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CONTENTS

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DETECTION AND PREDICTION OF MANAGERIAL FRAUD IN THE FINANCIAL STATEMENTS OF TUNISIAN BANKS

Salem Lotfi Boumediene, Montana State University Billings

ABSTRACT

This article models the detection and prediction of managerial fraud in the financial statements of Tunisian banks. The methodology used consist of examining a battery of financial ratios used by the Federal Deposit Insurance Corporation (FDIC) as indicators of the financial situation of a bank. We test the predictive power of these ratios using logistic regression. The results show that we can detect managerial fraud in the financial statements of Tunisian banks using performance ratios three years before its occurrence with a classification rate of 71.1%.

JEL: M41, M42, C23, C25, G21

KEYWORDS: Fraud, Ratio, Financial Statements, Bank, Detection, Prevention, Logistic Regression Model

INTRODUCTION

Garner (2009) defines fraud as "A knowing misrepresentation of the truth or concealment of a material fact to induce another to act to his or her detriment". The professional and academic literature defines fraud in financial statements differently. The International Federation of Accountants (IFAC) devoted an entire standard for auditor responsibility relating to fraud. The International Standard on Auditing (ISA) 240 (IFAC (2009)) defines fraud as "an intentional act by one or more individuals among management, those charged with governance, employees, or third parties, involving the use of deception to obtain an unjust or illegal advantage".

Moreover, the American Institute of Certified Public Accountants (AICPA) in the Statement on Auditing Standard (SAS) N°99 -Consideration of Fraud in a Financial Statement Audit- refers to fraud as "an intentional act that results in a material misstatement of financial statements that are the subject of an audit". In the SAS 99, two types of fraud are considered. The first type are misstatements arising from fraudulent financial reporting such as falsification of accounting records or intentional omission from the financial statements of events, transactions, or other significant information. The second are misstatements arising from misappropriation of assets such as theft of assets, embezzling receipts or causing an entity to pay for goods or services not received.

The results of the latest report published by the Association of Certified Fraud Examiners (ACFE) in 2012 are alarming. Indeed, the lighthouse observation of this report is that fraud costs 5% of total annual turnover of the companies affected. The Committee of Sponsoring Organizations of the Treadway Commission (COSO), in its third report published in 2010 showed that for a sample of 347 fraudulent companies, the median fraud is $12.1 million. For 30 cases of fraud, each case includes anomalies or misappropriation of $500 million or more.

The study of fraud in financial statements of public companies in Tunisia is especially needed after the revolution. Cases of fraudulent financial reporting, misappropriation of assets or embezzlement, have been in the courts. This study focuses on Tunisian banks since the banking sector had been subject to misuse of funds in the form of granting large credits for projects without securing them or at an interest rate lower than it should be. This remainder of the paper proceeds as follows. Section 2 presents a brief review of literature and the hypothesis. Section 3 presents the methodology. Section 4 presents the results. Section 5 concludes.

LITERATURE REVIEW AND HYPOTHESIS

Motivations for companies to commit financial statements fraud are numerous. Economic incentives are common causes of fraud in the financial statements, as well as psychotic motivations, self-centeredness and ideology. These motivations can play an important role in financial statement fraud. Pressures and economic incentives to match analysts' forecasts are fundamental motivations for listed companies to commit financial fraud. Psychological motivations associated with criminal behavior are rare in our case. Egocentric motivations are outlined in the fact that, through fraud, the person increases his personal prestige. The desire of managers to fulfill a functional authority in society results in this type of motivation. Ideological motivations encourage executives to think that, through fraud, they can become market leaders and consequently, improve their position in society. Managerial fraud and companies' performance have been separated, each having its own theoretical framework. According to Griffin & Lopez, the research of management illegal behavior had produced a variety of models and definitions.

Fraud in the financial statements occurs, if the company has strong incentives, as well as economic reasons to announce a more favorable financial performance than actually occurred, in accordance with Generally Accepted Accounting Principles (GAAP). Empirical investigations (Carter & Stover (1991); Latham & Jacobs, (2000a, 2000b)) identified two fundamental variables, managerial ownership and the debt limit, which affect the extent of fraud in financial statements. These studies show that when managerial ownership is between 5-25%, opportunistic behavior of managers is expected and the likelihood of engaging in financial statement fraud is higher. Previous research (Carcello & Palmrose (1994); Dechow et al. (1996); Lys & Watts (1994)) focused on examining measures of financial difficulties in terms of weak financial conditions and weak financial performance as motivational mechanisms. The conclusions reached by this research, argue that motivations to commit fraud in the financial statements increases when firm encounter financial difficulties. The researchers found the chance to engage in financial statements fraud increase when company financial conditions and performance deteriorate.

According to the COSO Report (2010), the Securities and Exchange Commission (SEC) provided discussion in Accounting and Auditing Enforcement Releases (AAERs) about the alleged motivation for fraud. Most commonly cited reasons summarized by the SEC in the AAERs include committing the fraud to 1.) Meet external earnings expectations of analysts and others, 2.) Meet internally set financial targets or make the company look better, 3.) Conceal the company's deteriorating financial condition, 4.) Increase the stock price, 5.) Bolster financial position for pending equity or debt financing, 6.) Increase management compensation through achievement of bonus targets and through enhanced stock appreciation and 7.) Cover up assets misappropriated for personal gain.

Recent corporate governance scandals show that in most companies, executives have incentives to increase profits to improve their bonuses. Giving shareholders authority to choose elements of bonuses to executives can eliminate these incentives. Zahra et al. (2005) found that fraudulent behaviors in various disciplines have generated different perspectives and labels.

Studies developed on bank financial statements fraud are rare. The 2012 report of the ACFE shows that banking and financial services are leading victims by generating 16.7% of fraud cases. Moreover, the report

shows that managerial fraud ranks first and second in the ranking of fraudsters. Indeed, there is a strong correlation between the fraudster function within the company and the losses caused by the fraud. The median loss caused by the owner/manager is more than three times the loss caused by managers, and more than nine times the losses caused by employees. Ramage et al. (1979) noted that financial institutions have different characteristics of errors than other sectors. Palmrose (1988) and St. Pierre & Anderson (1984) showed that about 30% of trials involved banks and loan institutions auditors. Kreutzfeldt & Wallace (1986, 1990) noted that characteristics of inaccuracies, in terms of error rate and false accounts, vary across sectors. Banks are exposed to significantly higher error rates than other sector companies in liquidity accounts. Maletta & Wright (1996) examined 36 commercial banks and 14 savings and loan institutions (S&Ls). S&Ls have the highest error percentage that overstated net income of about 68.8%.

Abaoub et al. (2012) studied banking sector fraud in the Tunisian context. They choose a subset of financial ratios used by the Federal Deposit Insurance Corporation as indicators of the financial situation of a U.S. bank and tested their predictive power three years before the occurrence of fraud. In their research, Abaoub et al. (2012) analyzed the mean difference for the group of fraudulent banks and the group of non-fraudulent banks. This allowed the determination, for each period, of the most significant ratios in fraud detection. In a second stage, the authors performed discriminant analysis, which showed that fraud could be detected two years before its occurrence. Next, we follow present our empirical validation for Tunisian banks. The assumptions are classified into three groups, depending on the nature of ratios:

Assumption relating to performance ratios H1
$H1_1$: Banks with low performance ratios are exposed to a greater occurrence of managerial fraud.

Assumption about growth ratios H2
$H2_1$: Banks with high growth ratios are exposed to a greater occurrence of managerial fraud.

Assumptions regarding capital ratios H3
$H3_1$: Banks with low capital ratios are exposed to an increased frequency of managerial fraud.

METHODOLOGY

The objective of this study is to detect managerial fraud before its occurrence. We test the predictive ability of a battery of ratios, one year, two years and three years before the occurrence of fraud. Different techniques have been developed to detect financial statement fraud (Ravisankar et al. (2011)). However, in this paper, we adopt the McAteer methodology (2009). This choice is based on several arguments. In addition to the scarcity of studies on the detection and prevention of fraud in banks financial statements, McAteer's methodology uses three groups of financial ratios produced by the Federal Deposit Insurance Corporation (FDIC). According to King et al. (2005), the FDIC uses financial ratios, among others indicators, as part of their responsibilities in the surveillance and monitoring activities of banks to ensure bank safety and soundness. Table 1 presents detail of the ratios used in our study. This methodology is based primarily on fraud prevention. So, there is a concern for the prediction-detection and prevention of fraud, an issue that seems relevant in regards to the risk of banks failure. The period chosen is based on the year of fraud. The period generally extends from 1999 to 2010. For our analysis, we took into account a three-year period prior to the occurrence of fraud for fraudulent and non-fraudulent banks. We consider that a bank commits fraud when the Financial Market Council (the Tunisian equivalent of the SEC) or the Government Accountability Office announced the occurrence of fraud or its external auditors issued an adverse opinion to the financial statements.

Data were collected directly from the web sites of banks or from the printed annual reports available at the library of Central Bank of Tunisia (BCT). The sample consists of 10 Tunisian universal banks over a period

of 12 Years. Table 2 provides descriptive statistics of the sample chosen, including the number of observation, the minimum, the maximum, the mean and the standard deviation of each variable.

Table 1: Variables in the Study

Variable	Definition
Performance ratios	
V_1 (ASTEMPM)	Assets per employee
V_2 (EEFFR)	Efficiency ratio
V_3 (IDDIVNIR)	Cash dividends to net income
V_4 (IDLNCORR)	Net loans and leases to core deposit
V_5 (INATRESSR)	Loss allowance to loans
V_6 (INLSDEPR)	Net loans and leases to deposits
V_7 (INTEXPY)	Cost of funding assets
V_8 (INTINCY)	Yield on earning assets
V_9 (NIMY)	Net interest margin
V_{10} (NOIJY)	Net operating income to assets
V_{11} (NONIIY)	Noninterest income to earning assets
V_{12} (NONIXY)	Noninterest expenses to earning assets
V_{13} (ROA)	Return on assets
V_{14} (ROE)	Return on equity
V_{15} (ROEEINJR)	Retained earnings to average equity
Growth ratios	
V_1 (ASTEMPM)	Assets per employee
V_{16} (EQV)	Equity capital to assets
V_{17} (ROLLPS5TA)	Growth ratio 1
Capital ratios	
V_{16} (EQV)	Equity capital to assets
V_{18} (RBC1AAJ)	Core capital (leverage) ratio

This table shows variables examined in this study.

Table 2: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Total Asset	120	902,862,000	6,753,589,000	2,802,904,145	1,461,116,459
Number of Employees	120	781	5,826	1,645.2	832.21
ASTEMPM	120	786,516	4,578,061	1,807,938	787,827
EEFFR	120	-0.0071	0.0403	0.0083	0.0069
IDDIVNIR	120	0.0000	349.90	3.303	31.908
IDLNCORR	120	0.7660	1.5238	1.125	0.1815
INATRESSR	120	-0.0012	0.1178	0.0142	0.0142
INLSDEPR	120	0.7660	34.629	1.806	3.943
INTEXPY	120	0.0175	0.0548	0.0310	0.0062
INTINCY	120	0.0584	0.1231	0.0807	0.0100
NIMY	120	0.0320	0.0787	0.0492	0.0102
NOIJY	120	-0.1027	0.0377	0.0101	0.0151
NONIIY	120	0.0097	0.0506	0.0209	0.0059
NONIXY	120	0.0000	0.0041	0.0008	0.0007
ROA	120	-0.1035	0.4349	0.0152	0.0546
ROE	120	-0.0281	9.423	0.1720	0.8533
ROEEINJR	120	0.0000	0.2977	0.0617	0.0484
ASTEMPM	120	786,516	4,578,063	1,807,938	787,827
EQV	120	0.0330	0.1748	0.0958	0.0287
ROLLPS5TA	120	0.5168	0.9568	0.8502	0.0693
EQV	120	0.0330	0.1748	0.0958	0.0287
RBC1AAJ	120	4.720	29.348	10.485	4.144
Valid N (listwise)	120				

This table shows descriptive statistics of the variables used in the study.

We conducted our empirical tests on a sample of 10 Tunisian universal banks, namely Attijari Bank (AT), Banque Internationale Arabe de Tunisie (BIAT), Banque Nationale Agricole (BNA) Tunisian Banking Company (STB), Banque de Tunisie (BT), Banque de l'Habitat (BH), Amen Bank (AB), Arab Tunisian Bank (ATB), Union Internationale de Banques (UIB) and Union Bank for Trade and Industry (UBCI). The sample of fraudulent banks is composed of BIAT, BH, BNA, STB, UIB, AB, and AT. This means that each bank perpetrated at least one fraud in one year. The control group is composed of the remaining three banks namely BT, ATB and UBCI. Table 3 details the banks that committed fraud and those that did not during the period of the analysis of 1999 to 2010.

Table 3: Fraud Occurrence by Bank

Bank	Fraud	No Fraud
AB	x	
AT	x	
ATB		x
BH	x	
BIAT	x	
BNA	x	
BT		x
STB	x	
UIB	x	
UBCI		x

This table shows the existence of fraud occurrences by bank.

THE MODEL

The McAteer (2009) methodology is adapted to the Tunisian context. The dependent variable is a dichotomous variable equal to 1 (probability of 100%) for fraudulent banks and is equal to 0 for non-fraudulent banks (probability of 0%). The independent variables are 18 financial ratios out of 26 ratios produced by the FDIC. Some data are not available for all banks or for the entire period, such as the 'credit loss provision to net charge-offs', 'loan loss allowance to noncurrent loans', 'net charge-offs to loans', etc. These ratios are classified into three categories: performance ratios, growth ratios and capital ratios. Since the regression is to anticipate managerial fraud before its occurrence on several time intervals, the fraud model can be rewritten as follows:

$$Y = B_0 + B_1 X_{1(t-y)} + B_2 X_{2(t-y)} + \cdots + B_k X_{k(t-y)} + \varepsilon \tag{1}$$

Where Y is the probability of occurrence, B_0 is a constant and B_i are coefficients associated with the independent variables, X_i are the independent variables, t is the year of occurrence, y there is the interval in years, and ε is the model error. The list of the financial ratios (independent variables) are as identified in Table 1.

The use of the logistic regression completes the predictive aspect of the study. Logistic regression predicts or explains a nonparametric binary dependent variable by determining the probability of the independent variables that influence the dependent variable.

THE RESULTS

The examination of the correlation matrix presented in Table 4, allows us to conclude the existence of multicollinearity. However, Multicollinearity in regression coefficients does not affect the significance or validity of the model (Hair et al. (2006)). According to Kennedy (2008), a data set has multicollinearity if at least one simple correlation coefficient between the independent variables is at least 0.8 in absolute value.

Table 4. Correlation Matrix of the Independent Variables

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	V_{13}	V_{14}	V_{15}	V_{16}	V_{17}	V_{18}
V_1	1.000																	
V_2	.126	1.000																
V_3	-.077	-.091	1.000															
V_4	-.201	-.164	-.031	1.000														
V_5	-.083	-.176	-.051	-.212	1.000													
V_6	.207	.038	-.019	-.138	-.079	1.000												
V_7	.039	-.156	.015	-.073	.124	-.209	1.000											
V_8	-.264	-.272	-.085	-.170	.112	-.207	.253	1.000										
V_9	-.273	-.231	-.091	-.112	.022	-.084	-.262	**.844**	1.000									
V_{10}	.128	-.082	-.056	-.183	**-.829**	.024	-.052	.276	.332	1.000								
V_{11}	.104	.178	-.018	-.613	.260	.039	-.034	.272	.268	-.274	1.000							
V_{12}	.090	**.964**	-.099	-.203	-.158	.010	-.128	-.152	-.134	-.069	.293	1.000						
V_{13}	.413	-.027	-.025	.108	-.238	-.015	-.066	-.051	-.005	.319	-.142	-.042	1.000					
V_{14}	-.041	-.006	-.020	-.087	.615	-.011	-.043	-.057	-.049	-.660	.482	.024	-.208	1.000				
V_{15}	.352	-.153	-.122	-.104	-.188	.215	.154	.193	.153	.364	.131	-.121	.095	-.064	1.000			
V_{16}	-.035	-.218	-.059	.385	-.126	-.125	-.169	.423	.521	.405	-.034	-.178	.175	-.004	-.039	1.000		
V_{17}	-.113	-.020	.049	.581	-.059	-.117	-.070	-.244	-.193	-.011	-.408	-.079	.131	.090	-.274	.205	1.000	
V_{18}	.050	.133	.031	-.292	.161	.124	.036	-.318	-.337	-.352	.023	.090	-.138	-.019	.155	**-.851**	-.111	1.000

This table presents a correlation analysis of variables examined in this study.

There is significant correlation relationship between 1.) V_2 (Efficiency ratio) and V_{12} (Noninterest expenses to earning assets), 2.) V_5 (Loss allowance to loans) and V_{10} (Net operating income to assets), 3.) V_8 (Yield on earning assets) and V_9 (Net interest margin) and 4.) V_{16} (Equity capital to assets) and V_{18} (Core capital (leverage) ratio).

This observation brings us to eliminate four variables from the model to avoid having a biased model. The eliminated variables are 1.) V_5 (Loss allowance to loans), 2.) V_9 (Net interest margin), 3.) V_{12} (Noninterest expenses to earning assets) and 4.) V_{18} (Core capital (leverage) ratio).

Table 5 presents the correlation matrix for the remaining variables. From Table 5, we conclude the absence of multicollinearity for all remaining variables. All correlation coefficient between the remaining independent variables are less than 0.8 in absolute values.

Table 5. Correlation Matrix of the Independent Variables

	V_1	V_2	V_3	V_4	V_6	V_7	V_8	V_{10}	V_{11}	V_{13}	V_{14}	V_{15}	V_{16}	V_{17}
V_1	1.000													
V_2	.126	1.000												
V_3	-.077	-.091	1.000											
V_4	-.201	-.164	-.031	1.000										
V_6	.207	.038	-.019	-.138	1.000									
V_7	.039	-.156	.015	-.073	-.209	1.000								
V_8	-.264	-.272	-.085	-.170	-.207	.253	1.000							
V_{10}	.128	-.082	-.056	-.183	.024	-.052	.276	1.000						
V_{11}	.104	.178	-.018	-.613	.039	-.034	.272	-.274	1.000					
V_{13}	.413	-.027	-.025	.108	-.015	-.066	-.051	.319	-.142	1.000				
V_{14}	-.041	-.006	-.020	-.087	-.011	-.043	-.057	-.660	.482	-.208	1.000			
V_{15}	.352	-.153	-.122	-.104	.215	.154	.193	.364	.131	.095	-.064	1.000		
V_{16}	-.035	-.218	-.059	.385	-.125	-.169	.423	.405	-.034	.175	-.004	-.039	1.000	
V_{17}	-.113	-.020	.049	.581	-.117	-.070	-.244	-.011	-.408	.131	.090	-.274	.205	1.000

This table shows a correlation matrix of the independent variables.

Table 6 presents the logistic regression estimates of the equation:

$$F_t = \alpha_0 + \alpha_1 V_1 + \alpha_2 V_2 + \alpha_3 V_3 + \alpha_4 V_4 + \alpha_5 V_6 + \alpha_6 V_7 + \alpha_7 V_8 + \alpha_8 V_{10} + \alpha_9 V_{11} + \alpha_{10} V_{13} + \alpha_{11} V_{14}$$
$$+ \alpha_{12} V_{15} + \alpha_{13} V_{16} + \alpha_{14} V_{17} + \varepsilon_i$$

Where:

1.) V_1 is the Assets per employee, 2.) V_2 is the Efficiency ratio, 3.) V_3 is the Cash dividends to net income, 4.) V_4 is the Net loans and leases to core deposit, 5.) V_6 is the Net loans and leases to deposits, 6.) V_7 is the Cost of funding assets, 7.) V_8 is the Yield on earning assets, 8.) V_{10} is the Net operating income to assets, 9.) V_{11} is the Noninterest income to earning assets, 10.) V_{13} is the Return on assets, 11.) V_{14} is the Return on equity, 12.) V_{15} is the Retained earnings to average equity, 13.) V_{16} is the Equity capital to assets and 14.) V_{17} is the Growth ratio 1.

We created lagged variables for one year, two years and three years before the year a bank perpetrates fraud. Hence, the structure of our variables is $V_{i,t}, V_{i,t-1}, V_{i,t-2}, V_{i,t-3}$, where i varies from 1 (V_1) to 17 (V_{17}). The results presented in Table 6 show that eleven variables selected by the logistic regression procedure (Forward Stepwise) to be in the model, explain the fraud at 59.1% for Cox and Snell Pseudo R^2 and 71.1% for McFadden Pseudo R^2. Both measures are a good value for a logistic regression performed on a number of observations of 120 (10 banks observed over 12).

Table 6 shows that nine ratios out of eleven variables are significant. These ratios measure performance. We conclude that hypothesis H1$_1$ (banks with low performance ratios are exposed to a greater occurrence of managerial fraud) is verified. The ratio V_1 also measures growth (Growth ratio) and is significant. We conclude that the hypothesis H2$_1$ (banks with high growth ratios are exposed to a greater occurrence of managerial fraud) is verified. The absence of significant Capital ratios allows us to reject hypothesis H3$_1$ (banks with low capital ratios are exposed to an increased frequency of managerial fraud).

Table 6. Logistic Regression Parameter Estimates

	B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B) Lower Bound
Intercept	25.468	9.784	6.775	1	0.009*		
$V_{1,t-3}$	0.0000	0.0000	8.069	1	0.005*	1.0000	1.0000
$V_{2,t-2}$	-413.85	162.54	6.482	1	0.011*	0.0000	0.0000
$V_{2,t-3}$	-611.12	242.45	6.353	1	0.012*	0.0000	0.0000
$V_{3,t}$	0.7170	1.084	0.4370	1	0.509	2.0480	0.2450
$V_{3,t-3}$	4.576	2.265	4.083	1	0.043**	97.115	1.147
$V_{4,t}$	14.160	7.693	3.388	1	0.066***	1,411,872	0.3990
$V_{4,t-1}$	-24.031	9.102	6.970	1	0.008*	0.0000	0.0000
$V_{6,t}$	-0.3820	0.4880	0.6150	1	0.433	0.6820	0.2620
$V_{10,t}$	-248.48	96.74	6.597	1	0.010*	0.0000	0.0000
$V_{11,t}$	-804.13	295.04	7.428	1	0.006*	0.0000	0.0000
$V_{14,t-2}$	-97.042	38.227	6.444	1	0.011*	0.0000	0.0000
Cox and Snell Pseudo R^2: 59.1%				McFadden Pseudo R^2 :	71.1%		

This table shows Logistic Regression Parameter Estimates. Significant at: *1%, **5% and ***10% (***)

The model for prediction and detection of fraud in the Financial Statements of Tunisian Banks can be written as follow:

$$F_t = -413.85 V_{2,t-2} - 611.12 V_{2,t-3} + .72 V_{3,t} + 4.58 V_{3,t-3} + 14.16 V_{4,t} - 24.03 V_{4,t-1} \qquad (3)$$
$$- .382 V_{6,t} - 248.48 V_{10,t} - 804.13 V_{11,t} - 97.04 V_{14,t-2} + 25.47$$

Table 7 measures how well the model predicts the dependent variable based on the independent variables. The percentage of correct classification of banks as non-fraudulent is 93.4% and for fraudulent banks 82.8%. The Overall Percentage classification rate is 90%, which is a good classification rate.

From this analysis, we conclude that Tunisian banks having low performance or high growth ratios are exposed to commit managerial fraud. However, Tunisian banks having low capital ratios are less exposed to commit managerial fraud. The logistic regression model developed is a good tool for detecting and predicting managerial fraud for Tunisian Banks. This model shows and confirms (McAteer (2009)) findings that managerial fraud is a process that can take up to three years before its occurrence and detection.

Table 7. Classification rate

Observed	Predicted		
	0	1	Percent Correct
0	57	4	93.4%
1	5	24	82.8%
Overall Percentage	68.9%	31.1%	90.0%

This table shows classifications rates.

CONCLUSION

Garner (2009) defined Fraud as "A knowing misrepresentation of the truth or concealment of a material fact to induce another to act to his or her detriment." Fraud in financial statements is defined differently in the professional and academic literature. The results of the latest report published by the Association of Certified Fraud Examiners (ACFE) in 2012 are alarming. Indeed, the lighthouse observation of this report is that fraud costs 5% of total annual turnover of the companies affected. Moreover, banks are ranked first among companies as victims of fraud.

This paper presents a model for prediction and detection of fraud for Tunisian banks. The methodology is to examine a battery of financial ratios used by the Federal Deposit Insurance Corporation (FDIC) as indicators of the financial situation of a U.S. bank. We test their predictive power before the occurrence of fraud. The results obtained by performing a logistic regression, show that Tunisian banks having low performance or high growth ratios are exposed to commit managerial fraud while Tunisian banks having low capital ratios are less subject to increased frequency of managerial fraud.

The logistic regression model developed in this paper explains the fraud at a 59.1% rate for Cox and Snell Pseudo R² and 71.1% for McFadden Pseudo R². Both measures are good values for our logistic regression. The Overall Percentage classification rate is 90%, which is a good classification rate for the model. Many users, such as, the Financial Market Council (the Tunisian equivalent of the SEC), the Government Accountability Office, the auditors, among others can rely on the model developed in this paper and use it as a tool to detect and predict managerial fraud.

This work should be taken with caution. The model developed cannot be universal. All findings are related to the bank sample used as well as the period of study. In fact, during the period 1999 to 2010, Tunisia observed weak governance not only for the government but also for large state owned companies. This may bias our results. However, our model can be validated by using data mining techniques as a tool for detecting financial statement managerial fraud.

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BIOGRAPHY

S. L. Boumediene Has a PhD in Business Administration (Accounting) from the University of El Manar, Tunisia. Before Joining Montana State University Billings, Dr. Boumediene taught both financial and managerial accounting in both undergraduate and graduate levels at the top business schools in Tunisia. Dr. Boumediene has been publishing his research work in academic journals such as Journal of Modern Accounting and Auditing and the Journal of Management and Business Research among others. Dr. Boumediene published a book on statistical characteristics and quality of accounting information in 2013. E-mail: salem.boumediene@msubillings.edu

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STRATEGIC IMPLICATIONS OF PROJECT PORTFOLIO SELECTION

Guilherme Vitolo, University of São Paulo
Flavio Cipparrone, University of São Paulo

ABSTRACT

This paper evaluates the relationship between corporate strategy and quantitative financial criteria for choosing the optimal set of projects for the Capital Budget. On the basis of the competitive dynamics of the industry and the corporate strategy, different sets of projects should be selected to compose the project portfolio. The choice of the best criteria for project selection is mandatory, even though it is hard to find in both corporate and academic literature recommendation about which criteria should be selected to fit a predefined strategy. In order to evaluate that, this paper analyzed several combinations of risk and return metrics to compare the resultant set of projects and their strategic implications. The results pointed out that while Net Present Value combined with Value at Risk provided the most relevant results in terms of long term value creation, it is important to figure out how different strategies can be best implemented through portfolios selected by other criteria – e.g., fast returns on investment obtained by the Adjusted Payback Period and high profitability based on the Profitability Index or Internal Rate of Return. Such results present a relevant contribution for managers who typically face with the Capital Budget problem.

JEL: G11, G31

KEYWORDS: Capital Budget, Project Portfolio Management, Project Portfolio Strategy, Project Selection, Monte Carlo Simulation, Investment Decision Criteria

INTRODUCTION

The current globalized economy poses the challenges of increased competition among companies, and the mobility of capital and changeability of stakeholders (Bötzel and Schwilling 2000). Companies aim to create sustainable value in order to face such challenges. The long-term market value maximization of a company is the best criterion to equilibrate the tradeoffs among conflicting stakeholders, where value creation can be understood as the increase in a firm's market value, that is, the expectation of present and future cash flow generation (Brigham and Ehrhardt 2007; Hawawini and Viallet 2007). According to Porter (1980), companies competing in high growth industries may establish their position and increase the firm's market value through product development, marketing, innovation, acquisition of new clients, etc. Such companies are focused on growth; therefore, value creation is related to investments that aim for long-term cash flow generation. In addition to growth, if the industry is newly formed or emergent, risk appetite could increase because of the high level of uncertainties about the future. When competing in large revenue industries that are slow growing, companies look for economies of scale, cost efficiency, selective product improvements, retention and acquisition of profitable clients, etc. Value creation is related to efficiency in capital allocation, which means that investments are more selective, risk taking is an important concern, and profitability may be more important than simply growing revenues. On the other hand, if the industry's market is shrinking, or competition is severely damaging profitability, the companies would have to maintain or mitigate the decrease of value. Among the options, companies could change business lines, client segments, divest and capture residual value, etc. When investing in such situations, companies look for short- or medium-term returns; therefore, concerns about investment payback and divestment options may drive the capital budgeting process.

