.24	0.1155	819422	6.08	0.1260
2020-21	3397832	10.65	0.1146	1082142	32.06	0.1441
Mean	2207333	11.45	0.1142	590652.1	14.64	0.1231
SD	724220.84	1.33	0.0055	245170.75	7.66	0.0134
MIN	1269070	9.25	0.1049	312188	6.08	0.1020
MAX	3397832	13.37	0.1207	1082142	32.06	0.1441

Table 2. F-Test Two-Sample for Variances

	<i>Private Sector</i>	<i>Public Sector (LIC)</i>
Mean	0.123131019	0.11417449
Variance	0.000178266	3.04313E-05
Observations	10	10
df	9	9
F	5.857996315	
P(F<=f) one-tail	0.007349054	
F Critical one-tail	3.178893104	

Table 3. T-Test Two-Sample Assuming Unequal Variance

	<i>Public Sector (LIC)</i>	<i>Private Sector</i>
Mean	0.11417449	0.123131019
Variance	3.04313E-05	0.000178266
Observations	10	10
Hypothesized Mean Difference	0	
df	12	
t Stat	-1.960563472	
P(T<=t) one-tail	0.036780028	
t Critical one-tail	1.782287556	
P(T<=t) two-tail	0.073560055	
t Critical two-tail	2.17881283	

Table 4 shows the average AGR of investment income of Life Insurance Corporation of India at 14.35 % as compared to PvSLI companies (640.58%). A huge difference between the average AGR of the public sector (LIC) and the PvSLI companies exists due to an extraordinary increase (6111.30%) in the AGR of investment income during the year 2020-21. However, the mean of the Compound AGR of LIC was higher (0.1476) as compared to PvSLI companies (0.0986) in India over ten years (2012-2021). The CAGR of Public Sector Life Insurance Company (LIC) was relatively constant as the standard deviation of the CAGR of LIC for the said period was ± 0.0093 , whereas it was higher (± 0.6695) in the case of PvSLI companies. Moreover, negative annual growths of 26.31% and 105.07% in the investment income of PvSLI companies were also observed in the years 2015-16 and 2019-20 respectively.

To know the variance whether it is equal or unequal, F-Test was applied before applying T-Test to test the hypotheses. Table 5 shows that the value of F (5167.145326) is greater than the Critical Value of F (3.178893104). Therefore, an unequal variance may be assumed.

Table 4. Investment Income by Life Insurance Companies in India

(₹ in Crore)						
	LIC (Public Sector)			Private Sector		
Year	Investment Income	AGR (%)	CAGR	Investment Income	AGR (%)	CAGR
2010-11	78797	***	***	8113	***	***
2011-12	91547	16.18	0.1618	11132	37.21	0.3721
2012-13	105318	15.04	0.1561	14655	31.64	0.3440
2013-14	118131	12.16	0.1445	19219	31.14	0.3331
2014-15	135516	14.72	0.1452	22064	14.8	0.2842
2015-16	158205	16.74	0.1496	16259	-26.31	0.1492
2016-17	192478	21.66	0.1605	69184	325.51	0.4293
2017-18	206070	7.06	0.1472	55754	-24.08	0.3170
2018-19	223642	8.52	0.1393	61158	9.69	0.2872
2019-20	236850	5.90	0.1301	-3105	-105.07	-1.8988
2020-21	297397	25.56	0.1420	186651	6111.30	0.3683
Mean	176515.4	14.35	0.1476	45297.1	640.58	0.0986
SD	62702.06	5.93	0.0093	52368.34	1826.65	0.6695
MIN	78797	5.9	0.1301	-3105	-105.07	-1.8988
MAX	297397	25.56	0.1618	186651	6111.30	0.4293

Table 5. F Test Two Sample for Variances

	Private Sector	Public Sector
Mean	0.098564575	0.147628544
Variance	0.497994623	9.63771E-05
Observations	10	10
df	9	9
F	5167.145326	
P(F<=f) one-tail	1.29054E-15	
F Critical one-tail	3.178893104	
F > F Critical (Therefore, Unequal Variance)		

Table 6 shows t Stat (0.219840816) less than t Critical two-tail value (2.262157163) and P Value (0.415450262), which is greater than 0.05. It was concluded that hypothesis 2 is valid and statistically acceptable. There was no significant difference between the CAGR of Investment Income of PuSLI and PvSLI companies in India over ten years (2011-2021).

Table 7 shows that the mean CAGR of Life Insurance Corporation of India is 0.0293 as compared to PvSLI companies (0.0219) in India. The average AGR of LIC of India during the period 2011-12 to 2020-21 was 1.916 whereas it was 490.75 in the case of private life insurers. The CAGR of LIC of India was constantly decreasing from 0.0510 in 2011-12 to 0.0256 in 2014-15; however, it rose to 0.0356 in the year 2016-17 but again started declining and reached the lowest to 0.0131 in 2019-20. The PvSLI companies have also shown a declining trend in CAGR from 0.2396 in 2011-12 to 0.0270 in the year 2015-16 and reached a negative (1.7961) in 2019-20. Both the public and private sectors showed a maximum investment yield in the year 2016-17. It was 8.46% for LIC of India and 263.22% for PvSLI

companies. The standard Deviation of the Investment Yield of Public Sector Companies was ± 0.39 whereas it was ± 5.02 in the case of PvSLI companies. It means a higher variation in the investment yield of PvSLI companies. Moreover, it can be seen from the table that the gap between the minimum and the maximum of SD is very high. The minimum Standard Deviation was (± 0.37) and the maximum of the same was ± 17.24 in the case of PvSLI companies. The investment Yield of Public Sector Companies did not fluctuate much over the study period. Moreover, the difference between the minimum (± 7.21) and the maximum (± 8.46) of SD is 1.25 only in the case of Public Sector Companies.

Table 6. T-Test Two-Sample Assuming Unequal Variances

	<i>Public Sector</i>	<i>Private Sector</i>
Mean	0.147628544	0.098564575
Variance	9.63771E-05	0.497994623
Observations	10	10
Hypothesized Mean Difference	0	
df	9	
t Stat	0.219840816	
P(T<=t) one-tail	0.415450262	
t Critical one-tail	1.833112933	
P(T<=t) two-tail	0.830900524	
t Critical two-tail	2.262157163	

Table 7. Investment Yield by Life Insurance Companies in India

Year	Public Sector (LIC)			Private Sector		
	Investment Yield (%)	AGR (%)	CAGR	Investment Yield (%)	AGR (%)	CAGR
2010-11	6.86	***	***	2.88	***	***
2011-12	7.21	5.10	0.0510	3.57	23.95	0.2396
2012-13	7.50	4.02	0.0456	4.21	17.92	0.2091
2013-14	7.50	0.00	0.0302	5.01	19	0.2027
2014-15	7.59	1.20	0.0256	4.78	-4.59	0.1350
2015-16	7.87	3.82	0.0279	3.29	-31.17	0.0270
2016-17	8.46	7.49	0.0356	11.95	263.22	0.2676
2017-18	8.15	-3.66	0.0249	8.42	-29.53	0.1656
2018-19	8.10	-0.61	0.0210	7.91	-6.05	0.1346
2019-20	7.71	-4.81	0.0131	-0.37	-104.68	-1.7961
2020-21	8.22	6.61	0.0183	17.24	4759.46	0.1960
Mean	7.831	1.916	0.0293	6.60	490.75	-0.0219
SD	0.39	4.19	0.0119	5.02	1502.87	0.6270
MIN	7.21	-4.81	0.0131	-0.37	-104.68	-1.7961
MAX	8.46	7.49	0.0510	17.24	4759.46	0.2676

To apply the correct T-Test, it is essential to know the variance, whether there is an equal variance or unequal variance, hence F-Test was used. Table 8 shows that calculated value of F is 2791.550266 which is greater than the tabulated value of F (3.178893104). It is, therefore, concluded that there is an unequal variance. Hence, the T-Test should be used with an unequal variance.

Table 8. F-Test Two-Sample for Variances

	Private Sector	Public Sector
Mean	-0.021896395	0.029304039
Variance	0.393108753	0.000140821
Observations	10	10
df	9	9
F	2791.550266	
P(F<=f) one-tail	2.05859E-14	
F Critical one-tail	3.178893104	

Table 9 shows that t Stat (0.258190058) is less than t Critical two-tail value (2.262157163) and P Value (0.80206749) is greater than 0.05. It is therefore, hypothesis 3 may be accepted. CAGR of the Investment Yield of PvSLI companies and that of PuSLI companies did not differ significantly.

Table 9. T-Test: Two-Sample Assuming Unequal Variance

	Public Sector	Private Sector
Mean	0.029304039	-0.02189639
Variance	0.000140821	0.393108753
Observations	10	10
Hypothesized Mean Difference	0	
df	9	
t Stat	0.258190058	
P(T<=t) one-tail	0.401033745	
t Critical one-tail	1.833112933	
P(T<=t) two-tail	0.80206749	
t Critical two-tail	2.262157163	

5. Conclusions

Life Insurance companies undertake the responsibility of compensating the monetary loss of policyholders in return for a sum of money received from them. Money paid by policyholders for such protection is called insurance premiums. Premiums paid by many policyholders will surely form a huge sum of money deposited with the insurers. Policyholders should be vigilant to see whether the money collected by these life insurers is properly invested in profitable and safe projects or not. Before the year 2000, there was only one life insurance company in India, and that too in the public sector. However, after the privatization of the insurance sector in India, many private insurers came onto the scene. Life Insurance was nationalized in the year 1956 to provide the safety of public funds but it was again privatized in 2000. The primary objective of the public sector life insurance company (LIC) was therefore to ensure the safety of funds. It is, therefore, necessary to see the safety of funds after the advent of private sector companies in the field. A policyholder must see the growth of these companies and compare the performance of both the sectors. A very strong parameter for growth is considered the profitability of investment. This paper, therefore, has analyzed and compared the growth and

profitability of investment of life insurance funds of the two sectors to judge their long-term sustainability. A policyholder can rely much upon those insurers who have performed comparatively better in these parameters than others.

For the study, growth in investment, growth in income from investment, and growth in investment yield of the companies of the two sectors were compared. Annual Growth of Investment by LIC of India over the study period was without much fluctuation because the AGR was minimum (9.25%) in 2018-19 and maximum (13.37%) in 2014-15. However, a high fluctuation in this growth can be observed in the case of PvSLI companies. The minimum AGR of the PvSLI companies was 6.08% in 2019-20 and the maximum was 32.06% in 2020-21. The LIC of India has shown smooth growth in its investment against private sector life insurers over a decade (2011-2021).

Our hypothesis was valid and proven since there was no significant difference in the growth of investments made by the PuSLI and PvSLI companies. The LIC has never suffered a loss in its investment income during the study period, but PvSLI companies faced losses in their investment income in 2019-20. The annual growth of the Investment Income of private life insurers showed a greater fluctuation as compared to PuSLI Companies. A high fluctuation in the AGR of investment by PvSLI companies can be determined based on the SD which was ± 7.6 (Table 1) as compared to ± 1.33 of the Public Sector Companies. It is concluded that AGR in investment by PuSLI was almost constant. The AGR in the investment income of PvSLI companies also showed tremendous fluctuation year after year. The least annual growth of such income was (-105.07%), whereas the highest was 6111.3% of PvSLI companies.

The Public Sector Life Insurance Company shows smooth growth in the investment income as the SD was ± 5.93 only. Individual figures for both the sectors show the differences in terms of Growth in Investment and Investment Income but they could not be proved statistically. The PvSLI companies must take negative growth in the investment income in the year 2019-20 seriously and they must try to find out the real causes of decline. A part of the profit earned by the life insurers is distributed to the policyholders as a bonus, therefore, the policyholders are interested in knowing the profitability of investment of these companies. Consequently, profitability ensures growth and stability in the market. Life Insurance companies should carefully invest their funds to generate profit and it is also important at the same time not to lose the safety of their investments. It is also suggested that PvSLI should invest in less volatile securities to avoid higher risk of safety of funds and ensure the smooth and consistent growth in investment yield. The study particularly pertains to the companies operating in India but the results and suggestions can be helpful for the life insurance companies operating in other countries as well. This research paper has taken the Investment Amount, Investment Income, and Investment Yield as the variables to study the growth and profitability of Investment. Other dimensions such as the security and safety of investment funds can be considered for further research. Moreover, liquidity and profitability of investment can also be compared between the two sectors for further study.

Appendix

Names of 24 Life Insurance Companies operating in India by the end of March 31, 2021.