Companies implement their investments through projects that have to be managed in a portfolio structure. Only the most favorable investments have to be chosen, since companies have limited resources. According to Pennypacker and Dye (2002), Chen and Jiang (2004), Almeida and Mota (2011) and Fagerholt et al. (2013), the main problems in project selection and portfolio management include the gap between strategy and investment selection, unprofitability, and unbalanced portfolios in terms of risk, schedule, and size of projects. The first step in facing such challenges is to improve the project selection methodology (Amaral and Araújo 2009).

The selection must consider quantitative financial metrics, such as Net Present Value (NPV), Internal Rate of Return (IRR), etc., and could be complemented by qualitative criteria, such as strategic alignment, company expertise and efficiency in resource allocation (Byrd and Drake 2006). For instance, Cañez and Garfias (2006) evaluated a weighted average model used in a Mexican petroleum company, that comprised four qualitative criteria (alignment with the strategic areas, business impact, time to market, and expected net profitability), and one quantitative criterion (NPV adjusted to risk). Archer and Ghasemzadeh (2000) evaluated a weighted average approach using several qualitative criteria (such as market suitability, resource limitation, and project interdependencies), and quantitative criteria (NPV and project timing). Such models aimed to solve the strategic alignment problem of investment in a qualitative way; however, qualitative judgments could lead to disputable results. In addition to these limitations, their conclusions ignored the intrinsic relationship between the financial criteria and corporate strategy. Although such studies apply quantitative financial criteria to select project for the Capital Budget, they do not present nor discuss the strategic implications of the different resultant set of projects. Thus, the objective of this paper is to evaluate the benefits of the different quantitative financial criteria and their strategic implications for project selection.

LITERATURE REVIEW

One of the most commonly used metrics is the Net Present Value (NPV), which is the sum of discounted cash flows of the project. Present Value is considered to be the metric that is most aligned to long-term value creation, since it measures the amount of present and future cash flows generated by an investment. Two other important metrics are the Internal Rate of Return (IRR) and the Profitability Index (PI). They measure the return of invested capital, that is, capital efficiency. The Payback Period (PBK) consists of the amount of time needed for cash flows to achieve breakeven. It is a measure of how fast the capital returns. Given that the traditional Payback Period criterion ignores the time value of money, Hawawini and Viallet (2007) recommended the Adjusted Payback Period (APBK), which uses discounted cash flow figures instead of non-discounted amounts. According to the same authors, each selection criterion takes into account a different aspect of an investment's cash flow. While NPV "estimates how much the project would sell for if a market existed for it", APBK focuses on how fast the investment delivers return. So, while the latter criterion is favorable for short-term investments, NPV selects high-value cash flows, which usually happens in the long term. The resultant portfolios are different and they support different strategies: fast return versus long-term value creation.

Although return metrics alone can be used to define criteria for project selection, it is important to consider risk components when dealing with relevant uncertainties. For example, Graves and Ringuest (2005) proposed a risk-return approach for selecting project portfolios, combining a metric of financial return (e.g., NPV) and the Gini coefficient as the risk statistic in a dynamic programming model. They claim that their approach is easy to implement, and may be ideal for the selection of Research and Development (R&D) projects. Gustafsson and Salo (2005) implemented another risk-return approach based on Decision Tree Analysis. They maximized the difference between the Expected Value of the return metric (the amount of money of each tree branch multiplied by the probability of achieving the branch) and its lower semi absolute

deviation (the sum of the probability of each branch multiplied by the difference of the Expected Value and the branch return).

According to the aforementioned authors, risk may be incorporated directly into the maximization objective function, or indirectly into the interest rate applied to discount cash flows. The composition of the discount rate may include three components: the risk-free rate, the additional cost of capital employed in the project and the additional risk given the cash flow uncertainties (Brigham and Ehrhardt 2007; Cohen and Eschenbach 2006; Hawawini and Viallet 2007). This method involves several complexities, since the third component is difficult to calculate because it represents the uncertainties in future cash flows. Moreover, the use of the third component implies a different discount rate for each project, which complicates project comparison. Another problem with this approach is the lack of historical data to compare the project's discount rate with similar earlier projects (Cohen and Eschenbach 2006, April, Glover, and Kelly 2002). The alternative approach that is implemented in this paper involves the consideration of a risk statistic directly in the maximization formula.

There are three methods to implement this last approach. Better and Glover (2006) showed that the first method maximizes the mean NPV of portfolios, imposing a constraint that the standard deviation of NPV be smaller than a predefined value. The second method involves considering risk as a separate measure plotted on an axis different from that of the return metric, which leads to a frontier visualization as the standard Markowitz frontier. Such approaches are more complex to analyze, because the decision-making process involves complex questions, such as "what is the risk appetite of the company?" and "how much risk should we bear to achieve our strategic goals?" The third method consists of using an indicator that mixes the return metric and the risk statistic; for example, divide the mean of the return metric by its standard deviation, which implies that the company aims for the highest return per unit of risk (Linsmeier and Pearson 1996). Another indicator that mixes risk and return is the Risk-Adjusted Return on Capital (RAROC), which consists of the mean of the return metric divided by its Value at Risk (or Cash Flow at Risk). According to Hager, Roehrl, and Wiedemann (2008), Cash Flow at Risk or CFaR is the "unexpected deviation of the expected cash flow value", which is calculated as the difference (in monetary units) between the mean and the ith percentile of the return distribution. This rule can be applied to any distribution (Holton 2003). The expressions (1) and (2) present these indicators, as discussed in Better and Glover (2006) and Prokopczuk et al. (2007), respectively:

$$SNR = \frac{\mu(X)}{\sigma(X)} \qquad (1)$$

$$RAROC = \frac{\mu(X)}{CFaR(X)} = \frac{\mu(X)}{\mu(X) - pct_i(X)} \qquad (2)$$

Where:

SNR = Signal to Noise Ratio, the reciprocal of the Coefficient of Variation; RAROC = Risk-Adjusted Return on Capital; $\mu(X)$ = expected value of the distribution of the random variable X; $\sigma(X)$ = standard deviation of the distribution of X; CFaR(X): Cash-flow at Risk of the distribution of X; $pct_i(X)$: i^{th} percentile of the distribution of X (e.g., fifth percentile for 95% of confidence interval); X = any return metric (e.g., NPV, IRR, PI or APBK).

DATA AND METHODOLOGY

In order to analyze the strategic implications of each criterion for project selection, a Monte Carlo simulation model was implemented to compose portfolios from a total of ten projects. These projects' cash

flows were based on the projects under evaluation by a Brazilian electric energy company. Even though companies in general have hundreds of projects and the selection process must consider such larger amounts, this paper evaluated a small set of projects in order to test the metrics in all project combinations and to focus on the project selection criteria comparison. The simulation model calculated the return and risk statistics of all 1024 portfolios formed by any combination of the 10 projects. For a larger number of projects, optimization techniques such as mixed integer programming should be used to reduce the processing time (Kitanidis and Philbrick 1999, Dantzig and Thapa 2003).

The structure of the simulated projects consisted of 4 phases: two initial investment phases, the operational phase, and the project closure phase. Each phase presents specific characteristics in terms of revenues, costs, and investments. The definition of the two investment phases was based on the fact that large projects may have a long and expensive feasibility study phase before any investment is made in production infrastructure; this is common, for instance, in electricity generation and mining ventures (Moel and Tufano 2000). Table 1 presents the duration and total investment amounts for each one of the ten projects. For example, Project 1 has 16 months of total duration. Its first investment phase takes 3 months to be completed and invested a total of $ 36.1 million. The second investment phase takes 1 month, in which is invested additional $ 15 million.

Table 1: Duration and Investment of Each Project (Represented on Each Column)

	PROJECT NUMBER									
DURATION AND INVESTMENT	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Total duration (in months)	16	24	16	13	14	16	16	9	22	26
N_1: duration (in months)	3	4	2	1	3	3	3	1	1	3
N_2: duration (in months)	1	5	2	1	2	2	1	1	2	1
I_1: investment (in $ million)	36.1	40.1	17.4	35.1	7.9	8.7	23.5	20.1	15.1	14.1
I_2: investment (in $ million)	15.0	14.1	55.4	12.7	44.8	24.0	28.5	22.5	22.1	49.3

Each project was considered to have two investment phases: one related to a feasibility study and the second the investment to rollout the project itself. The duration of the first investment phase is presented in the N_1 line, while the investment amount of this phase if presented in I_1. The duration of the second investment phase is presented in the N_2 line, while the investment amount of this phase if presented in I_2. For example, project 1 presents 16 months as total duration. Within this timeframe, 3 months are spent in the first investment phase and another 1 month in the second phase. Total investment amounts were $ 36.1 million and $ 15.0 million in the first and second investment phase respectively.

After the investments, the project starts an operational phase in which generates revenues, costs and it demands maintenance investments. Table 2 presents the detail of revenues, costs, recurrent investments in maintenance and the proportion of variable to total costs. The table also presents the final investment needed when operation finishes and final revenues from selling assets, for example, when a mine or plant is divested. For example, Project 1 presents $ 271.8 million of total revenues and $ 30.7 million of total costs, to be incurred during the 12 months of operational phase. In each month, additional $ 5.1 million is invested in maintenance and additional assets. The project is mostly based on variable costs, which comprises 60% of total costs. In the end of the project, to implement the divestment initiatives, a total of $ 3.1 million (6% of $ 51.1 million of total investments) is needed. Salvage value of selling the assets will comprise $ 24.5 million (9% of $ 271.8 million of total revenues).

The model took into consideration uncertainties in revenues and costs (Hawawini and Viallet 2007). Revenues had two sources of uncertainties (i.e., the number and the price of sales), while costs had one source of uncertainty (i.e., the fixed cost amount). Table 3 presents the intensity of uncertainty, an index that varies from 1 to 4. For example, Project 1 presents high uncertainty in costs and number of sales, and moderate uncertainty in prices. The uncertainty factors are multiplied by random variables to simulate the volatility of the cash flows.

14

Table 2: Revenues, Costs, and Other Characteristics of Each Project's Cash Flow

	PROJECT NUMBER									
PROJECT CHARACTERISTICS	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
RB: Revenues[1]	271.8	178.2	245.5	79.3	140.8	136.1	228.5	123.2	120.5	80.6
CB: Cost[2]	30.7	56.3	81.6	45.9	65.9	26.1	43.1	42.2	30.5	53.9
RI: Recurrent investments[3]	5.1	4.3	3.6	5.7	3.7	2.6	0.5	3.0	2.2	7.6
φ: Variable/Total Costs[4]	60%	60%	60%	70%	70%	40%	50%	50%	60%	70%
Final investments as percentage of investment[5]	6%	8%	6%	7%	6%	7%	6%	7%	3%	10%
Revenues at the end of the project as percentage of revenue[6]	9%	17%	10%	10%	10%	17%	12%	24%	11%	14%

[1] *Total baseline revenue of the project, in $ millions, for all periods during the operational phase*
[2] *Total baseline cost of the project, in $ millions, for all periods during the operational phase*
[3] *Total monthly investments during operation phase (non-investment periods), in $ million*
[4] *Relation between variable and fixed costs (percentage)*
[5] *Final investments to end the project (e.g. recovering of a mine landfill after exhaustion)*
[6] *Final revenues from selling assets*

Table 3: Intensity ("α") Factors of Each Cash Flow Component of a Project

	PROJECT NUMBER									
INTENSITY OF UNCERTAINTY	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Uncertainty of number of sales	3	1	4	4	4	2	4	3	2	3
Uncertainty of price of sales	2	1	3	2	4	3	4	3	1	4
Uncertainty of costs	4	3	3	3	3	4	1	2	3	4

The table presents factors to determine the intensity of the uncertainty in each cash flow component. In the simulation model, such factors are multiplied by random variables in the model to implement randomness For example, project 1presents high uncertainty for costs (index = 4) and for number of sales (index = 3), and moderate uncertainty for price of sales (index = 2).

All variables from tables 1, 2 and 3 are consolidated into project cash flows, according to expressions (3) to (6). For each month, the cash flow is calculated as the difference between revenues and costs plus investments. Revenue is calculated in expression (3) as the total revenue (Table 2) divided by the number of months from the operational phase (Table 1) and multiplied by two uncertainty factors (Table 3), one for volume and one for price. Cost follows the same logic, but it is calculated in expression (4) using two components: fixed and variables costs. While the Fixed Cost is multiplied by the factor of Uncertainty of costs, the Variable Cost is multiplied by the factor of Uncertainty of number of sales. Investments are basically calculated, for each phase, as total investments divided by the number of months.

$$CF_t = RV_t - CT_t - IV_t \tag{3}$$

$$RV_t = RB \cdot (1 + \alpha_v \cdot u_v) \cdot (1 + \alpha_p \cdot u_p) \cdot \frac{1}{N_3} \tag{4}$$

$$CT_t = CB \cdot [(1 - \varphi) \cdot (1 + \alpha_c \cdot u_c) + \varphi \cdot (1 + \alpha_v \cdot u_v)] \cdot \frac{1}{N_3} \tag{5}$$

$$IV_t = \begin{cases} I_1/N_1, t \le N_1 \\ I_2/N_2, N_1 < t \le N_2 \\ RI, t > N_2 \end{cases} \tag{6}$$

Where:

RV_t = revenue of the project in time t; CT_t = total cost of the project in time t; IV_t = investment of the project in time t; RB = baseline of the total revenue of the project; CB = baseline of the total cost of the

project; α_v = uncertainty (intensity) factor related to volume of sales; α_p = uncertainty (intensity) factor related to price of sales; α_c = uncertainty (intensity) factor related to fixed costs; u_v = random variable sample related to volume of sales; u_p = random variable sample related to price of sales; u_c = random variable sample related to fixed costs; φ = a constant related to the ratio of variable per fixed costs; N_1 = number of time units of the first investment period; N_2 = number of time units of the second investment period; N_3 = number of time units of the operational phase of the project (project's total duration minus the duration of the investment phases); I_1 = total amount of the first investment period; I_2 = total amount of the second investment period; RI = Recurrent investments (during the operational phase of the project).

The project cash flows were calculated though a Monte Carlo simulation and project portfolios were ranked according to the several criteria in Table 4. The average, the standard deviation and the cash flow at risk of each indicator (NPV, IRR, PI and APBK) were calculated for each portfolio. Then, portfolios were ranked according to maximize or minimize rules. All tested combinations are presented on Table 4.

Table 4: Criteria for Project Portfolio Selection Implemented in the Simulation Model

CRITERIA FOR PROJECT SELECTION	
Criterion 1	Maximize the mean of NPV
Criterion 2	Maximize the mean/CFaR of NPV
Criterion 3	Maximize the mean/standard deviation of NPV
Criterion 4	Maximize the mean of IRR
Criterion 5	Maximize the mean/CFaR of IRR
Criterion 6	Maximize the mean/standard deviation of IRR
Criterion 7	Maximize the mean of PI
Criterion 8	Maximize the mean/CFaR of PI
Criterion 9	Maximize the mean/standard deviation of PI
Criterion 10	Minimize the mean of APBK
Criterion 11	Minimize the CFaR/mean of APBK
Criterion 12	Minimize the standard deviation/mean of APBK

The table presents the composition of each selection criterion. For example, the Criterion 1 consists in maximizing the Mean of NPV. According to this criterion, portfolios are ranked from the maximum to the minimum NPV average. Criterion 2 consists on a combined criterion, since it is the quotient of the Mean by the Cash Flow at Risk of NPV. Risk-return criteria, like 2, 3, 5 and others, are generally calculated by a quotient of the return metric (e.g. mean of NPV) divided by the risk metric (e.g. CFaR of NPV).

RESULTS AND DISCUSSION

Based on the simulations, the 1024 portfolios were ranked for each selection criterion. Table 5 presents the participation of each project in the top eight portfolios selected by each criterion. The conclusions were based on the top eight portfolios instead of the best selected portfolio, in order to mitigate outlier distortions in our conclusions.

For example, project 1 was included in all top 8 best raked portfolios when the criterion of maximizing NPV was applied. But the same project was included in only 70% of the portfolios when the criterion of minimizing the Adjusted Payback Period was applied. Different results were observed for Project 10: it showed up in only 20% of the portfolios ranked by maximizing NPV and it did not show up at all when maximizing IRR or minimizing Payback.

Table 5: Percentage of Participation of Each Project in the Top Eight Portfolios Selected by Each Criterion

	PROJECT NUMBER									
SELECTION CRITERION	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
NPV	100%	90%	30%	10%	30%	100%	80%	60%	100%	20%
IRR	100%	70%	30%	30%	30%	100%	70%	20%	100%	0%
PI	90%	100%	20%	60%	40%	90%	60%	80%	100%	60%
APBK	70%	0%	0%	0%	0%	30%	40%	90%	20%	0%

For example, the top 8 portfolios selected using the NPV criterion were composed basically by projects 1, 2, 6, 7 and 9, in general projects with long term positive cash flows.

The results presented in Table 6 show that portfolios ranked by NPV present long term value creation potential, since the resulting portfolios were composed of long lasting projects with largely positive cash flows. When risk is taken into consideration, the portfolios typically excluded risky projects. Portfolios ranked by the ratio of NPV/CFaR or NPV/Standard Deviation criteria present smaller NPV when compared to the portfolios selected without including risk. This happens because such criteria select projects with high return per unit of risk rather than high absolute return projects, as projects with highest returns may be riskier.

Table 6: Simulation Results for the Project Group under Evaluation by a Brazilian Energy Company

	RETURN STATISTICS OF THE PORTFOLIO			
OPTIMIZATION CRITERIA	**M(NPV)**	**M(IRR)**	**M(PI)**	**M(APBK)**
NPV	708	17.6%	2.9	7.5
NPV / CFaR	577	17.9%	3.0	7.6
NPV / Std	603	18.7%	3.1	7.3
IRR	318	27.3%	4.2	6.0
IRR / CFaR	534	18.4%	3.2	7.6
IRR / Std	492	18.0%	3.2	7.9
PI	363	26.7%	4.3	6.2
PI / CFaR	525	15.1%	2.6	8.2
PI / Std	492	14.0%	2.5	8.7
APBK	294	25.0%	3.6	5.8
APBK / CFaR	225	10.1%	2.0	13.8
APBK / Std	265	9.9%	2.1	11.6

The 10 projects were combined in all 1024 possible portfolios and the portfolios were ranked by the Optimization Criteria (in each line). For the top ranked 8 portfolios by each criterion, the table presents the average of the return statistics (in each column). For example, the cell in the first line and first column is the average NPV of the top 8 portfolios ranked by the NPV criterion. The right adjacent cell (first line, second column) presents the average IRR of the top 8 portfolios ranked by the NPV criterion, and so on.

When evaluating the portfolios optimized by the other criterion, IRR and PI selected portfolios that generate high return on investment, which does not necessarily mean portfolios with large cash flows. Small and very profitable projects may be selected, instead of large and not so profitable projects. Portfolios optimized by APBK focus on short-term returns, instead of long term value creation; this result was as expected. Portfolios optimized using the IRR or PI presented higher APBK than portfolios optimized by NPV, indirectly implying the reduction of the amount of time until the cash flow achieves break even.

To evaluate how general are the conclusions, all simulations were repeated four times using 10 new projects each time. Each new project changed in size (investment amount and schedule), risk profile (degree of uncertainty) and economic feasibility (total revenue and total costs amounts). All above mentioned conclusions were verified on the additional simulations.

CONCLUDING COMMENTS

The choice of projects to make up the portfolio must be aligned with the corporate strategy and the context of the industry in which the company is competing. The researched studies in the literature usually compare only few metrics or frameworks for project selection but do not consider the strategic implications of each criterion. This paper deals with the most common frameworks and criteria for project selection, and also focuses on implementing transparent financial criteria, instead of complex models or "black-box" weighted average criteria.

Comparing the portfolios ranked by each criterion, the relationship between project portfolio selection and corporate strategy becomes evident. The NPV criterion generates portfolios with long term large and positive cash flow streams, which could foster a company's growth when competing in high growth industries. The IRR and PI criteria generate higher return on capital investment, which drive capital efficiency. Such properties are interesting for companies competing in slow growth but large revenue industries, where capital efficiency is required. Interestingly, portfolios optimized by these criteria selected

both long term and short term projects. The APBK criterion generated portfolios that were focused on short term returns, which may be required by companies that are competing in shrinking industries or aiming to phase out a specific business line.

The introduction of risk in the selection criteria, combined with NPV, generated portfolios with higher return per unit of risk. Thus, when operating in a critical economic environment, companies should use risk-return criteria to select their project portfolios. It is important to pay attention that risk-return criteria work when the discount rate does not consider the project inherent risk. When the cash flow discount rate considers the project risk, it is suggested not to use a risk return criterion to avoid double counting. The use of only 10 projects was a constraint imposed by the authors to test exhaustively all possible project combinations. For larger groups of projects, it is recommended to employ optimization techniques, even though there would be no guarantee to find the global optimum result.

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BIOGRAPHY

Guilherme Ferracin Vitolo is MSc candidate at University of São Paulo, Escola Politécnica, Department of Electronic Systems Engineering. Guilherme is currently Project Manager at Ernst & Young, Advisory for Financial Services Companies and in the past has worked for Roland Berger Strategy Consultants and Promon Logicalis. He can be reached at University of São Paulo, Av. Prof. Luciano Gualberto, travessa 3,

nº380. Edifício Eng. Mário Covas Júnior – 1 andar. CEP 05508-010 - São Paulo – SP, guilherme.vitolo@gmail.com, guilherme.vitolo@usp.br.

Flavio Almeida de Magalhães Cipparrone is PhD and Associate Professor at University of São Paulo, Escola Politécnica, Department of Electronic Systems Engineering. Flavio has developed several projects in the field of System Optimization for Water and Infrastructure companies. Flavio's current researches comprise the application of System Optimization techniques for asset valuation. He can be reached at University of São Paulo, Av. Prof. Luciano Gualberto, travessa 3, nº380. Edifício Eng. Mário Covas Júnior – 1 andar. CEP 05508-010 - São Paulo – SP, flavio@lps.usp.br, flavioamc@gmail.com.

DETERMINANTS OF NON-PERFORMING LOANS IN NIGERIA

Olayinka Akinlo, Obafemi Awolowo University, Ile-Ife, Nigeria
Mofoluwaso Emmanuel, Obafemi Awolowo University, Ile-Ife, Nigeria

ABSTRACT

Credit risk assessment is a major component of macro prudential analysis, with the aggregate non-performing loan ratio serving as a proxy for the economy-wide probability of default of the banking sector's overall loan exposure. Consequently, the factors that drive non-performing loans become pertinent. This study provides a macroeconomic model for non-performing loans for Nigeria. Our empirical analysis confirms that in the long run, economic growth is negatively related to non-performing loan. On the other hand, unemployment, credit to the private sector and exchange rate exerts positive influence on non-performing loans in Nigeria. In the short run, credits to the private sector, exchange rate, lending rate and stock market index are the main determinants of non-performing loans.

JEL: G01; G21

KEYWORDS: Determinants, Non-Performing Loans, Error Correction Model, Nigeria

INTRODUCTION

Non-performing loans (NPLs) generally refer to loans which for a relatively long period of time do not generate income. This implies that the principal and or interest on these loans have been left unpaid for at least 90 days (Caprio and Klin-gebiel, 1999). It has become a critical issue of discourse in finance literature because of the close link between banking crises and massive accumulation of NPLs. Indeed, some studies have found that non-performing loans are one of the main reasons that cause insolvency of the financial institutions and ultimately hurt the whole economy (Hou 2007, Kane and Rice 2001). The costs of huge NPLs have been documented in the literature. Huge NPLs may negatively affect the level of private investment, increase deposit liabilities and constrain the scope of bank credit to the private sector. In the same way, accumulation of NPLs can negatively affect private consumption which may lead to economic contraction. Also, huge NPLs may exacerbate the already high pressure on government revenues as attempt to resolve it may force government to provide financial assistance to problem banks [Conzalez-Hermosillo et al, 1997].

Essentially, if the issue of non-performing loans is left unresolved, it can compound into financial crisis, where the loans exceed bank capital in a relatively large number of banks.Given the economic, fiscal and financial costs of non-performing loans, it is therefore imperative to control it. However, in order to control non-performing loans, it is necessary to understand its roots causes. It is in the light of this that the paper examines the determinants of non-performing loans in Nigeria. As far as the banking system of Nigeria is concerned, it has faced a lot of problems. One of the most destructive problems faced by the Nigerian financial sector is the huge amount of NPLs which not only harm efficiency and growth of the banking sector but also endanger growth and development of the Nigerian economy. The magnitude of non-performing loans in Nigeria increased from ₦273 million in 1981 to ₦4,771 million in 1987. The total non-performing loans increased to ₦111,587 million in 2000 and further to ₦1,112,423 million in 2011. The phenomenal increase in non-performing loans in Nigeria over the years therefore makes it imperative to ascertain the causes of these loans in order to reduce it. The remainder of the paper is organized as follows:

the next section provides the review of empirical literature. Section 3 discusses the methodology, section 4 presents the estimation results of the econometric model. The last section provides the conclusion.

LITERATURE REVIEW

In this section, we provide a summary of the results of existing studies on the determinants of non-performing loans. Keeton and Morris (1987) examined the factors that cause non-performing loans in the banking sector in America over the period 1979-1985. The results showed that bad performance of the agriculture and energy sectors coupled with poor economic settings/conditions were the main factors responsible for non-performing loans during the study period. The study by Sinkey and Greenwalt (1990) for the same country over the period 1984-1987, found high interest rate, unnecessary loans along with unpredictable funds as the main factors that increase non-performing loans in the banking sector of America. In the same vein, the study by Gambena (2000) for America over the period 1987-1999 showed that income and unemployment rates were the main factors that caused loan losses in America. Salas and Sanrina (2006) examined the determinants of NPLs for Spain over the period 1984-2003. The results of the estimation showed that high interest, GDP growth and soft credit conditions were the main factors determining NPLs in Spain. The study by Hoggarth, Forensen and Zuchina (2008) for United Kingdom over the period 1988-2004 found inflation and interest rates as the main determinants of non-performing loans in UK. The study by Rajan and Dhal (2003) for Indian banks showed GDP growth, bank size, credit orientation and credit terms were the main determinants of NPLs in India. The study by Erjavec, Cota and Jaksic (2012) for Croatia over the period 2000-2010 using a vector-autoregressive (VAR), showed a strong sensitivity of the Croatian banking sector to contractionary monetary policy shocks and to negative demand shocks. The study by Fainstein and Novikov (2011) for the Baltic countries examined the determinants of NPLs over the period 1997-2009. The results based on vector error correction model (VECM) found real GDP growth as the main determinant of NPLs in all the countries studied. The results showed that real estate market growth played an important role only in Latvia and Lithuania.

Vogiazes and Nikolaidu (2011) examined the determinants of NPLs in the Romanian banking sector over the period 2001-2010. The results showed that construction and investment expenditure, unemployment, inflation rate and Romania's external debt to GDP as well as money supply broadly defined were the main determinants of NPLs in Romania. The results of Vogiazes and Nikolaidou (2011) discussed above is very much in line with Bofondi and Ropele (2011) for Italy. Bofondi and Ropele found that non-performing loans were positively associated with the unemployment rates, and lending rates but negatively related with the growth of GDP for Italy over the period 1990-2010.

The study by Nkusu (2011) for twenty-six (26) advanced economies over the period 1998-2009 investigated the determinants of NPL ratio and of the first difference of the NPL ratio. The results showed that adverse macroeconomic development in particular a contraction of real GDP, a high unemployment rate, high interest rates, a fall in house prices and a fall in equity prices negatively affected NPLs. In the same way, study by De Bock and Demyanets (2012) for 25 developing economies over the period 1996-2010 revealed that real GDP contraction, currency depreciation against the US dollar, weaker terms of trade and outflows of debt – creating capital precipitated higher aggregate NPL ratio of the banking sector.

The study by Beck, Jakubik and Piloui (2013) for 75 advanced and emerging economies for the period 2000 to 2010 investigated the determinants of NPLs in these countries. The results of the estimation showed that real GDP growth, share prices, nominal effective exchange rate of the local currency and bank lending rate had significant effect on NPL ratio. The study revealed that direction of the impact of exchange rates is a function of the extent of foreign exchange lending to unhedged borrowers. Additionally, the results showed that the impact of the share prices was larger in countries that had a large stock market relative to GDP.The study by Louzis, Vouldis and Metaxas (2011) for Greek banking sector over the 2003 and 2009 found real GDP growth, unemployment lending rates, public debt and management quality as the main determinants

of non-performing loans in Greece. Finally, the Khemraj and Pasha (2009) explored the determinants of NPL in Guyana over the period 1994-2004. The results showed that growth of GDP had an inverse relationship with NPLs while real effective exchange rate and higher lending rate had direct relationship with NPLs.

DATA AND METHODOLOGY

The data utilized are annual data for Nigeria over the period 1981-2011. These are as defined under model specification (eqn 1). The data were sourced from Central Bank of Nigeria, Statistical Bulletin (2011). All variables are expressed in logarithm. To examine the determinants of NPLs in Nigeria, the specified and estimated equation 1 below based on earlier work.

$$NPLs_t = \alpha_0 + \alpha_1 GDP_t + \alpha_2 CPS_t + \alpha_3 UNE_t + \alpha_4 MON_t + \alpha_5 LDR_t + \alpha_6 INF_t + \alpha_7 EXR_t + \alpha_8 MKT_t + \alpha_9 D_{2009-2010} + \varepsilon_t \tag{1}$$

where $NPLs_t$ refers to non-performing loans. GDP_t is the gross domestic product, CPS_t is total credit to the private sector as a ratio of GDP, UNE_t is the unemployment rate, MON_t is money supply broadly defined, LDR_t is the lending rate, MKT_t is the stock market price index, INF_t is the rate of inflation, EXR_t is the real exchange rate, $D_{2007-2010}$ is dummy variable to account for the recapitalization and other policies introduced in the banking sector from 1997, ε_t is the error term. We anticipate that $\alpha 1$ will be negative. This is based on the argument that growth in gross domestic product usually leads to increase in income which ultimately enhances the loan payment capacity of the borrower which in turn contributes to lower bad loan and vice versa (Khemraj and Pasha, 2009). $\alpha 2$ is expected to be negative. Generally, the increase in loans by commercial banks will have positive impact on NPLs but the increase in credit to the private sector will have a positive impact on reducing the NPL. $\alpha 3$ is expected to be positive. This is based on the argument that an increase in the unemployment in the country negatively affects the incomes of the individuals which increases their debt burden. The coefficient of money supply $\alpha 4$ is expected to be positive. It is assumed that an increase in the aggregate stock of money will contribute to a deterioration of banks portfolios in the country with adverse impact on NPLs. The coefficient of lending rate $\alpha 5$ is expected to be positive.

An increase in lending rate tends to weaken loan payment capacity of the borrower and thus increase NPLs. The coefficient of inflation $\alpha 6$ is indeterminate. It can be positive or negative. This is because inflation can affect loan payment capacity of borrowers positively or negatively. Higher inflation can enhance the loan payment capacity of borrowers by reducing the real value of outstanding debt. Under this circumstance, inflation will reduce NPLs. However, inflation can weaken the loan payment capacity of borrowers by reducing the real income when salary and wages are sticky. Under this scenario, NPLs will increase. The coefficient of exchange rate $\alpha 7$ is indeterminate. $\alpha 7$ will be positive if appreciation of exchange rate leads to a fall in exports coupled with terms of trade deterioration. On the other hand, $\alpha 7$ will be negative if the loan repayment capacity of the borrowers who borrow in foreign currency is enhanced. Finally, $\alpha 8$ is expected to be negative. The stock market index as a leading variable for financial and economic development that directly influence NPL ratio is expected to be negative as enhanced stock market activity should boost income. In estimation, the study adopts the cointegration and error correction modeling approach.

RESULTS AND DISCUSSION

Table 1 presents descriptive statistics for variables used in the estimation. Table 1 shows that all the series display a high level of consistency as their mean and median values are perpetually within the maximum and minimum values of the series. The statistics in Table 1 reveal that the series except unemployment rate, exchange rate, money supply and openness are leptokurtic (peaked) relative to normal as the kurtosis value exceeds 3.0. Finally, the probability that the Jarque-Bera statistic exceeds (in absolute value) the observed

value is generally low for almost all the series suggesting the rejection of the hypothesis of normal distribution at 5 per cent level of significance.

Table 1: Descriptive Statistics

	NPL	GDP	UNE	CPS	EXC	MON	MKT	LDR	INF	LDR	OPE
Mean	261,734	70,102	8.5129	17.335	67.414	24.826	2078.5	20.685	21.737	20.685	5.3058
Median	57,439	270,271	6.2000	15.900	81.252	24.200	262.60	20.860	12.700	20.860	5.3800
Max	292,280	32,264	22.300	36.700	153.86	38.000	13,294	36.090	72.800	36.090	8.7500
Min	206.00	47,619	1.8000	8.800	0.6100	12.800	5.0000	10.000	4.7000	10.000	2.6400
Std Dev	56,760	981650	5.9089	6.6238	58.870	6.8075	3,733.6	6.0214	19.172	6.0214	1.8571
Skew	36,591	1.3485	0.7916	1.1308	0.0684	0.1835	1.7826	0.2813	1.2742	0.2813	0.2714
Kurt	16.983	3.4361	2.5202	3.8487	1.3251	1.9075	4.7995	3.2356	3.3067	3.2356	1.8554
Jarque-Bera	321.75***	9.6404***	3.5349	7.5371**	3.6476	1.7155	20.602***	0.4806	8.5102***	0.4806	2.0728
Prob Sum	0.0000	0.0081	0.1708	0.0231	0.1614	0.4241	0.0000	0.7864	0.0142	0.7863	0.3547
Sum	81,137	0.0000	263.90	537.40	2,089.8	769.60	64,432	641.24	673.86	641.24	164.48
Sum Sq. Dev.	0.0000	0.000	1,047.4	1316.2	103,969	1390.2	0.0000	1,087.7	11,027	1,087.7	103.47
Obs.	31	31	31	31	31	31	31	31	31	31	31

*This table shows the descriptive statistics of the variables used in the analysis. ** and *** denote significance at 5% and 1% levels respectively.*

Unit Root Test

To distinguish between correlation that arises from a share trend and one associated with an underlying causal, we tested for unit root. The two tests used were Augmented Dickey-fuller test (ADF) (Dickey and Fuller, 1981) with a constant and a deterministic trend and Phillips-Peron (PP) (Phillip and Perron, 1988). The results of the two tests are presented below in Table 2.

Table 2: Unit Root Test

Series	ADF		PP	
	Level	1st difference	Level	1st difference
NPL (constant)	-2.663	-3.669	-3.278	-7.152
(constant and trend)	-3.544	-4.461	-1.910	-16.071
LDR (constant)	-2.731	-5.439	-2.679	-7.193
(constant and trend)	-2.582	-5.708	-2.486	-7.133
GDP(constant)	-0.528	-4.470	-0.521	-4.460
(constant and trend)	-1.286	-4.450	-1.615	-4.450
INF (constant)	-3.257	-6.350	-3.089	-7.974
(constant and trend)	-4.179	-6.210	-2.994	-8.200
EXC (constant)	-2.087	-4.870	-2.114	-4.912
(constant and trend)	-0.503	-5.657	-0.453	-5.881
MON (constant)	-1.610	-4.684	-1.742	-4.644
(constant and trend)	-1.376	-4.600	-1.407	-5.702
CPS (constant)	-1.483	-4.929	-1.610	-4.988
(constant and trend)	-1.464	-4.753	-1.346	-9.968
UNE (constant)	-0.650	-5.313	-0.650	-5.313
(constant and trend)	-1.626	--5.180	-1.624	-5.504
MKT(constant)	-0.163	-4.178	-0.163	-4.118
(constant and trend)	-2.827	-4.062	-2.682	-3.992

Notes: Critical values for ADF are: -3.67, -2.96, and -2.62 (constant only); -4.32, -3.58, and -3.22 (constant and trend) at 1%, 5% and 10% level of significance respectively. However, the critical values for PP test are: -3.67, -2.96 and -2.62 (constant only), -4.30, -3.57 and -3.22 (constant and trend) at 1%, 5% and 10% level of significance, respectively

The results show that all the variables are integrated of order one or I(1). Only inflation is stationary at level. Having established that the variables are I(1), Johansen-Juselius (1990) technique was applied to determine whether there is a least one linear contribution of these variables that is I(0). Given that a cointegrating relationship is present among the selected variables in level, an error correction (EC) model can be estimated, that is, a model that combines both the short run properties of the economic relationships

in the first difference form of equation 1; as well as the long run information provided by the data in level form.

Table 3: Johansen Juselius Co-Integration

Null	Alternative R	Max-Eigen	Critical Values	Trace	Critical Values
0	1	25.661	33.877	73.215	69.819**
≤1	2	17.784	27.584	47.554	47.856
≤2	3	16.959	21.132	29.770	29.797
≤3	4	11.919	14.265	12.811	15.795
≤4	5	0.891	3.841	0.891	3.841
Panel (B): Estimates of Co-Integrating Vector					
Npl	GDP	UNE	CPS	EXC	
-1.000	-1.027(-3.273)***	0.351(1.281)	3.519(6.640)***	2.402(7.128)***	

*Note: Table 3 shows the results for Johansen-Juselius cointegration test. t ratios are in parentheses.** and ***
denote significance at 5% and 1% levels respectively.*

The results of the max-Eigen and the trace tests are as shown in panel A of Table 3. The co-integrating equation (normalized on NPL variable) is as shown in panel B of Table 2. The results in panel A of Table 3 shows that the null hypothesis of no co-integration i.e. 0 can be rejected for only trace test. The cointegrating equation (normalized on NPLs) given in panel B of Table 2 indicates that gross domestic product has negative sign while unemployment, credit to private sector and exchange rate are positive. All the coefficients except unemployment are significant as shown by their t-ratios indicated in parenthesis. The coefficient of unemployment is only significant at 20 per cent level. The results in panel B of Table 3 shows that growth of GDP is negatively related to non-performing loans and the coefficient is significant. This shows that in the long run, a per cent increase in GDP will reduce non-performing loan by 1.027 per cent. This result is consistent with the findings of Louzis, Vouldis and Metaxas (2011) for Greece, Khemraj and Pasha (2009) for Guyana, Salas and Saurina (2002) for Spain.

The coefficient of unemployment is positive though significant only at 20%. This indeed conforms to a priori expectation. This could mean that increase in unemployment negatively affect income of individuals thereby increasing their debt burden. It could also mean that increased unemployment in the economy negatively affected the demand for products of firms which ultimately affected the production/sales of the firms, which led to a decline in revenues of the firms and a fragile debt conditions. The results show that credit to the private sector and exchange rates are directly related to NPLs. Exchange rate appreciation might have contributed to a deterioration of bank portfolios. The same applies to credit to the private sector.

Following this, we utilize the information provided by Likelihood Ratio (L.R.) tests to generate a set of Error correction models that incorporate both the short and long-run elasticities, while the coefficients of the error correction (ECM) term represents the speed of adjustment back to the long run relationship among variables. The result of the estimation is presented in Table 4. The results show that growth of GDP is negative but the coefficient is not significant. All the same, the coefficient is consistent with a priori expectation. Unemployment rate increases NPLs but the coefficient is not significant. The results in Table 4 show that higher credit to the private sector is associated with increased NPLs, consistent with the findings of Jakubic and Reininger (2013), Nkusu (2011), Vogiazas and Nikolaidou (2011) for Romania; Bafondi and Ropele (2011) for Italy.

Table 4: Nigeria Error Correction Model (Dependent Variable $\Delta\ln(\text{Npl}_t)$)

OLS						
Variables	1	2	3	4	5	6
Constant	1.896**(2.34)	0.443(0.57)	0.532(0.74)	1.736(1.95)*	1.893(2.28)	2.171**(2.50)
$\Delta\ln\text{GDP}_t$	-0.06(-0.69)	--	--	0.117(-0.15)	-0.047(-0.06)	0.135(0.19)
$\Delta\ln\text{UNE}_t$	0.185(0.77)	--	--	0.212(0.82)	0.186(0.76)	0.172(0.71)
$\Delta\ln\text{CPS}_t$	1.346***(2.67)	--	--	1.156*(1.68)	1.326**(2.16)	1.553*(2.81)
$\Delta\ln\text{EXC}_t$	0.952***(2.96)	--	0.864***(2.76)	0.908**(2.40)	0.961**(2.68)	1.002***(3.07)
$\Delta\ln\text{LDR}_t$		0.852*(1.67)*		0.322(0.73)		
$\Delta\ln\text{MON}_t$		0.029(0.05)	0.747(1.13)	0.214(0.22)	0.055(0.06)	
$\Delta\ln\text{MKT}_t$		-0.374(-1.04)	-0.478*(-1.59)			
$\Delta\ln\text{OPE}_t$		0.966(1.003)				
$\Delta\ln\text{INF}_t$						-0.100(-0.91)
D_{it}			--	-0.031(-0.14)		
ECM $_{t-1}$	-0.26**(-2.12)	-0.016(-0.13)	-0.04(-0.36)	-0.237**(-1.80)	-0.263**(-2.14)	-0.311**(-2.36)
R^2	0.41	0.29	0.40	0.42	0.41	0.43
S.E.	0.41	0.46	0.41	0.43	0.42	0.41
D.W.	2.40	1.88	2.09	2.3	2.4	2.3
AR(1)	-	-0.396	0.388	-	-	-

*Table 4 shows the results of the error correction models. *, ** and *** denote significance at 10%, 5% and 1% levels respectively, t-ratios in parenthesis.*

The significant positive association between domestic credit and NPLs possibly suggests that the numerous problems banks continued to operate and contribute to the growth of domestic credit and to the extent that most bank experienced high level of inefficiency over the years. The negative association may reflect the delay in the implementation of financial and operational restructuring measures and some survival strategies adopted by the banks that prolonged their life thereby saving them from being declared bankrupt. The result is consistent with the funding of Fofack (2005) for SSA countries. However, the result contradicts the result of Alizade hJanvisloo and Muhammad (2013) for Malaysia.

The analyses suggest that exchange rate is associated with increase in NPLs. This indeed suggests that an appreciation of the exchange rate weakened the performance of the export-oriented sectors of the economy, thereby exacerbating the banking crisis. The result is consistent with the findings of Khemraj and Pasha (2009) for Guyana, Fofack (2005) for some selected sub-sahara African countries and Jakubik and Reininger (2013) for 7 European Countries. The result shows that the coefficient of money supply is positive meaning that increase in money supply leads to increase in non-performing loans. This clearly supports the positive association found between credit to the private sector and NPLs. This shows that an increase in aggregate stock of money may have contributed to a deterioration of banks portfolio in the country. This simply suggests that the banking crisis coupled with exchange rate crisis might have produced the classical Twin crises (Goldfajn and Valdes 1995, Kaminsky and Reinhart 1999). It needs be pointed out that the coefficient of money supply is not significant.

The analysis shows that inflation rate is negatively related to NPLs. This possibly suggests that inflation leads to increase in the value of customers' assets with positive effect on NPLs. Asides; it could be a reflection of the positive effect of moderate inflation on economic growth with positive effect on NPLs. However, conclusive inference cannot be based on this as the coefficient of inflation is not significant. Banking lending rate has positive relationship with NPLs and is significant at 10%. The persistence of high and prohibitive lending rates possibly transform a fragile banking system into a financial crisis through accumulation of defaults on loan payments and the moral hazard channel. This is not unexpected because the deregulation of the banking system in Nigeria in the early 80s precipitated in a rapid increase in lending rate over the years. Finally, the coefficient of stock market index is negative. The coefficient is significant at 10%. This tends to stress the role of stock market as leading variable for financial and economic developments that directly influence NPLs. This simply means that boost in stock market will have positive effect on NPLs in Nigeria.

CONCLUSION

High and increasing non-performing loans portend great danger in any economy as exemplified in the financial crisis that spread throughout the whole world from 2007. The goal of this paper is to identify those factors that are responsible for non-performing loans. Knowledge of such factors will help in the formulation of policies to address the problem of NPLs. The data utilized are annual data for Nigeria over the period 1981-2011. Data on non-performing loans, gross domestic product, total credit to the private sector, unemployment rate, money supply, lending rate, stock market price index, rate of inflation, and real exchange rate were sourced from Central Bank of Nigeria, Statistical Bulletin (2011). All variables are expressed in logarithm. The results of the analysis shows that increase in real GDP tends to reduce non-performing loans both in the short and long run. However, the impact is only significant in the long run. This clearly suggests policies designed to boost GDP and income will help to reduce NPLs.

Exchange rate and credit to the private sector tend to increase non-performing loan. Moreover, lending rate has increasing effect on NPLs. This means that government needs to design policies that will help reduce the cost of borrowing in the domestic economy. Finally, the stock market index has a negative effect on NPLs meaning that increasing stock market activity will help reduce NPLs. In summary, government efforts of increasing economic growth, mop up excess liquidity in the economy, reduce the unemployment rate and boost stock market development will lead to reduction in aggregate non-performing loans in Nigeria. Our study is not without limitations. One, this study has not considered the probable structural breaks during the period under consideration. Secondly, it is a single country study. Subsequent studies should apply unit root test allowing for structural breaks. Also, a multicountry study that will cover the whole of Sub-Saharan Africa should be an area of future research.

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BIOGRAPHY

Akinlo, Olayinka O. is a senior Lecturer in the Department of Management and Accounting, Obafemi Awolowo University, Ile-Ife, Nigeria. She can be contacted at the Department and through email yinkakinlo@gmail.com, yakinlo@oauife.edu.ng or through telephone on +2348037193075.

Emmanuel, Mofoluwaso is a Lecturer in the Department of Management and Accounting, Obafemi Awolowo University, Ile-Ife, Nigeria. She can be contacted at the Department and through email folusoobi@yahoo.com or through telephone on +2348064405059.

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THE IMPACT OF CULTURE AND ECONOMIC FACTORS ON THE IMPLEMENTATION OF IFRS

Rogelio J. Cardona, University of Puerto Rico-Río Piedras
Karen C. Castro-González, University of Puerto Rico-Río Piedras
Carmen B. Ríos-Figueroa, University of Puerto Rico-Río Piedras

ABSTRACT

This paper examines the effects of culture and other economic factors on a country's decision to implement International Financial Reporting Standards (IFRS). This work extends the previous literature by using a methodology that assigns an implementation score in different countries and its association with Hofstede's cultural dimensions and economic factors. The results suggest that certain cultural dimensions and economic factors may affect a country's decision to implement IFRS.

JEL: F23, F60, M41

KEYWORDS: International Financial Reporting Standards, Accounting Standards, Implementation, Convergence or Adoption, Cultural Dimensions; Economic Factors

INTRODUCTION

Economic transactions are measured with accounting standards that vary from country to country but the global economy has created the need for uniform standards. Differences in culture may affect a country's desire to join a globalized economy (Ding Jeanjean and Stolowy, 2005; Ramanna and Sletten, 2009, among others). Prior studies on the adoption of IFRS consider a country's culture, the barriers to adoption, and the impact of the adoption of IFRS on financial reporting. Callao-Gastón, Jarne-Jarne, and Laínez-Gadea (2007), Callao-Gastón, Ferrer-García, Jarne-Jarne, and Laínez-Gadea (2010), Ramanna and Sletten (2009), Armstrong, Barth, Jagolinzer, and Riedl (2010) examine the degree of convergence or adoption of IFRS in Europe, the European Union (E.U.) and the United States (U.S.), respectively. Our study presents an alternative empirical methodology that considers the effect of culture and economic factors on a country's IFRS implementation decision. The databases used were a survey made by PricewaterhouseCoopers, LLP (PwC) in April 2012 (*IFRS Adoption by Country*), Hofstede's (1980, 2001) cultural dimensions, and The Global Competitiveness Report for 2011-2012 published by The World Economic Forum (WEF).

Using the aforementioned databases we designed a grading system based on PwC's survey that assigns an IFRS implementation score to each country. A country's IFRS implementation decision is expected to have an indirect impact on the required disclosure of financial information by listed companies in each country. Appendix A presents the questions included in PwC's survey regarding the current stage of the IFRS adoption or conversion process in each country. The next section provides a brief overview of the institutional background and relevant literature. The literature review is followed by the sample selection procedure, the data analysis, and the research methodology. The final section presents the results and our conclusions.

LITERATURE REVIEW

The academic and professional literature present diverse explanations regarding the IFRS implementation process in different countries. The IFRS Resources website of the American Institute of Certified Public Accountants (AICPA) defines convergence as the development of compatible international accounting standards over time; adoption means establishing a specific timetable for public companies to implement IFRS on their financial reports. Zeff and Nobes (2010) describe the acceptance of IFRS in a country can be accomplished through the following different methods: adoption of IFRS, endorsement of IFRS allowing for the possibility of some differences, full convergence, partial convergence and allowing the use of IFRS standards. As examples of the different stages of the IFRS implementation process, Carvalho and Salotti (2013) document the case of Brazil as a country that has completely adopted IFRS, whereas, Nie, Collins and Wang (2013) note that China is in the process of convergence to IFRS.

Culture and Hofstede's Cultural Dimensions

Prior research suggests that culture plays a central role in accounting decisions. According to Liu and Mackinnon (2002), one of the most cited definitions of culture in recent years was made by Hofstede in 1983. Hofstede defines culture as a collective programming of the mind, difficult to change, that distinguishes a group of people from others, and that cultural programming is hard to change, unless individuals move from their culture.

Between 1968 and 1972, Hofstede developed a model to identify cultural patterns consisting of four primary dimensions: individualism versus collectivism (IC), power distance (PD), uncertainty avoidance (UA), and masculinity versus femininity (MF). In 1985, Hofstede added a fifth dimension: long-term versus short-term orientation (LTD). In 2010, Hofstede added a sixth dimension, indulgence versus restraint (IVR), based on data analysis made by Minkov with the World Values Survey for 93 countries (Hofstede G, Hofstede G.J, and Minkov, 2010).

The individualism versus collectivism (IC) dimension measures the relationship of an individual with others. Hofstede (1983) concludes that rich countries are more individualistic and poor countries are more collectivistic. In an individualistic country, confrontations are normal, there is less conformity with the "status quo", and competition is stimulated. The power distance (PD) dimension describes how societies work with people that are not equal in physical and intellectual capacities. In organizations, the PD dimension is related to the degree of centralization of authority and autocratic leadership. The uncertainty avoidance (UA) dimension deals with the basic fact of life: time goes only one way and we are living with uncertainties which we are aware of. The masculinity and femininity (MF) dimension shows the duality of the sexes in society. According to Hofstede (1980, 2001), in a feminine society there is less division of roles between the sexes. Hofstede (1983) asserts that there is a global relationship between PD and collectivism. Collectivist countries always show a high PD index whereas individualistic countries always reflect a low PD index. Latin American countries (LAC) and European countries are averse to uncertainty and show large PD. According to the author, LAC and clusters of some other countries show moderate masculinity.

For Hofstede (2001), planning and control in an organization reflect cultural assumptions and are related to the rules of PD and UA of the dominant national culture. The author states that in countries that exhibit a large degree of PD, accounting systems are mostly used to justify the decisions of those in power in the organization. In countries with a high degree of uncertainty, accounting systems will have more detailed rules to work in certain situations. In countries with low UA, accounting systems allow more discretion in organizations or accountants, to work in certain situations (e.g. U.S.). In an environment of high individualism (U.S.), information in the accounting system can be taken more seriously and can be

considered more important than in collective countries. In high masculine societies (e.g. U.S. and Germany), accounting systems seek to achieve pure financial goals.

Development of International Accounting Standards

The first entity responsible for establishing international accounting standards, the International Accounting Standards Committee (IASC) was organized in 1973 through an agreement of the leading professional accounting bodies in 10 countries: Australia, Canada, France, Germany, Ireland, Japan, Mexico, the Netherlands, the United Kingdom, and the U.S. On April 1, 2001, the International Accounting Standards Board (IASB) replaced the IASC (Doupnik and Perera, 2012).

In June 2002, the E.U. decided that IFRS implementation would be mandatory for all listed companies starting in 2005 (E.U., 2002, cited in Ding, Jeanjean and Stolowy, 2005). Russia, Australia, and New Zealand followed by introducing similar policies. In October 2002, the Financial Accounting Standards Board (FASB) and the IASB issued a memorandum of understanding to formalize their commitment to the convergence of U.S. and international accounting standards (Ding et. al. 2005).

Cultural and Economic Factors Related to the Implementation of IFRS

Prior research suggests that culture is a crucial factor in the implementation of IFRS and its success. Ding et al. (2005) find that resistance to implement IFRS is related to cultural dynamics and is not exclusively caused by contractual reasons, alleged technical superiority, or legal origin. Hope, Jin and Kang (2006) observe that countries with lenient investor protection laws and countries that are perceived to provide better access to their domestic capital markets are more likely to adopt IFRS. However, they believe that to obtain the full benefits of adopting IFRS for financial reporting, standard setters must first make changes in the economic and political environments. A similar argument was made by Yalkin, Demir and Demir (2008) who note that the Turkish Accounting Standards Board accepted the harmonization of IFRS to obtain international acceptance for Turkey.

Economic and political benefits are also derived from the adoption of IFRS. Using a sample of 102 non-E.U. countries, Ramanna and Sletten (2009), find that the most powerful countries are more resistant to IFRS adoption or surrendering their standard-setting authority to an international organization. The authors find evidence that suggests that a country is more likely to adopt international standards if its trade partners or countries within a geographical region are adopters themselves. Campbell, Doupnik and Tsakumis (2009) address the adoption of IFRS and their relationship with cultural and translation differences. The authors argue that multinational corporations and their auditors must consider the impact of possible biases held by their international staff and by colleagues in their international offices so they can identify their native country's cultural predispositions and better understand how values affect their interpretations and judgments when applying accounting standards. The authors suggest that education and preparation of future professionals is necessary to overcome the impact of national culture in the application of the international standards.

Clements, Nelli and Stovall (2010) examine the relationship between country size and cultural diversity with a country's IFRS adoption decision. According to the authors, cultural influences do not seem to be a critical factor in the adoption of the international standards. They observe that smaller countries tend to adopt IFRS while larger ones tend not to. This is consistent with the notion that larger countries have well established accounting standards and resist incurring in the costs to adopt IFRS. Horton, Serafeim and Serafeim (2010) examine whether mandatory IFRS adoption improves the information environment. The results suggest that mandatory IFRS adoption has improved the quality of information intermediation in capital markets by increasing information and accounting comparability. The results obtained by Callao-Gastón et al. (2007) suggest that local comparability has worsened with the adoption of IFRS in Spain.

Bova and Pereira (2012) summarize the current points of view regarding a country's IFRS adoption decision. According to the authors, one point of view considers that IFRS represent improved financial reporting standards. The resulting uniformity in standards also achieves improved comparability, which results in a better information environment and an expected reduction in the cost of capital. The other point of view is that IFRS do not by themselves, result in improved financial reporting. The latter is achieved through the interaction of economic and political factors. The authors obtain empirical evidence on IFRS adoption observing private and public firms in Kenya, a country they describe as having open capital markets with limited enforcement capabilities. Bova and Pereira (2012) note that the presence of foreign investors is positively associated with the demand for transparency brought by adopting IFRS. Research by Ding et al., 2005; Hope et al., 2006 and Clements et al., 2010, among others, suggests that differences in culture, country size, economic and political factors may influence the adoption and subsequent successful implementation of IFRS. Clements et al. (2010) find that a country's size seems to have a larger impact than national culture on the IFRS adoption decision, but suggest researchers should revisit their findings with alternative empirical methodology. We decided to use the April 2012 PwC survey to examine the extent of IFRS implementation ten years after the first countries (E.U., Russia, Australia, New Zealand, and the U.S.) decided to start the implementation of IFRS. Our paper is a partial replication of the study done by Clements et al (2010); however, we develop an estimation model that examines the effect of culture and economic factors on a country's IFRS implementation decision in a sample of 69 countries.

DATA AND METHODOLOGY

Although our research methodology introduces elements of researcher induced bias, the results provide additional evidence to measure the impact of culture and economic factors on a country's IFRS implementation decision. In our study, implementation refers to a country's decision to partially or fully converge towards or adopt IFRS. Based on prior research and our expectations, we developed five testable hypotheses. The first four hypotheses consider the effects Hofstede's cultural dimensions on a country's implementation decision. The impact of culture was measured using only four of the six cultural dimensions developed by Hofstede because the values for the fifth and sixth cultural dimensions (long-term versus short-term orientation and indulgence versus restraint, respectively) are not available for the countries in our study sample.