1. Life Insurance Corporation of India (Public Sector)
2. Max Life Insurance Co. Ltd
3. HDFC Life Insurance Company Co. Ltd
4. ICICI Prudential Life Insurance Co. Ltd
5. Kotak Mahindra Life Insurance Co. Ltd
6. Aditya Birla Sunlife Insurance Co. Ltd
7. TATA AIA Life Insurance Co. Ltd

8. SBI Life Insurance Co. Ltd
9. Bajaj Allianz Life Insurance Co. Ltd
10. MetLife India Insurance Co. Ltd
11. Reliance Nippon Life Insurance Co. Ltd
12. Avia Life Insurance Company India Co. Ltd.
13. Sahara India Life Insurance Co. Ltd
14. Shriram Life Insurance Co. Ltd
15. Bharti AXA Life Insurance Co. Ltd
16. Future Generali India Life Insurance Co. Ltd
17. Ageas Federal Life Insurance Co. Ltd
18. Canara HSBC Life Insurance Co. Ltd
19. Aegon Life Insurance Co. Ltd
20. Pramerica Life Insurance Co. Ltd
21. Star Union Dai-Ichi Life Insurance Co. Ltd
22. IndiaFirst Life Insurance Co. Ltd
23. Edelweiss Tokio Life Insurance Co. Ltd
24. Excide Life Insurance Co. Ltd

Source: IRDA

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REFERENCES

- [1] Feyen E., Lester R., Rocha R., "What Drives the Development of the Insurance Sector? An Empirical Analysis based on a Panel of Developed and Developing Countries," *Policy Research Working Paper, World Bank Group*, <https://doi.org/10.1596/1813-9450-5572>
- [2] Indian Brand Equity Foundation, "Indian Insurance Industry Overview and Market Development Analysis," <http://www.Ibef.org>.
- [3] Banerjee S., Savitha B., "Competition reduces profitability: the case of the Indian life microinsurance industry" *Geneva Papers on Risk Insurance - Issues and Practices*, vol. 46, pp. 383–398, 2021. DOI: 10.1057/s41288-020-00203-5
- [4] Charumathi B., "On the Determinants of Profitability of Indian Life Insurers – An Empirical Study", *Proceedings of the World Congress on Engineering*, (London, U.K.), July 4-6, 2012. URL: https://www.iaeng.org/publication/WCE2012/WCE2012_pp505-510.pdf
- [5] Gavrilko T., Melnychuk O., "Features of Investment Activities of Insurance Companies in Ukraine," *Market Infrastructure*, URL: <https://ouci.dntb.gov.ua/en/works/4kxyaE6l/>
- [6] Dadhich M., "Introduction to Investment and Insurance Industry," in *An Empirical Study of Investment Pattern of Indian Insurance Companies: A Case Study of Public and Private Insurance Companies*, 1st Ed, BR, 2022, pp. 1-146.
- [7] McCahan, D., "Investment of Life Insurance Funds," in *University of Pennsylvania Press*, 1st ed., JSTOR, 1953, pp. 1-320.
- [8] Nagalaxmi N., Mathiraj S. P., "Growth and Performance of Public and Private Life Insurance Sector," *Journal of Emerging Technology and Innovative Research*, vol. 6, no. 4, pp. 245-254, 2019. URL: <http://www.jetir.org/papers/JETIR1904E42.pdf>
- [9] Verma A., Bala R., "Growth on Life Insurance Sector in Pre and Post Liberalization in India,"

-
- Conference on Emerging Horizons in Business Management, (Haryana, India), 2015. URL: <https://www.researchgate.net/publication/290438725>*
- [10] Devanand H. N., Prasad R. T., “Performance of Life Insurance Business in the Post Crisis Period,” *Shanlax International Journal of Economics*, vol. 3, no. 4, pp. 5-16, 2019. URL: <http://www.shanlaxjournals.in/journals/index.php/economics/article/view/1485>
- [11] Parida, T.K., Acharya, D., “Life Insurance in India: Efficiency and Profitability,” in the *Life Insurance Industry in India*, PM, 2017, pp. 73-79. DOI:10.1007/978-981-10-2233-3_3
- [12] Nikita S., “Determinants of Insurance Investment: A Case Study of Life Insurance Corporation of India,” *ELK Asia Pacific Journal of Finance and Risk Management*, vol. 6, no. 3, pp. 73-86, 2015. DOI: 10.16962/EAPJFRM/6_3_6.
- [13] Adams M., “Investment Earnings and the Characteristics of Life Insurance Firms: New Zealand Evidence,” *Australian Journal of Management*, vol. 21, no. 1, pp. 41 – 55, 1996. DOI: 10.1177/031289629602100106
- [14] Chen B. Y., Hamwi I. S., “Performance Analyses of U.S. Property-Liability Reinsurance Companies,” *Journal of Insurance Issues*, vol. 23, no. 2, pp. 140–152, 2000. <http://www.jstor.org/stable/41946186>.
- [15] Husain S., “Comparative Analysis of Profitability Position between Public and Private Sector Life Insurance Companies in India,” *Journal of Business and Economic Policy*, vol. 9, no. 4, pp. 10-17, 2022. DOI: 10.30845/jbep.v9n4p2
- [16] Kumar R., Singh S., “A Comparative Analysis of Private Insurance Companies and Life Insurance Corporation of India,” *Sachetas*, vol. 2, no. 1, pp. 27-37, 2023, DOI: 10.55955/210004.
- [17] Basu T., Aithal P. S., “Financial Growth Assessment of Private Life Insurers in India: An Aggregative Study,” *Revista Review Index Journal of Multidisciplinary*, vol. 2, no. 3, pp. 06-13, 2022, DOI: 10.31305/rrijm2022.v02.n03.002.
- [18] Rathore M., “Life Insurance Investment India FY 2017-2022, by Sector” <https://www.statista.com>.
- [19] Wayman R., “Compound Annual Growth Rate: What You Should Know,” Online available from <http://investopedia.com>

Identifying Return Distribution of Sri Lankan Stock Market Index

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ABSTRACT

In the current financial world, prediction of stock returns has become a vital task. Many prediction techniques available recently depend on the return distribution of stock index. Identifying return distribution of stock return has an immense interest among researchers nowadays. Many researchers have proposed different distributions to model the return distribution of stock market indices. However a study aimed at finding the distribution of return series of local stock indices was not found. In this study return distributions of All Share Price Index (ASPI) of the Colombo stock exchange was examined. The study period consists of 5 years daily data from 1st August 2007 to 31st July 2012 of the ASPI. Results display that the return distribution of ASPI cannot be modeled using Normal distribution and Student's t distribution. The Scaled t distribution with parameters $\mu = 0.0000613719$, $\sigma = 0.00619983$ and $\nu = 2.54137$ can be introduced as the best distribution to model the return distributions of All share price index. Kolmogorov-Smirnov (K-S) Test has been used to access the suitability of fitted distribution. Random numbers were generated using Scaled t distribution with above mentioned parameters and the K-S test was carried out using the generated series and the return series of ASPI. The same procedure was repeated 100 times in order to improve the accuracy of results. Minimum p-value of 0.0534 was obtained in the simulation study and exhibit that the test is not significant under 5% level of significance above 95% times. Finding of this research will help many researches in the financial sector of Sri Lanka to use an appropriate distribution for modeling the ASPI returns and hence to enhance the forecasting accuracy.

Keywords Return Distribution, All Share Price Index, Colombo Stock Exchange, Scaled T Distribution, Kolmogorov-Smirnov Test

1. Introduction

Predictability of financial markets depicts crucial importance in recent world. Stock market exhibits great interest due to profitability and development of many techniques among all financial markets. Many researchers interested in predicting stock market index recently. Finding distribution of stock returns will be useful in building prediction models for stock indices. Therefore, identifying an appropriate distribution to model the return distribution of stock index becomes a vital important factor nowadays.

Over the last few decades many researchers attempt to find a suitable distribution to model stock return distribution. Even though the traditional belief is that the return distribution follows the Normal /Gaussian distribution, many researches provide evidence to say that the return distribution is deviate from the Normal distribution. In 1991 Badrinath and Chatterjee found that the return distributions are elongate from the Gaussian distribution by their research done for the New York Stock Exchange. [10] showed that the daily stock returns display significant departures from normality by examining six stock markets namely New York, Tokyo, London, Paris, Frankfurt, Paris and Madrid. The research done for thirteen European markets and four Scandinavian markets by [1] clearly rejected the normality of stock return distribution. Many other researches provided substantiation to reject the normal

distribution to model return distribution of stock market indices such as [6, 7, 8, 11, 12].

Since the stock return distribution deviate from the Normal distribution, next approach of the researchers was to find a suitable distribution to model the return distribution of stock market indices. By considering different techniques and different stock markets many researchers have tried to find the stock return distribution.

The research carried out by Doric and Doric in the year 2011 to find the adequate return distribution of Belgrade Stock Exchange suggested that the Student's t distribution and Normal Inverse Gaussian distribution are acceptable to model the return distribution of stock indices.

A study done by considering six stock markets by [10], recommended Scaled t distribution as the best distribution to model return distribution of all considered markets by rejecting several other distributions such as Normal, Paretian,

Logistic, Student's t, exponential power and discrete mixture of two normal. Scaled t distribution was introduced as the best distribution to model return distribution by [1] in their study which considered thirteen European markets. Same researchers have done a similar study for four Scandinavian markets and proved the same result. i.e. the Scaled t distribution is well fitted to return distribution, by rejecting Logistic distribution and exponential power distribution. By considering S&P 500 index [7] provided the fact that the Scaled t distribution can be used to model return distribution accurately.

Although literature provides evidence regarding different distribution to model stock return distribution of many stock indices, no evidence was found about a study which aimed at finding the distribution of returns of the local stock indices. Therefore, finding the suitable distribution to model All Share Price Index (ASPI) of Colombo Stock Exchange which is the objective of this research is a timely need. This task can be commenced by considering the distributions recommended by other researchers to model return distribution of different stock indices. Finding of the most suitable distribution to model ASPI index will help many researches in the financial sector of Sri Lanka to use an appropriate distribution instead of Normal distribution for modeling the ASPI returns and hence to enhance the forecasting accuracy.

The rest of the article is organized as follows: In the next section, the data and techniques useful for the study are described. Results of the study and discussion are demonstrated subsequently. Then the conclusion is provided and references conclude the article.

2. Methodology

2.1. Data Collection and Data Pre-Processing

Daily Closed Price of All Share Price Index for five years period from 1st August 2007 to 31st July 2012 was considered in this study. As a proved mechanism, holidays were filled with previous day's value in the series and the data series covers 1290 observations.

The Following formula was used to calculate the daily returns of the market index:

$$R_t = (P_t - P_{t-1}) / P_{t-1} \quad (1)$$

where R_t - return of the day t , P_t - closed stock price of the day t and P_{t-1} - closed stock price of the day $t-1$.

2.2. Normal Distribution

The normal distribution is symmetric bell shaped curve which is widely used and important statistical distribution. Many natural phenomena can be modeled using the normal distribution. Normal distribution or the Gaussian distribution is a continuous distribution with following probability density function (p.d.f.):

$$f(x) = \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{(x-\mu)^2}{2\sigma^2}} \quad (2)$$

where μ is the mean or expectation of the distribution and σ is the standard deviation (Mood, Graybill and Boes (1974)).

2.3. Student's t Distribution

The t distribution is a continuous probability distribution with one parameter called degrees of freedom. The probability density function of Student's t distribution is displayed in Equation 3.

$$\frac{\Gamma\left(\frac{\nu+1}{2}\right)}{\sqrt{\nu\pi} \Gamma\left(\frac{\nu}{2}\right)} \left(1 + \frac{x^2}{\nu}\right)^{-\frac{\nu+1}{2}} \quad (3)$$

where ν is the degrees of freedom and $\Gamma(\bullet)$ represent the gamma function (Mood, Graybill and Boes (1974)).

2.4. Scaled t Distribution

The Scaled t distribution is useful for modeling data distributions with heavier tails which has three parameters namely location, scale and shape. Smaller values of the shape parameter yield heavier tails. The probability density function of the Scaled t distribution is as follows:

$$f(x) = \frac{\Gamma\left(\frac{\nu+1}{2}\right)}{\sqrt{\pi(\nu-2)\sigma^2} \Gamma\left(\frac{\nu}{2}\right)} \left[1 + \frac{(x-\mu)^2}{(\nu-2)\sigma^2}\right]^{-\frac{\nu+1}{2}} \quad (4)$$

where $\Gamma(\bullet)$ represent the gamma function, μ is the location parameter, σ is the scale parameter and ν is the shape parameter [1].

2.5. Quantile-Quantile Plot (Q-Q Plot)

The Quantile-Quantile plot can be used to determine whether two data sets come from populations with a common distribution. In this graphical technique, quantiles of the first data set against the quantiles of the second data set is plotted and a 45-degree reference line is used to interpret. If the two data sets come from a population with the same distribution the points should fall approximately along this reference line. The greater the departure from this reference line, the greater the evidence for the conclusion that the two data sets have come from populations with different distributions. This technique can provide an assessment of "goodness of fit" that is graphical and more powerful approach than the common technique of comparing histograms of the two samples [4].

2.6. Kolmogorov-Smirnov Test (K-S test)

The Kolmogorov-Smirnov test is a nonparametric test which is used to assess the equality of continuous, one-dimensional probability distributions. In one-sample K-S test, a comparison of a sample with a reference probability distribution is performed and the null hypothesis is that the sample is drawn from the reference distribution.

The Kolmogorov-Smirnov statistic quantifies a distance between the empirical distribution function of the sample and the cumulative distribution function of the reference distribution in one sample test. Comparison of the two samples is performed in two-sample K-S test under the null hypothesis that the two samples are drawn from the same distribution. In two sample test K-S statistic quantifies a distance between the empirical distribution functions of two samples. In each case, the distributions considered

under the null hypothesis are continuous distributions.

The two-sample Kolmogorov–Smirnov test is one of the most useful and general nonparametric methods for comparing two samples. The following null and the alternative hypothesis are used in the two sample K-S test.

H0: Two samples are drawn from the same distribution

H1: Two samples are not drawn from the same distribution

The Kolmogorov–Smirnov statistic for two-sample test is:

$$D_{n,n'} = \sup_x |F_{1,n}(x) - F_{2,n'}(x)| \quad (5)$$

where \sup_x is the supreme of the set of distances and $F_{1,n}$ and $F_{2,n'}$ are the empirical distribution functions of the first and the second sample respectively.

The null hypothesis is rejected at level α (which is the significance level) if, $D_{n,n'} > c(\alpha) \sqrt{\frac{n+n'}{nn'}}$ where the value of $c(\alpha)$ is given in standard statistical tables [5].

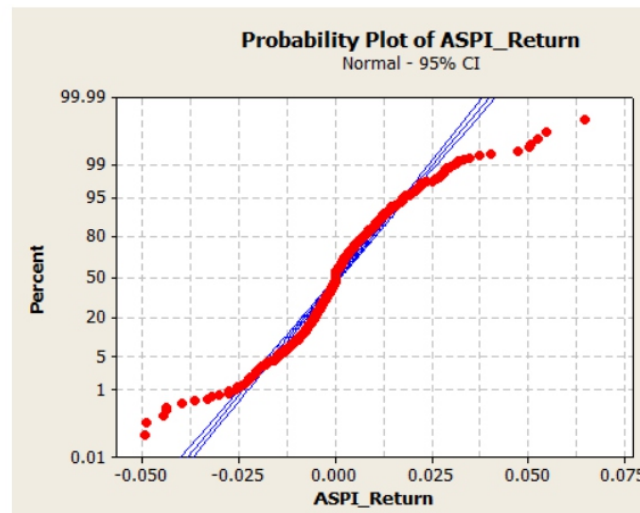


Figure 1. Normal probability plot of ASPI

3. Results and Discussions

Even though evidence from literature suggests that the stock return distribution cannot be modeled using Normal distribution, Normal probability plot was drawn to the ASPI return series to check the normality and displayed below.

Figure 1 exhibits that the normal probability plot of ASPI deviates from the straight line. Therefore it is evident that the normal distribution cannot be used to model the return distribution of All Share Price Index.

Student's t distribution was fitted to the return series of the ASPI and check the adequacy using Kolmogorov–Smirnov test. Numerous tests were carried out by changing parameters of the distribution. Results indicate that the p-values obtained in all the cases are less than 0.05 and the test is significant under 5% level of significance in all the cases. Therefore it can be concluded that Student's t distribution is also not suitable to model the return distribution of all share price index of Colombo stock exchange.

With the evidence from literature, Scaled t distribution was fitted to the return series of ASPI and

calculated the parameters of the distribution. Suitability of the fitted distribution was assessed using Q-Q plot and Kolmogorov–Smirnov test. Figure 2 illustrates the fitted Scaled t distribution for the return series of the ASPI.

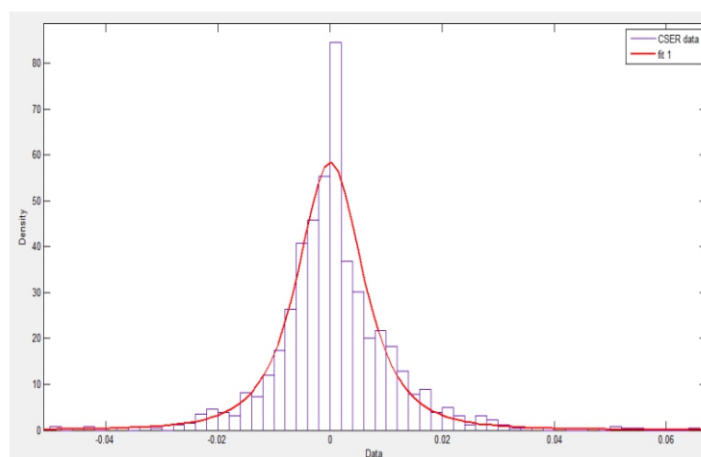


Figure 2. Fitted Scaled t distribution for ASPI return series

Figure 2 shows that scaled t distribution exhibits a good fit to the return distribution of the ASPI. Three parameters are associated with the Scaled t distribution namely location parameter (μ), scale parameter (σ) and shape parameter (ν). Estimated parameters for fitted Scaled t distributions for the ASPI series are represented in Table 1.

Table 1. Estimated parameters of the fitted Scaled t distributions for ASPI return series

Return Series	Parameter Estimates		
	μ	σ	ν
ASPI	0.0000613719	0.00619983	2.54137

The shape parameter ν of the Scaled t distribution can capture the heaviness of tails in the fitted distribution. A smaller ν indicates heavy tails. Since it is a known fact that the return distribution of stock market indices exhibit heavy tails, estimated values for ν which are small lead to consider that the heavy tails are well captured by the Scaled t distribution in the return series.

The following figure illustrates the Q-Q plot drawn to evaluate the fitted Scaled t distribution graphically. In Figure 3, Q-Q plot demonstrate linear patterns which confirms that the two distributions considered in graph are similar. Therefore, it can be said that the fitted Scaled t distributions with respective parameters exhibit a good fit for the return distribution ASPI index

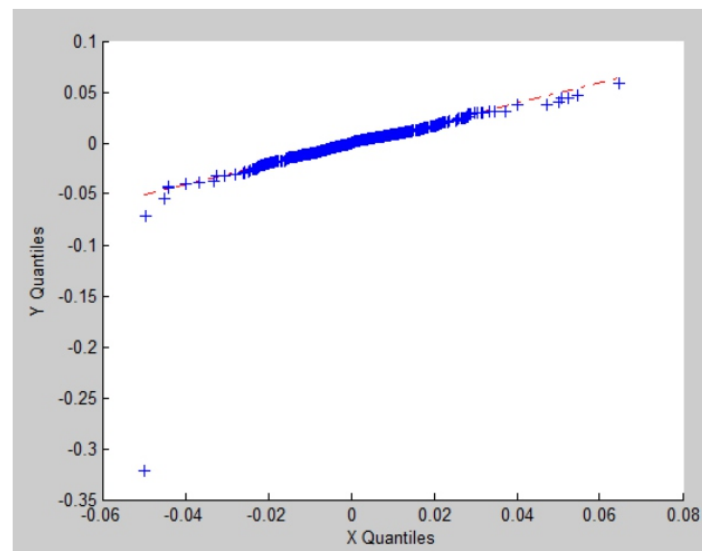


Figure 3. Q-Q plot for ASPI return series

Kolmogorov-Smirnov Goodness-of-Fit test was used to assess the adequacy of fitted Scaled t distributions for return series and p-values were calculated. Random numbers were generated using Scaled t distribution with above mentioned parameters and the K-S test was carried out using the generated series and the return series of ASPI. The same procedure was repeated 100 times in order to improve the accuracy of results. Minimum p-value of 0.0534 was obtained in the simulation study. Results indicated that the test is not significant under 5% level of significance above 95% times. Therefore it can be said that the Scaled t distribution with parameters $\mu = 0.0000613719$, $\sigma = 0.00619983$ and $\nu = 2.54137$ can model the return series of ASPI index very well. This result will be useful for further research in constructing models to predict the ASPI of Colombo Stock Exchange. The main drawback of this research is that the study period considered is only for five years which is a short period and consequently with a longer study period the findings may be different.

4. Conclusions

Return distributions of the ASPI is deviate from the Normal distribution and Student's t distribution. Scaled t distribution can be recommended as the best distribution to model the return distribution of the All Share Price Index of Colombo Stock Exchange.

REFERENCES

- [1] Aparicio, F. & Estrada, J. (1997). *Empirical Distributions of Stock Returns: European Securities Markets, 1990-95. Business Economics Series 02, Universidad Carlos de la Empresa, Spain.*
- [2] Aparico, F. & Estrada, J. (1997). *Empirical Distributions of Stock Returns: Scandinavian Securities Markets, 1990-95. Statistics and Economics Series of Universidad Carlos III de Madrid, 96, 58.*
- [3] Badrinath, S.G. & Chatterjee, S. (1991). *A Data Analytic look at skewness and elongation in common -stock-return distributions. American Statistical Association Journal of Economic Statistics, 9, 2, 223-233.*
- [4] Beirlant, J., Geogebur, Y., Segers, J. & Teugels, J. (2004). *Statistics of Extremes: Theory and Applications. England. . John Wilay & Sons Ltd.*
- [5] Conover, W. J. (1999). *Practical Non parametric Statistics. United States of America. John Wilay & Sons, Inc.*
- [6] Doric, D. & Doric, E.N. (2011). *Return Distribution and Value at Risk Estimation for BELEX15. Journal of Operations Research, 21, 103-118.*

- [7] Egan, W.J. (2007). *The Distribution of S&P Index Returns*. Unpublished research report. papers.ssrn.com.
- [8] Fortin, I. & Kuzmics, C. (2002). *Tail-Dependence in Stock-Return Pairs*. *Economics Series of Institute for Advanced Studies, Vienna*. 126.
- [9] Mood, A. M., Graybill, F. & Boes, D. C. (1974). *Introduction to the theory of statistics*. Singapore : Mc-Graw-Hill.
- [10] Peiro, A. (1994). *The Distribution of Stock Returns: international evidence*. *Applied Financial Economics*, 4, 431-439.
- [11] Rachev, S.T., Emeritus, Stoyanov, S.V., Wu, C. & Fabozzi, F.J. (2007). *Empirical Analyses of Industry Stock Index Return Distributions for Taiwan Stock Exchange*. *Analysis of Economics and Finance*, 8, 1, 21-31.
- [12] Wang, B.H. & Hui, P.M. (2001). *The Distribution and Scaling of fluctuations for Hang Seng index in Hong Kong stock market*. *The European Physical Journal B*, 20, 573-579.

Exploring the Influence of State Support Programs on Patriotism and Future Taxpayer Intentions: Insights from a Developing Economy

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ABSTRACT

Why people pay taxes has received adequate attention in the tax literature, but what about how future taxpayers form their tax-paying attitudes? Again, why does a large fraction of individuals in developing economies conceal their income from the state? Is it because of a lack of patriotism or neglect by the state? The study utilized a correlational and cross-sectional design, specifically focusing on students enrolled at Accra Technical University in Ghana. Data on the future intentions of 284 students to pay taxes, childhood state support, and patriotism were gathered using a structured questionnaire. Descriptive and inferential statistics were utilized in the data analysis, such as multiple linear regression, Cronbach's alpha reliability, and correlation analysis. The results indicate that receiving state assistance during one's childhood has a substantial influence on patriotism, but a negligible effect on individuals' future intentions to pay taxes. This research questions the traditional notion that taxpaying intentions are significantly influenced by state support during childhood. Instead, it underscores the importance of analyzing future taxpaying intentions through the lens of patriotism. The identification of patriotism as a significant incentive for future tax compliance indicates that cultivating a sense of national pride may increase tax compliance. Furthermore, it urges policymakers to confront elements that hinder the development of patriotism, promote a sense of national pride and civic responsibility, and enhance tax compliance among prospective taxpayers in developing countries. Promoting the engagement of young adults in democratic processes about taxation may enhance subsequent adherence while cultivating supportive citizens.

Keywords *State Support Programs, Patriotism, Tax Compliance, Taxpaying Intentions, Developing Economy, Ghana*

1. INTRODUCTION

The study embarks on a journey to explore the intricate link between state support received and patriotism and their respective impacts on the future taxpaying intentions among individuals. These relationships hinge on the understanding that, when a state invests in a child's upbringing and education, it fosters a sense of patriotism and a reciprocal sense of civic responsibility. This approach effectively shapes the child's perception of their role in society – a pact is formed, wherein the state provides support during childhood education years, and in turn, the individual, when matured, contributes to supporting the state to realize its objectives. Funding state support programs pivots on taxation, which is the foundation of Ghana's funding model and societal interdependence [1, 2]. The array of taxes collectively weaves the fabric of Ghana's social contract [3]. In this context, taxation is more than a financial transaction; it is a tangible expression of the symbiotic relationship between citizens and the state. This intricate relationship, nurtured during the childhood-higher education years, imprints upon them the significance of their role in sustaining the society that nurtured them.

The impact of early state support extends far beyond immediate outcomes; it molds the generation of individuals bound by an innate sense of reciprocity. Scholarly research suggests that nurturing during childhood profoundly influences attitudes and behaviors in adulthood [4]. A child raised within the protective cocoon of state support is more likely to evolve into an adult who regards taxation as more than a compulsory levy; it becomes a meaningful contribution to collective welfare. At these crossroads, the state's investment in a child's well-being kindles tax morale, igniting a perpetual cycle of societal support and individual responsibility.

This study embarks on a journey through the intricate tapestry of state support during childhood, unraveling its influence on the patriotism and future taxpaying of tertiary students, and by extension, their contributions as adults. By probing the delicate interplay between perceived societal contracts forged in early state assistance and the cultivation of enduring responsibility, this study seeks to pave the way for elevated tax compliance and sustainable revenue collection in the realm of developing nations. By illuminating the threads that connect childhood nurturing, patriotism, future tax attitudes, and steadfast commitment to a nation's growth and prosperity, this study aspired to chart a roadmap for societies aimed at nurturing their youth and cultivating a collective dedication to the nation's welfare.

1.1. Research Questions

1. Do state support programs received during childhood-higher education years lead to more tax-compliant individuals in developing economies?
2. Do state support programs create more patriotic individuals in developing economies?
3. Are patriotic individuals more tax-compliant?
4. State support programs and patriotism: which is more effective in creating a more compliant individual taxpayer in developing economies?

1.2. Research Aims and Hypotheses

This study investigates the impact of state support programs on the formation of patriotism and the future taxpaying intentions of students in the context of a developing economy. The research questions led to the following hypotheses, which were tested using a survey through a review of the existing literature.

H1- State support programs received before joining the world of work positively impact the future taxpaying intentions of individuals.

H2- State support programs create patriotic individuals who are willing to support the state.

H3- Patriotic individuals are more tax-compliant than unpatriotic individuals.

2. Review of Related Literature

2.1. State Support Programs and Future Taxpaying Intentions

Rodriguez-Justicia and Theilen [5] conducted a comprehensive study on the support provided by European states, categorizing it into two types: direct and indirect. Direct support focuses on personal situations such as family, health, and unemployment assistance. This type of state support benefits various groups, including families with children, the elderly, and the unemployed [5]. Rodriguez-Justicia and Theilen [6] suggest that the tax morale of European taxpayers with children is more positive when they benefit from state education and health services. This positive relationship has also been echoed in other studies. However, Doerrenberg and Peichl [7]

found that higher-income taxpayers might have lower tax morale because they do not benefit directly from state support. Similarly, Alm and Torgler [8] observed that self-employed individuals in Europe often exhibit lower tax morale.

The sphere of indirect state support programs encompasses benefits that are tangentially associated with the overarching quality of services rendered by state entities [6]. An evaluative framework of indirect state support was expounded by Feld and Frey [9] who characterized it in terms of tax authorities' conduct towards taxpayers. Thus, this lens underscores the interface between tax compliance and the modus operandi of the tax agencies. Barone and Mocetti [10] provide further insights to enrich the discourse on indirect state support. Their conceptualization incorporates facets, such as the judicious utilization of public finances and institutional transparency, as integral components of indirect state support [11]. Rodriguez-Justicia and Theilen [6] concluded with a direct relationship between the number level of both direct and indirect benefits received by taxpayers and their tax morale. This expanded construct substantiates the multifaceted dimensions inherent in the realm of state-society dynamics, unraveling the intricate interplay between resource allocation, institutional probability, and citizens' moral disposition towards taxation.

Investigations conducted within advanced economies have primarily scrutinized the influence of prevailing tax morale dynamics among extant taxpayers, who concurrently avail themselves of state-sponsored support frameworks. However, this scholarship has a notable lacuna, as it refrains from addressing the prospective ramifications of these state support mechanisms on the future taxpaying orientations of the present beneficiaries, who are yet to assume the mantle of taxpayers. This omission is particularly salient in the context of individuals, notably students, who have derived advantages from state-provided education and healthcare services.