Since culture is an exogenous variable that may be correlated with other variables, cultural attributes might be acting as proxies for other omitted country effects. Our study includes other control variables to mitigate the existence of possible omitted country-related variables. Following Hope et al. (2006), we consider that certain economic factors, such as the existence of investor protection mechanisms and unlimited access to capital markets, may also have an impact on a country's implementation decision. Our fifth research hypothesis examines the possible effects of certain economic factors, including market size on a country's implementation decision.

Prior research by La Porta et al. (1997, 1998 and 2000) considers the effect of economic variables such as investor protection mechanisms, type of legal system and the existence of developed capital markets on corporate valuation and governance. In our study we consider the effect of economic factors with proxies obtained from *The Global Competitiveness Report for 2011-2012* published by the World Economic Forum (the WEF Report). The economic factors selected are elements derived from the twelve pillars used to measure the competitiveness of different countries. From the Institutions pillar, we selected the following variables related to investor protection mechanisms: strength of auditing and reporting standards, efficacy of corporate boards, protection of minority shareholders' interests, and strength of investor protection. From the Financial Market Development pillar, we selected the "regulation of securities exchanges" variable.

As a proxy for a country's size we used its domestic and foreign market size index as reported in the WEF Report. In this report, market size is one element of the twelve pillars used to measure the competitiveness of countries with a domestic and a foreign market index. The domestic market size index is constructed by taking the natural log of the sum of the gross domestic product (GDP) valued at purchased power parity (PPP) plus the total value (PPP estimates) of imports of goods and services, minus the total value (PPP estimates) of exports of goods and services. Data are then normalized on a 1-to-7 scale. PPP estimates of imports and exports are obtained by taking the products of exports as a percentage of GDP and GDP valued at PPP. The foreign market size index is estimated as the natural log of the value (PPP estimates) of goods and services, normalized on a 1-to-7 scale. PPP estimates of exports are obtained by taking the product of exports as a percentage of GDP and GDP valued at PPP.

Countries with a large degree of power distance are highly centralized and the roles of supervisors and employees (subordinates) are clearly defined, whereas countries with low power distance are decentralized. For Hofstede (2001), in countries that exhibit a large degree of PD, accounting systems are mostly used to justify the decisions of those occupying positions of power in organizations. Chan, Lin and Lai (2003) found that a company operating in a country with a large degree of power distance, such as the centralization of power in a few individuals, ignoring management controls and less competent staff, may exhibit large accounting errors. This situation could require the use of more structured accounting guidelines. According to Clements et al. (2010) a country may visualize the IASB as the supervisory entity responsible for establishing the required reporting standards. As a result, we can expect that country with a large degree of PD to implement IFRS.

H1: A country with a large degree of power distance is more likely to have a higher IFRS implementation score.

According to Hofstede (2001), in an environment of high individualism, information in the accounting system can be considered more valuable than in collectivist countries. The literature has mixed results on whether the cultural dimension of individualism/collectivism has an impact on a country's IFRS implementation decision. Callen, Morel & Richardson (2011) find that earnings management seems to be inversely related to a country's individualism dimension. Evans, Houston, Peters & Pratt (2012) observe that financial officers in U.S., Europe and Asia that use IFRS for financial reporting consider that IFRS allows them greater flexibility or discretion than officers that use U.S. GAAP. Han, Kang, Salter and Yoo (2013) note that countries with higher levels of individualism are associated with higher levels of earnings discretion. According to Clements et al. (2010), a collectivist country is expected to prefer an external entity such as the IASB to establish its accounting standards because of the perceived long-term benefit for the majority of individuals. In our study, we expect that highly individualistic countries are less likely to implement IFRS.

H2: A highly individualistic country is more likely to have a lower IFRS implementation score.

Hofstede (1980, 2001) argues that in a masculine society, earnings and money are important. Accounting systems in high masculine societies seek to achieve pure financial goals and present results that portray a responsible manager as a hero. Some authors have associated masculine societies with unethical practices. Scholtens and Dam (2007) suggest that masculinity is negatively related to ethical policies. Davis and Ruhe (2003) find that corruption seems to be predictable in masculine societies. According to Clements et al., (2010) a masculine country is characterized as promoting self-reliance and independence, whereas a feminine country is more dependent on others. In our study we expect that an independent country will be unwilling to accept accounting standards from an external (international) entity.

H3: A country with a higher masculinity index is more likely to have a lower IFRS implementation score.

For Hofstede (1980, 2001), in a society with a higher degree of uncertainty avoidance, management are less likely to make risky decisions. According to Clements et al. (2010), a country with a high degree or tolerance for uncertainty prefers to avoid changes in their laws and regulations, i.e. accounting standards, and will not be inclined to accept a change from their own known reporting standards to adopt new (unknown) standards. A country that displays strong or high uncertainty avoidance prefers rules over principles, whereas IFRS are principles-based accounting standards that allow greater flexibility in financial reporting (Schipper, 2005; Forgeas, 2008). Therefore, a country that exhibits weaker or lower uncertainty avoidance is more open to the use of principles over rules.

H4: A country with a higher degree of uncertainty avoidance is more likely to have a lower IFRS implementation score.

Prior research has examined the relationship between economic factors and the size of a country with the probability of IFRS implementation. La Porta et al. (2000) indicate that investor protection rights include disclosure and accounting rules. These rules supply investors with the necessary information to exercise their rights. They also indicate that in different jurisdictions, investors' protection comes from different sources, including stock exchange regulations and accounting standards. Following La Porta et al. (2000), we consider that strength of auditing and reporting standards, efficacy of corporate boards, protection of minority shareholders' interests, strength of investor protection and regulation of securities exchanges represent components of the overall investor protection mechanisms. Hope et al. (2006) find that countries with lenient investor protection laws and countries that are perceived to provide better access to their domestic capital markets are more likely to adopt IFRS.

Horton et al. (2010) suggests that mandatory IFRS adoption has improved the quality and comparability of the accounting information in capital markets. Clements et al. (2010) consider the effect of a country's size in the IFRS adoption process, and uses two different measures for size. One measure considers the natural logarithm of a country's total population, and the second measure considers the natural logarithm of a country's total market capitalization. Regardless of the measure used, Clements et al. find that large countries are not expected to be inclined to adopt IFRS, whereas smaller countries are expected to be adopters because they do not have the necessary resources or infrastructure to develop their own accounting standards. In our study we develop the following hypothesis for economic factors:

H5: A country with higher values for its economic factors (Strength of auditing and reporting standards, Efficacy of corporate boards, Protection of minority shareholders' interests, Strength of investor protection, Regulation of securities exchanges, Domestic market size index, and foreign market size index) is more likely to have a lower IFRS implementation score.

To test our hypotheses we selected a study sample, designed an IFRS implementation scoring system for each country and used regression analyses to examine the association between cultural and economic factors and the country's implementation decision. The following section explains the sample selection and the tests used.

Sample Selection

As presented on Table 1, the study sample consists of 69 countries with the information on the status of each country's IFRS implementation decision pursuant to the PwC Survey and their cultural dimensions as measured by Hofstede (1980, 2001). The 69 countries are located in the following six regions: North America, South America, Asia, Europe, Africa and Oceana. We obtained the values for Hofstede's cultural dimensions for the countries in our study sample (http://geert-hofstede.com/countries.html.). Based on these dimensions some LAC, like Ecuador, Guatemala and Panama, are in the bottom three for the IC dimension. This implies that they are highly collectivistic. Conversely, the United States, the United

Kingdom, and Australia are considered the most individualistic countries in our sample. In terms of PD, the top three are Malaysia, Slovakia and Saudi Arabia. This implies they have a higher degree of separation between members in their organizations. In connection with the MF dimension, three European countries, Denmark, Netherlands and Norway tend to be the most feminine. Slovakia, Hungary and Japan present the highest degrees of masculinity in the sample. Portugal, Greece and Guatemala have the highest degree of UA; while, Singapore, Jamaica and Denmark have the lowest. The latter implies that they are more likely to take risks or make riskier decisions.

Table 1: Sample Composition

Countries in the April 2012 PWC Survey	144
Less: Countries without values for Hofstede's cultural dimensions	(75)
Final study sample	**69**
Countries by region in the study sample:	
North America	8
South America	8
Asia	17
Europe	27
Africa	7
Oceana	2
Total countries in the study sample	69

This table presents the countries included in our study sample segregated by geographical region. The North America region includes Central America and the Caribbean.

In addition to cultural dimensions, this study examines the association between certain economic factors and a country's implementation decision. The economic factors obtained from the WEF report for each country are strength of auditing and reporting standards, efficacy of corporate boards, protection of minority shareholders' interests, and strength of investor protection, regulation of securities exchanges and each country's domestic and foreign market size index. Table 2 presents the economic factors for the 69 countries classified by region. The countries with the highest (and lowest) individual and aggregate values are identified in each region.

Table 2: World Economic Forum (WEF) Economic Factors by Country

Country	Strength of Auditing and Reporting Standards (SA)	Efficacy of Corporate Boards (EC)	Protection of Minority Shareholders' Interests (PM)	Strength of Investor Protection (SI) 0-10 (Best)	Regulation of Securities Exchanges (RS)	Domestic Market Size Index (DM) 1-7 (Best)	Foreign Market Size Index (FM) 1-7 (Best)
Panel A: North America							
Canada	6.2*	5.6*	5.5*	8.3*	5.4*	5.3	5.7
Costa Rica	4.7	4.8	4.2	3.0<	-3.7<	3.1<	3.9
El Salvador	4.6<	4.8	3.8	4.3	3.7<	3.1<	3.6
Guatemala	4.6<	4.9	3.7<	4.0	4.3	3.4	3.9
Jamaica	5.3	4.5	4.4	5.3	5.0	2.7	3.3<
Mexico	4.8	4.4<	4.1	6.0	3.8	5.4	5.9
Panama	5.0	4.4<	4.6	4.7	3.7<	3.1	3.6
United States	5.2	5.1	4.8	8.3 *	4.6	7*	6.7*
Average	**5.1**	**4.8**	**4.4**	**5.5**	**4.3**	**4.1**	**4.6**
Panel : South America							
Argentina	3.9 <	4.1	3.5	4.7	3.6	4.8	5.1
Brazil	5.0	4.8	4.5	5.3	5.7*	5.7*	5.5*
Chile	5.6*	5.1*	4.9*	6.3*	3.8	4.2	4.9
Colombia	4.4	4.6	4.1	8.3	3.7	4.6	4.7
Ecuador	4.1	4.2	3.6	4.0	4.0	3.7	4.3
Peru	5.1	4.8	4.4	6.7	3.5<	4.2	4.7
Uruguay	4.7	4.4	4.5	5.0	4.5	3.0<	3.5<
Venezuela	4.2	4.0<	3.2<	2.3<	4.2	4.4	4.8
Average	**4.6**	**4.5**	**4.1**	**5.3**	**4.1**	**4.3**	**4.7**

Panel C: Asia						
China	4.8	4.4	4.4	5.0	4.5	6.7**	7.0**
Hong Kong	5.9	4.9	5.0	9.0	5.6	4.3	6.1
India	5.0	4.4	4.4	6.0	5.2	6.1	6.2
Indonesia	4.3	4.5	4.3	6.0	4.4	5.1	5.5
Israel	5.9	4.8	5.2	8.3	5.5	4.1	4.8
Japan	5.4	5.1	5.0	7.0	4.9	6.1	6.1
Kuwait	4.7	3.8<	3.8<	6.3	4.0	3.5<	4.8
Lebanon	4.7	4.1	4.1	5.0	4.5	3.4	4.3<
Malaysia	5.6	5.3	5.3	8.7	5.4	4.4	5.8
Pakistan	4.2	4.2	4.0	6.3	4.2	4.7	4.6
Philippines	4.8	4.8	4.0	4.0	4.2	4.4	5.0
Saudi Arabia	5.6	5.3	5.5	7.0	5.5	4.7	5.7
Singapore	6.2*	5.6*	5.6*	9.3*	6.0*	4.1	6.0
Taiwan	5.5	4.9	5.0	5.3	5.5	4.9	6.0
Thailand	4.9	4.5	4.5	7.7	4.7	4.8	5.8
Turkey	4.4	4.2	3.9	5.7	5.0	5.1	5.3
Vietnam	3.6<<	4.2	4.1	2.7<	.6<	4.3	5.4
Average	**5.0**	**4.6**	**4.6**	**6.4**	**4.9**	**4.7**	**5.6**
Panel D: Europe						
Austria	5.7	5.2	4.8	4.0	4.7	4.3	5.3
Belgium	5.7	5.1	5.0	7.0	5.0	4.4	5.8
Bulgaria	4.3	4.0	3.6	6.0	3.7	3.6	4.5
Czech Republic	5.0	4.7	4.0	5.0	4.7	4.2	5.4
Denmark	5.7	5.3	5.5	6.3	5.5	4.0	4.9
Estonia	5.6	4.7	4.5	5.7	4.8	2.5	3.9
Finland	6.1	5.5	5.9	5.7	5.9*	4.0	4.7
France	5.6	5.1	4.8	5.3	5.4	5.7	6.0
Germany	5.3	5.2	4.8	5.0	4.5	5.8*	6.5*
Greece	4.5	3.7<<	4.7	3.3	4.0	4.4	4.6
Hungary	5.4	4.5	4.1	4.3	4.8	3.9	5.2
Ireland	4.3	4.4	4.5	8.3*	3.9	3.7	5.3
Italy	4.3	4.0	3.7	5.7	4.3	5.5	5.9
Malta	6.0	4.4	5.1	0.0<<	5.3	2.0<<	3.3<<
Netherlands	5.9	5.3	5.2	4.7	5.2	4.8	6.0
Norway	6.0	5.5	5.7	6.7	5.9*	4.1	4.9
Poland	5.2	4.4	4.1	6.0	5.0	4.9	5.6
Portugal	4.9	4.1	4.5	6.0	4.9	4.2	4.8
Romania	4.3	4.3	3.8	6.0	3.7	4.2	4.9
Russia	3.8<	4.0	3.1	5.0	3.5	5.6	6.1
Serbia	4.0	3.7<<	2.8<<	5.3	3.3<<	3.5	3.9
Slovakia	4.6	4.6	3.9	4.7	4.0	3.7	4.9
Slovenia	4.9	4.0	3.4	6.7	4.1	3.1	4.4
Spain	4.9	4.3	4.3	5.0	3.7	5.4	5.7
Sweden	6.3*	5.9**	6.0**	6.3	5.9*	4.4	5.2
Switzerland	5.6	5.3	4.9	3.0	5.6	4.3	5.2
United Kingdom	5.9	5.3	5.2	8.0	5.1	5.7	6.0
Average	**5.2**	**4.7**	**4.5**	**5.4**	**4.7**	**4.3**	**5.1**
Panel E: Africa						
Egypt	4.3	4<	4.4	5.3	4.2	4.7*	5
Ghana	4.7	4.7	4.5	6	4.3	3.3	3.9
Morocco	4.3	4.8	4.5	3.3<	4.8	3.9	4.4
Nigeria	3.7	4.3	3.7<	5.7	4	4.4	5
South Africa	6.5**	5.8*	5.8*	8*	6.4**	4.7*	5.1*
Tanzania	4.1	4.1	3.8	5	3.6<	3.3	3.7
Zambia	4.8	4.8	4.4	5.3	4.3	2.4<	3.3
Average	**4.6**	**4.6**	**4.4**	**5.5**	**4.5**	**3.8**	**4.3**
Panel F: Oceana						
Australia	5.9<	5.8*	5.3<	5.7<	5.7*	5*	5.3*
New Zealand	6.1*	5.5<	5.5*	9.7**	4.7<	3.6<	4.2<
Average	**6.0**	**5.7**	**5.4**	**7.7**	**5.2**	**4.3**	**4.8**
Sample average	**5.0**	**4.7**	**4.5**	**5.7**	**4.6**	**4.3**	**5.0**

*This table presents the aggregate IFRS implementation score by country in each geographical region in the sample study. ** Represents the country with the highest aggregate IFRS implementation score in the sample study, * Represents the country with the highest IFRS implementation score per region in the sample study, << Represents the country with the lowest aggregate IFRS implementation score in the sample study, and <Represents the country with the lowest IFRS implementation score per region in the sample study.*

Model

We designed an empirical model to examine the impact of culture and other economic factors on a country's IFRS implementation decision. Regression and correlation analyses were performed to examine the association between a country's culture and economic attributes with its implementation decision. The scoring system and the statistical analyses are discussed in the next section. PwC's April 2012 Survey documents the current stage of the IFRS adoption or convergence process in each country. This survey describes the implementation status of IFRS per country related to the rules for listed companies (RL) and

the adopted version of IFRS (VI), similarities and differences in rules for subsidiaries of foreign companies or foreign companies listed in local exchanges (DR), rules for statutory filings, the locally accepted version of IFRS, additional regulatory financial statement requirements that permit or require the use of IFRS, IFRS convergence plans, type of tax regime and plans for IFRS convergence as the basis of tax reporting.

The focus of this study is on the accounting standards that apply to public companies only. Four questions were excluded from the original survey because they did not apply to publicly held companies. We added a time-related dimension for the implementation date (ID) to measure the speed of the implementation process. The relevant variable is the date in which public companies began using IFRS. Based on the responses on the PwC survey, we designed a grading system to determine an IFRS implementation score for each country (the country's implementation score). Table 3 presents the scoring system used. We assigned a point value to each of the responses that fluctuated from 0 to 3. We assigned a value of 0 to those countries to which the IFRS requirement for listed companies did not apply because the country had no local stock exchange. A value of 1 was assigned to countries that had no IFRS requirement but its use is permitted. A value of 2 was given to countries that require IFRS for listed companies with certain exceptions. Some exceptions include: all or some financial institutions are not required to use IFRS; only financial institutions are required to use IFRS; some companies have additional reporting requirements using local standards and/or are using locally adopted IFRS. A value of 3 was assigned to countries that require IFRS for all listed companies with no exceptions.

Table 3: Description of the Grading System Used For the Answers to the PWC Survey Questions

	Question			
Points Assigned	IFRS requirement for listed companies (RL)	Version of IFRS for listed companies (VI)	Implementation Date (ID)	Different Rules for subsidiaries of FC and FC listed locally (DR)
0	Not applicable	Not applicable	Not applicable	Not applicable
1	No requirement	Locally adopted IFRS	In process	Yes, or the use of other standards are <u>permitted</u>
2	Required with exceptions such as: except for some financial institutions, additional reporting using local standards, and/or using IFRS-Country's language version.	IFRS as published by IASB and as locally adopted or IFRS as published by IASB with the exception of some financial institutions	2010-2013	Yes, but reconciliations are required
3	Required	IFRS as published by IASB or IFRS Country's language version	Before 2010	No

This table presents the grading system developed in this study using the answers to the questions in the April 2012 "PwC Survey: IFRS Adoption by Country Survey". The values assigned to each response represent the IFRS implementation score. A value of "0" was assigned to a response to reflect the lowest degree of IFRS implementation. The highest value assigned represents the highest degree of IFRS implementation for that country.

With respect to the version of IFRS adopted by listed companies in each country, we assigned a value of 0 to those countries to which this requirement did not apply because the country had no local stock exchange. A value of 1 was assigned to countries that apply locally adopted IFRS. A value of 2 was given to countries that adopted IFRS as published by IASB and use, in some respects, locally adopted IFRS. We also assigned a value of 2 to countries that applied IFRS as published by the IASB with the exception of some financial institutions or that have additional reporting requirements using local standards and/or are using locally adopted IFRS. A value of 3 was assigned to countries that require IFRS for all listed companies with no exceptions.

The adoption date measures the speed of IFRS implementation in each country. If a country had not implemented IFRS, a value of 0 was assigned. A value of 1 was assigned to a country in the process of implementing IFRS for public companies but not yet decided. A value of 2 was given to those countries

that implemented IFRS on or after 2010. Countries that implemented IFRS before 2010 received a value of 3. The last element in our scoring system refers to the existence of different rules for foreign companies and foreign locally listed companies. A value of 0 was given to those countries where this requirement did not apply because the country had no local stock exchange. A value of 1 was assigned if different rules apply for foreign companies or if these companies were permitted to use different rules. A value of 2 was assigned to those countries where different rules apply but reconciliation to IFRS is required. Countries where foreign companies are subject to the same accounting rules as other companies received a value of 3. In other words, if the country adopted IFRS for public companies, the same rules apply whether it is a local or foreign company.

Table 4 presents the responses obtained by PwC in the April 2012 "PwC Survey: IFRS Adoption by Country Survey" regarding the implementation of IFRS by listed companies in each country in our study sample. After analyzing the responses, values were assigned to each response according to each country's degree of implementation and added to obtain a final IFRS implementation score per country. As expected, the United States has the lowest score in the North America region, which is consistent with its ongoing convergence process since 2002.

Tests

We used three regression models to test our hypotheses regarding the impact of cultural and economic factors on the implementation decision in each country. The first model considered Hofstede's cultural dimensions as the possible determinants of a country's implementation score. The regression model is as follows:

$$Score_i = \alpha_i + b_i\,IC + h_i\,PD + s_i\,MF + c_i\,UA + \varepsilon_i \tag{1}$$

where $Score_i$ represents a country's IFRS implementation score, IC represents the value of a country's Individualism/Collectivism dimension, PD is the value of a country's Power Distance value, MF represents the value of a country's Masculinity/Femininity dimension, and UA is the value of a country's Uncertainty Avoidance dimension Our second regression model was used to test our five research hypotheses regarding the impact of economic factors on a country's implementation decision. The regression model is as follows:

$$Score_i = \alpha_i + n_i SA + l_i\,EC + k_i\,PM + p_i\,SI + t_i RS + g_i FT + v_i DM + z_i FM + \varepsilon_i \tag{2}$$

where $Score_i$ represents a country's IFRS implementation score, SA represents strength of auditing and reporting standards, EC means efficacy of corporate boards, PM represents protection of minority shareholders' interests, SI represents a system's strength of investors protection, RS is related to regulation of securities exchanges, DM is related to the size of the domestic market and FM to the foreign market size. A third regression model was used to examine whether a country's cultural dimensions and its economic factors, when taken together, explain better the implementation scores assigned to our countries in our study sample. The third regression model is as follows:

$$Score_i = \alpha_i + b_i IC + h_i PD + s_i MF + c_i UA + n_i SA + l_i\,EC + k_i\,PM + p_i\,SI + t_i RS + g_i FT + v_i DM + z_i FM + \varepsilon_i \tag{3}$$

The following section presents and discusses the tests results. Initially we discuss the results of the regression analyses and their possible interpretations, followed by the Pearson (Spearman) correlations between the variables and the related explanations.

Table 4: PWC's Survey Answer Values and the Final IFRS Implementation Scores by Country

	PwC's Survey Questions				
Country	IFRS requirement for listed companies	Version of IFRS	Implementation Date (ID)	Different Rules for subsidiaries of FC and FC listed locally avoidance	IFRS Implementation Score
Panel A: North America					
Canada	2	2	2	1	7
Costa Rica	3	3	3	3	12
El Salvador	2	2	2	3	9
Guatemala	3	3	3	3	12
Jamaica	3	3	3	3	12
Mexico	2	3	2	2	9
Panama	3	2	2	3	10
United States	1	0	0	1	2
Panel : South America					
Argentina	2	3	2	3	10
Brazil	3	2	2	3	10
Chile	2	2	2	3	9
Colombia	1	0	1	0	2
Ecuador	2	3	2	3	10
Peru	2	2	2	3	9
Uruguay	2	2	2	3	9
Venezuela	3	3	2	3	11
Panel C: Asia					
China	1	0	0	0	1
Hong Kong	1	3	3	1	8
India	1	3	1	3	8
Indonesia	1	0	1	3	5
Israel	2	2	3	1	8
Japan	1	1	1	1	4
Kuwait	3	3	3	3	12
Lebanon	3	3	3	3	12
Malaysia	3	1	2	3	9
Pakistan	3	1	3	3	10
Philippines	3	1	3	1	8
Saudi Arabia	1	3	1	3	8
Singapore	2	1	1	1	5
Taiwan	1	0	2	2	5
Thailand	1	1	1	1	4
Turkey	3	3	3	3	12
Vietnam	0	0	0	0	0
Panel D: Europe					
Austria	3	1	3	3	10
Belgium	3	1	3	3	10
Bulgaria	3	1	3	3	10
Czech Republic	3	1	3	1	8
Denmark	3	1	3	1	8
Estonia	3	1	3	3	10
Finland	3	1	3	3	10
France	3	1	3	1	8
Germany	3	1	3	1	8
Greece	3	1	3	3	10
Hungary	3	1	3	3	10
Ireland	3	1	3	3	10
Italy	3	1	3	3	10
Malta	3	1	3	0	7
Netherlands	3	1	3	1	8
Norway	3	1	3	1	8
Poland	3	1	3	1	8
Portugal	3	1	3	3	10
Romania	3	1	3	3	10
Russia	3	3	2	3	11
Serbia	3	1	3	3	10
Slovakia	3	1	3	3	10
Slovenia	3	1	3	3	10
Spain	3	1	3	3	10
Sweden	3	1	3	3	10
Switzerland	1	2	3	1	7
United Kingdom	3	1	3	3	10
Panel E: Africa					
Egypt	0	0	0	0	0
Ghana	3	3	3	3	12
Morocco	2	1	3	3	9
Nigeria	3	3	1	3	10
South Africa	3	3	3	3	12
Tanzania	3	3	3	3	12
Zambia	3	3	3	3	12
Panel F: Oceana					
Australia	3	2	3	1	9
New Zealand	3	2	3	3	11

This table presents the responses obtained by PwC in the April 2012 "PwC Survey: IFRS Adoption by Country Survey" regarding the implementation of IFRS by listed companies in each country based on the grading system developed in this study.

RESULTS AND DISCUSSION

Regression and Correlation Analyses

We tested our hypotheses using regression analyses and three different models. The first regression model uses Hofstede's cultural dimensions as dependent variables of the implementation score. Table 5 presents the results obtained, which suggest that none of the cultural dimensions appear to have a significant impact on a country's implementation decision. As predicted, MF has an inverse but not a significant relation with the dependent variable. The low explanatory power of the adjusted R^2 of this model suggests that a country's cultural dimensions do not help to explain its implementation decision.

Table 6 summarizes the results using our second regression model. Results suggest that the *PM* and *FM* variables have significant explanatory power since they are negatively related and statistically significant. This implies that, the lower the score related to the protection of minority shareholders' interests, the higher the probability of implementation. As to *FM*, the smaller the foreign market size, the higher the probability of implementation. These results partially support our hypothesis that economic factors are inversely related to the probability of implementation. Both variables seem to have a significant impact on a country's implementation decision. The explanatory power of the model as explained by the adjusted R^2 is higher than for the first model.

Table 5: Regression Analysis Results for Model 1: Hofstede's Cultural Dimensions and Their Relationship with The Implementation of IFRS by Country

		Regression Analysis Results			
	Alpha	**Individualism/ Collectivism (IC)**	**Power Distance (PD)**	**Masculinity/ Femininity (MF)**	**Uncertainty Avoidance (UA)**
Coefficient	6.358	0.019	0.011	-0.015	0.025
p-value	0.006	0.357	0.632	0.430	0.106
Adj. R^2	-0.003				

This table presents the results obtained for regression model 1 that examines the association between Hofstede's cultural dimensions and the IFRS implementation score by country. The estimated model is: $Score_i = \alpha_i + b_i\,IC + h_i\,PD + s_i\,MF + c_i\,UA + \varepsilon_i$. $Score_i$ represents a country's IFRS implementation score, IC represents the value of a country's Individualism/Collectivism dimension, PD is the value of a country's Power Distance value, MF represents the value of a country's Masculinity/Femininity dimension, and UA is the value of a country's Uncertainty Avoidance dimension.

Table 7 presents the relationship between Hofstede's cultural dimensions, economic factors and the IFRS implementation scores. The results show a positive significant relation between the IC cultural dimension and the implementation score (significant at the 0.05 level). These results do not support our prediction that highly individualistic countries will have lower implementation scores. The results also suggest a significant negative relation of PM and FM with the implementation score (significant at the .05 level). These results support our hypothesis that higher values for economic factors are inversely related to implementation scores. The explanatory power of the model, as explained by the adjusted R^2, is higher than for the previous two models.