2.2. Patriotism and State Support Programs

After Allingham and Sandmo [12] and Srinivasan [13] initially implemented Becker's [14] economics-of-crime model in their examination of tax evasion, several other studies have attempted to explain why people pay taxes. The results of these studies have economic and non-economic implications. While taxpayers in advanced countries seem to respond more to non-economic factors, Ntiamoah, and Asare [15] find that taxpayers in developing countries still respond largely to economic factors in tax compliance decisions. Based on this, the authors believe that through state support programs, more patriotic future taxpayers can be produced as a panacea for widespread individual tax evaders in developing economies.

This study reiterates the relevance of the theory's rational choice in understanding and regularly modeling human, societal, and economic behavior [16]. Elster [17] applied rational choice theory to explain how rational individuals react when faced with several courses of action and choose the cause of action that is most likely to produce the greatest outcome. Rationality in theory refers to the balancing act of cost and benefit in arriving at the maximum advantage for the individual [4]. We believe that state programs can create positive economic bonds between beneficiaries and their future taxpayer intentions.

In this study, we assumed that the state's social child support programs, which are financial, can positively influence a child's future taxpayer attitudes or intentions and that if there is limited or no such support, a negative future taxpayer attitude could be formed from childhood and can negatively impact patriotism.

We believe that tax evasion among individuals in developing economies is widespread compared to their counterparts in advanced countries because the former is provided with little to no state support programs during their childhood-higher education years to create an economic pact between them and the state to make them more patriotic and want to contribute more to supporting the state.

2.3. State Support Programs in Ghana

2.3.1. Free Compulsory Universal Basic Education

In 1995, the Ghanaian government initiated the Free Compulsory Universal Basic Education (FCUBE) program, which received substantial backing from international donors, particularly the World Bank [18,19]. FCUBE is designed to make basic education universally accessible, mandatory, and devoid of financial barriers. The primary objective of this program is to facilitate the provision of high-quality and inclusive basic education for all Ghanaian children. The work of Gaddah et al. [19] highlights the multifaceted aims of the FCUBE program, encompassing the resolution of issues such as suboptimal teaching and learning conditions at the basic education level, leading to diminished academic performance among children throughout their basic education journey. Additionally, the program aims to address challenges pertaining to limited access to educational services, deficiencies in the management capacity of the educational sector, and inadequacies in the financial resources allocated to the educational domain [20].

2.3.2. Capitation Grant

In pursuit of bolstering enrolment rates, the government introduced the capitation grant and school feeding program in 2005. The capitation grant entailed allocating an amount equivalent to \$3.00 for each child, which was disbursed to their respective schools to support their educational pursuits. Concurrently, the school feeding program was implemented, ensuring the provision of a daily hot meal to students during school days [19]. Consequently, Osei et al. [21] observed a notable increase in government tax expenditure within the education sector, reaching 20% of its total expenditure in 2005. This investment in education further escalated over time, with government expenditure in the education sector reaching 23% in 2019. However, the outbreak of the Covid pandemic in 2020 led to a decline, reducing the government's education expenditure to 16% [22].

Nevertheless, despite these initiatives and resource allocations, certain research inquiries on Ghana's Free Compulsory Universal Basic Education (FCUBE) program have posited that its impact on school enrolment exhibited a comparatively slower trajectory when compared to other countries like Uganda, Malawi, Uganda, Tanzania, Zambia, and Kenya [18,19]. The reason for this slow progress in Ghana was attributed to the fact that the FCUBE program did not significantly reduce the cost of basic education for poor households.

2.3.3. Free Senior High School

Ghana's 1992 Constitution mandates free, accessible, and available secondary education. In 2017, the government introduced a free senior high school that covered all secondary education levels. This policy relieves parents of financial burdens, including tuition, admission, and other fees. [22, 23, 24]. It also provides daily meals for boarding students and provides technical, agricultural, and vocational education. This aligns with the UNESCO-UIS Education for All Pledge, which expands access to education for all citizens.

2.3.4. **Livelihood Empowerment Against Poverty (LEAP)** Livelihood Empowerment Against Poverty (LEAP) is a Ghanaian cash transfer program that aims to support orphans, vulnerable children, and their caregivers [25]. The program, as part of the National Social Protection Strategy, provides financial assistance to meet basic needs and improve well-being. Eligible beneficiaries must meet certain conditions, such as being enrolled in educational institutions, receiving immunizations, and enrolling in the National Health Insurance Scheme. The program disburses cash transfers every two months and has grown significantly since its inception. The benefits include increased consumption, debt repayment, and increased self-confidence among recipients. The program has expanded its reach to over 350,000 households across all districts in Ghana.

2.4. Patriotism and Tax Compliance

This study seeks to find an answer to the question of whether patriotism encourages individuals to be more tax-compliant in the context of a developing country. It is necessary to establish whether a patriotic individual will honestly declare all his taxable income compared to an unpatriotic individual. The study extends the debate by adding that not only should patriotism enhance tax compliance, but future taxpayers should also be encouraged to do so, especially if they receive state support programs before joining the world of work. Therefore, where patriotism is non-existent and tax compliance is low, enjoying state support programs could be a panacea.

The payment of taxes is considered patriotic towards the state. Many studies have overwhelmingly established that patriotism encourages individuals to be more tax compliant. However, no study has established the need to use state support programs to encourage patriotism, which is weak and non-existent. Gangl, Torgler & Kirchler, [26] established that patriotism can indirectly increase tax compliance. Using two cross-country datasets, Konrad and Konrad & Qari [27] reveal a strong positive association between patriotism and tax compliance, despite various robustness checks and instrumental variable estimations to address the potential endogeneity of patriotism. MacGregor and Wilkinson [28] observed that patriotic individuals are more positive about paying taxes and perceive tax evasion as unpatriotic. In a study examining the role of religiosity and patriotism in improving tax compliance, Nazaruddin [29] found that high patriotism increases taxpayer compliance.

The scholarly discourse surrounding tax behavior also posits reciprocity and service delivery as significant factors influencing attitudes toward tax payments. Hennighausen and Heinemann [30] assert that when citizens establish a connection between the payment of taxes and tangible economic achievements, they are more inclined to refrain from tax evasion. Moreover, the literature suggests that when individuals directly contribute to financing social goods and services, they can develop negative psychological attitudes toward tax payments. Bodea and LeBas [31] further confirm that the receipt of public goods and satisfaction with the government's utilization of tax funds positively influence individuals' mental disposition toward paying taxes. In this context, we hypothesize that future taxpayers who enjoy state support programs should exhibit a positive attitude toward tax payments.

2.5. State Support Programs Versus Patriotism

While studies have established the influence of state support programs and patriotism on tax compliance of individuals, this study seeks to establish which of the two factors has a stronger influence on the future taxpaying intentions of individuals who have received state support in their childhood education years.

Combined with contemporary scholarship, individuals have a discernible propensity to fulfill their tax obligations when duly apprised of the consequential augmentation in state support programs resulting from the government's utilization of tax resources. This phenomenon supports the fiscal contracts hypothesis. D'Arcy [32] argues that citizens hailing from African nations and recipients of governmental services exhibit high tax morale towards state tax collectors. Within the Tanzanian context, Fjeldstad et al. [33] provide empirical insights suggesting a direct relationship between the enhancement in the availability of public goods and citizens' tax morale. It is imperative to emphasize that this proclivity is intrinsically linked to the quantity of public goods provided and is not contingent on its quality [34].

Flores-Maccas [35] revealed a propensity for heightened tax compliance among respondents who were apprised of the government's endeavors in the provision of social services, in contrast to those informed of heightened oversight mechanisms on tax revenue utilization. Ortega et al. [36] emphasized that taxpayers exposed to narrative depictions extolling commendable governmental efforts to provide public goods exhibit an enhanced inclination toward tax compliance. Timmons and Garfias [37], found that publicized instances of governmental corruption led to a decline in tax revenue, while conversely, favorable portrayals of governmental efficacy in providing social goods and services engender an upswing in tax revenue. Daude et al. [38] also realized that providing public goods and services influences and engenders higher tax compliance levels in African and Latin American countries but not in Asian countries. Other studies in developing economies have found no relationship between the provision of public goods and tax compliance by taxpayers. In a study in Ethiopia, Deyganto [39] found no effect of the tax authority's efficiency in using tax resources on taxpayers' attitudes toward tax payments.

While ample studies have shown that state support programs and patriotism do enhance tax compliance, we do not yet know which has more influence on the latter.

2.6. The Literature Gap This Study Addresses

This study aims to explore the taxpaying orientation current Ghanaian students, who are direct beneficiaries of state support programs. It aims to understand the complex interplay between state support systems and patriotism, contributing to a better understanding of the interplay between state support programs, patriotism, and future taxpaying intentions in developing economies.

3. Methodology

3.1. Research Design

The study used a cross-sectional and correlational design. Using a cross-sectional design, we obtained opinions and built data on the 2022-2023 first to final-year students at Accra Technical University. According to Wang and Cheng [40] a cross-sectional design is suitable for analyzing data from a population at a single point in time. A correlation design was used to ascertain the relationship between state support programs, patriotism, and future taxpaying intentions among the target population. According to Apuke [41], correlation design is a quantitative research methodology employed to ascertain the presence and extent of a relationship between two or more variables within a given population or sample.

3.2. Target Population

The study's target population included students attending Accra Technical University in Ghana. This diverse population included students across all academic years, ranging from first-to final-year students pursuing a wide array of academic courses offered by the university.

3.3. Sample Size and Sampling

The sample size of this study was 284. VanVoorhis and Morgan [42] recommended a minimum of 50 participants for basic correlational designs to describe the relationships between variables. According to Wallen and Fraenkel [43], the minimum acceptable sample size for correlational studies should not be less than 30. They also added that if the data are obtained from a sample smaller than 30, it may yield an inaccurate result for the degree of correlation. Bryman and Cramer [44] suggested that, as a rule of thumb, the minimum sample size for regression should be $50 + 8 \times m$, where m is the number of independent variables. Adhering to Bryman and Cramer's rule, our study had five independent variables; hence, the minimum sample size was 90. Hence, the sample size of 284 was considered adequate for this study.

3.4. Questionnaire and Measurement

The data collection instrument used in this study was a structured, closed-ended questionnaire. A questionnaire is a valuable instrument used to gather information, opinions, attitudes, or data systematically and uniformly from individuals or groups of respondents. It comprises a predetermined set of questions and response options [44]. The researchers decided to use the questionnaire because of its efficiency in gathering data from many respondents simultaneously, thus saving both time and resources [45]. Moreover, questionnaires provide respondents with the comfort of answering sensitive or personal questions truthfully, while preserving their anonymity and privacy [46]. The questionnaire for this study was divided into four sections: demographic information, childhood-state support, patriotism, and taxpayer intention. The demographic information Section A constituted Section A of the questionnaire, which had questions about gender, program of study, marital status, and state support programs enjoyed. The construct "Childhood State Support" comprised Section B of the questionnaire and consisted of four items. Childhood state support is a concept that describes the numerous benefits, services, and assistance offered by a state or government to support the welfare, growth, and well-being of children within society. This support often consists of a variety of initiatives and programs that ensure that children have access to crucial resources, opportunities, and protection during their early years of life. Section C comprised the construct "Patriotism," which was made up of four items. Patriotism refers to the national loyalty and civic responsibility of an individual to fulfill tax obligations to the government. Sections B to C of the questionnaire were measured on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

3.5. Data Collection

The data collection period for this study spanned from May 9, 2023, to June 13, 2023. Before distributing the questionnaire to the targeted respondents, the researchers conducted a pilot study involving a sample of 30 students from a different university. This preliminary investigation aimed to refine the research instruments and procedures. The pilot study helped the researchers assess the practicality and feasibility of the research plan. Furthermore, it allowed the researchers to test the reliability and validity of the questionnaire. This helped researchers identify ambiguities, errors, or problems with the instrument and made the necessary improvements. Convenience sampling was used in this study. Convenience sampling is a method of non-probability sampling, wherein data are gathered from a readily available and easily accessible group of individuals. The sample participants were not chosen based on their representation of the entire population but rather because of their accessibility to the researcher [47].

According to Bhardwaj [48], convenience sampling offers various advantages to researchers. It is easy to use and readily available, making it a cost-effective option that eliminates the need for complex participant recruitment methods. Moreover, convenience sampling allows researchers to quickly collect data, which can be especially useful in situations where time is essential [49]. This study investigated the willingness of future taxpayers, who had previously benefited from state support programs in their childhood, to contribute to the state by paying taxes. The researchers distributed 300 questionnaires to potential respondents and received 284 completed ones. However, 16 questionnaires were excluded from the analysis because of incompleteness. The questionnaire response rate was 94.7%.

3.6. Ethical Considerations

Ethical considerations involve the principles and guidelines for conducting studies with integrity, fairness, and respect for all individuals and entities involved [50]. In this study, researchers adhered to various ethical standards. The questionnaire contained a preamble highlighting the purpose of the study and the expectations of the respondents. This made it clear that respondents could skip questions they felt uncomfortable answering. In addition, the researchers were sure to protect the privacy and confidentiality of all the participants. This involved safeguarding sensitive information and ensuring that the identities and personal data of the participants remained confidential. Participants were assured that their responses would not be shared without explicit consent. The researchers carefully considered the potential risks and benefits of the study and took measures to ensure that the benefits outweighed any potential harm. Furthermore, the researchers conducted the study with honesty and integrity, accurately reporting data, methods, and results, while avoiding fabrication, falsification, or plagiarism. Additionally, steps were taken to minimize the potential for physical or psychological harm to the participants. Participants were advised not to provide any identifiable information that could be traced back to them, and all precautions were taken to ensure that the research study was conducted in accordance with ethical norms.

3.7. Data Analysis

This study used descriptive and inferential statistics to analyze demographic data. Descriptive analysis included frequency and percentage tables, means, and standard deviations to understand distribution and dispersion, while inferential analysis measured variability around the mean. The inferential statistics utilized techniques like correlation analysis, Cronbach's alpha reliability, and regression analysis to measure linear relationships between dependent and independent variables. The correlation coefficient lies within the range of -1 to +1, with values close to +1 denoting a strong positive correlation, values close to -1 denote a strong negative relationship, and values closer to zero denote weak or moderate relationships [51]. However, a correlation coefficient of 0 implies that there is no linear relationship between the variables [52]. Cronbach's alpha was used to assess the degree to which the items in the questionnaire were interrelated. Cronbach's alpha score ranges from 0 to 1; the acceptable threshold value for Cronbach's alpha is 0.7 [53].

The study utilized multiple linear regression analysis to predict taxpayer intentions and determine the impact of independent variables on dependent variables. Using SPSS version 26, the study involved six variables, including tax-paying intention, childhood state support, and patriotism, and utilized comprehensive statistical tools for descriptive and inferential analyses as follows.

$$TPI = \beta_0 + \beta_1 CSS + \beta_2 PT + \varepsilon$$

TPI = Taxpaying Intention

β_0 = Regression constant

CSS = Childhood State Support

PT = Patriotism

ε = error term

4. Results

Table 1 provides an overview of the demographic characteristics of 284 participants. Most study participants were male, accounting for 58.8% (n = 167) of the total sample, while the remaining 41.2% (n = 117) were female. The age distribution of the respondents is as follows: 3.2% (n = 9) of participants fell under the “Below 20 years” category, 42.6% (n = 121) belonged to the “20-24 years” age group, 33.1% (n = 94) were in the “25-29 years” category, 15.1% (n = 43) were aged “30-34 years,” 4.2% (n = 12) were “35-39 years” old, and 1.8% (n = 5) were “40 years and above.” The respondents' academic programs were distributed across several categories, with the majority enrolled in “Higher National Diploma (HND)” programs, accounting for 66.2% (n = 188) of the sample. “Bachelor of Technology” programs constituted 25.4% (n = 72) of the respondents, while “Diploma” programs had 3.9% (n = 11) of participants. “Professional programs” and “non-HND programs” accounted for 2.8% (n = 8) and 1.8% (n = 5) of respondents, respectively. The distribution of respondents across different years of study was as follows: 56.0% (n = 159) of participants were in their “first year.” Moreover, 18.7% (n = 53) were in their “second year,” 16.2% (n = 46) were in their “third year,” and 9.2% (n = 26) were in their “fourth year.” Most participants indicated that they were “never married,” making up 87.3% (n = 248) of the total sample. A smaller proportion, 11.6% (n = 33), identified as “married,” and a very small

fraction, 1.1% (n = 3), indicated that they had been “ever married.”

Table 1. Demographics of Respondents

Variable/Category	Frequency	Percentage
<i>Gender</i>		
Male	167	58.8
Female	117	41.2
Total	284	100.0
<i>Age group</i>		
Below 20 years	9	3.2
20-24 years	121	42.6
25-29 years	94	33.1
30-34 years	43	15.1
35-39 years	12	4.2
40 years and above	5	1.8
Total	284	100.0
<i>Program of Study</i>		
Professional Program	8	2.8
Diploma	11	3.9
Higher National Diploma	188	66.2
Bachelor of Technology	72	25.4
Non-HND program	5	1.8
Total	284	100.0

<i>Year of Study</i>		
First year	159	56.0
Second year	53	18.7
Third year	46	16.2
Fourth year	26	9.2
Total	284	100.0
<i>Marital Status</i>		
Never married	248	87.3
Married	33	11.6
Ever married	3	1.1
Total	284	100.0
<i>State Support Programs</i>		
Free and Compulsory Universal Basic Education	14	5.7
Free Senior High School	48	19.7
Ghana School Feeding Program (GSFP)	20	8.2
National Health Insurance Scheme (NHIS)	127	52.0
Student Loan Trust Fund (SLTF) Beneficiary	18	7.4
Livelihood Empowerment Against Poverty (LEAP)	1	0.4
Social Security and National Insurance (SSNIT) Beneficiary	16	6.6
Total	244	100.0

This study examined which state support program respondents benefited from. 14 respondents, constituting 5.7% of the total sample, reported benefiting from or enjoying this program. 48 respondents, representing 19.7% of the total sample, indicated that they benefited from or enjoyed the Free Senior High School program. Twenty respondents, accounting for 8.2% of the total sample, reported benefiting from the Ghana School Feeding Program. The NHIS had the highest participation rate, with 127 respondents making up 52.0% of the total sample, indicating that they benefited from or enjoyed this program. 18 respondents, constituting 7.4% of the total sample, reported benefiting from or enjoying the Student Loan Trust Fund program. One respondent, accounting for 0.4% of the sample, indicated that he or she was beneficiary of or enjoyed the Livelihood Empowerment Against Poverty program. Sixteen respondents, representing 6.6% of the total sample, reported benefiting from or enjoying the Social Security and National Insurance programs.

Table 2 presents an in-depth analysis of the means and standard deviations for the key constructs and their respective subitems within the study. The analysis of childhood state support revealed that, on average, participants displayed moderately higher levels of agreement with the sub-items. From the table, it can be observed that sub-item CSS2 showed a mean of 3.49 (SD = 0.942), indicating that respondents perceived state support programs received during childhood as instilling a sense of reciprocity and commitment towards fulfilling tax obligations as adults. Additionally, sub-item CSS4 recorded a mean of 3.48 (SD = 0.915), suggesting that the state support received during childhood establishes a foundation for understanding the role of taxation in sustaining public services and infrastructure. The overall mean for childhood state support was 3.42 (SD = 0.791), highlighting the participants' moderately high agreement with these statements. The patriotic construct reflects participants' willingness to support their country through taxation. Sub-items such as PT1 with a mean

mean of 3.76 (SD = 0.946) and PT2 with a mean of 3.76 (SD = 0.932) indicated that respondents were moderately willing to pay more in taxes to support their country and viewed cheating on taxes as unpatriotic. The overall mean for patriotism was 3.79 (SD = 0.724), signifying a moderately higher level of agreement with these statements. The taxpaying-intention construct assesses participants' intentions to comply with tax obligations. Subitem TPI2 showed a mean of 3.80 (SD = 0.793), indicating that respondents were moderately committed to never cheating while paying taxes. The overall mean for tax-paying intentions was 3.72 (SD = 0.720), highlighting a moderately higher level of agreement with these statements.

Table 2. Mean and standard deviations for constructs and Sub-items

Construct/Items	Mean	SD
<i>Childhood State Support</i>		
CSS1: The state support I received as a child will make me more likely to pay taxes when I start working.	3.46	0.959
CSS2: I believe that individuals who have benefited from State Sponsored Programs should be committed to fulfilling their tax duties in the future.	3.49	0.942
CSS3: I feel that the government has a responsibility to provide support to its citizens.	3.23	1.087
CSS4: State Support received during childhood has helped me understand the importance of taxes.	3.48	0.915
Overall mean	3.42	0.791
<i>Patriotism</i>		
PT1: I would be willing to pay more in taxes if it would help my country.	3.76	0.946
PT2: A person who cheats on his/her taxes is not patriotic.	3.76	0.932
PT3: People earning more money must pay a higher tax rate.	3.75	1.004
PT4: Businesses that cheat on payment of their taxes are not patriotic.	3.90	0.884
Overall mean	3.79	0.724
<i>Taxpaying Intention</i>		
TPI1: If I had the opportunity, I wouldn't cheat on paying tax.	3.62	0.946
TPI2: I would never cheat on paying tax.	3.80	0.793
TPI3: I wouldn't cheat on paying taxes in the future.	3.74	0.863
Overall mean	3.72	0.720

Table 3. Correlation Analysis

	1	2	3
1. Taxpaying Intention	1.000		
2. Childhood State Support	0.244**	1.000	
3. Patriotism	0.489**	0.395**	1.000

Note: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table 3 presents the correlation analysis that examines the relationships between Taxpaying Intention, state support programs, and Patriotism in the context of tax compliance and civic responsibility. A positive and statistically significant correlation ($r = 0.244$, $p < 0.01$) existed between Taxpaying Intention and Childhood State Support. This indicates that individuals who received more state support during their childhood tended to have a higher intention to pay taxes than adults. Taxpaying intentions demonstrated a strong positive correlation with patriotism ($r = 0.489$, $p < 0.001$), suggesting that

individuals with a stronger sense of patriotism also express a greater intention to pay taxes.

Table 4. Reliability Analysis for Constructs

Construct	Number of Items	Cronbach's Alpha Score
Taxpaying Intention	3	0.771
Childhood State Support	4	0.824
Patriotism	4	0.768

Table 4 presents the results of the reliability analysis of the various constructs employed in the study. The table reveals the number of items within each construct and the associated Cronbach's alpha reliability coefficients, which are indicative of the constructs' internal consistency and reliability. Taxpaying intention is a construct consisting of three items, and it demonstrates a satisfactory level of internal consistency, with a Cronbach's alpha coefficient of 0.771. This level of reliability indicates that the items within this construct are adequately consistent in measuring the intended tax-paying behavior. Childhood State Support, comprising four items, exhibits a strong level of internal consistency, with a Cronbach's alpha coefficient of 0.824. This indicates that the items collectively capture the concept of state support received during childhood consistently and reliably. Patriotism, a construct composed of four items, showed a good level of internal consistency, with Cronbach's alpha coefficient of 0.768. This suggests that the items within this construct reliably assessed the extent of patriotism among the study participants.

Table 5. Analysis of variance for Regression Model

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	320.392	2	160.196	45.011	0.000
1 Residual	1000.097	281	3.559		
Total	1320.489	283			

Note: Predictors = (Constant), Patriotism, Childhood State Support, Dependent Variable = Taxpaying Intention

The analysis of variance (ANOVA) presented in Table examines the relationship between Taxpaying Intention and its predictors, including Patriotism and Childhood State Support. The primary objective was to assess the significance of the regression model in elucidating the observed variance in taxpaying intention. The ANOVA table comprised three main sections: Regression, Residual, and Total. Each section provides essential insights into the sources of variability in the model.

The sum of squares for the regression section, indicating the squared differences between the predicted and mean values of Taxpaying Intention, was 320.392. The regression model employed two degrees of freedom corresponding to the number of predictors. The resulting mean square was 160.196. The F-ratio, which assesses the significance of the regression model, yielded a value of 45.011, signifying a highly significant relationship. The associated p-value (g) was 0.000, confirming the statistical significance of the regression model. In the Residual section, the sum of squares represents the squared differences between the observed and predicted totaling 1000.097.

With 281 degrees of freedom, the mean square of the residual variation was 3.559. The total section sums of squares, reflecting the overall variability in paying intention, was 1320.489. The total degrees of freedom obtained by summing the degrees of freedom from the regression and residual sections amounted to 283. The ANOVA results underscore the statistical

significance of the regression model in elucidating the variance in taxpayer intention. The low p-value (0.000) associated with the F-ratio indicated a high level of confidence in the model's explanatory power. The Residual section accounts for the unexplained variability in taxpaying intentions after considering the predictors in the model

Table 6. Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	5.318	0.658		8.080	0.000		
1 Childhood State Support	0.041	0.039	0.060	1.069	0.286	0.844	1.184
Patriotism	0.347	0.042	0.466	8.241	0.000	0.745	1.342

Note: Dependent Variable = Taxpaying Intention

Table 7. Model Summary for regression analysis.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.493	0.243	0.237	1.887	2.146

Note: Predictors = (Constant), Patriotism, Childhood State Support; Dependent Variable = Taxpaying Intention

Table 6 presents the regression coefficients for the specified model, offering insights into the relationships between the dependent variable, Taxpaying Intention, and the predictor variables—Childhood State Support and Patriotism. The constant term in the model, denoted as (constant), has an unstandardized coefficient (B) of 5.318, with a standard error of 0.658. The associated t-value was 8.080, and the p-value (Sig.) was 0.000, indicating that the constant term was statistically significant. This implies that, even in the absence of predictor variables, there is a significant intercept in predicting Taxpaying Intention. Regarding the predictor variables, Childhood State Support has an unstandardized coefficient (B) of 0.041, with a standard error of 0.039. The standardized coefficient (beta) was 0.060. The t-value was 1.069, and the p-value (Sig.) was 0.286, suggesting that Childhood State Support does not significantly predict Taxpaying Intention, as the p-value is greater than the conventional alpha level of 0.05. On the other hand, patriotism has a more substantial influence on taxpayer intention. The unstandardized coefficient (B) was 0.347, with a standard error of 0.042. The standardized coefficient (beta) was 0.466. The t-value was 8.241, and the p-value (Sig.) was 0.000, indicating that patriotism significantly predicts taxpayer intention. In addition to the coefficients, the table includes collinearity statistics, such as the tolerance and variance inflation factor (VIF), which assist in assessing multicollinearity. These statistics are instrumental in comprehending how predictor variables interact with each other in the model. The collinearity statistics indicate a tolerance of 0.844 and a variance inflation factor (VIF) of 1.184, suggesting a low level of multicollinearity for Childhood State Support. Additionally, the collinearity statistics show that patriotism had a tolerance of 0.745 and a VIF of 1.342, suggesting a low level of multicollinearity. A Variance Inflation Factor (VIF) value exceeding 10 indicates high collinearity between predictors, which could distort the model estimates. A tolerance value below 0.1 indicates high multicollinearity between the predictor and other independent variables [59].

Table 7 presents a summary of the model for the regression analysis conducted in this study. The purpose of this analysis was to examine the relationship between various predictors, including patriotism and childhood state support, on the dependent variable, taxpaying intention. The results show that the R-value, which represents the multiple correlation coefficient, was 0.493. This value suggests a moderate positive linear relationship between the predictors and paying intention. The R Square, also known as the coefficient of determination, was 0.243. This indicates that approximately 24,3% of the variance in taxpayer intention can be explained by the combined predictors. The Adjusted R Square was 0.237, accounting for the influence of the number of predictors and degrees of freedom. The Std. The error of the estimate, with a value of 1.887, represented the standard error of the residuals. A lower value of this parameter indicates a better fit of the model. The Durbin-Watson statistic was 2.146. This statistic assesses the presence of autocorrelation in the residuals of a model. A value between 1.5 and 2.5 is typically desirable, and the calculated value suggests no significant autocorrelation.