Table 6:   Regression Analysis Results for Model 2: Economic Factors and Their Relationship with the Implementation of IFRS by Country

		Economic Factors						
	Alpha	Strength of Auditing And Reporting Standards	Efficacy of Corporate Boards	Protection of Minority Shareholders' Interests	Strength of Investor Protection	Regulation Of Securities Exchanges	Domestic Market Size Index	Foreign Market Size Index
Coefficient	14.467	1.655	0.789	-2.945	0.158	0.644	-0.012	-1.669
p-value	0.000	0.108	0.467	0.004*	0.425	0.372	0.987	0.047*
Adj. R^2	0.254							

*This table presents the results obtained for regression model 2 that examines the association between certain economic factors obtained from the WEF Report and the IFRS implementation score by country. The estimated model is: $Score_i = \alpha_i + n_iSA + l_i EC + k_i PM + p_i SI + t_iRS + g_iFT + v_iDM + z_iFM + \varepsilon_i$. $Score_i$ represents a country's IFRS implementation score, SA represents strength of auditing and reporting standards, EC means efficacy of corporate boards, PM represents protection of minority shareholders' interests, SI represents a system's strength of investors protection, RS is related to regulation of securities exchanges, DM is related to the size of the domestic market and FM to the foreign market size. * represents a p-value significant at the 0.05 level, and ** represents a p-value significant at the 0.10 level.*

Table 7: Regression Analysis Results For Model 3: Hofstede's Cultural Dimensions, Economic Factors, and Their Relationship with the Implementation of IFRS by Country

		Hofstede's Cultural Dimensions				Economic Factors					
	Alpha	IC	PD	MF	UA	SA	EC	PM	SI	RS	DM	FM
Coefficient	13.238	0.041	0.016	-0.006	0.015	0.615	1.05	-2.512	0.235	0.715	-0.392	-0.536
p-value	0.003	0.041*	0.422	0.748	0.339	0.594	0.349	0.019*	0.248	0.334	0.606	0.083**
Adj. R^2	0.27											

*This table presents the relationship between Hofstede's cultural dimensions, certain economic factors obtained from the WEF Report and the IFRS implementation scores by country. The estimated model is: $Score_i = \alpha_i + b_iIC + h_iPD + s_iMF + c_iUA + n_iSA + l_i EC + k_i PM + p_i SI + t_iRS + g_iFT + v_iDM + z_iFM + \varepsilon_i$. $Score_i$ represents a country's IFRS implementation score, IC represents the value of a country's Individualism/Collectivism dimension, PD is the value of a country's Power Distance value, MF represents the value of a country's Masculinity/Femininity dimension, and UA is the value of a country's Uncertainty Avoidance dimension. SA represents strength of auditing and reporting standards, EC means efficacy of corporate boards, PM represents protection of minority shareholders' interests, SI represents a system's strength of investors' protection, RS is related to regulation of securities exchanges, DM is related to the size of the domestic market and FM to the foreign market size. * represents a p-value significant at the 0.05 level, and ** represents a p-value significant at the 0.10 level.*

Countries included in the European region implemented IFRS almost at the same time and at the same level, based on the implementation score. Most of these countries adopted IFRS as part of the association agreements of the European Union. Since these countries represent almost 40 percent of the sample, we ran a regression analysis excluding the European countries as a robustness test. Table 8 presents the results for this regression that reflects a positive significant relation between the IC dimension and the implementation score (significant at the 0.10 level). The results also suggest a significant negative relation of PM and a positive relation of SA and RS with the implementation score (significant at the .05 level). The results for IC and PM concur with our findings of the regression for the whole sample. The explanatory power of the model, as explained by the adjusted R^2, is higher than for the previous models.

Pearson (Spearman) correlations between the ranked variables and Hofstede's four cultural dimensions for our study sample are shown below (above) the diagonal in Tables 9a and 9b. Some of the variables seem to be correlated. We performed multicollinearity tests and the results obtained from the variance inflation factors do not suggest significant multicollinearity problems.

Table 8: Regression Analysis Results For Model 3: Hofstede's Cultural Dimensions, Economic Factors and Their Relationship with the Implementation of IFRS by Country

		Hofstede's Cultural Dimensions				Economic Factors					
	Alpha	IC	PD	MF	UA	SA	EC	PM	SI	RS	DM	FM
Coefficient	13.180	0.055	0.044	-0.020	0.019	3.053	0.586	-5.485	0.096	1.947	-0.850	-1.777
p-value	0.016	0.069**	0.118	0.561	0.360	0.046*	0.698	0.002*	0.764	0.028*	0.497	0.199
Adj. R²	0.535											

*This table presents results obtained for regression model 3 that examines the association between Hofstede's cultural dimensions, certain economic factors obtained from the WEF Report and the IFRS implementation scores by country, excluding the European countries. The estimated model is: $Score_i = \alpha_i + b_i IC + h_i PD + s_i MF + ci_i UA + ni_i SA + l_i EC + k_i PM + p_i SI + t_i RS + g_i FT + v_i DM + zi_i FM + \varepsilon_i$ $Score_i$ indicates a country's IFRS implementation score, IC equals a country's Individualism/Collectivism dimension, PD is the value of a country's Power Distance value, MF equals the value of a country's Masculinity/Femininity dimension, and UA equals a country's Uncertainty Avoidance dimension. SA represents strength of auditing and reporting standards, EC means efficacy of corporate boards, PM represents protection of minority shareholders' interests, SI represents a system's strength of investors' protection, RS is related to regulation of securities exchanges, DM relates to the domestic market size and FM to the foreign market size. * represents significant at the 0.05 level, and ** represents significant at the 0.10 level.*

Table 9a: Pearson (Spearman) Correlation Matrix for Our Study Sample

	Pearson (Spearman) Correlation Results							
Variables	RL	VI	ID	DR	SCORE	IC	PD	MF
RL		0.13	0.74**	0.41**	0.69**	0.29*	-0.07	-0.11
		-0.29	0.00	0.00	0.00	-0.01	-0.59	-0.36
VI	0.22		0.07	0.44**	0.58**	-0.15	0.16	0.00
	-0.08		-0.56	0.00	0.00	-0.22	-0.20	-0.98
ID	0.78**	0.20		0.24	0.52**	0.38**	-0.31	-0.08
	0.00	-0.10		-0.05	0.00	0.00	-0.01	-0.49
DR	0.45**	0.46**	0.36**		0.8**	-0.14	0.16	-0.11
	0.00	0.00	0.00		0.00	-0.25	-0.20	-0.37
SCORE	0.8**	0.64**	0.76**	0.78**		-0.05	0.09	-0.09
	0.00	0.00	0.00	0.00		-0.71	-0.46	-0.45
IC	0.25*	-0.20	0.29*	-0.17	0.04		-0.65	0.21
	-0.04	-0.11	-0.02	-0.18	-0.74		0.00	-0.09
PD	-0.07	0.16	-0.26	0.17	0.01	-0.66		0.00
	-0.55	-0.18	-0.03	-0.18	-0.91	0.00		-1.00
MF	-0.12	0.02	-0.12	-0.04	-0.08	0.13	0.12	
	-0.33	-0.87	-0.33	-0.75	-0.50	-0.28	-0.34	
UA	0.15	0.06	0.15	0.22	0.19	-0.24	0.23	-0.06
	-0.23	-0.65	-0.21	-0.73	-0.11	-0.05	-0.05	-0.65
SA	0.11	-0.11	0.23	-0.24	-0.02	0.55**	-0.51	-0.10
	-0.39	-0.36	-0.05	-0.05	-0.87	0.00	0.00	-0.40
EC	0.00	-0.08	0.08	-0.22	-0.09	0.47**	-0.45	-0.09
	-1.00	-0.50	-0.53	-0.07	-0.48	0.00	0.00	-0.49
PM	-0.09	-0.20	0.03	-0.28	-0.19	0.47**	-0.52	-0.16
	-0.49	-0.11	-0.82	-0.02	-0.12	0.00	0.00	-0.18
SI	-0.12	-0.06	-0.13	-0.02	-0.11	0.19	-0.15	-0.02
	-0.34	-0.63	-0.29	-0.87	-0.39	-0.12	-0.23	0.87
RS	-0.01	-0.07	0.13	-0.27	-0.09	0.49**	-0.41	-0.06
	-0.96	-0.56	-0.31	-0.03	-0.49	0.00	0.00	-0.63
DM	-0.35	-0.25	-0.44	-0.30	-0.44	0.29*	-0.06	0.27*
	0.00	-0.04	0.00	-0.01	0.00	-0.02	-0.60	-0.03
FM	-0.34	-0.32	-0.38	-0.37	-0.47	0.34**	-0.07	0.25*
	0.00	-0.01	0.00	0.00	0.00	-0.01	0.60	-0.04

*This table presents Pearson Spearman correlation results. Pearson correlation results are below the diagonal; Spearman correlations are above the diagonal. ***, ** and * indicate significance at the 0.01, 0.05 and 0.10 levels respectively. Variable definitions are as follows: $Score_i$ represents a country's IFRS implementation score, IC represents the value of a country's Individualism/Collectivism dimension, PD is the value of a country's Power Distance value, MF represents the value of a country's Masculinity/Femininity dimension, and UA is the value of a country's Uncertainty Avoidance dimension. SA represents strength of auditing and reporting standards, EC means efficacy of corporate boards, PM represents protection of minority shareholders' interests, SI represents a system's strength of investors' protection, RS is related to regulation of securities exchanges, DM is related to the size of the domestic market and FM to the foreign market size.*

Table 9b: Pearson (Spearman) Correlation Matrix for Our Study Sample

Variables	UA	SA	EC	PM	SI	RS	DM	FM
				Pearson (Spearman) Correlation Results				
RL	0.12	0.05	-0.07	-0.11	-0.15	-0.01	-0.29	-0.31
	-0.31	-0.67	-0.56	-0.37	-0.23	-0.93	-0.01	-0.01
VI	0.07	-0.10	-0.07	-0.19	-0.08	-0.08	-0.23	-0.28
	-0.59	-0.40	-0.56	-0.12	-0.53	-0.52	-0.05	-0.02
ID	0.07	0.21	0.06	0.04	-0.12	0.16	-0.38	-0.32
	-0.57	-0.09	-0.61	-0.73	-0.33	-0.20	0.00	-0.01
DR	0.21	-0.29	-0.26	-0.31	-0.07	-0.29	-0.33	-0.40
	-0.08	-0.02	-0.03	-0.01	-0.57	-0.02	-0.01	0.00
SCORE	0.17	-0.24	-0.27	-0.34	-0.16	-0.26	-0.43	-0.50
	-0.17	-0.05	-0.03	0.00	-0.19	-0.03	0.00	0.00
IC	-0.22	0.52**	0.38**	0.42**	0.17	0.48**	0.27*	0.35**
	-0.06	0.00	0.00	0.00	-0.15	0.00	-0.03	0.00
PD	0.22	0.52**	-0.45	-0.53	-0.16	-0.42	-0.08	-0.08
	-0.07	0.00	0.00	0.00	-0.20	0.00	-0.54	-0.52
MF	-0.19	-0.03	0.00	-0.06	-0.05	0.07	0.33**	0.31*
	0.12	-0.82	-1.00	-0.61	-0.70	-0.59	-0.01	-0.01
UA		-0.28	-0.41	-0.36	-0.27	-0.38	-0.11	-0.26
		-0.02	0.00	0.00	-0.02	0.00	-0.38	-0.03
SA	-0.30		0.81**	0.86**	0.40**	0.79*	0.08	0.25*
	-0.01		0.00	0.00	0.00	0.00	-0.53	-0.04
EC	-0.43	0.82**		0.81**	0.34**	0.68**	0.14	0.27*
	0.00	0.00		0.00	-0.01	0.00	-0.25	-0.02
PM	-0.41	0.87**	0.84**		0.42**	0.76**	0.14	0.26*
	0.00	0.00	0.00		0.00	0.00	-0.24	-0.03
SI	-0.34	0.37**	0.37**	0.39**		0.32**	0.21	0.30*
	-0.01	0.00	0.00	0.00		-0.01	-0.09	-0.01
RS	-0.40	0.80**	0.71**	0.79**	0.29*		0.21	0.33**
	0.00	0.00	0.00	0.00	-0.02		-0.08	-0.01
DM	-0.09	0.05	0.16	0.12	0.27*	0.18		0.86**
	-0.45	-0.71	-0.20	-0.31	-0.03	-0.14		0.00
FM	0.24	0.20	0.25*	0.23	0.35**	0.30*	0.89**	
	-0.05	-0.10	-0.04	-0.05	0.00	-0.01	0.00	

This table presents the Pearson – Spearman correlation results. Pearson correlation results are below the diagonal; Spearman correlations are above the diagonal. *** Represent significant results at the 0.01 level; ** Represent significant results at the 0.05 level; *Represent significant results at the 0.10 level. Variable definitions are as follows: Scorei represents a country's IFRS implementation score, IC represents the value of a country's Individualism/Collectivism dimension, PD is the value of a country's Power Distance value, MF represents the value of a country's Masculinity/Femininity dimension, and UA is the value of a country's Uncertainty Avoidance dimension. SA represents strength of auditing and reporting standards, EC means efficacy of corporate boards, PM represents protection of minority shareholders' interests, SI represents a system's strength of investors' protection, RS is related to regulation of securities exchanges, DM is related to the size of the domestic market and FM to the foreign market size.

CONCLUDING COMMENTS

The purpose of this study is to examine the effects of culture and economic factors on a country's decision to implement IFRS. We develop an estimation model that assigns an implementation score based on the April 2012 PwC Survey in a sample of 69 countries. We developed three regression models to examine the association between the IFRS implementation score and Hofstede's cultural dimensions and certain economic factors obtained from the WEF report. Prior research (Ding et al., 2005; Hope et al., 2006; and Clements et al., 2010, among others) suggests that differences in culture, country size, economic and political factors may influence the adoption and implementation of IFRS. Ramanna and Sletten (2009) observe that language, economic, geographical, and political characteristics and common trade agreements influence a country's implementation decision. Hope et al. (2006) also note that other economic factors, such as the existence of investor protection mechanisms and unlimited access to capital markets, may also have an impact on a country's implementation decision.

Initially we find that none of the cultural dimensions seem to have a significant impact on a country's implementation decision. Our second model considers the effect of certain economic factors on a country's implementation decision. The results obtained suggest that countries with better protection of minority shareholders' interests and a larger foreign market size are less inclined to implement IFRS. These results partially support our research hypothesis that economic factors are inversely related to the possibility of implementation. Our third model includes Hofstede's cultural dimensions, economic factors and the implementation scores by country. The results suggest that countries that tend to be more individualistic are more inclined to implement IFRS. These results do not support our expectation that highly individualistic countries will have lower implementation scores. With respect to economic factors, the evidence obtained suggests that countries with better protection of minority shareholders' interests and a larger foreign market size are less inclined to implement IFRS. These results support our hypothesis that higher values for economic factors are inversely related to a country's implementation score.

The expected benefits from the use of alternative empirical methodology in estimating how countries implement IFRS may assist standard setters and researchers develop mechanisms to facilitate this process and should outweigh the aforementioned limitations. The decision to implement IFRS is also expected to have an indirect impact on the required disclosure of financial information by listed companies in each country. This study has several limitations. First, the grading system used to construct an implementation score represents a researcher induced bias. A second limitation is that the impact of culture was measured using only four of the six cultural dimensions developed by Hofstede because the values for the fifth and sixth cultural dimensions (long-term versus short-term orientation and indulgence versus restraint, respectively) are not available for all the countries in our study sample. In addition, the selection of the proxies used as economic factors (obtained from the WEF Report) is another element of researcher induced bias. Future research should consider other methodologies that can measure the extent to which countries have implemented IFRS.

APPENDIX A

PwC Survey Title: *IFRS Adoption by Country*

PwC Survey Questions:
Rules for listed filings
1. IFRS required or permitted for listed companies?
2. Version of IFRS
3. Are subsidiaries of foreign companies or foreign companies listed on local exchanges subject to different rules?

Rules for Statutory filings
4. Is IFRS or IFRS for SMEs required, permitted or prohibited for statutory filings?
5. Version of IFRS
6. In addition to local GAAP statutory financial statements, are there other regulatory financial statement requirements that permit or require the use of IFRS?

IFRS conversion plans
7. Plans for converging.

Tax information
8. Type of tax regime
9. Plans for IFRS converging as the basis of tax reporting.

Note: We excluded two questions from the survey. Question 6 is related to additional regulatory financial statement requirements that permit or require the use of IFRS. This question does not provide any new information that is not otherwise included in the other survey questions. Question 8 refers to the type of

tax regime in each country. This question was excluded because it refers to differences between books to taxable income, and not necessarily related to IFRS adoption.

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BIOGRAPHY

Rogelio J. Cardona, Ph.D., CPA, Esq., is an Associate Professor of Accounting at the School of Business Administration, University of Puerto Rico-Río Piedras. He can be contacted via e-mail at: rjcardona@onelinkpr.net, or at (787) 764-0000, ext. 3326 or 3330.

Karen C. Castro-González**,** Ph.D., CPA, is an Assistant Professor of Accounting at the School of Business Administration, University of Puerto Rico- Río Piedras. She can be contacted via e-mail at: cont3105castro@gmail.com, or at (787) 764-0000, ext. 3326 or 3330.

Carmen B. Ríos-Figueroa, Ph.D., CPA, is an Assistant Professor of Accounting at the School of Business Administration, University of Puerto Rico- Río Piedras. She can be contacted via e-mail at: prof.carmenrios@yahoo.com, or at (787) 764-0000, ext. 3326 or 3330.

FINANCIAL MANAGEMENT IN THE FAMILY AND NON-FAMILY SME´S IN THE TEXTILE INDUSTRY IN MEXICO

Martha Isabel Bojorquez Zapata, Universidad Autonoma de Yucatan
Antonio Emmanuel Perez Brito, Universidad Autonoma de Yucatan
Jorge Humberto Basulto Triay, Universidad Autonoma de Yucatan

ABSTRACT

In this paper, we analyze differences in financial management practices between family and non-family Small and Medium Enterprises (SMEs) in the textile industry. We hypothesize that family SMEs use different sources of funding for new investments, tend to have less debt, are more profitable and use less financial and accounting information for decision making than non-family SMEs. We survey 24 textile SMEs located in Yucatan, Mexico. The results show that family SMEs rely more heavily on internal sources are more profitable and use less accounting and financial information for decision making than non-family SMEs.

INTRODUCTION

According to the 2004 Economic Census (INEGI, 2004) there were approximately 2.84 million enterprises in Mexico of which 99.7% were SMEs. These SME's were responsible for a 42% share of Gross Domestic Product (GDP) and a 64% share of employment. SMEs have great potential to contribute to future economic growth and employment. However, the 2010 Economic Census (INEGI, 2010) reported the contribution of SMEs to GDP declined from 42% to 34.7% but increased its employment share from 64% to 72%.

A report by the Universidad Autónoma de Yucatan (UADY, 2011), realizes the cordage industry crisis has caused a decrease in the importance of manufacturing in Yucatan´s economy. The industry was responsible for 25% of Yucatan GDP in 1975, when it still had some weight shredder and cordage industry dedicated to the production of sisal twine. Contribution to GDP fell to 17% in 1980, 16 % in 1985 and 14.2% in 2010. In 35 years the importance of the textile industry in the global economic structure has been halved.

The importance of the textile and clothing industry in Yucatán is due to its ability to create jobs and foster the development of small, medium and micro entrepreneurs. In 2008, the textile and clothing subsector represented 10.7% of the total number of manufacturing firms and 24% of employment in the industry. Moreover, this subsector awarded 29.8% of total remuneration in the industry and obtained 5% of total gross production. The garment industry is identified not only as one of the strongest sectors linked to small and medium industries but as an informal and temporary employment industry (INEGI, 2011).

Several empirical studies have shown important differences in management between family and non-family firms (Daily and Dollinger, 1993, Gallo, Tapies and Cappuyns, 2004, Laitinen, 2008). In particular, the

financial management of family businesses is influenced by the objectives that families have in their companies impacting their competitiveness and survival in the market.

Previous studies analyzed profitability (Carney and Gedalovic, 2002, Anderson and Reeb, 2003) and the financial preferences - *Pecking Order* (Myers and Majluf, 1984). The accounting information, as a financial management tool, is essential for the manager and his management team in order to make the right decisions on different policy areas. Several studies indicate that family businesses tend to use accounting and financial information for decision-making less than non-family businesses (Ho and Wong, 2001, Gallo, Tapies and Cappuyns, 2004, Collis and Farvis, 2002).

The aim of this paper is to analyze the main differences in financial management between family and non-family SMEs in the textile industry of Yucatan State. We take into consideration variables such as: finance, debt, profitability and use of accounting and financial information, as strategic factors for sustainable competitiveness. We develop a cross-sectional empirical study with a sample of 24 SMEs from the Yucatán's textile industry in 2012.

The rest of the document is organized as follows. The literature review section raises arguments that support concepts of financial management, financial structure, funding sources, debt, profitability and financial and accounting information. Next, we present the methodology, which describes the procedure applied and the sample used. Third, we present the results and finally, we present the main conclusions including the limitations, implications and future research.

LITERATURE REVIEW

Financial Management

Burk and Lehnman (2004) indicate that financial management for small and medium enterprises may be of significant interest since they can afford to stay and grow within the business community. Long term financial management is concerned with planning of ways to make the optimal investment in fixed assets, the company's ability to take the right level of debt, and overall profitability. On the other hand, short-term financial management is concerned with problems related to financing working capital (i.e. looking for sufficient funds to meet short-term payments -financing and operating). Berley and Westhead (1990) argued that maintaining proper financial management is a main factors to achieve competitive success.

Financial Structure

According to Myers and Majluf (1984), financial structure indicates how company assets are financed including both internal and external funding. The hierarchy of financial preferences theory (*Pecking Order*), establishes the existence of ranking in the choice of funding sources. According to this theory, when financing new investments, firms tend to use first internal funds, followed by low-risk corporate bonds or bank loans, to finally and as last resource, issue new shares.

Studies like Holmes and Kent (1991) find that financial managers have an order of preference of funding according to the Pecking Order Theory. They also observe a hierarchy restricted to SMEs, who rely more on short-term debt. Equity capital is the least popular choice because it might either not be available or interesting to the owner due to the fear of losing control of the company. Less profitable companies rely heavily on long-term debt which is more difficult for them to access due to the higher information asymmetries they suffer. The aversion to new equity is related to the fear of losing control of the company by the family especially if forced to issue new equity when it is unable to pay off the debt service or when new investors are joined to be part of the company (Romano, Tanewsky and Smyrnios, 2000, Mishra and

McConaughy, 1999). Moreover, Ward (2001) shows how the failure rate of family businesses, 10%, is usually due to the lack of financial resources.

Romano, Tanewsky and Smyrnios (2000) explain the main source of funding for small family businesses in the early stages of their life cycle is based on the use of loans from family members. McConaughy, Matthews and Fialko (2001) show that financial structures of companies controlled by families tend to have lower debt ratios than non-family companies and Esparza, Garcia-Perez and Durendez (2010) found that family SMEs do not have less debt than non-family SMEs. Based on the arguments above, we propose the following hypotheses:

H_1: There are differences in the sources of funding for new investments between family SMEs and non-family SMEs in the textile industry in Yucatán.

H_2: Family SMEs in the textile industry in Yucatán have less debt than non-family SMEs.

Profitability

Several studies in different countries analyze differences in profitability between family and non-family firms. Agency theory explains that family firms suffer less agency costs because ownership and management are in the hands of the controlling family which has greater profitability as a result (Maury, 2006, Cabrera-Suarez, De Saa-Perez and Garcia, 2001). They emphasize that profitability is a key aspect that companies should consider for long-term survival in competitive markets. They also mention that companies should be more efficient when there is an employment relationship between owners and managers, because of the opportunistic behavior of the manager towards the owner and costs associated with supervision therefore.

Moreover, Carney and Gedajlovic (2002), in a study conducted in Hong Kong with family and non-family firms, notice that family-controlled companies tend to use financial resources more efficiently, tend to be more profitable, have more liquidity and distribute greater dividends than non-family companies.

Kotey (2005), in a study conducted in Australia, found that family businesses have higher profits and net margins, and better utilize assets. In the same line, Anderson and Reeb (2003) and Laitinen (2008) studies conducted in the United States and Finland indicate that family businesses are more profitable than non-family businesses. Esparza, Garcia-Perez and Durendez (2010) find in a study conducted in Mexico, that family SMEs are more profitable than non-family SMEs. Based on the previous analysis, we pose the following hypothesis:

H_3: Family SMEs in the textile industry in Yucatán are more profitable than non-family SMEs.

Accounting and Financial Information

Accounting and financial reporting in family businesses plays an important role in decision-making. Trostel and Nichols (1982) noticed that accounting and financial control is used in family businesses for the primary purpose of minimizing taxes, instead of being employed in strategic decisions making and performance evaluation of the companies.

Jorissen, Laveren, Martens and Reheul (2001), in Belgium, examined the wholesale sector (in total 616 companies, 409 small companies and 207 medium-sized companies). They established that family businesses tend to use less accounting and financial information compared with non-family businesses. Ho and Wong (2001), in a study conducted in the United Arab Emirates (UAE), based on a sample of 95 annual reports published by the UAE listed corporations found that family firms are less transparent when

providing financial information and are more reluctant to voluntarily provide accounting and financial information. Esparza, Garcia-Perez and Duréndez (2010), with a sample of 122 tourist MSMEs from Quintana Roo state (Mexico), found that managers of family businesses use less financial and accounting information for proper decision-making.

From the previous analysis, the following hypothesis is formulated:

H₄: Managers of family SMEs in the textile industry in Yucatán use less financial and accounting information for decision-making than managers of non-family SMEs.

DATA AND METHODOLOGY

Sample

This study is based on information provided by the Ministry of Economic Development (SEFOE, 2010) Yucatán delegation on SMEs in the textile industry of Yucatán State (México) in 2012. The population is made of 26 companies in the textile sector SMEs with a minimum of 11 workers and maximum of 250. We determined that the minimum sample size was 24 survey respondents for statistical significance. The size of SMEs is established using stratification criteria published in the official journal of the Federation (DOF, 2009). The formula used to obtain the sample size consists of a random process of interval estimation of a finite population proportion with a probability of occurrence and no occurrence, equal to 50 percent, a population size of 26 companies, and a confidence level of 95%.

Considering the type of phenomenon that we analyze, we employ a quantitative approach, correlational, non-experimental, and cross-sectional statistical analysis using the Mann Whitney U test, the Kolmogorov - Smirnov test for goodness of fit. As a robustness test the data was obtained using Monte Carlo simulation. Following previous studies (Hernandez, Fernandez and Baptista, 2006, Diaz de Rada , 2007), a survey was used to collect data and determine the existence of cause and effect relationships. The selected instrument was a structured questionnaire, in three blocks of 19 questions each, addressed directly to managers of companies. The requests were made through phone calls and email, making a total of 24 applications of which 100 percent were successful. The field work was conducted during the months of March and April 2013 in two cities of Yucatan.

Variables

Family business: following the methodology used in Esparza Garcia-Perez and Durendez (2010), a company is considered family SMEs when more than 50% of the capital is owned by a family or household; or alternatively, at least one representative of the family is in a management position.

Funding: following previous research studies such us AECA (2005), UC (2007) and Esparza, Garcia-Perez and Durendez (2010), funding is a measure of the frequency in the use of funding sources by managers in operating and investment activities as determined through a Likert scale (Likert, 1976), from 1 (never) to 5 (always).

Debt: is defined as the ratio of total liabilities to total net assets. This variable is measured using an interval scale. Research studies conducted by McConaughy, Matthews, and Fialko (2001), López and Sánchez (2007) and Esparza, Garcia-Perez and Durendez (2010) used similar approach in different settings.

Profitability: is defined as the ratio of the company's profit before interests and taxes to net total assets. It measures the effectiveness of the company in the use of capital resources, without differentiating between debt and equity. This ratio relates the benefit to the invested capital, regardless of their financial structure. This variable was measured in an interval scale, used in other studies such as those by Anderson and Reeb

(2003), Lopez and Sanchez (2007) and Esparza, Garcia-Perez and Durendez (2010). The use of accounting and financial information variable was measured using a Likert scale of 1 (low utilization) to 5 (high frequency used), related to the degree of appropriateness of the accounting and financial reporting by managers for decision-making. This measure was used in a similar way by Esparza, Garcia-Perez, and Durendez (2010).