5. Discussion

5.1. State Support Programs and Future Taxpaying Intentions

The results showed that childhood state support did not have a significant effect on the taxpaying intention of tertiary students. Our results contradict those of Huong and Cuong [54], who found that different forms of government support for SMEs in Vietnam have different impacts on the total tax revenue paid. Specifically, financial assistance has a positive impact on the total taxes paid, while the impact of technical assistance on government revenue is insignificant. Rodriguez-Justicia and Theilen [6] proposed that European taxpayers with children exhibit more favorable tax morale when they receive assistance from state-provided educational and health services. Our study found that childhood state support, which includes various forms of government assistance or social services during upbringing, does not significantly affect tertiary students' intention to pay taxes. This finding challenges the notion that early exposure to state support programs has a lasting effect on individuals' willingness to contribute to the tax system. It also suggests that other factors such as economic circumstances, tax policies, and personal beliefs play a more prominent role in shaping taxpaying intentions among tertiary students. One possible reason for this result could be that, as tertiary students grow into adulthood and face their tax obligations, their financial situations and perceptions about taxation become more influential than their childhood experiences of state support. These young adults may prioritize factors such as job prospects, income levels, and the perceived fairness of the tax system when forming their taxpaying intentions.

The outcomes of the present study are also in contrast to the findings of Alm et al. [55], who asserted that the level of public support for a public good has an impact on compliance. Their results suggest that individuals are more likely to comply if they strongly believe in and favor a specific government program, especially when they are aware of the shared support for the program among other taxpayers. Luttmer and Singhal [56] posit that tax compliance can be influenced by the types of government services funded by tax revenues and how taxpayers perceive them. According to Kiow, Mohd, and Kassim [57], aligning the goals of the government with those of taxpayers is crucial to enhancing voluntary compliance and garnering increased support for government programs. Ortega, Ronconi, and Sanguinetti [36] assert that taxpayers are more inclined to fulfill their tax obligations when they perceive the government as performing effectively.

5.2. Patriotism and Future Taxpaying Intentions

Patriotism was found to have a significantly positive effect on taxpayer intentions. The positive effect of patriotism on taxpaying intention suggests that individuals who possess a strong sense of loyalty and commitment to their country are more likely to demonstrate willingness to pay their taxes. This finding is interesting because it underscores the idea that patriotism can serve as a motivating factor for tax compliance. Those who genuinely invest in the well-being and progress of their nation may view paying taxes as a civic duty and a means to contribute to the common good. The results confirm the findings of MacGregor and Wilkinson [28], which showed that patriotic people tend to have a more positive attitude towards paying taxes to support their country. Additionally, they contend that these individuals are likely to believe in the tax system's fairness. The results also support the findings of Nazaruddin [29] and Alshira et al. [58], who found that high patriotism results in high tax compliance. Konrad & Qari [27] established a connection between patriotism and government policies. They proposed that revenue-focused governments could potentially exploit educational policies to cultivate patriotism, as they could streamline tax collection efforts.

6. Conclusions

The findings of this study shed light on several important factors that influence tertiary students' taxpaying intentions. This study challenged the conventional wisdom that childhood state support has a lasting impact on individuals' willingness to contribute to the tax system. Our results suggest that early exposure to state support during upbringing does not significantly affect taxpayer intentions among tertiary students. One of the key findings of this study is the significant positive effect of patriotism on taxpayer intention. The results highlight the importance of a strong sense of loyalty and commitment to one's country as motivating factors for tax compliance. Those who genuinely care about their nation's well-being and progress are more likely to view paying taxes as a civic duty and a means of contributing to the common good. Based on these findings, policymakers should not rely solely on childhood state support to foster tax compliance among young adults. Instead, they should focus on other factors such as economic circumstances, tax policies, and personal beliefs, which seem to play a more prominent role in shaping taxpaying intentions. Policymakers and educators should consider promoting a sense of national pride and civic duties to encourage tax compliance among tertiary students. This can be achieved through educational programs and awareness campaigns that emphasize the societal benefits of tax contributions. Developing student involvement in democratic processes around taxation could boost future compliance while shaping supportive citizens.

7. Limitations and Suggestions for Future Research

An important constraint of this study is the omission of individuals with a home education from the sample. Due to the unique nature of home education as an educational setting, the results may not comprehensively reflect the intricacies of the correlation between future taxpaying intentions, patriotism, and state support programs among students enrolled in home-based programs. Furthermore, an investigation into the impact of the participants' socioeconomic status on their intentions to become taxpayers in the future was not considered. Considering the substantial influence that economic status can have on the formation of fiscal attitudes, the exclusion of this factor from the analysis restricts the applicability of the study's results to individuals from various socioeconomic backgrounds. Further investigation may be enhanced by incorporating a more extensive sample that comprises individuals with home-educated status and considers the financial aspect of participants' backgrounds; this would contribute to a more nuanced comprehension of the underlying dynamics.

Another notable limitation of the study is the restricted sample size, which solely comprises Accra Technical University. This confined scope may impede the generalizability of findings and the transferability of conclusions to broader populations. To mitigate this limitation in future research endeavors, it is advisable to expand the sample size by incorporating a more diverse array of educational institutions across Ghana. By encompassing a broader spectrum of institutions, researchers can capture a more representative cross-section of the target population, thereby enhancing the validity and applicability of the study's outcomes. Additionally, the inclusion of multiple institutions can yield insights into potential variations across demographics, geographical regions, and institutional characteristics, thereby enriching the comprehensiveness of the analysis. Consequently, augmenting the sample size to encompass a more expansive range of educational institutions presents a promising avenue for addressing the constraint imposed by the limited sample size in this study.

REFERENCES

- [1] Fenny, A. P., Yates, R., & Thompson, R. "Strategies for financing social health insurance schemes for providing universal health care: a comparative analysis of five countries." *Global Health Action*, 14(1), 1868054, 2021. doi: 10.1080/16549716.2020.1868054.
- [2] Kamasa, K., Nortey, D. N., Boateng, F., & Bonuedi, I. "Impact of tax reforms on revenue mobilization in developing economies: Empirical evidence from Ghana". *Journal of Economic and Administrative Sciences*, 2022.
- [3] Crentsil, J. E. "Fiscal Policy and Tax Revenue on the Growth and Development of the Ghanaian Economy: Adam Smith's Classical Model of Taxation as a Referent Yardstick". *British Journal of Multidisciplinary and Advanced Studies*, 4(3), 62-80,
- [4] Friedman, M. *Choice, chance, and the personal distribution of income*. *Journal of Political Economy*, 61(4), 277-290, 1953.
- [5] Rodriguez-Justicia, D., & Theilen, B. "Immigration and tax morale: the role of perceptions and prejudices." *Empirical Economics*, 62(4), 1801-1832, 2022.
- [6] Rodriguez-Justicia, D., & Theilen, B. "Education and tax morale". *Journal of Economic Psychology*, 64, 18-48, 2018. <https://doi.org/10.1016/j.joep.2017.10.001>.
- [7] Doerrenberg, P., & Peichl, A. "Progressive taxation and tax morale." *Public Choice*, 155(3-4), 293-316, 2013.
- [8] Alm, J., & Torgler, B. "Culture differences and tax morale in the United States and Europe," *Journal of Economic Psychology*, 27(2), 224-246, 2006.
- [9] Feld, L. P., & Frey, B. S. "Trust breeds trust: How taxpayers are treated," *Economics of Governance*, 3(2), 87-99, 2002. <https://doi.org/10.1007/s101010100032>.
- [10] Barone, G., & Mocetti, S. "Tax morale and public spending inefficiency." *International Tax and Public Finance*, 18(6), 724-749, 2011. <https://doi.org/10.1007/s10797-011-9174-z>.
- [11] Torgler, B. "The importance of faith: Tax morale and religiosity." *Journal of Economic Behaviour & Organization*, 61(1), 81-109, 2006. <https://doi.org/10.1016/j.jebo.2004.10.007>
- [12] Allingham, M. G., & Sandmo, A. "Income tax evasion: A theoretical analysis". *Journal of Public Economics*, 1(3-4), 323-338, 1972.
- [13] Srinivasan, T. "Tax Evasion: A Model". *Journal of Public Economics*, 2(4), 339-346, 1973
- [14] Becker, G.S., "Crime and Punishment, an Economic Approach", *Journal of Political Economy*, Vol. 76, Num. 2, pp. 168-217, 1968.
- [15] Ntiamoah, J. A., & Asare, J. "Economic versus Non-Economic Factors: Which is More Relevant to an Individual's Tax Compliance Decisions in a Developing Economy". *Universal Journal of Accounting and Finance*, 10(1), 181-190, 2022.

- [16] Ogu, M. I. "Rational choice theory: Assumptions, strengths, and greatest weaknesses in application outside the Western milieu context." *Arabian Journal of Business and Management Review (Nigerian Chapter)*, 1(3), 90–99, 2013.
- [17] Elster, J. *Social norms and economic theory*, *Journal of Economic Perspectives*, American Economic Association, 3(4), 99-117, 1989.
- [18] Akyeampong, K. "Revisiting free compulsory universal basic education (FCUBE) in Ghana", *Comparative Education*, 45:2, 175-195, 2009, <https://doi.org/10.1080/03050060902920534>.
- [19] Gaddah, M., Munro, A., & Quartey, P. "Education subsidy and school enrolments in rural Ghana." *International Journal of Educational Development*, 46, 143-152, 2016. <https://doi.org/10.2139/ssrn.3120303>.
- [20] Osei, R. D., Osei-Akoto, I., Quarmin, W., & Adiah, G. A. N. "Public spending in Ghana: An assessment of national level data (1995-2005)." *GSSP working papers*, (4), 2007.
- [21] Ministry of Education. "Free Compulsory Universal Basic Education by the Year 2005 Basic Education Sector Implementation Program." *Policy Document*, (1), 1996.
- [22] UNICEF. (2022). *Education budget brief*. Retrieved from <https://www.unicef.org/ghana/media/4576/file/2022%20Education%20Budget%20Brief%20.pdf>
- [23] Adu-Ababio, K., & Osei, R. D. "Effects of an education reform on household poverty and inequality: A microsimulation analysis on the free Senior High School policy in Ghana," *UNU-WIDER Working Paper 147*, 2018. Retrieved April 30, 2020, pp.1–17.
- [24] Chanimbe, T., & Dankwah, K. O. "The 'new' Free Senior High School policy in Ghana: Emergent issues and challenges of implementation in schools", *Interchange*, 52(4), 599-630, 2021.
- [25] Foli, R. "Transnational actors and policymaking in Ghana: The case of the Livelihood Empowerment Against Poverty." *Global Social Policy*, 16(3), 268-286, 2016.
- [26] Gangl, K., Torgler, B., & Kirchler, E. "Patriotism's impact on cooperation with the state: an experimental study on tax compliance." *Political Psychology*, 37(6), 867-881, 2016.
- [27] Konrad, K. A., & Qari, S. "The last refuge of a scoundrel? Patriotism and tax compliance." *Economica*, 79(315), 516–533, 2012.
- [28] MacGregor, J., & Wilkinson, B. "The Effect of Economic Patriotism on Tax Morale and Attitudes Toward Tax Compliance." *Advances in Taxation*, 159–180, 2012. [https://doi.org/10.1108/s1058-7497\(2012\)0000020009](https://doi.org/10.1108/s1058-7497(2012)0000020009).
- [29] Nazaruddin, I. "The Role of Religiosity and Patriotism in Improving Taxpayer Compliance." *Journal of Accounting and Investment*, 20(1), 2018. <https://doi.org/10.18196/jai.2001111>
- [30] Hennighausen, T., & Heinemann, F. "Don't tax me? Determinants of individual attitudes toward progressive taxation." *German Economic Review*, 16(3), 255–289, 2015.
- [31] Bodea, C., & LeBas, A. "The origins of voluntary compliance: Attitudes toward taxation in Urban Nigeria." *British Journal of Political Science*, 46(1), 215–238, 2016.
- [32] D'Arcy, M. "Why Do Citizens Assent to Pay Tax? Legitimacy, Taxation, and the African State? Legitimacy, Taxation, and the African State." *Afrobarometer Working Paper*, (126), 2011.
- [33] Fjeldstad, O., Schulz-Herzenberg, C., & Sjursen, I. "People's Views of Taxation in Africa: A Review of Research on Determinants of Tax Compliance." *CMI Working Paper* (7), 2012. <http://dx.doi.org/10.2139/ssrn.2411424>.
- [34] Read, B. (2018). "Taxation and accountability in developing countries: -Does taxation motivate citizens to hold government accountable? If so, how is taxation increased and tax evasion decreased?"
- [35] Flores-Maccas, G. A. "Building Support for Taxation in Developing Countries: Experimental Evidence from Mexico." *SSRN Electronic Journal*, 2016.