Table 1: Estimated Quantitative Variables (Percentages Estimated Considering only Positive Values)

Variable	Mean	Median	Std	Rank	Minimum Value	Maximum Value
Personal occupied	37.75	17.0	44.106	175.0	5.0	180.0
Age of manager	45.08	45.50	11.092	43.0	27.0	70.0
Percentage of profits	83.0	100.0	34.504	100.0	0.0	100.0
Operating years	17.54	12.0	14.440	58.0	2.0	60
Growth in sales, 2011	11.33	10.5	6.055	15.0	3.0	18.0
Utility, 2011	7.29	3.0	5.542	15.0	3.0	18.0
Debt, 2011	3.0	3.0	0.0	0.0	3.0	3.0

This table provides descriptive statistics the summarize the simple data that was used in the proyect. The average personal occupied was 37.8, the average percentage of profits allocated to reserves was 83.0, the average growth in sales was 11.3 and the average utility was 7.3, all in 2011.

RESULTS AND DISCUSSION

In this section we present the results obtained by the application of statistical techniques and tests.

H₁: There are differences in the sources of funding for new investments between family SMEs and non-family SMEs in the textile industry in Yucatán.

Regarding H1, we only find significant differences between family SMEs and nonfamily SMEs in the case of new investment (p-value = 0.076 in the Mann Whitney U test, p value = 0.073 in the Monte Carlo exact test). The result indicates that for this funding source there are more frequent, significant differences in family businesses (Table 2). It should be noted that we analyzed various funding sources such as shareholders contributions, short-term bank loans, long term leases and other non-bank sources.

Table 2: Mann Whitney U Test and Monte Carlo Accurate Test for Different Financial Policies between Family and Non-Family SMEs

			New Investments	Debt	Economic Performance	Financial Performance	Use of Accounting and Financial Reporting
Mann-Whitney U test			6.5	15.0	4.0	6.5	3.0
Wilcoxon W test			9.5	18	257	259.5	256
Z			-1.776	-0.928	-2.001	-1.719	-2.06
Sig. asymptotic (bilateral)			0.076 (*)	0.353	0.045(**)	0.086(*)	0.039(**)
Sig. Exact [2*(Sig. unilateral)]			0.116	0.522(*)	0.065(*)	0.116(*)	0.043(*)
Sig. Monte Carlo (bilateral)	Sig.		0.073(*)	0.561	0.054(**)	0.093(*)	0.023(**)
	CI at 95%	Lower limit	0.067	0.551	0.05	0.087	0.02
		Upper limit	0.078	0.57	0.058	0.098	0.026
Sig. Monte Carlo (unilateral)	Sigma		0.073	0.491	0.054	0.093	0.023
	CI at 95%	Lower limit	0.067	0.481	0.05	0.087	0.02
		Upper limit	0.078	0.5	0.058	0.098	0.026

*This table shows the results of Mann Whitney U test and Monte Carlo accurate test. P-values are in parentheses. ***, ** and ** indicate significance at the 1, 5 and 10 percent levels respectively.*

H₂: Family SMEs in the textile industry in Yucatán have less debt than non-family SMEs.

Regarding H₂, we found no significant differences in the levels of debt used by family and non-family SMEs (p-value = 0.353 in the Mann Whitney U test, p value = 0.561 in the Monte Carlo exact test). It should be noted that according to information provided by companies, none exceed 5% in their debt ratios during the reference year (Table 2). The results corroborate previous studies such as those obtained by Esparza, Garcia-Perez and Durendez (2010). These results vary from those obtained by McConaughy et al. (2001), which found that family firms have less debt than non-family firms. These results lead to reject the hypothesis H₂.

H₃: Family SMEs in the textile industry in Yucatán are more profitable than non-family SMEs.

Regarding H₃, significant differences were found with regard to the economic and financial returns (in the first case, p-value = 0.045 in the Mann Whitney U test, p value = 0.054 in the Monte Carlo exact test, and in the second case, p-value = 0.086 in the Mann Whitney U test, p value = 0.093 in the Monte Carlo exact test). According to the mean values observed in both cases non-family SMEs tend to be more profitable than family SMEs (Table 2). These results differ from those obtained by Kotey (2005), Laitinen (2008) and Esparza, Garcia-Perez and Durendez (2010). Therefore, the third hypothesis is rejected.

H₄: Managers of family SMEs in the textile industry in Yucatán use less financial and accounting information for decision-making than managers of non-family SMEs.

Finally, with respect to H4, concerning the use of accounting and financial information, significant differences were found in the level of financial and accounting information use for decision-making (p-value = 0.039 in the Mann Whitney U test, p value = 0.023 in the Monte Carlo exact test). The results show the level of information use by non-family SMEs is higher. These results demonstrate that family firms hardly use these sources of information for decision-making, which means the fourth hypothesis can be accepted (Table 2). Thus, managers of family SMEs use far less financial and accounting information for proper decision-making than managers of non-family SMEs. These results corroborate those obtained by Trostel and Nichols (1982) Jorissen et al. (2001) and Esparza, Garcia-Perez and Durendez (2010).

CONCLUSION

This paper shows differences in financial management practices and performance between family SMEs and non-family SMEs in the textile industry in the state of Yucatan (México). The results show that when funding new investments, family SMEs use internal funding in greater proportion than non-family SMEs following *the Pecking Order Theory* prediction. These companies do not use bank financing due to either the high costs to access it, the lack of Mexican banking system development or the fear of losing control of the company in the case of being forced to acquire a new equity to pay off the debt (Romano, Tanewski and Smyrnios, 2000, Mishra and McConaughy, 1999). However, it should be noticed that family SMEs has a debt level similar to non-family SMEs (Esparza, Garcia-Perez and Durendez, 2010). We also find evidence that family SMEs show lower profitability than non-family SMEs. This conclusion does not match *agency theory*, which indicates that family SMEs suffer less agency costs because ownership and management are in the family´s hands, resulting in greater efficiency in performance (Maury, 2006). Also, results show that managers of family SMEs use far less financial and accounting information for decision making than managers non-family SMEs (Jorissen et al., 2001; Esparza, Garcia-Perez and Durendez, 2010).

Our study is unique, because these results have important practical implications. Family and non-family SME´s in the textile industry in Yucatán State do not perform financial management effectively and efficiently. There is room for improvement to increase the value of the companies and its competitiveness and survival of these firms. A more competitive textile sector will lead to economic improvement in the

region, sustainable human development and social, economic and environmental integration that involves creating economic value in a way that also creates a value for society.

It is important to mention the difficulty of employers to provide corporate information, the geographical representativeness for being a regional study and the lack of economic databases of the companies studied. We suggest that future research related to sector specific issues could be investigated such as sales growth and implementation of management control systems linked to competitiveness and family management through quantitative and qualitative studies. There are currently few studies related to these matters that specifically address Mexican firms.

This study helps further enhance the research literature related to family businesses in general and family businesses in Mexico in particular. Moreover, it should help Mexican authorities develop public policies that foster competitiveness in these enterprises to create better living conditions for owners and employees and to support economic growth. Regarding higher education institutions, the obtained results should be used to update the study programs and to offer training courses in financial management for managers of SMEs.

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BIOGRAPHY

Martha Isabel Bojorquez Zapata, PhD., is professor of finance at the Facultad de Contaduria y Administracion of the Universidad Autonoma de Yucatan (mbzapata@uady.mx).

Antonio Emmanuel Perez Brito, Master in Administration, is professor of finance at the Facultad de Contaduria y Administracion of the Universidad Autonoma de Yucatan (antonio.perez@uady.mx).

Jorge Humberto Basulto Triay, Master in Finance, dean of the Facultad de Contaduria y Administracion of the Universidad Autonoma de Yucatan (btriay@uady.mx).

INTERNET FINANCIAL DISCLOSURE: EVIDENCE FROM SAUDI ARABIA AND OMAN

Mohamed A. K. Basuony, American University in Cairo
Ehab K. A. Mohamed, German University in Cairo

ABSTRACT

The purpose of this paper is to examine the nature and characteristics of voluntary internet disclosures by listed companies in Saudi Arabia and Oman. This paper uses archival data from listed companies on Tadawul Stock Exchange and Muscat Securities Market. Mann-Whitney test is used to examine the differences in disclosure characteristics between the two countries. The results reveal that a number of disclosure characteristics that differ significantly between the two countries. Also, this study finds that practices of internet financial disclosure in Saudi Arabia are much better than those in Oman. The paper provides insights into corporate internet disclosures in the GCC countries that will benefit all stakeholders with an interest in corporate reporting in this important region of the world.

INTRODUCTION

Questions persist as to whether corporate organizations in the GCC are availing themselves of the opportunity provided by the internet to communicate financial information to their stakeholders. While the use of the Internet for the communication of financial information raises a variety of challenging issues, there is little doubt about its benefits. This paper is an important first step in gauging the extent to which such benefits are being captured in the GCC. Given the increasing importance of IFR and the lack of empirical study on IFR practices in the Middle East, this paper provides an important contribution to filling the gap in our knowledge of this subject. This is of particular importance in a time when there is so much interest in investment opportunities in the GCC countries where rapid economic growth is fuelled by booming oil revenues.

Evidence of IFR practices in various countries have been presented by a number of academic and professional studies - see, for example, Craven and Marston (1999) and Gowthrope (2004) - UK, Deller et al. (1999) - US, UK and Germany, Gowthorpe and Amat (1999) - Spain, Hedlin (1999) - Sweden, Lymer et al. (1999) - International Comparison, Pirchegger and Wagenhofer (1999) - Austria and Germany, Marston and Polei (2004) - Germany, Trites (1999) - US and Canada, Oyelere et al. (2003), Fisher et al. (2004) and Laswad et al. (2005) - New Zealand, Marston (2003) - Japan, Xiao et al. (2004) - China, Smith and Peppard (2005) - Ireland, Khadaroo (2005) - Malaysia, and Chan and Wickramasinghe (2006) - Australia, Oyelere and Mohamed (2007) - Oman, Mohamed (2010) - Middle East. They indicate the growing use of the Internet for the corporate dissemination of information, including providing annual reports on the Internet, and that the extent and sophistication of IFR practices varies across countries. The objective of this paper is to study IFR practices in the GCC. The paper provides evidence of the extent and nature of IFR in two GCC countries, namely Saudi Arabia and Oman. The understanding of IFR practices is important for standard setting purposes.

The objective of this paper is to examine internet financial reporting practices in companies listed in Tadawul Stock Exchange (Saudi Arabia) and Muscat Securities Market (Oman). The rest of this paper is structured as follows. A review of relevant literature is provided in the next section. The proposed research methodology is discussed in Section 3. Section four provides analyses and discussions on the extent and nature of IFR by companies listed in the two stock exchanges. Summary and conclusions are presented in the final section.

LITERATURE REVIEW

The Internet provides a useful communication tool for corporate organizations. One of the main benefits of IFR is the potential for large savings in the cost of production and distribution of financial information. The Internet allows companies to reach a much wider range of stakeholders at a relatively lower cost. The use of IFR also leads to a reduction in incidental requests from non-shareholder financial statement users (Allam and Lymer, 2002; SEC, 2002, 2003a,b; Khadaroo, 2005) . The literature also documents a number of other benefits that may accrue from IFR (Baker and Wallage, 2000; Ettredge *et al.*, 2001; Debreceny, *et al.*, 2002; Wagenhofer, 2003; Jones and Xiao, 2004; Boritz and No, 2005). These include more equitable information dissemination among stakeholders as a result of the improved accessibility of the information. With IFR users can choose to access information that meets their specific needs as the Internet allows non-sequential access to information through the use of hyperlinks, interactivity and search facilities.

IFR also presents companies with the opportunity to provide more information than is available in annual reports. The internet provides an opportunity for going beyond what is available in hard copy corporate financial statements to communicate additional financial information to users, possibly in real-time and on an interactive basis (McCafferty, 1995; Louwers *et al.*, 1996; Green and Spaul, 1997; Trites and Sheehy, 1997; Trites, 1999; FASB, 2000; Ettredge *et al.*, 2002; Wickramasinghe, 2006). IFR provides corporate organizations with a real opportunity to extend financial disclosure beyond the reproduction of a hard copy annual report and improve on the timeliness, scope, and interactivity of financial reporting, with multimedia, such as sound, animation and video, being used to potentially increase the understanding of information (Louwers *et al.*, 1996; Ravlic, 2000; Wickramasinghe and Lichtenstein, 2006). These developments have a great potential impact on users (Wallman, 1997; Green and Spaul, 1997; Gowthrope and Flynn, 2001).

A number of IFR-related issues and challenges have been noted in the literature. It is possible that the dividing line between current financial information used by management and historical audited financial information made available to public users of financial information could be erased by online, real-time reporting (Green and Spaul, 1997; Hodge, 2001; Oyelere, 2003), with auditors being possibly required to provide opinion on such hitherto internal financial information (Trites and Sheehy, 1997; Lymer and Debreceny, 2003; Khadaroo, 2005). If IFR is installed as the only mode for communicating financial information it is likely that access to such information will be restricted to only those who possess costly computer equipment and skills. Hence, to ensure equitable access to financial information it will be necessary to ensure that the information being reported through corporate websites is also provided through other media of financial information disclosure (McCafferty, 1995). This could be seen as unnecessary duplication and may result in even greater costs in the Middle East where financial information is commonly disseminated in both English and Arabic.

Additional issues and challenges for IFR include possible errors in the extraction or re-keying process, which may affect the reliability and integrity of the financial information; Generally Accepted Accounting Practice (GAAP) implications of IFR; the use of the corporate websites for many diverse purposes, which may make the location of financial information difficult; and the acceptability of Internet financial reports as alternatives to hard copy annual reports among users of corporate financial information (Laswad *et al.*, 2000).

By far the greatest challenge faced in the IFR environment is that of ensuring the security and integrity of the financial information published on corporate websites. Apart from possible errors in the publishing process, materials published on the web are susceptible to all manners of security risks. Financial information could, post-publication, be knowingly or unknowingly altered by parties both external and internal to the organization. There is a real risk that critical decisions could be made by users of financial information based on inaccurate financial information gleaned from corporate websites. The extent to which these issues are dealt with is likely to determine the long-term usefulness of the Internet as a medium of corporate financial information dissemination.

Very little, if any, evidence exists on the extent and nature of IFR practices in the GCC countries. It is predicted that IFR is likely to overtake the hard-copy print form of financial information disclosure in the near future. It is therefore surprising that evidence on the variety of issues associated with this form of financial disclosure is currently not being publicly discussed. Such evidence will depend on the outcome of thorough, in-depth investigation and analysis, such as is being preliminarily undertaken in the current study. Therefore, considering the importance of IFR in disseminating financial information and the little research of these practices in emerging economies, the objective of this paper is to study the extent, practices and determinants of IFR in Saudi Arabia and Oman. While those countries share a number of characteristics due to being in the same region and sharing similar cultures, they are at different stages of development, or with different business environments that may affect the attributes of internet financial disclosure. This argument leads to the first hypothesis:

H_1. There is a significant difference in the characteristics of corporate internet disclosure between Saudi Arabia and Oman.

METHODOLOGY

The aim of this study is to investigate and document the extent and nature of IFR practices among firms listed on the GCC countries. The research methodology employed to accomplish this aim is presented in this section. The population of the study consists of firms that are publicly listed in the stock exchanges of KSA and Oman. Internet disclosure data are collected during the period from May to October 2013. Table (1) below shows the population which consists of 282 companies and samples selected for the two stock exchanges which consists of 266 companies in both KSA and Oman:

Table 1: Population and Samples per Stock Exchange

	KSA (Tadawul)	Oman (MSM)	Total
All listed companies (Population)	156	126	282
Unavailable data	(3)	(13)	(16)
Sample	153	113	266

This table shows the distribution of the population and sample for each stock exchange, i.e. in Kingdom of Saudi Arabia (Tadawul) and in Oman (Muscat Securities Market). Where the total population is 282 (156 in KSA and 126 in Oman) companies and the total sample for both countries is 266 (153 in KSA and 113 in Oman).

Finally, the sample of this study is 266 firms out of 282 after excluding 16 firms for those firms that have not available data. Moreover, theses 266 firms are consist of 153 firms from KSA, and 113 firms from Oman. Table 2 below shows the sample selected for each of stock exchange in each country.

Data regarding whether these companies have website or not were obtained via searching the names of these companies in internet search engines. Where corporate sites are available, we moved to the next stage of the data collection process by investigating the type of information provided at these sites. Four categories of information – company history/background, products/services, financial and other information – were of interest to us at this stage.

Table 2: Sample by Country

Country	Number of Companies	%
KSA	153	57.5%
Oman	113	42.5%
Total	266	100.0%

This table shows the distribution of the sample (266 companies; 100%) by country, i.e. in Kingdom of Saudi Arabia (Tadawul Stock Exchange:153 companies representing 57.5% of the total sample) and in Oman (Muscat Securities Market:113 companies representing 42.5% of the total sample).

The next stage of the data collection process involved querying the extent and nature of financial information provided on the corporate websites. Of interest are the type of financial information - that is, whether full financial statements and/or financial highlights; the format of presentation, that is whether PDF, HTML, other formats or a combination of these; and the volume of financial information presented. This data collection approach is similar to the one used in Craven and Marston (1999), Deller et al (1999), Oyelere et al (2003), and Laswad et al (2005).

RESULTS AND DISCUSSION

Descriptive Analysis

Table 3 represents the descriptive statistics using minimum, maximum, mean and standard deviation for disclosure attributes as discussed in the literature review section. The minimum for all attributes are zero while the maximum figures for all attributes are 1 except for the number of years of internet financial reporting (IFRYrs) is 3.

Table 3: Descriptive Statistics

Disclosure Attribute	Min.	Max.	Mean	SD
EWeb	0	1	0.92	0.264
AWeb	0	1	0.63	0.483
Investor Relation	0	1	0.43	0.496
Figures & Graphs	0	1	0.55	0.499
Email Link	0	1	0.92	0.264
Multimedia	0	1	0.82	0.388
Format	0	1	0.58	0.495
CG Report	0	1	0.20	0.397
Company Information	0	1	0.91	0.282
Products & Services Information	0	1	0.91	0.287
Forward Looking Information	0	1	0.47	0.500
General Financial Information	0	1	0.62	0.485
IFR	0	1	0.58	0.495
Current Annual Report	0	1	0.52	0.500
IFRYrs	0	3	1.45	1.326

This table shows the descriptive statistics for central of tendency and dispersion for the disclosure attributes in this study. We are using minimum, maximum, mean and standard deviation for each attribute. These central of tendency and dispersion figures represent the total sample of 266 companies in both Saudi Arabia and Oman.

The 266 companies listed on the two stock exchanges in KSA, and Oman has three industrial sectors. The manufacturing sector has 115 companies (43.2%), non-financial sector has 85 companies (32%) and finally the financial sector has 66 companies (24.8%). A distribution of the 266 companies among the different industrial sectors for each country is presented in Table 4.

Table 5 shows that the majority of companies (80.5%) operating in the GCC hire Big 4 audit firms. The highest percentage is in KSA where about 84% of companies hire Big 4 audit firms and 76% in Oman.

Table 4: Sample Distribution

Country	Manufacturing	Non-Financial Services	Financial Services	Total	%
KSA	61	50	42	153	57.5%
Oman	54	35	24	113	42.5%
Total	115	85	66	266	
%	43.2%	32%	24.8%		100.0%

This table shows the distribution of the sample (266 companies) by country, i.e. in Kingdom of Saudi Arabia 153 companies representing 57.5% of the total sample and in Oman 113 companies. Also, this table shows the classification according to the sectors, where in KSA, the manufacturing, non-financial and financial sectors represent 61, 50 and 42 respectively. In Oman, the manufacturing, non-financial and financial sectors represent 54, 35 and 24 respectively.

Table 5: Auditor Type

Country	Big 4	Non–Big 4	Total
KSA	128	25	153
Oman	86	27	113
Total	214	52	266
%	80.5%	19.5%	

This table shows the distribution of the sample (266 companies) according to audit firms by dividing them into big 4 and non-big 4 audit firms. The total big 4 audit firms in KSA are 128 companies while in Oman are 86 companies with a total 214 companies (80.5%). For non-big 4 audit firms, KSA has 25 companies while in Oman has 27 companies with a total 52 companies (19.5%).

A classification of "websiters" and "non-websiters" by country is provided in Table 6. Overall, 246 companies (92.5%) have English websites, while only 168 companies (63.2%) have Arabic websites. 150 companies (98%) in KSA have English website and 144 companies (94%) have Arabic website. 85% of Oman listed companies have English websites and 21% have Arabic websites. Generally, the proportion of website ownership appears good when compared with developed western countries such as the US, the UK, Australia and New Zealand (Lymer *et al.*, 1999; Oyelere *et al.*, 2003; Chan and Wickramasinghe, 2006).

Table 6: Listed Companies with or without Websites

Country	With Website		Without Website		Total
Panel A: English Website					
KSA	150	98%	3	2%	153
Oman	96	85%	17	15%	113
Total	246	92.5%	20	7.5%	266
Panel B: Arabic Website					
KSA	144	94%	9	6%	153
Oman	24	21%	89	79%	113
Total	168	63.2%	98	36.8%	266

This table shows the distribution of the sample (266 companies) according to their websites (English or Arabic website). In panel A (English websites), the companies with website in KSA are 150 companies and for Oman are 96 companies. Furthermore, the companies without website in KSA are 3companies and for Oman are 17 companies. In panel B (Arabic websites), the companies with website in KSA are 144 companies and for Oman are 24 companies. Furthermore, the companies without website in KSA are 9companies and for Oman are 89 companies.

Table 7 provides description of internet disclosure attributes. Overall, all companies provide information on company, Email link and product and services with (100%). On the other hand, only 21% of companies disclose corporate governance information and 46% have a section for investor relations. While 88% of companies use multimedia on their websites, only 59% use figures and graphs. The number of companies that use their website for internet financial reporting is 154 out of 246 (63%) and 57% of the companies have the current annual report (2012) disclosed. A breakdown of the overall results is shown in table 8.

Table 7: Overall Internet Disclosure Statistics

Disclosure Attribute	Yes	%	No	%	Total
Investor Relation	114	46%	132	54%	246
CG Report	52	21%	194	79%	246
Email Link	245	100%	1	--	246
Multimedia	217	88%	29	12%	246
Company Information	243	99%	3	1%	246
Products & Services Information	242	98%	4	2%	246
Forward Looking Information	126	51%	120	49%	246
Figures & Graphs	145	59%	101	41%	246
General Financial Information	166	67%	80	33%	246
IFR	154	63%	92	37%	246
Current Annual Report	139	57%	107	43%	246

This table shows the distribution of the sample (266 companies) after excluding 20 companies that do not have English websites. This table provides description of internet disclosure attributes where, 100% of companies have Email link. The lower percentage is 21% only for companies that have corporate governance. Most of the companies have company information with (99%). The other disclosures of attributes are representing in table this table.

Table 8: Internet Disclosure Statistics by Country

Variable	KSA		Oman	
	Frequency	%*	Frequency	%**
Investor Relation	96	64%	18	19%
CG Report	44	29%	8	8%
Email Link	150	100%	95	100%
Multimedia	137	91%	80	83%
Company Information	150	100%	93	97%
Products & Services Information	149	99%	93	97%
Forward Looking Information	81	54%	45	47%
Figures & Graphs	124	83%	21	22%
General Financial Information	117	78%	49	51%
IFR	103	69%	51	53%
Current Annual Report	92	61%	47	49%

*This table shows the internet disclosure for each country where, * Based on a total number of 150 companies with websites in KSA and ** Based on a total number of 96 companies with websites in Oman. This table indicates that both countries have 100% of Email link while the lowest attribute for KSA and Oman is the corporate governance which represents 29% and 8% respectively.*

Hypothesis Testing

Mann-Whitney test is used to test the research hypothesis. Table 9 reveals that there are significant differences at 1% level between the corporate internet disclosure among the two GCC countries in terms of corporate governance report ($z = -4.399$), products and services information ($z = -4.237$), general financial information ($z = -5.500$), investor relations ($z = -7.612$), the use of figures and graphs ($z = -10.094$), internet financial reporting ($z = -3.616$), the disclosure of current annual report ($z = -2.986$), the multimedia content ($z = -3.891$) and Email link ($z = -4.462$)   as shown in table 9. While significant at 5% level for forward looking information ($z = -2.114$) .These results support the first hypothesis that there is a significant difference in the characteristics of corporate internet disclosure among the two GCC countries.

Table 9: Mann-Whitney Test Results

Variable	Mean Rank		Mann-Whitney	
	KSA	Oman	z-value	Sig.
EWeb	140.89	123.49	-3.993**	0.000
AWeb	174.68	77.55	-12.157**	0.000
Investor Relation	159.95	97.69	-7.612**	0.000
Figures & Graphs	168.79	85.72	-10.094**	0.000
Email Link	141.76	122.31	-4.462**	0.000
Multimedia	144.09	119.16	-3.891**	0.000
Format	146.04	116.53	-3.616**	0.000
CG Report	145.75	116.92	-4.399**	0.000
Company Information	142.39	121.46	-4.506**	0.000
Products & Services Information	142.02	121.96	-4.237**	0.000
Forward Looking Information	140.91	123.46	-2.114*	0.035
General Financial Information	152.21	108.17	-5.500**	0.000
IFR	146.04	116.53	-3.616**	0.000
Current Annual Report	143.97	119.32	-2.986**	0.003
IFRYrs	144.31	118.86	-2.842**	0.004

*This table shows mean difference analysis between Saudi Arabia (KSA) and Oman on internet disclosure of attributes. The first two columns represent the mean rank for each country. Also, the third column reports the results of the Mann Whittney test for differences in mean. **, * indicate significance at the 1 and 5 percent levels respectively where all attributes are significant at 1% level except for the forward looking information which is significant at 5% level.*

SUMMARY AND CONCLUSION

This paper investigates and reports on the extent and nature of IFR practices among companies listed in Tadawul and MSM. As there is little empirical study on IFR practices in the Middle East region this paper is an important contribution to filling the gap in the literature. The paper provides insights into IFR in the Middle East that will benefit all stakeholders with an interest in corporate reporting. Data has been collected and analysed on 266 companies listed on the stock markets in Saudi Arabia and Oman. While 246 of these companies maintain websites, only 154 provide internet financial reporting on their websites. The majority of these companies use the PDF format to publish financial information and some companies use the internet to provide additional financial information, in the form of financial highlights. The results of this study support the first hypothesis that there is a significant difference in the characteristics of corporate internet disclosure among the two GCC countries. This study reveals a good use of the internet for financial reporting purposes in Saudi Arabia and Oman but the practices of corporate internet disclosure in Saudi Arabia is much better than the practices in Oman.

The benefits to be derived from IFR in the modern era of globalisation and endemic market inter-linkages are likely to far outweigh the pecuniary costs. The current level of technological expertise and development in the Arabian Gulf is more than adequate for the creation, operation and maintenance of corporate websites for IFR purposes. If that is the case, the region is likely to witness an upsurge in IFR over the next few years and regulators and other governmental agencies, as well as other stakeholder groups will need to be prepared for this imminent development. Nonetheless, there is little by way of regulatory guidance or pronouncement on IFR in Saudi Arabia and Oman and perhaps in most countries of the Middle East. This situation needs to be remedied in advance.

While this paper provides a useful insight into corporate internet disclosure by companies in two GCC countries, careful caution needs to be taken when generalizing the results to other countries in the Middle East. To overcome this limitation future may cover a larger sample that includes Middle Eastern countries. Another possible avenue for future research is to examine the determinants of corporate internet disclosure in the region of the world.

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BIOGRAPHY

Mohamed A. K. Basuony Is Assistant Professor of Accounting at the School of Business at the American University in Cairo. Prior to that, he worked at the German University in Cairo and Faculty of Commerce, Ain Shams University. He received both his Bachelor with honours and Master Degree from the same

university. He obtained his Ph.D. degree from Brunel University in the UK. His work experience includes twenty years teaching undergraduates as well as post-graduates in Egypt and the UK. His areas of research are in performance management, balanced scorecard, management and strategic control, corporate governance, and corporate social responsibility. He can be reached at American University in Cairo, School of Business, Department of Accounting, AUC Avenue, P.O. Box 74, New Cairo, Postal Code: 11835, Cairo, Egypt, Mohamed.basuony@aucegypt.edu.