- [36] Ortega, D., Ronconi, L., & Sanguinetti, P. "Reciprocity and Willingness to Pay Taxes: Evidence from a Survey Experiment in Latin America." *Economía*, 16(2), 55–88, 2016. <https://doi.org/10.31389/eco.78>
- [37] Timmons, J. F., & Garfias, F. "Revealed Corruption, Taxation, and Fiscal Accountability: Evidence from Brazil." *World Development*, 70, 13–27, 2015. <https://doi.org/10.1016/j.worlddev.2014.12.011>.
- [38] Daude, C., Gutierrez, H., & Melguizo, A. "What drives tax morale? A focus on emerging economies." *Review of Public Economics*, 207(4), 9-40, 2013.
- [39] Deyganto, K. O. "Factors influencing taxpayers' voluntary compliance attitude with tax system: Evidence from Gedeo zone of Southern Ethiopia". *Universal Journal of Accounting and Finance*, 6(3), 92-107, 2018.
- [40] Wang, X., & Cheng, Z. "Cross-Sectional Studies: Strengths, Weaknesses, and Recommendations." *Chest*, 158(1), 65–71, 2020. <https://doi.org/10.1016/j.chest.2020.03.012>.
- [41] Apuke, O. D. "Quantitative research methods: A synopsis approach". *Kuwait Chapter of Arabian Journal of Business and Management Review*, 33(5471), 1–8, 2017.
- [42] VanVoorhis, C. W., & Morgan, B. L. "Understanding power and rules of thumb for determining sample sizes." *Tutorials in Quantitative Methods for Psychology*, 3(2), 43–50, 2007.
- [43] Wallen, N. E., & Fraenkel, J. R. "Educational research: A guide to the Process." Routledge, 2013.
- [44] Bryman, A., & Cramer, D. *Quantitative data analysis with IBM SPSS 17, 18 and 19*. Routledge, 2011.
- [45] Brace, I. "Questionnaire design: How to plan, structure and write survey material for effective market research." Kogan Page Publishers, 2018.
- [46] Patten, M. "Questionnaire research: A practical guide." Routledge, 2016.
- [47] Emerson, R. W. "Convenience sampling, random sampling, and snowball sampling: How does sampling affect the validity of research?" *Journal of Visual Impairment & Blindness*, 109(2), 164–168, 2015.
- [48] Bhardwaj, P. "Types of sampling in research". *Journal of Primary Care Specialties*, 5(3), 157–163, 2019.
- [49] Taherdoost, H. "Sampling methods in research methodology; how to choose a sampling technique for research. How to Choose a Sampling Technique for Research" April 10, 2016.
- [50] Hasan, N., Rana, R. U., Chowdhury, S., Dola, Afrin Jahan, & Karim, M. "Ethical considerations in research. *Journal of Nursing Research*," *Patient Safety and Practice (JNRPSP)* 27991210, 1(01), 1–4, 2021.
- [51] Mukaka, M. M. "A guide to appropriate use of correlation coefficient in medical research." *Malawi Medical Journal*, 24(3), 69–71, 2012.
- [52] Akoglu, H. *User's guide to correlation coefficients*. *Turkish Journal of Emergency Medicine*, 18(3), 91–93, 2018.
- [53] Taber, K. S. "The use of Cronbach's alpha when developing and reporting research instruments in science education." *Research in Science Education*, 48, 1273–1296, 2018.
- [54] Huong, V. V., & Cuong, L. K. "Does government support promote SME tax payments? New evidence from Vietnam." *Finance Research Letters*, 31, 2019. <https://doi.org/10.1016/j.fr.l.2018.11.017>.
- [55] Alm, James, Betty R. Jackson, and Michael McKee. "Fiscal exchange, collective decision institutions, and tax compliance." *Journal of Economic Behavior & Organization* 22, no. 3 285-303, 1993.
- [56] Luttmer, E. F., & Singhal, M. "Tax morale." *Journal of Economic Perspectives*, 28(4), 149-168, 2014

[57] Kiow, T. S., Mohd, S., & Kassim. "The determinants of individual taxpayers' tax compliance behavior in peninsular Malaysia. *International Business and Accounting Research Journal*, 1(1), 26–43, 2017.

[58] Alshira'h, A. F., Al-Shatnawi, H. M., Al-Okaily, M., Lutfi, A., & Alshirah, M. H. "Do public governance and patriotism matter? Sales tax compliance among small and medium enterprises in developing countries: Jordanian evidence". *EuroMed Journal of Business*, 16(4), 431–455, 2020. <https://doi.org/10.1108/emjb-01-2020-0004>

[59] Tabachnick, B. G., & Fidell, L. (2019). *Using multivariate statistics* New York, NY: Pearson. (7th edition)

Challenges Facing IASs/IFRS Implementation by Libyan Listed Companies

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ABSTRACT

This study examines the factors that may be considered as challenges or difficulties facing the implementation of the International Accounting Standards (IASs), and International Financial Reporting Standards (IFRS), by Libyan companies listed on the Libyan Stock Market (LSM). A qualitative approach was employed using semi-structured interviews to collect data. The results reveal that most listed companies prepare their financial statements taking into account the existing laws and the financial regulations, such as the Tax Law, and Libyan Commercial Law, prior to the GAAP with which they comply. The study also finds that the challenges facing the IASs/IFRS implementation in the preparation of listed companies' financial reports include the following: 1) most listed companies do not offer training programmes, and those that do have only weak provision in this respect, 2) accountants lack adequate skills, awareness and capabilities in implementing IASs/IFRS, 3) accounting education curricula do not include the IASs/IFRS on their syllabus, 4) the vast majority of participants are unable to use the English language in preparing accounts, 5) there is an absence of enforcement from the LSM and external auditors, and 6) the LSM governance mechanisms are weak.

Keywords Accounting Regulation, IASs/IFRS, Developing Countries, Libya, Listed Companies

1. INTRODUCTION

Over the years, corporations in developing countries have come to report their financial and accounting information according to the Generally Accepted Accounting Principles (GAAP) or their domestic accounting regulations. In this context, a key objective of accounting is to provide reliable information to stakeholders who may not have access to this information, to enable them to make rational decisions. However, [18] argues that as most stakeholders are remote from management, they are at an information disadvantage, and hence, there is information asymmetry. This information asymmetry is often used as a justification for regulation. Consequently, a wide range of accounting regulations exist and influence the process of accounting and the work expected of accountants. As an example, there are accounting regulations and laws governing the operation of corporations, and many of these require the disclosure of reliable accounting information.

Accounting regulation, therefore, exists to minimise the remoteness gap created by the separation of management and ownership [23]. Therefore, the International Accounting Standards (IASs) or International Financial Reporting Standards (IFRS) are now used in almost every developed country as the reporting standards. For instance, the European Union adopted the IFRS as mandatory reporting standards for the consolidated financial reports of corporations listed on the European stock market [31]. Nowadays, the accounting profession and all interested parties, operate in an era of convergence from the GAAP to the IFRSs; although as found by [31] "some countries still use national GAAP as the

the basis of tax calculation and some countries adjust/change tax regulation to support IFRS implementation”.

Implementation of these standards has been successful in emerging economies such as China, Zimbabwe, and Mauritius, but has failed in other countries such as Pakistan and Kuwait, [4]. This may be because the process of convergence is intensive, and presents a great challenge that may not be as simple as one may think [33]. From a review of the IFRS literature, it can be noted that IFRSs implementation in developed countries has received considerable attention from researchers [13, 17, 22, 26], However, this topic has been neglected in the developing country context. Hence, this paper aims to investigate the IFRSs implementation in developing countries, taking Libya as a typical developing North African country. More specifically, the study intends to investigate the factors that may be considered as challenges to IASs/IFRS implementation in Libya OFI. The focus of the study is on Libyan listed companies, the reason being that these companies are mandated to prepare their financial reports according to the IASs/IFRS IF

2. Literature Review

The preference for either the IFRS or the US GAAP to operate as the internationally accepted uniform set of applications, is now less clear cut than previously, because while public opinion used to acknowledge the GAAP as the gold star, nowadays, as noted by [10], the world takes the IFRS as its reference point. In addition, from the perspective of professional accountants, compliance with the IFRS improves the comprehensibility and reliability of financial statements, and makes for a decrease in accounting frauds. Furthermore, [21, 35], argue that there is a convincing indication of the ability of these standards to enhance economic growth as their use attracts increased foreign investments.

Foreign investment within competitive and dynamic international capital markets, is driven in part by the presence of mandatory accounting standards for private companies in some developing Asian countries [8]. Moreover, [36] argue that the competitiveness and efficiency of the international capital market depend on the ability of financial statements preparers to communicate effectively with investors through the channel of financial reports. Therefore, it can be noted that preparing financial reports according to IFRSs may play a vital role in attracting foreign investment in developing countries. The implementation of the IFRSs in developing countries, does however, encounter certain challenges that may be considered to slow down the process of transition to IASs/IFRSs.

For instance, effectiveness in the application of the IFRSs in developing countries, requires human resources to be properly trained in order that the standards can be understood and applied. Currently, the absence of qualified personnel in this respect is a big challenge facing the process of transition to IFRS [2, 42, 19, 25]. In Nigeria, for example, it is found by [1], that two impediments to full implementation of the IFRS are the absence of training facilities, and the outmoded academic curriculum. Specifically, accounting education deficiencies and outdated accounting curricula serve to make the adoption of the IFRSs more difficult in that country [4, 25, 39], In this context, the lack of executive capacity, shortage of accounting personnel, and absence of suitable accounting infrastructure, can be attributed to accounting education shortcomings, all of which consequently obstruct companies in emerging economies in their efforts to make the transition to the IFRS [33, 34], Another instance is that of Algeria, which like other developing countries suffers from a general lack of professional qualifications and practical experience amongst accounting educators. This problem represents a substantial challenge in the process of convergence to the IFRSs [38]. Another example is that of Libya, where accounting education and other educational programmes were established in the late 1950s according to models

and advice from professional bodies and in the UK and the USA [28] Whilst this foundation was good at the time, since then the country's accounting profession has been struggling to move towards the application of the IFRS due to the constraints of domestic laws and the overall regulatory framework.

In fact, a number of developing countries in Africa, which are affiliated to the British Commonwealth, have developed their accounting systems on the basis of the British Companies Acts [5], and clearly many of the socio-political, economic, cultural, and environmental considerations upon which these Acts were founded, are quite different from the particular economic circumstances prevailing in African countries. Therefore, one could argue that this legacy presents a big challenge to such countries as they plan to convert to the IFRSs. This point is articulated by [1] who state that:

“The IFRSs will lead to inconsistencies with existing laws such as the Companies and Allied Matters Act 1990, Securities and Exchange Commission laws, Banking laws and regulations and Insurance laws. Presently, the reporting requirements are governed by various regulators in Nigeria and their provisions override other laws. Whereas IFRS does not recognize such overriding laws, steps to amend these laws must be taken to ensure that the laws are amended well in time”.

The adoption of the IASs/IFRSs can be observed as resulting from pressure brought to bear by external auditors. In Bahrain, for instance, external auditors are considered as a source of pressure on their clients as they strongly attempt to influence their decisions in favour of adopting the IASs [3, 24]. Similarly, in Thailand local external auditors and Big 4 audit firms are perceived to exert pressure to persuade enterprises and corporations to adopt the IASs [41]. Moreover, in the Middle East countries, a number of national auditors have become partners with Big 4 audit firms and this has forced corporations to improve the level of reporting disclosure [32] Clearly, local external auditors, as partners with the Big 4 audit firms, facilitate the path towards adoption of the IFRS, although there does remain the need for local auditors to acquire proper communication skills, such as the English language.

The need to prepare financial reports in English is an important determinant of whether companies in countries where English language is not the native one adopt the IASs, as noted by [6], researching in the United Arab Emirates (UAE). For instance, countries with Anglo-Saxon ties are more likely than those without such ties, to adopt the IFRS as part of their corporate governance responsibility [9, 43], This is emphasised by [40], who state that “the Anglo-Saxon model [of governance] has been implanted on many developing countries due to colonial influence or pressure from international funding agencies”. However, [30] argues that in the precise context of SMEs, it is the accounting culture of a certain geographical area that influences the application of the IFRS. In this context, Libya's accounting culture does not differ from those of Bahrain, United Arab Emirates and other Middle Eastern countries. More specifically, [37] argue that the auditing profession in Libya is influenced by the cultural values of family, tribe, and community. And [42] provides support for this overall idea, pointing out that national cultures play a role in accountants' disclosure judgments and that uniform accounting standards may not result in similar disclosure decisions being made across countries. The review of the literature prompted the question of whether the above factors represent challenges to listed companies in Libya, and in order to shed light on this issue, data were collected using a qualitative approach. The following section describes and justifies the usage of this research method.

3. Research Methodology and Data

The research method adopted in this study is the semi-structured interview. The purpose of the interview is to provide valid and reliable data which are relevant to the objectives of the research study concerned [29]. It is accepted that the interview is the most widely employed method for data collection in qualitative research [11], and one reason is that interviews allow for more in-depth and insightful information about the topics under investigation to be obtained. Whilst the use of interviews can be time-consuming, when the population involved is relatively small, as is the case in this study, interviews can be very effective. The designing and structure of data collection technique comprised of three sections. Section one covers the biographic data about the participant, while section two consists of open ended questions that reveal the way they carry out their accounting entries. The third section is designed to uncover if there is any challenges or barriers that may prevent the application of IASs/IFRS. This study's population comprises all financial managers and internal auditors in charge of all ten Libyan companies listed on the LSM. This produces a total of 20 subjects, three of whom were unwilling to participate, and six of whom were not available. The eventual interviewee group therefore comprised eleven subjects.

4. Findings and Discussions

The results of the semi-structured interviewees are presented in Table 1. When interviewees were asked on what basis they prepared financial statements, they all indicated that their companies were following the GAAP. For instance, one of the internal auditors said "our company's financial statements are prepared according to the GAAP which I have had studied during my graduate school, despite the company is registered in the Libyan stock market". Similarly, one financial manager added "the financial statements of the company are prepared in accordance with the GAAP, and I think these financial statements are produced according to the IASs because the IASs do not differ from the GAAP".

Table 1. Challenges Facing IASs/IFRS Implementation By Libyan Listed Companies

Participants	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
FM	√		√	√				√	√	√	√	√	√		√
FM	√		√	√	√			√	√	√	√		√		√
FM	√		√	√	√			√	√	√	√		√		√
FM	√		√	√				√	√	√	√		√		√
FM	√		√	√				√	√	√	√		√		√
FM	√		√	√	√			√	√	√	√		√		√
InA	√		√	√	√			√	√	√	√		√		√
InA	√		√	√	√			√	√	√	√		√		√
InA	√		√	√	√			√	√	√	√	√	√		√
InA	√		√	√				√	√	√	√		√		√
InA	√		√	√	√			√	√	√	√	√	√		√
Total = 11 Interviewees															
FM = Financial Manager, InA = Internal Auditor, √ = Positive, Blank = Negative															

As for the existing laws and regulations relating to the preparation of companies' financial statements, all interviewees stated that they took certain laws and financial regulations into account when preparing these accounts. For example, one internal auditor said that "the laws and financial regulations which are followed when companies prepare their accounts such as Tax Law (TL), Commercial Law (CL), General Financial regulation (GFR), and Company's Internal Regulations (CIR)". Another financial manager stated that "there some laws and financial regulations are imposed on companies and must be followed when preparing the financial statements which are namely TL, CL, GFR and CIR".

With regard to the source of influence of both existing laws and the GAAP, all interviewees stated that the laws and financial regulations are applied prior to the GAAP. For example, one manager said that "in fact, we consider the laws and regulations which are compulsory to implement by the company, especially those articles that are relevant to the accounting treatments, and then we follow the GAAP for accounting treatments that are not included in these laws".

Almost 60% of respondents expressed the opinion that the existing laws and financial regulations limited the application of the GAAP and/or IASs. For instance, one financial manager said "there is a flexibility in the application of any accounting standards such as IASs or the GAAP. But the company must apply the laws and financial regulation before these accounting standards". As for using the English language in preparing financial statements, all respondents confirmed that English was not used in their companies at all. Furthermore, there is no law in Libya that requires companies to use English language in preparing accounts.

These results revealed that the Libyan listed companies prepare their accounts according to the GAAP, and that the financial statements are strongly influenced by the laws and financial regulations of the country, which are adhered to prior to the GAAP. Moreover, the results are consistent with those of previous studies [1,5] which revealed that the existing laws are not in line with the IFRS, and that IFRS implementation requires amendments to these statutes. In the context of Libya, it can be concluded that Libyan authorities adopted IASs in 2006 without any alteration to the prevailing legislation, and the lack of change in this respect, is considered a big challenge facing IASs implementation.

When interviewees were asked about the difficulties encountered in attempting to implement the IASs/IFRS

when preparing listed companies' financial all confirmed that the companies concerned did not actually apply the IASs/IFRS because of the problems they faced in trying to do that. Essentially, the problems refer to the fact that accountants are unaware of IASs/IFRS applications, and incapable of compliance as there are no relevant training programmes to educate them in this matter. Consequently, accountants remain ignorant. One internal auditor said "I think that all accountants and internal auditors in our company have neither efficiency nor the ability to follow

IASs/IFRS when they prepare company's accounts. Moreover, they have no idea about these standards at all, and there is not any source of IASs/IFRS reference available so that they can get more information about these standards. I also believe that if accountants in financial departments and internal auditors are provided with suitable and adequate training programmes about IASs/IFRS applications, they would have the efficiency and skills so that they would be able to apply IASs/IFRS".

The shortcoming in accounting education curricula, already mentioned, and evident in the fact that there is no coverage of the IASs/IFRS, is the reason why accountants are deficient in this respect. Without the fundamental knowledge of the IASs/IFRS in the first place, accountants cannot be expected to prepare financial statements in accordance with these standards. On this issue, one financial manager said “I believe that inadequate accounting education in Libya is considered as one of the reasons behind companies not able to apply IASs/IFRS. This is because the accounting education curriculums do not include IASs/IFRS programmes, except the postgraduate programmes which include a limited introduction of IAS. In addition, the senior management of the company does not pay attention about these standards”. That said, however, the fact that the English language is not used as an official language in Libya means that even with an improved accounting curriculum, accountants would be unable to produce financial statements in English. Indeed, the lack of ability in English language has made it difficult for accountants to understand even the translated version of the IASs/IFRS. Clearly, these factors represent large obstacles to the application of these standards in Libya.

They are not, however, the only problems since another barrier is seen in the lack of enforcement by external auditors, the Libyan Accounting Bureau (LAB), and the Libyan Stock Market (LSM). This was confirmed by one internal auditor who said “there is no any enforcement imposed from the external auditors or the LSM to implement IASs/IFRS. Although, the LSM requires all listed companies to follow IASs in preparing the financial statements, LSM lacks the pressure to impose its authority upon listed companies to apply IASs. Furthermore, even other related governing parties do not have any enforcement on the implementation of IASs”.

When interviewees were asked about the role of external auditors in exercising pressure or providing advice to facilitate the implementation of the IASs in preparing financial statements, all respondents emphasised that audit reports include the financial statements representing their companies’ financial positions, and that these are prepared according to the GAAP without reference to the IASs, despite the fact that the LSM law requires companies to follow the IASs.

Obviously, the application of the IASs/IFRS faces several difficulties, which can be listed as: the lack of training programmes; the lack of inclusion in the accounting curriculum of the IASs; the consequent lack of awareness among preparers of the IASs/IFRS and how to implement them; the absence of enforcement; the weakness of the LSM governance system; and the inability of preparers and auditors to use the English Language. These findings are in line with those of [1, 4, 6, 9, 25, 28, 39]. However, these results are inconsistent with the results of [3, 24, 32, 41], since all these researchers found that external auditors do exercise pressure to try to achieve IASs implementation. From these findings, one can conclude that the difficulties preventing listed companies from applying the IASs/IFRS are due to the fact that the English Language is not used since this has led to the lack of awareness of the standards among preparers and auditors.

5. Conclusions

This study aimed to examine the challenges facing Libyan listed companies in their application of the IASs/IFRS. The interviewees revealed that although the LSM law requires compliance with the IFRS, listed companies prepare their financial statements considering the existing laws and the financial regulations (such as the TL and LCL), prior to the GAAP. Several challenges to the process of implementing the IASs/IFRS in preparing financial statements were highlighted, these being: the lack of training programmes; the lack of inclusion in the accounting curriculum of the IASs; the consequent lack of awareness among preparers of the IASs/IFRS and how to implement them; the absence of enforcement; the weakness of the LSM governance system; and the inability of preparers and auditors to use the English Language. Given these results, it is recommended that Libyan regulators amend the existing laws to facilitate IASs/IFRS applications. Policy-makers also need to incorporate these standards into accounting curriculums and training programmes to ensure that there is synchronisation between the accounting profession, and accounting education at the national level. One limitation to this research is that this study does not include the opinion of external auditors because it is expected that they would provide defensive opinion about their role of enforcement towards the application of IASs/IFRS. However, future research to include the views of external auditors would explain more about the level of acquiescence on application of IASs/IFRS. It would also be appropriate to conduct more research to explore whether such challenges exist in the Libyan banking sector, and to assess the current state of corporate governance in Libyan companies generally.

REFERENCES

- [1] Ailemen, I. O. and Akande, A. O. (2012) "International Financial Reporting Standards (IFRS): Benefits, Obstacles and Intrigues for Implementation in Nigeria", *Business Intelligence Journal*, Vol.5 No.2, pp. 299–307.
- [2] Akdogan, N. (2007) "Accounting in Turkey/Financial Reporting Standards Application Process: Problems, Solutions", *Journal of Financial Solutions*, Vol. 80, pp. 101–117.
- [3] Al-Basteki, H. (1995) "The Voluntary Adoption of International Accounting Standards by Bahrain Corporations", *Advances in International Accounting*, Vol. 8, pp. 47-64.
- [4] Albu, N. and Albu, C. N. (2012) "International Financial Reporting Standards in an Emerging Economy: Lessons from Romania", *Australian Accounting Review*, Vol. 22, No. 63, pp. 341–352.
- [5] Alexander, D. and Nobes, C. (2010) "Financial Accounting: An International Introduction" 4th. London, Prentice Hall.
- [6] Aljifri, K. and Khasharmeh, H. (2006) "An Investigation into the Suitability of the International Accounting Standards to the United Arab Emirates Environment", *International Business Review*, Vol. 15, pp. 505 - 526.
- [7] Bait-El-Mal, M.M., Smith, C.H. and Taylor, M.E. (1973) "The Development of Accounting in Libya", *International Journal of Accounting*, 8(Spring), pp. 83-101.
- [8] Bhatia, S. (2012) "Private Company Accounting Drivers in Asia", *2nd Annual International Conference on Accounting and Finance, Procedia Economics and Finance*, Vol. 2 pp, 116–124.
- [9] Boolaky, P.K. (2012) "Accounting Development and International Financial Reporting Standards in Small Island Economies: The Case of Mauritius between 1960-2008". *Journal of Accounting in Emerging Economies*, Vol. 2.No. 1, pp. 4-29.
- [10] .Bozkurt, O., Islamoğlu, M., and Oz, Y. (2013) "Perceptions of Professionals Interested in Accounting and Auditing about Acceptance and Adaptation of Global Financial Reporting Standards", *Journal of Economics, Finance and Administrative Science*, Vol.18, No. 34, pp, 16-23.
- [11] Bryman, A. (2004) "Social Research Methods", 2nd, ed, Oxford, New York.
- [12] Central Bank of Libya (2005) "Banking Law No. 1 of 2005". Tripoli. Libya.

- [13] DeFond, M., Hu, X., Hung, M., Li, S. (2011) "The impact of mandatory IFRS adoption on foreign mutual fund ownership: The role of comparability", *Journal of Accounting and Economics*, Vol.51, No, 3, pp 240-258.
- [14] Dempsey, M. (2013) "Libya in Transition; Reforming the Financial Sector to Spur Economic Growth", *Legatum Institute & Brehon Advisory*. November, 2013, pp. 1 – 19.
- [15] Elfirjani, E. (2010) "Investigating the Corporate Accounting Regulation and Factors Influencing the Adoption of International Accounting Standards (IAS) in Libya" unpublished Thesis, Liverpool John Moores University UK.
- [16] Faraj, S. Akbar, S. (2010) "An empirical investigation of the Libyan audit market: perceptions of auditor's independence", *Journal for Global Business Advancement*, Vol. 3 No.2, pp.133-154.
- [17] Florou, A., Pope, P.F. (2012) "Mandatory IFRS Adoption and Institutional Investment Decisions". *The Accounting Review*, Vol. 87, No. 6, pp. 1993-2025.
- [18] Gaffikin, M.J.R. (2005) "Regulation as Accounting Theory", *Accounting & Finance working paper 05/09*, School of Accounting & Finance, University of Wollongong, Research Online.
- [19] Gonen, S., Ugurluel, G. (2007) "Turkey, International Financial Reporting Standards (IFRS) Transition Challenges Facing Applications and Solutions", *Journal of World Tax*, Vol. 316, pp. 229 – 236.
- [20] GPC (2006) "General People Committee Initiative No. 134/2006 regarding the Establishment of Libyan Stock Market and its Executive Guidelines".
- [21] Hove, M. (1989) "The inappropriateness of international accounting standards in less developing countries: The case of international accounting standard number 24 –Related Party Disclosure –concerning transfer prices", *The International Journal of Accounting Education and Research*, Vol. 24, No. 2, pp. 81-100.
- [22] Jeanjean, T., Stolowy, H. (2008) "Do Accounting Standards Matter? An Exploratory Analysis of Earning Management before and after IFRS Adoption", *Journal of Accounting and Public Policy*, Vol. 27, No.6, pp 480-494.
- [23] Jensen, M.C. and Meckling, W.H. (1976) "Theory of the Firm: Managerial Behaviour, Agency Costs, and Ownership Structure", *Journal of Financial Economics*, Vol. 3.4, pp. 305-360.
- [24] Joshi, P. L. and Ramadhan, S. (2002) "The Adoption of International Accounting Standards by Small and Closely Held Companies: Evidence from Bahrain", *The International Journal of Accounting*, Vol. 37, pp. 429 – 440.
- [25] Kapoor, B, and Ruhela, J. (2013) "IFRS Implementation –Issues and Challenges for India", *International Journal of Business and Management Research*, Vol. 3, No. 2, pp. 103 – 106.
- [26] Landsman, W.R., Maydew, E.L., Thornock, J.R (2012) "The information content of annual earnings announcements and mandatory adoption of IFRS", *Journal of Accounting and Economics*, Volume. 53, No 1–2, pp. 34–54.
- [27] Libyan Accountants & Auditor Association's Law 116 (1973) "Regarding the Organisation of Accounting and Auditing Profession in Libya", *The Official Gazette*, Libya.
- [28] Mahmud, M.B. & Russell, A. (2003) "An empirical investigation of the development of accounting education and practice in Libya, and of strategies for enhancing accounting education and accounting practice in Libya", *Research in Accounting in Emerging Economies*, Vol. 5, pp.197-236.
- [29] Marchall, C. and Rossman, G. (1989) "Designing Qualitative Research", *Sage*
- [30] Masca, E. (2012) "Influence of Cultural Factors in Adoption of the IFRS for SMEs", *Procedia Economics and Finance*,

Vol, 3, pp. 567–575.

- [31] Mulyadi, M.S., Soepriyanto, G., Anwar, Y. (2012) “IFRS adoption and taxation issue”, *International Journal of Arts and Commerce*, Vol. 1, No. 7, pp. 159-165.
- [32] Naser, K. and Nuseibeh, R. (2003) “Quality of Financial Reporting: Evidence from the Listed Saudi nonfinancial Companies”, *The International Journal of Accounting*, Vol. 38, PP. 41-69.
- [33] Nwachukwu, I. (2012) “KPMG Identifies Challenges Facing Companies Adopting IFRS”, Available at [-http://businessdayonline.com/NG/index.php/markets/companies-and-market/46065-kpmg-identifies-challenges-facing-companies-adopting-ifrs?format=pdf](http://businessdayonline.com/NG/index.php/markets/companies-and-market/46065-kpmg-identifies-challenges-facing-companies-adopting-ifrs?format=pdf).
- [34] Okaro S. C. (2011) “International Financial Reporting Standards - An Emerging Market Perspective”, *Social Science Research Network*.
- [35] Perera, M.H.B. (1989) “Accounting in developing countries; a case for localized uniformity”, *British Accounting Review*, Vol. 21, pp. 141-158.
- [36] Rezaee, Z., Smith, L.M., Szendi, J.Z. (2010) “Convergence in accounting standards: Insights from academicians and practitioners”, *Advances In Accounting*, Vol. 26, No. 1, pp. 142-154.
- [37] Ritchie, B. & Khorwatt, E. (2007) “The Attitude of Libyan Auditors to Inherent Control Risk Assessment”, *British Accounting Review*, Vol. 39, No. 1, pp. 39-59.
- [38] Saidi, F. (2013) “Accounting Developments in Algeria: The Road to IFRS”, *International Research Journal of Applied Finance*. Vol. IV, pp. 124-142.
- [39] Schachler, M. H, Al- Abiyad, S. A, Al- Hadad, A. A. (2012) “Evaluation of the Suitability of International Financial Reporting Standards (IFRSs) for Application in Emerging North African Countries: A literature Review and a Research Agenda”, *Journal of Modern Accounting and Auditing*, Vol. 8, No. 12, pp. 1773–1779.
- [40] Senaratne, S. and Gunaratne, P. S. M. (2008) “Corporate Governance Development in Sri Lanka; Prospects and Problems”, *International Research Conference and Management and Finance*, University of Colombo.
- [41] Srijunpetch, S. (2004) “The Implementation of International Accounting Standards in Thailand”, *Unpublished PhD Thesis, the University of Manchester, UK*.
- [42] Tsakumis, G.T. (2007) “The Influence of Culture on Accountants’ Application of Financial Reporting Rules”, *Abacus*, Vol. 43, No. 1, pp. 27-48.
- [43] Zeghal, D. and Mhedhbi, K. (2006) “An Analysis of the Factors Affecting the Adoption of International Accounting Standards by Developing Countries”, *The International Journal of Accounting*, Vol. 41, pp. 373–386.

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