Ehab K. A. Mohamed is Professor of Accounting at the German University in Cairo. Prior to joining GUC he worked for 10 years at Sultan Qaboos University, Oman. He graduated from Cairo University and received his Master's & Ph.D. from Cass Business School, London. He is a Fellow of the Chartered Institute of Internal Auditors, UK. His areas of research are in auditing, fraud, performance measurement, business education, financial reporting, and corporate governance. He has published a number of papers in international refereed journals and presented papers at numerous international conferences. He published two books on financial accounting and auditing. He can be reached at German University in Cairo, Faculty of Management Technology, Department of Accounting and Finance, New Cairo, Postal Code: 11835, Cairo, Egypt, ehab.kamel@guc.edu.eg.

THE 2012 REVIEW OF IFRS FOR SMES: POSSIBLE RESPONSES FROM THE FIJI INSTITUTE OF ACCOUNTANTS

Ezaaz Hasan, The University of the South Pacific
Sheetal Mala, The University of the South Pacific
Glen Finau, The University of the South Pacific
Prena Rani, The University of the South Pacific

ABSTRACT

The International Accounting Standards Board (IASB) issued a paper reviewing the IFRS for SMEs in 2012 and invited public comments on changes the IASB had under consideration. There was no response from the Fiji Institute of Accountants (FIA), Fiji's professional body and de facto accounting regulator, despite the fact that the Institute had contributed to the debate in 2007, when the initial draft of the Standard was under review. The FIA had applied the standard for reporting periods beginning on or after 1st January 2011.This study will determine the reason behind FIA's non-response by interviewing two individuals with significant experience and knowledge in accounting regulation and standard setting in Fiji. The paper also investigates the challenges SMEs are facing by surveying audit firms. The findings indicate that SMEs are facing certain drawbacks which should have been conveyed by the FIA to the IASB in the 2012 review. The study provides preliminary evidence to suggest that FIA should make a substantive response in future reviews for IFRS for SMEs (such as the 2013 Exposure Draft).This response would also be useful for other developing countries that are facing similar issues/problems in the application of the IFRS for SMEs.

JEL: M41

KEYWORDS: 2012 Initial Comprehensive Review, Fiji Institute of Accountants (FIA), IFRS for SMEs, 2013 Exposure Draft, Challenges and Benefits

INTRODUCTION

The International Accounting Standards Board (IASB) began its initial review process for the IFRS for SMEs in 2012 whereby all jurisdictions complying with the IFRS for SMEs standards were invited to make comments to the Board's 2012 Comprehensive Review document. The deadline for comments was November 2012. Recently, there has been significant debate surrounding the development and applicability of IFRS for SMEs (Albu et al, 2010; Hussain et.al 2012, Neag et al, 2009; Odia and Ogiedu, 2013; and Deaconu et al, 2012). Drawing on from this debate, the IASB sought to obtain feedback from stakeholders to determine if there was any need for amendments to the IFRS for SMEs. The adoption of the IFRS for SMEs has proved to be strong in jurisdictions where the accounting profession had relatively limited resources and in certain cases had applied a radically different and simpler regulatory code than the IFRS for SMEs, rather than in those jurisdictions where the profession is strong (IASB, 2013). Submissions reflecting on the difficulties experienced in applying the IFRS for SMEs might therefore have been expected to be predominant. However, few concerns rose from Australia and New Zealand which highlighted the deviations from the full IFRSs.

The national accounting regulator in Fiji, the *Fiji Institute of Accountants* (FIA) had been expected to make a submission to the IASB particularly as it made substantive comments to the initial exposure draft of the

IFRS for SMEs in 2007. However, FIA did not participate or make any comments in the review process in 2012. Our study is motivated by concerns surrounding FIA's non-response to the invitation and considers the issues the FIA could have raised through the review, given that SMEs in Fiji have been facing some problems since the IFRS for SMEs were implemented in 2011 (Hussain et.al, 2012). To answer our research objectives, we used a mixed method approach. In this approach, we used questionnaires and conducted interviews. The findings of this study will not only add on to the extant literature but will have practical applicability as well. The results of this study demonstrates that the application of certain sections of the IFRS for SMEs poses challenges to SMEs in Fiji and that some sections have no apparent relevance in Fiji. Thus, this would help the FIA to make a submission to the IASB's 2013 Exposure Draft that was released in October 2013. This paper is organized as follows: Section 2 explores the literature on IFRS for SMEs and the theoretical framework for this study. Section 3 looks at the research methodology. Thereafter, in Section 4, the findings of this study are presented and discussed and lastly in Section 5, we provide a conclusion, discuss avenues for future research and elaborate on our research limitations.

LITERATURE REVIEW AND BACKGROUND

The Asian financial crisis prompted the World Bank to foster the development of accounting standards for global financial reporting. According to Camfferman & Zeff (2006), as cited in Singh & Newberry (2008), the World Bank donation prompted the *International Accounting Standards Committee* (IASC) to assist developing countries in the formulation of sound accounting practices. In order to adequately consider accounting related issues in developing countries, IASC formed a steering committee in 1998, however only few decisions were made from the steering committee's deliberations (Singh & Newberry, 2008). Therefore, later in 2000 IASC decided to transfer its standard setting responsibilities to the IASB (ibid). In 2000, IASC handed over the standard-setting project to the newly formed IASB but did not mention developing countries in its legacy document. The report submitted by IASC to the IASB did mention about the demand and the need for the development of the international accounting standards for small enterprises but did not emphasis about developing countries. Thus, the result led to this issue being dropped from the formal agenda in 2000 (Singh & Newberry, 2008). The IASB decided to consider the matter of developing the international standards as a matter for future research.

The demise of Enron in 2001 led the IASB agenda project to have its focus on developing a single set of accounting standards to reduce market irregularities (Singh & Newberry, 2008). Henceforth, after the establishment of the IASB in 2001, the emphasis of the project shifted to generating a credible IFRS for SMEs, a single set of accounting standards that could be applied globally given the importance of it in all jurisdictions (Singh & Newberry, 2008). In 2004, the IASB issued a 45-page discussion paper concerning nine major issues (ibid). From the 120 responses received generally the responses supported the IASB for the development of IFRS for SMEs (ibid). In 2007, an Exposure Draft of proposed IFRS for SMEs was released for public comment and the deadline for the public responses ended on 30 November 2007 (ibid). After publishing the Exposure Draft, the IASB issued a field test questionnaire for those trialing the Exposure Draft (ibid). The field test questionnaire was issued to help IASB identify and assess how well the draft IFRS for SMEs was applied (ibid). The results were presented to IASB in February 2008 and in July 2009; the IFRS for SMEs standard was issued. There was considerable opposition to the initial draft of the IFRS for SMEs. While many of the criticisms were taken on board by the IASB, the IFRS for SMEs was not re-exposed. There was every chance that significant problems in terms of relevance and application, remained when the standard was issued.

The IASB claimed that there would be benefits for SMEs upon its adoption (IASPlus, 2013). The IASB declared that in comparison with full IFRSs, the IFRS for SMEs is less complex in a number of ways such as fewer disclosures and simplified recognition and measurement of assets, liabilities, income and expenses (ibid). According to Holt (2010), the IFRS for SMEs enhances the comparability of the financial statements and reduces cost in preparing and maintaining standards on a national basis. Other benefits of IFRS for

SMEs include: the availability of a complete set of accounting principles that are simplified for each type of entity and; increased satisfaction of financial statement users of SMEs in terms of meeting their needs (Ciubotariu, 2013). IFRS for SMEs can be especially beneficial to SMEs that are growing rapidly. It provides them an easier transition process from IFRS for SMEs to full IFRS (Aurora & Cosmina, 2010). Additionally, IASB argues that adopting the IFRS for SMEs in emerging economies is expected to reduce the cost of capital for reporting entities.

Furthermore, Bohusova (2011) observes that multinational companies will find it easier to prepare the consolidated accounts as the need for reconciling the national accounting treatments will be reduced. An additional benefit from the study indicates that IFRS for SMEs could provide a platform for the development of a common educational framework for the financial statement preparers, which can provide greater mobility of accountants and audit services (Bohusova, 2011). IFRS for SMEs adoption can also prove to be quite challenging. A study in Fiji by Hussain et.al (2012) indicated that the Non-Big 4 firms face more challenges in applying the IFRS for SMEs standards as they do not have expertise to assist in interpretation and application of the international standards. Another challenge relates to providing adequate training to the practitioners of Non Big 4 firms as they lack the adequate resources and expertise. Furthermore, Chand et.al (2013) argues that the lack of the professional expertise in developing nations can lead to less chances of enjoying the benefits of complying with standards. After the initial review, the IASB is expected to make amendments to the standards once every three years (IASPlus, 2013).While dealing with the new and revised IFRSs, IASB developed one of its principles that when new (or revised) IFRSs are published then changes to IFRS for SMEs are to be considered in the triennial review (IFRS staff paper, 2013).

Responses From Jurisdictions

Responses to the 2012 review were received from various jurisdictions from across the globe, however to streamline the responses, we only considered 4 countries. These countries included Australia, New Zealand, South Africa and Fiji. Except for New Zealand, Australia and South Africa have had board membership with the IASB. In 2007, the Australian Accounting Standards Board (AASB) was one of the jurisdictions that commented on the IASB's *Exposure Draft of A 'Proposed IFRS for Small and Medium-sized Entities'*. The AASB had concerns that the proposed IFRS for SMEs could be improved by incorporating certain aspects of the full IFRSs into the proposed IFRS for SMEs. In 2010, Australia adopted the Reduced Disclosure Requirements (RDR) in place of IFRS for SMEs for non-publicly accountable entities. However, the AASB did make a response to the 2012 review of the IFRS for SMEs.

Some of the concerns that were raised related to Australia's context, in terms of its accounting regulation and standard setting environment. These included the differences between the recognition and measurement guidelines between the IFRS for SMEs and the full IFRSs. Another area of concern related to some topics relevant to non-publicly accountable entities not covered in the IFRS for SMEs such as interim financial reporting and special accounting for assets held for sale. Henceforth, the AASB suggested that the IFRS for SMEs should incorporate an option for 'Reduced Disclosure Requirements' so that entities can align their measurement policies in line with the full IFRSs.

The comments made by the AASB in the review of IFRS for SMEs took the perspective of aligning the IFRS for SMEs with the Reduced Disclosure Requirements (RDR).For instance, the AASB suggested that changes in IFRS 3, 9, 10, 11 and 13 should be reflected in the IFRS for SMEs. The AASB also supported the view that IFRS for SMEs should be amended to be in line with the full IFRSs (AASB, 2012). Similar to Australia, New Zealand has not implemented the IFRS for SMEs but made comments to the review of IFRS for SMEs in 2012. The New Zealand Accounting Standards Board (NZASB) commented on only four questions but held the same view as the AASB that the IFRS for SMEs be aligned with the full IFRS (NZASB, 2012). The comments made were in the context of the regulatory framework adopted in New

Zealand. For instance, the NZASB believed that each jurisdiction should decide which entity should and should not use the IFRS for SMEs. This is in line with the Reduced Disclosure Requirements (RDR) adopted in New Zealand. Comments raised by AASB and NZASB reflected the concerns that arose in a developed country. The comments from professional bodies in developed economies do not necessarily mean they are inappropriate in the context of developing economies. This is because developed countries may have the technical capabilities to critically evaluate the shortfalls in the IFRS for SMEs and some of these issues may also be applicable to developing countries, but they do not take into consideration the practical difficulties faced in emerging economies.

South Africa has been one of the early adopters of the IFRS for SMEs. The South African Institute of Professional Accountants (SAIPA) commented that any changes in the full IFRS should not trigger any changes in the IFRS for SMEs and should continue to be treated as a stand-alone document (SAIPA, 2012). These comments were in direct contrast with the comments made by the professional bodies in Australia and New Zealand. However, the SAIPA did favor the proposal to amend section 17 of the IFRS for SMEs to include an option to use the revaluation model and supported changes in the full IFRS to be reflected in the IFRS for SMEs. For instance, Sections 18 and 19 of the IFRS for SMEs should be amended to be in line with IAS 38 and IFRS 3 respectively. However, SAIPA did mention that such changes would improve the clarity and reduce the complexity of IFRS for SMEs.

Fiji is a developing country and the professional body, the FIA, did not make any response to the review of the IFRS for SMEs in 2012.However, an individual submission was made from Fiji by Michael White, an Accounting Professor resident in Fiji in a personal capacity. Professor White argued that changes in IFRS for SMEs should be considered when the amendments to full IFRS had demonstratively improved financial reporting (White, 2012). These comments refer to sections 9, 11, 18 and 29 while Professor White mentioned that section 25 should remain unchanged. He also commented that Section 15 and section 19 should be amended so that this section of the IFRS for SMEs is in line with IFRS 11and IFRS 3. Section 17 should have an option to include a revaluation model and section 28 be amended. Professor White finally mentioned that IFRS for SMEs improves the financial reporting for SMEs in small economies (White, 2012). Professor White's submission provided a perspective from a small emerging economy. However, given the fact that South Africa provided a response from the perspective of a developed nation, the views of SAIPA helped to provide a counter balance to the comments provided by the professional bodies in Australia and New Zealand.

Theoretical Framework

According to Godfrey and Langfield-Smith (2005), the Private Interest Theory argues that parties who are affected by the regulation would lobby for regulations that produce the outcomes favorable to them. The Private Interest Theory has been quite evident in the process of globalization when the IASB was working on IFRS for SMEs. In the convergence process, it was the accounting profession rather than the governments who exercised more influence in the process of having a single set of accounting standards (Godfrey and Langfield-Smith, 2005). In Fiji, the FIA had private interests in adopting internationally developed standards so that they could reap the benefits of complying with globalized standards. Adoption of IFRS for SMEs has improved the accountants' international mobility. Thus, the accountants who are the members of FIA will be able to reap the benefits of an international environment and pursue their private interests. If the accounting professionals get more accustomed in using international standards, such as the IFRS for SMEs, it would be easy for them to secure employment abroad.

Furthermore, by adopting the international standards, the FIA will get a chance of preserving the accounting profession as a means of sustaining professional monopoly. The *Accounting and Auditing Standards Committee* (AASC) in the FIA is mainly dominated by the Big 4 firms which indicate that Big 4 firms will find it easier to apply IFRS for SMEs because they are well versed in the application of the full IFRSs.

Adoption of international standards would mean more training opportunities which the FIA can provide with. Since the Government is not involved in regulating the accounting standard setting in Fiji, the FIA can argue that adopting IFRS for SMEs is in their best interest to facilitate international trade. The FIA can also argue that adopting IFRS for SMEs can enable Fiji to have greater access to capital market worldwide, as now it can prepare comparable financial statements based on the international standards. As defined by Posner (1974), Capture Theory explains that regulation is provided in response to the demands of interest groups struggling among themselves to maximize the income of their members. According to Godfrey and Langfield-Smith (2005), a specific form of Private Interest Theory is Regulatory Capture Theory, which describes how the parties who are being regulated are capturing the regulatory process. For instance, in the case of setting accounting standards, the parties being regulated could be accountants who may be represented by more experienced accountants (such as Audit Partners) in the regulatory bodies and thus the result would be the regulatory capture by the accountants themselves. In other words, accountants can regulate the accounting standards themselves (for example, the FIA which is a self-regulatory body).

Moreover, the FIA is mostly dominated by the Big 4 firms and it was in their private interest to adopt IFRSs and IFRS for SMEs because this would tend to increase or maximize their wealth as there will be an increase in the demand of their services in the application of IFRSs and IFRS for SMEs (Chand and White, 2007). In line with the motivation of this study and based on the relevant literature, the objectives of carrying out this research is:

> To determine why the FIA did not make any response to the IASB in 2012.

> To investigate what could the FIA have responded to the IASB, in terms of dealing with challenges in applying the IFRS for SMEs in Fiji.

DATA AND RESEARCH METHODOLOGY

Our research design encapsulated descriptive methods to analyze the findings. We employed a mixed questionnaire and semi-structured interview approach to adequately collect information pertaining to the objectives of this study. Pertaining to our first research objective, we interviewed the chairperson of the AASC on October 2013 and asked him why the FIA did not respond to the IASB in 2012. Subsequently, with respect to the second research objective, we sent out questionnaires to the audit partners and managers from the Big 4 and the Non-Big 4 firms to identify the issues they had encountered since 2011with respect to the application of IFRS for SMEs. The questionnaires were issued to 13 audit firms on October 2013 and were received on November 2013. Four questionnaires were sent out to the Big 4 audit firms and this generated a 100% response rate. Nine questionnaires were sent to the Non-Big 4 audit firms which generated a response rate of 31%.

The auditors from the Big 4 and the Non-Big 4 firms were the most reliable source to get such information as to what recommendations the FIA could have made to the IASB. The underlying reason is that these auditors know what issues are generally faced by them (and their SME clients). Another reason is that, these auditors are a reliable representative sample of all professional accountants in Fiji. Furthermore, we interviewed an academic Professor Michael White on October 2013. Professor White, who was formerly a member of the AASC under the FIA, was able to provide insights as to why FIA did not make any responses to the IASB from an academic viewpoint.

RESULTS

This section is divided into three parts. In Part A we interviewed the Chairman of the AASC. Part B, deals with findings and analysis from the auditors of the Big and Non-Big 4 firms and finally in Part C we interviewed Professor White from the University of the South Pacific (USP).

Part A: Interview with the Chairman of the AASC

We interviewed the Chairman of the AASC in the FIA and we asked him why the FIA didn't make any responses to the review of IFRS for SMEs in 2012 and are there any reasons for not responding to the invitation. The FIA implemented IFRS for SMEs in January 2011for those entities that did not have to comply with the full IFRS. For most SMEs in Fiji, the financial year ended 31st December, 2011 which was the first year of adoption of the IFRS for SMEs. The chairman explained that when the review of the IFRS for SMEs started in June 2012, it was too early for the FIA to make any response at that time. According to him, FIA would have liked for the SMEs to have at least used the IFRS for SMEs for the full 2 years before the FIA could have made a justifiable and sound recommendation to the IASB. The chairman said that:

"FIA implemented IFRS for SMEs in 2011……..so the 2012 review was very early for us….the fact that we just started implementing it (in 2011)…..for most businesses in Fiji they would have implemented for the year ended December 2011………since it had been only a year (since January 2011)…FIA itself as a body did not have enough information to make a meaningful response".

It is also possible that the problems faced by the SMEs in Fiji in the first year could have been rectified in the second year of adoption. For example, when the full IFRSs were adopted in Fiji, the second year's financial reports showed a higher level of compliance than the first year's, simply because of a learning effect. FIA did not want to take a hasty approach without a proper evaluation of the IFRS for SMEs in Fiji. The Chairman mentioned that FIA thought that there were not much changes required in the IFRS for SMEs in such a short time. Pertaining to the Exposure Draft for the IFRS for SMEs that the IASB issued in October 2013, the Chairman stated that:

"the standards committee of FIA will consider that (the Exposure Draft)…..we will probably seek comments from our members but I think we will definitely make a response on that one (the exposure draft) because now that a couple of years have passed (2 years since IFRS for SMEs was implemented)….so we feel that now is a good time to make a response."

The explanation given by the Chairman implies that FIA would be in a better position to make a sound response to the IASB's Exposure Draft given that SMEs in Fiji would now have been using the IFRS for SMEs for 2 years. However, contrary to the chairman's views, the nil response to the 2012 review cannot be justified on the grounds that there had been pertinent issues faced by SMEs in Fiji as highlighted by prior studies in Fiji (Hussain et.al, 2012 and Chand et al, 2013) and subsequently, a potential response by the FIA (in 2012) could have been considered by the IASB in the 2013 Exposure Draft.

Part B: Findings and Analysis from the Big 4 and Non Big 4 Accounting Firms

Question 1 sought to find out what benefits could be realized through the adoption of IFRS for SMEs in Fiji. Some benefits that were identified from prior literature (Hussain et. al, 2012) were also mentioned to us by our sample auditors. These benefits included IFRS for SMEs being simpler than the full IFRSs, usage of historical costs, meeting the needs of financiers, improving access to finance, improving the nature of financial reporting for SMEs and attracting foreign investors. The purpose of posing this question to audit firms was to get their views on the types of benefits being realized by their clients through the adoption of IFRS for SMEs. Auditors from both the firms had indicated that their SME clients have realized these benefits to a high extent since the IFRS for SMEs was adopted in 2011. These findings may indicate that the FIA may have been focusing more on the benefits rather than the pertinent problems in the adoption of the IFRS for SMEs. In question 2, we asked the Non-Big 4 firms which sections of the IFRS for SMEs they are finding it difficult to interpret or which sections they believed requires some attention by the FIA. These sections are provided in Table 1 below. The sections that the Non-Big 4 firms have highlighted may indicate

that there are some pertinent issues with the interpretation of some sections, which can pose further difficulties for their clients in the future. The FIA had reasonable grounds to consider the opinions of the Non-Big 4 firms because majority of the SMEs in Fiji are clients of the Non-Big 4 firms and as such they would be more likely to perceive problems with respect to the interpretation of the IFRS for SMEs.

Table 1: Sections of the IFRS for SMEs Highlighted by Non-Big 4 Firms

Section 1	Small and Medium Sized Enterprises
Section 7	Statement of Cash Flows
Section 26	Share Based Payments
Section 31	Hyperinflation
Section 34	Specialized Activities
Section 35	Transition to the IFRS for SMEs

This table shows the sections of the IFRS for SMEs that the Non-big 4 firms highlighted as being difficult to interpret.

The sections highlighted by the Non-Big 4 firms that was under consideration by the IASB in the 2012 review of the IFRS for SMEs only included Section 1 (Small and Medium Sized Enterprises). The sections highlighted by the Non-Big 4 firms that is being proposed for amendment by the IASB in the 2013 Exposure Draft included: Section 1 (Small and Medium Sized Enterprises), Section 26 (Share Based Payments) and Section 35 (Transition to the IFRS for SMEs). Although the Non-Big 4 firms may not apply all of the sections of the IFRS for SMEs, the sections that they have highlighted may indicate that there are some pertinent issues with the interpretation of these sections, which can pose further difficulties in the future. The sections of the IFRS for SMEs that the Big 4 firms highlighted as being difficult to interpret or believe that requires some attention are as stated in Table 2 below.

Table 2: Sections of the IFRS for SMEs Highlighted by Big 4 Firms

Section 2	Concepts and Pervasive Principles
Section 5	Statement of Comprehensive Income and Income Statement
Section 10	Accounting Policies, Estimates and Errors
Section 11	Basic Financial Instruments
Section 12	Other Financial Instrument Issues
Section 16	Investment Property
Section 19	Business Combinations and Goodwill
Section 26	Share Based Payments
Section 27	Impairment of Assets
Section 31	Hyperinflation

This table shows the sections of the IFRS for SMEs that the Big 4 firms highlighted as being difficult to interpret or believe that requires some attention.

In comparison with the responses from the Non-Big 4 firms, the two common sections highlighted by the Big 4 firms were Section 26 (Share Based Payments) and Section 31 (Hyperinflation). The sections highlighted by the Big 4 firms that also was under consideration by the IASB in the 2012 initial comprehensive review of the IFRS for SMEs were Section 11 (Basic Financial Instruments) and Section 19 (Business Combinations and Goodwill). The sections highlighted by the Big 4 firms that are being proposed for amendment by the IASB in the 2013 Exposure Draft are provided in table 3 in the next page.

The Big 4 firms are fully versed in the application and interpretation of the full IFRSs, thus it is speculated that they are in a better position to identify the flaws or setbacks in the IFRS for SMEs. These sections selected by the Big 4 firms strengthen the notion that there are some sections in the IFRS for SMEs that would require the FIA to consider them more seriously. Question 3 was directed to gain insights into the overall difficulties faced by the SMEs in the application of IFRS for SMEs. These are additional cost of reporting, client reluctance to adopt IFRS for SMEs and inadequate training and skills.

Table 3: Sections of the IFRS for SMEs Highlighted by Big 4 Firms That Was Under Consideration in The 2013 Exposure Draft

Section 2	Concepts and Pervasive Principles
Section 5	Statement of Comprehensive Income and Income Statement
Section 11	Basic Financial Instruments
Section 12	Other Financial Instrument Issues
Section 19	Business Combinations and Goodwill
Section 26	Share Based Payments
Section 27	Impairment of Assets

This table shows the sections of the IFRS for SMEs highlighted by Big 4 firms that were under consideration in the 2013 Exposure Draft.

Auditors from both the firms indicated that their SME clients are facing these setbacks. The FIA could have mentioned these difficulties in part B of the 2012 initial comprehensive review of the IFRS for SMEs where the IASB was looking for comments on the difficulties the jurisdictions are facing. Such recommendations could have helped the IASB to understand the difficulties faced by jurisdictions in the emerging economies and more importantly countries in the South Pacific. This would have enabled the IASB to consider these difficulties and develop an exposure draft that would be more relevant to emerging economies, such as Fiji.

Question 4 was designed to elicit views from the Non-Big 4 firms on whether they think there are any issues or matters that could have been addressed in the 2012 review. All of the Non-Big 4 firms believed that there were not any pertinent issues that could have been addressed in the 2012 review. However, the Big 4 firms mentioned that there were matters that the FIA could have addressed in the 2012 Review.

Firm 1: "There are certain sections in the IFRS for SMEs that should have been made easier. This would imply that, the IASB should have considered further simplifications to certain sections because IFRS for SMEs should be revised from the SMEs and users' perspective".

Firm 2: "The FIA has not properly communicated which SMEs should apply IFRS for SMEs because only certain SMEs currently are using the IFRS for SMEs. This issue can be traced to section 1 of the IFRS for SMEs and this section was also under consideration in the 2012 review paper and in the 2013 Exposure Draft".

The responses from the Big 4 firms indicate that there are certain issues (as mentioned above) pertaining to the IFRS for SMEs in Fiji. These concerns raised by the Big 4 firms carry more weight and the FIA should have genuinely looked at these concerns.

Part C: Interview with Professor Michael White

Professor Michael White was formerly in the AASC. The interview with Professor White was critical as he was a representative who was thoroughly involved in the standards development. He provided insights, from an academic viewpoint, regarding the reasons and implications for FIA not responding to the 2012 review of the IFRS for SMEs. We asked Professor White to identify the reasons or factors that held FIA back from responding to the invitation by the IASB. At the outset, Professor White mentioned that the auditors would have had enough experience to understand the nature of IFRS for SMEs to make some responses. He stated that:

"there would have been enough experience……for people to make initial observations…..other professional institutions seem to be quite comfortable making observations without having experience at all".

He further elaborated that one possible reason for the non-response could have been that the regulator in Fiji may have deemed the 2012 review as a trivial matter. The big 4 firms(Big 4 firms dominate the AASC) may perceive that they have a competitive edge over the Non Big 4 firms if the IFRS for SMEs remains unchanged rather than being simplified, consequently they had no incentive to propose changes that may make the standard more manageable.

We also asked Professor White would there be any consequences for the SME's or the accounting profession in Fiji since FIA did not respond to the invitation. He mentioned that there would be an effect on the way the IASB considers responses by the FIA to the Exposure Draft i.e. the FIA may not be able to adequately address issues or challenges in the Exposure Draft. The purpose of the Exposure Draft is to seek comments on a draft version of the IFRS for SMEs when all the responses from the discussion document have been considered. He mentioned that:

"If there are issues that emerged now that are not part of the exposure draft, it's going to be far harder for these issues to be changed. The exposure draft still says is there anything else that you want to comment on....the FIA did not comment originally and the chances are that the IASB would say that well you (the FIA) had your chance in that one...this (exposure draft) is just an afterthought....and we need to keep moving and get the update in place ....

Summary of Results

Based on the first research objective, the Chairman of the AASC mentioned that it was too early for the FIA to make a sound response to the IASB. According to him, the FIA would consider making a response in the 2013 Exposure Draft of the IFRS for SMEs. However, the nil response by the FIA cannot be reasonably justified. Based on the second research objective, it can be reasonably deduced that there are certain sections of the IFRS for SMEs that the Big 4 and the Non-Big 4 firms find it difficult to interpret. Table 4 (refer next page) summarizes and compares these responses from the auditors from the Big 4 and the Non Big 4 firms with the *2012 Request for Information (RFI)* and the *2013 Exposure Draft*. Some of the sections highlighted by the audit firms were also under consideration in the IASB's *2012 RFI* and are also mentioned in the IASB's *2013 Exposure Draft*. The similarity of these specific sections solidifies our argument that the FIA could have taken these specific sections into consideration to make a response to the IASB in 2012 (based on the analysis in Question 2).

Also, there are some general difficulties that were encountered by the SMEs in Fiji (as based on the analysis in Question 3). Furthermore, based on the analysis in Question 4, there is a need to further simplify the IFRS for SMEs for the benefit of the SMEs and the need to provide additional guidance on section 1 (in the context of SMEs in Fiji). These material issues could have been mentioned by the FIA in *Part B* of the Review of IFRS for SMEs. Moreover, Professor White mentioned that the FIA had reasonable grounds to make a consolidated response to the IASB.

CONCLUDING COMMENTS

IASB in its 2012 review of IFRS for SMEs invited comments from the public. Some jurisdictions responded to this invitation however, most of the non-responses were from developing countries, one of them being Fiji. The objectives of carrying out this research were to determine why the FIA did not make any response to the IASB in 2012 and to investigate what could the FIA's response have been to the IASB, in terms of dealing with challenges in applying the IFRS for SMEs in Fiji. We employed a mixed questionnaire and semi-structured interview approach to adequately collect information pertaining to the objectives of this study. The findings suggest that FIA did not make a submission because they deemed that the 2012 review was not the appropriate time to make a valid response since the FIA adopted the IFRS for SMEs only in 2011.

Table 4: Comparison of the Sections in the IFRS for SMEs with the Responses from the Audit Firms in Fiji

Sections of the IFRS For Smes		2012 Review Document	2013 Exposure Draft	Big 4 Firms	Non Big 4 Firms
Section 1:	Small and Medium Sized Enterprises	√	√		√
Section 2:	Concepts and Pervasive Principles		√	√	
Section 3:	Financial Statement Presentation				
Section 4:	Statement of Financial Position		√		
Section 5:	Statement of Comprehensive Income and Income Statement		√	√	
Section 6:	Stat. of Changes in Equity and stat. of income & Ret. Earnings		√		
Section 7:	Statement of Cash Flows				√
Section 8:	Notes to the Financial Statements				
Section 9:	Consolidated and Separate Financial Statements	√	√		
Section 10:	Accounting Policies, Estimates and Errors			√	
Section 11:	Basic Financial Instruments	√	√	√	
Section 12:	Other Financial Instrument Issues		√	√	
Section 13:	Inventories				
Section 14:	Investments in Associates				
Section 15:	Investments in Joint Ventures	√			
Section 16:	Investment Property			√	
Section 17:	Property, Plant & Equipment	√	√		
Section 18:	Intangible Assets other than Goodwill	√	√		
Section 19:	Business combinations and Goodwill	√	√	√	
Section 20:	Leases		√		
Section 21:	Provisions and Contingencies				
Section 22:	Liabilities and Equity	√	√		
Section 23:	Revenue				
Section 24:	Government Grants				
Section 25:	Borrowing Costs				
Section 26:	Share based payments		√	√	√
Section 27:	Impairment of Assets		√	√	
Section 28 :	Employee Benefits	√	√		
Section 29 :	Income Tax	√	√		
Section 30 :	Foreign Currency Translation		√		
Section 31 :	Hyperinflation			√	√
Section 32 :	Events after the end of the Reporting Period				
Section 33 :	Related party disclosures		√		
Section 34 :	Specialized Activities		√		√
Section 35 :	Transition to the IFRS for SMEs		√		√

Table 2 compares the responses from the auditors from the Big 4 and Non-Big 4 firms with the 2012 review document and the 2013 Exposure Draft. Some of the sections highlighted by the audit firms were also under consideration in the IASBs'2012 review document and the 2013 Exposure Draft.

The results have highlighted that IFRS for SMEs has benefited SMEs in Fiji since its adoption, however there are difficulties in the interpretation of some standards (as indicated by the Big 4 and Non-Big 4 firms). These challenges signal that there are issues in the various sections of the IFRS for SMEs that require serious attention by the FIA. To deal with these challenges, the FIA should have been active participants as they had reasonable grounds to make a response to the IASB in 2012. These issues could have been taken into consideration by IASB when developing the 2013 Exposure Draft for the IFRS for SMEs.

The 2012 comprehensive review of the IFRS for SMEs is now just a historical document but the findings of this study could assist FIA in developing a submission to the IASB's 2013 Exposure Draft. This would allow IASB to consider some of these responses when developing the *revised* IFRS for SMEs. Our analysis did not divulge into the technical matters of the specific sections of the IFRS for SMEs as to why the audit firms in Fiji are finding it difficult to interpret these sections. A technical study of this nature could reveal the problems that may be inherent in the various sections of IFRS for SMEs. Also a survey of SMEs in Fiji in relation to challenges faced using IFRS for SMEs can help to provide a connection for future research. Furthermore, future research can explore the perceptions of financiers pertaining to what they believe should be improved in the IFRS for SMEs because financiers tend to advance funds to SMEs based on financial reports prepared on the basis of IFRS for SMEs.

As with any research, we had limitations. Our interview sample size was small and was confined to Suva, where majority of the accounting firms are concentrated. We also received a limited number of questionnaires from the audit firms (most notably from the Non Big 4 firms where the response rate stood at 31%) which restricted our analysis to only 8 firms. Nevertheless, the majority of our respondents were from the top tier accounting firms which improves the validity of our results. Interviewees also had significant experience and knowledge in the application of standards and standard setting in the Fiji environment.

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NOTES

This study was conducted in 2013 after the deadline for comments to the 2012 Comprehensive Review ended. At the conclusion of this study, the FIA officials told the authors that a submission was going to be made to the 2013 Exposure Draft (the deadline was on 4th March, 2014) based on the results of this study. However, a formal confirmation was not conveyed to the authors.

BIOGRAPHY

Ezaaz Hasan is a teaching assistant at the University of the South Pacific. His research interest lies in the areas of public sector auditing and SME reporting. He can be reached at the University of the South Pacific, Laucala campus, Suva. Email address: hasan_e@usp.ac.fj.

Sheetal Mala is also a teaching assistant at the University of the South Pacific. Her research interest includes corporate governance and financial reporting. She can be contacted at the University of the South Pacific, Laucala campus, Suva. Email address: mala_s@usp.ac.fj.

Glen Finau is an assistant lecturer at the University of the South Pacific. His research interest includes corporate governance and information systems. He can be reached at the University of the South Pacific, Laucala campus, Suva. Email address: finau_g@usp.ac.fj.

Prena Rani is also a teaching assistant at the University of the South Pacific. Her research interest includes earnings management, gender and SME reporting. She can be reached at the University of the South Pacific, Laucala campus, Suva. Email address: rani_p@usp.ac.fj.

IBFR

CAUSALITY TEST OF BUSINESS RISK AND CAPITAL STRUCTURE IN A PANEL DATA OF NIGERIAN LISTED FIRMS

Dauda Mohammed, Bayero University

ABSTRACT

In economic sense, some events may be subject to spill-over from economy-wide or world-wide shocks. For instance a country's fiscal policy, such as government spending, taxation, and borrowings, influence both the pattern of economic activity and also the level and growth of aggregate demand, output and employment. Therefore, causal relationship may flow from business risk to financing structure of companies and vice versa. The objective of this study is to show that Granger (1969) Causality test can be conducted on a panel data comprising of time series and cross-sectional data set. This study used a dynamic panel data of publicly listed firms in Nigeria for the period of 2000-2006, to analyse the direction of causality between our measures of leverage and business risk using the causality approach described by Granger (1969). The overall, results indicates that increases in either business risk or total liabilities as a proportion of total assets do not Granger-cause or predict higher future values of both variables over the short-to-medium term. The implication is that an analysis of the relationship between capital structure and business risk in Nigeria could be estimated in a dynamic panel framework

KEYWORDS: Capital Structure, Business Risk, Granger Causality, Instrumental Variables, Misspecification, Seemingly Unrelated Regression Equations, Three Stage Least Squares

JEL: C30, C33

INTRODUCTION

Financial researchers have often use contemporary pair-wise correlation coefficients to analyse the degree of correspondence of directional movement in the variable of interests. However, such estimated pair-wise correlation coefficients do not indicate whether the assumed relationship is unidirectional or bi-directional. For instance, it does not often show whether the dependent variable is causing change in the independent variable or vice versa Nwachukwu and Mohammed (2012). In other words some global events may be subject to spill-over from economy-wide or world-wide shocks. For instance a country's fiscal policy, such as government spending, taxation, and borrowings, influence both the pattern of economic activity and also the level and growth of aggregate demand, output and employment. It is therefore important to realize that changes in fiscal policy affect both aggregate demand (AD) and aggregate supply *(AS)* including that for a company's capital. In order to capture the impact of these changes in aggregate *demand* and aggregate *supply* researchers such as Granger, *et al.*(2000) and Koop (2006) employ econometric method to statistically detect the direction of the causal relationship between two time series variables using the Granger causality test. Similarly, previous studies on capital structure including Morley (2006) and Berger and Patti (2006), have utilized the Granger causality test in their panel data analysis.

The aim of this paper is to use causality test as described by Granger (1969) to examine the directional relationship between business risk and capital structure of Nigerian listed firms**.** For brevity, we limit our analysis of the direction of causality by assuming that the ratio of total liabilities to total assets (LEV) and

earnings risk (STDEV) form a simple two-variable model without the necessity of controlling for the effect of the other factors influencing the capital structure decisions of Nigerian companies. The remaining of the part of the paper is organised as follows; section 2 provide a literature review of causality. Section 3 explain the characteristics of the data, discusses the econometric problems inherent in quantitative researches when lagged dependent variables are included as one of the explanatory variables and present the model specification. Section 4 provide the results and discuss the finding while section 5 provide concluding comments.

LITERATURE REVIEW

The theoretical framework of the bi-variate Granger-causality test is based on the premise that a causal series contains information about the response variable that is unavailable from any other source (Pesaran *et al.* 2001). Therefore, a variable (X_{it}) for example, is said to cause another (Y_{it}) if the forecast for the current value of Y_{it} is significantly improved by the inclusion of the past value of X_{it} after controlling for the past value of Y_{it} (Pesaran *et al.* 2001). Given the challenges of Nigeria's business environment, it would not be impossible to have a causality relationship between capital structure and earnings volatility (*business risk*) running in both directions. It therefore follows that causation may run negatively from earnings risk to the total leverage ratio, provided that company managers are more inclined to retain a larger proportion of a marginal increase in earnings rather than distribute them to shareholders during periods of economic uncertainty. Thus, the additional retained profit is then substituted for debt capital. This implies that a forecast of changes in earnings variability would be followed by changes in the total leverage ratio in the opposite direction.

Previous studies on capital structure including Morley (2006) and Berger and Patti (2006), have utilized the Granger causality test in their panel data analysis. The perceptive ideas for bivariate causality are usually investigated by isolating the impact of the two variables of interest, in this case the leverage ratio of our sampled firms and our measure of earnings variability (business risk) assuming other variable are held constant. Research studies done in the past decade (Carkovic and Levine 2002; Nwachukwu, 2009) have shown that the inclusion of lagged dependent variables as one of the right hand side variables in a panel data framework presents problems for both fixed and random effect estimation techniques. This is because all panel data models make the basic assumption that at least some of the parameters are the same across the panel often referred to as the *pooling assumption*. When the pooling assumption does not hold, we refer to our panel as a *heterogeneous panel*.

Heterogeneity is introduced because we consider as cross-sections a relatively large number of companies that are in different sectors and in different stages of growth that are also in competition for a larger market share. Thus, if we impose constant parameter assumption incorrectly, then serious problem may arise and we can again get a biased result arising in both *static* and *dynamic* panels under certain circumstances. In a panel data set, there is always a reason to suspect that the idiosyncratic error of individual firm (i) correlates over time (*autocorrelation*). Generally, there are three types of misspecification bias that are frequently considered in a dynamic panel estimation which may prejudice the estimated parameter coefficients. They comprise errors induced by (i) non-stationarity in data, (ii) bias induced by the presence of firm-specific effect and (iii) the joint endogeneity of the explanatory variables. Previous research studies including; Bun and Carree (2005)Hayakawa (2005) and Nickell (1981) highlighted the implications of the simultaneity bias for a panel data study due to the inclusion of the firm-specific effect and non-stationarity or unit roots in the data. For instance, the inclusion of company-specific fixed effects would breach the basic assumption of both the fixed and random effect models. These biases have been dealt with in this study.

Mukherjee, *et al.* (1998) and Hasio (2003) have shown that regressions of panel data that disregard cross-section error correlation and the inequality of parameter coefficient in model specification, could lead to

inconsistent estimates of the slope coefficients of the explanatory variables of interest. This is irrespective of whether the analysis was conducted using either the fixed and random effect estimation techniques. Indeed, Pesaran *et al* (2001) proved that both the Fixed Effects (FE) and Random Effect (RE) estimators may be inconsistent in a dynamic panel due to the problem of correlation between the lagged dependent variable and the differenced error term ($\varepsilon_{it} - \varepsilon_{i,t-1}$). Hence, the bias caused by the presence of firm-specific fixed effects would generally be eliminated in the standard econometric panel model by taking the first difference of the model equation. Moreover, an application of the Granger-causality test on the first difference of the natural log of the variable of interest will help induce stationarity in the series and improve the reliability of our results.

Several previous studies suggested that the correlation problem can be tackled by estimating causality equation with models that correct for cross-sectional covariance such as; (i) specific heteroskedasticity, (2) contemporaneous covariance and (3) the between-period covariance. These instrumental variable (IV) techniques include the 3SLS, GMM and SURE techniques. Indeed, Hausman (1978) originally proposed a test statistic for endogeneity upon direct comparison of coefficient values. The test is conducted by running an auxiliary regression on two sets of models. The lags of variables within the model and other variables considered as *exogenous* are included in the model. The two sets of estimates are then compared, one of which is consistent under both the null and the alternative hypothesis and a large difference between the two sets of estimates is taken as evidence in favour of the alternative hypothesis. The next section explains our data and the estimation techniques that accounted for the misspecification errors discussed above.

DATA AND METHODOLOGY

The data for our study is low frequency data i.e. they are annual financial data of Nigerian listed companies and obtained directly from the Nigerian Stock Exchange. In order to check the quality of the data, we compared it with those made available by some of the companies on their respective web sites. Further, we impose restriction by excluding firms with less than 8 years of continuous time series data on their total liabilities, total assets, and earnings before interest and tax between 2000 and 2006. We also dropped firms that were cross-listed on both the domestic and overseas capital markets. This helped to avoid the confounding implications of disparities in economic structure, exchange rates, legislation, and the level of development of local and foreign markets. The sample of our study comprises seven annual observations for 94 companies hence 658 observations. On the whole, they make up more than three-quarters of shares traded on the Nigerian Stock Exchange (NSE).

Table 1 below present a descriptive statistic of the key leverage ratio and business risk along with other explanatory variable of Nigerian listed firms. Table1 showed that, on average, the overall mean ratio of leverage for our sample of ninety four companies is 38%. This means that for every one hundred naira investment made by the sample companies is complemented by a short or long-term borrowing of thirty eight naira 'other things being equal'. Nigeria has a large economy relative to its population, hence providing a market for business to borrow and expand. Table 1 also shows that manufacturing industries are borrowing in the same proportion, which is not unexpected. This is because manufacturing firms such as drugs and chemicals tend to spend heavily on the development of new products by comparison to other industry sectors such as retail and services. They will therefore need to borrow more to finance new products. Manufacturing companies also, generally expend large amount of money on fixed assets such as lands, buildings and machinery vis-à-vis non-manufacturing companies, which can be sold if they go bankrupt. To finance these investments they will need to issue debt securities, perhaps by long term borrowings.

Table 1: Descriptive Statistics for Leverage Ratio of Nigerian Listed Firms and Its Other Explanatory Variable of Interest for the Period: From 2000-2006

Item		Mean	Standard deviation	Min	Max	Correlation with the leverage ratio
1.	**_Total liability percentage of total assets (Leverage ratio)_**					
	a A Panel of ninety-four listed firms	0.38	0.20	0.02	0.0.85	1.000
	b Manufacturing companies [62]	0.38	0.19	0.02	0.83	0.03
	c Firms with more 30 per cent foreign ownership [33]	0.36	0.20	0.05	0.83	-0.05
	d Firms aged 25years and above [53]	0.36	0.19	0.07	0.80	-0.04
2.	**_Standard deviation of earnings before interest and tax profit % total asset (business risk)_**					
	a A Panel of ninety-four listed firms	0.16	0.10	0.08	1.90	0.15***
	b Manufacturing companies	0.15	0.12	0.08	1.87	-0.10***
	c Firms with more 30 per cent foreign ownership	0.15	0.05	0.08	0.43	-0.06
	d Firms aged 25years and above	0.16	0.09	0.11	1.13	-0.01
3.	**_Total Sales percentage of total assets (Agency cost)_**					
	a A Panel of ninety-four listed firms	1.77	1.26	0.13	6.33	-0.16***
	b Manufacturing companies	1.71	1.54	0.13	5.86	-0.08**
	c Firms with more 30 per cent foreign ownership	1.95	1.19	0.14	5.86	0.11***
	d Firms aged 25years and above	1.98	1.25	0.25	6.12	011***
4	**_Total fixed assets percentage of total assets (Tangibility)_**					
	a A Panel of ninety-four listed firms	0.57	0.19	0.09	0.93	0.04
	b Manufacturing companies	0.56	0.19	0.08	0.92	-0.08**
	c Firms with more 30 per cent foreign ownership	0.56	0.20	0.10	0.93	-0.03
	d Firms aged 25years and above	0.58	0.19	0.12	0.93	0.07*
5	**_Earnings before interest and tax percentage of total assets (Profitability)_**					
	a A Panel of ninety-four listed firms	0.11	0.19	-0.82	0..88	-0.16***
	b Manufacturing companies	0.13	0.21	-082	0.88	0.18***
	c Firms with more 30 per cent foreign ownership	0.17	0.19	-0.33	0.88	0.23***
	d Firms aged 25years and above	0.12	0.19	-0.59	0.88	0.05
6	**_Log of total sale revenue millions of Naira (Size)_**					
	a A Panel of ninety-four listed firms	7.38	1.95	1.44	11.36	-0.06
	b Manufacturing companies	7.64	1.90	1.44	11.36	0.21***
	c Firms with more 30 per cent foreign ownership	8.46	1.45	3.55	11.37	0.44***
	d Firms aged 25years and above	8.41	1.41	4.17	11.36	0.36***
7	**_Total assets annual percentage change (Growth prospects)_**					
	a A Panel of ninety-four listed firms	20.00	37.00	-72.21	214.16	-0.06
	b Manufacturing companies	19.04	36.00	-572.20	214.16	0.02
	c Firms with more 30 per cent foreign ownership	20.31	35.04	-59.68	196.55	0.000
	d Firms aged 25years and above	18.14	30.59	-59.68	176.41	0.02

Note Manufacturing are firms officially classified as manufacturing by the United Nations International Standard Industrial Classification (ISIC), Foreign companies are firms having more than thirty per cent overseas share ownership and Old companies are those that are more than twenty-five years old. *** Statistically significant at 1% confidence level, ** Statistically Significant at 5% confidence level, and* statistically significant at 10% confidence level. The numbers in bracket in column 1 item 1 represent the numbers of our Nigerian listed firm in manufacturing sector, that have more than 30% of foreign ownership and aged above 25 years

Our study examines the relationship between business risk and capital structure of Nigerian listed firms using annual data over the period 2000-2006. The last seven years were chosen in order to avoid the uncertainties associated with the Nigerian elections in 1999 and in 2007. The list of sampled companies use in this research and the definitions of all the variables used in this paper are given in Appendix Table A1 and A2 respectively. We use the natural logarithm of debt ratio and the volatility of the ratio of total earnings before interest and tax (EBIT) relative to total assets. The natural log as opposed to untransformed ratios allow us overcome the problem of skewed distribution as a result of the inclusion of companies with varying proportions in their sales variability and asset structure. Harris, _et al._ (2005) has suggested that some

skewed data can be transformed to normally distributed data and then analysed using more accurate parametric testing.

It should be understood that a dynamic heterogeneous model such as ours require selecting an appropriate lag length for the individual company equation. There are two methods of information criteria here; (i) Akaike Information Criterion (AIC), and (ii) Schwarz Criterion (SC). The AIC is often used in model selection for the non-nested alternative, while the Schwarz Criterion is an alternative to the AIC that imposes a larger penalty for additional coefficients. Again, following the empirical approach in dynamic panel study by Gaud *et al.* (2005) and Nwachukwu (2009) among several other studies, we settled for specifications with four-year lags for each explanatory variable that is $m = n = 4$. This is represented in equation 1 and 2 below. We first experimented with longer time lags of five and six years but our data proved too short to accommodate such lag periods. We begin with a max lag of 6 and slowly eliminated the ones that are insignificant using the Schwarz Bayesian criterion. Subsequently, the Granger causality test in equations 1 and 2 were estimated using four annual lags of the percentage changes in the total debt ratio and the standard deviation of total earnings relative to total assets (business risk). The two types of bivariate regression models estimated for our tests of the existence and direction of causality between the change in natural log of leverage ratio ($DLLEV$) on the one hand and earnings volatility as our measure of business risk ($STDEV$) on the other hand are represented in equations 1 and 2 below.

$$DLLEV_{i,t} = \eta_0 + \sum_{j=1}^{m} \alpha_j^{DLLEV} (DLLEV_{i,t-j}) + \sum_{j=1}^{n} \beta_j^{STDEV} (STDEV_{i,t-j}) + \Delta\varepsilon_{i,t}^{DLLEV} \qquad (1)$$

$$STDEV_{i,t} = \eta_0 + \sum_{j=1}^{m} \alpha_j^{STDEV} (STDEV_{i,t-j}) + \sum_{j=1}^{n} \beta_j^{DLLEV} (DLLEV_{i,t-j}) + \Delta\varepsilon_{i,t}^{STDEV} \qquad (2)$$

The regression analysis deploys a total of 658 observations generated from the panel data of our ninety-four companies over the period $2000 - 2006$. Equations 1 and 2 above are estimated using three instrumental variables techniques of GMM-IV, SURE and 3SLS. For instance, Generalized-method-of-moment (GMM-IV) Arellano and Bond (1991) and Arellano and Bover (1995), is often employed to test for the presence of endogeneity. As the GMM method assumes that the independent variables involved are unrelated to the equation's residuals, the GMM-IV technique therefore makes no assumptions about how these residuals are formed. It thus assumes that the variables representing initial conditions are predetermined. That is to say, these regressors measured at the beginning of time period $t-1$ are uncorrelated with the error term

ε_{it} (at level) at time t and beyond. Likewise, the current values of all the explanatory variables (χ_{it}) in the original equation 1 are presumed to be weakly exogenous. This means that their values at a given time period t are uncorrelated with random shock ε_{it} in the future time period $t+1$ and beyond. Furthermore, it is assumed that the difference error-term $\varepsilon_{it} - \varepsilon_{it-1}$ for each cross-sectional unit in the pooled regression equation 1 is serially uncorrelated over time at least up to the first lag and that there is no group-wise heterogeneity and cross-group autocorrelation.

Similar to the GMM-IV is the three stages least square (3SLS) estimator. This econometric technique is used in the analysis of cross-section residual autocorrelation and parameter heterogeneity. The (3SLS) method allows the error-term of each cross-section unit in the panel data regression model to be freely correlated across and within regression equations. Other instrumental variable estimation techniques include Seemingly Unrelated Regression Estimator (SURE) developed by Zellner, (1962). This technique can be used to analyse a system of multiple equations with cross-equation parameters and correlated error terms, given that it takes into account the fact that subtle interaction may be present between individual statistical relationships when each of these relationships is being used to model some aspect of behaviour. For instance, a set of equations such as 1 and 2 may be related not because they interact, but because their

error terms are related. Greene (2003) argued that the 3SLS model may provide a spurious regression result when short term period data are used. He noted that the impact of cross-section correlation might take a long time to feed into available dataset. Indeed, Brooks (2002) mentioned that in a panel data analysis, the 2SLS and 3SLS estimation techniques require that the time series observations (T) for each cross-section unit are at least as large as the number of entities (N). This implies that the 3SLS estimator may not provide reliable coefficient estimates for an analysis based on a small time period relative to cross section units. On the other hand, the Seemingly Unrelated Regression Estimator (SURE) can recognise several individual relationships that are linked by the fact that their disturbances are correlated. For example, in the SURE model, the correlation among equation 1 and 2 disturbances could come from several sources including correlated shocks to company earnings. The SURE model can also be used to estimate equations that set out to explain some phenomena in different companies or sectors, given that any event may be subject to spill-over from economy-wide or world-wide shocks. These may include among others, a country's fiscal policy change as a result of economic downturn.

RESULTS

The regression analysis deploys a total of 658 observations generated from the panel data of our ninety-four companies over the period 2000 – 2006. The use of annual observation means that we can consider separately short and long-run Granger causality effects (Elbadawi and Mwega, 1998; Attanasio *et al.* 2000). Consequently, equations 1 and 2 above are estimated using the three instrumental variables techniques of GMM-IV, SURE and 3SLS mentioned above and the results are presented in Table 2 below. The result of our Granger causality test in Table 2 indicates that it is sensitive to the methods of analysis, thus implying that it not consistent (robust) across the four models. For instance the GMM that correct for endogeneity problem among the explanatory variable suggest no causality. The 3SLS which allows the error-term of each cross-section unit in the panel data regression model to be freely correlated across and within regression equations also imply that there is no causality running from both directions**.**

  However, the Seemingly Unrelated regression estimator (SURE) developed by Zellner, (1962) and which correct for error term within and across cross section suggest there is a bi-directional relation particularly from earnings volatility to leverage as suggested by the implied long-run Granger causality in column 3 of Table 2 above. Therefore, discussions of our granger causality analysis would be based on the significance of the variables tested in particular, the SURE model reported in Columns 3 and 4 of Table 2 above. As is customary in the literature on Granger causality tests, we report the estimated group constant, the coefficients on the changes in the lagged values of total liability ratio and earnings volatility (business risk) variables in equations 1 and 2 respectively. In addition, we present the result of our calculation for the sum of the lag coefficients β_j^{DLLEV} and β_j^{STDEV} from the relevant equations, along with their probability values ($p-values$). We focus on the sum of the lagged coefficients which captures the total effect of the variables of interest as the appropriate statistic for testing causal relationships between our variables of interest, rather than the individual lag coefficients.

Table 2: Granger Causality Analysis between Capital Structure and Business Risk in Nigeria during the Period 2000-2006

Number of Observations 609						
Methods	GMM-IV		SURE		3SLS	
	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Dependent (y) variable	DLLev	Stdev	DLLev	Stdev	DLLev	Stdev
Independent (x) variables						
Constant	-0.238	1.102	0.178	0.070**	0.556	1.220
	[-0.102]	[0.906]	[1.269]	[4.961]	[0.281]	[0.876]
DLLev (-1)	-0.138	-0.294	-0.109**	-0.006	-0.476	-0.318
	[-0.194]	[-0.805]	[-1.728]	[-0.939]	[-0.789]	[-0.752]
DLLev (-2)	-0.252	0.087	-0.139**	0.008	-0.228	0.093
	[-1.315]	[0.663]	[-2.161]	[1.288]	[-1.116]	[0.644]
DLLev (-3)	-0.173	-0.029	-0.049	-0.005	-0.190	-0.034
	[-1.304]	[-0.354]	[-0.819]	[-0.879]	[-1.382]	[-0.349]
DLLev (-4)	-0.700	-0.476	0.136**	0.002	-1.026	-0.525
	[-0.552]	[-0.738]	[1.913]	[0.304]	[-0.886]	[-0.646]
Stdev (-1)	0.011	2.243	0.464	0.311**	2.719	2.330
	[0.002]	[0.940]	[0.752]	[5.033]	[0.682]	[0.832]
Stdev (-2)	-1.030	-0.858	-0.438	0.200**	-1.082	-0.773
	[-0.443]	[-0.615]	[-0.600]	[2.727]	[-0.487]	[-0.496]
Stdev (-3)	0.383	3.647	-0.173	0.124	5.544	3.836
	[0.0393]	[0.718]	[-0.214]	[1.531]	[0.661]	[0.651]
Stdev (-4)	3.589	-11.004	-0.178	-0.087	-9.069	-12.110
	[0.134]	[-0.821]	[-0.231]	[-1.127]	[-0.403]	[-0.767]
Sum Beta coefficients[5]	2.953	-5.971	-0.326	-0.001	-1.887	-6.717
Wald test 1: χ^2 [5];(probability value)	[0.840]	[0.444]	[0.483]	[0.961]	[0.880]	[0.443]
Sum of alpha coefficients[5]	-1.264	-0.711	-0.162	0.548**	1.920	-0.785
Wald test 2: χ^2 [5];(probability value)	[0.495]	[0.429]	[0.260]	[0.001]	[0.244]	[0.498]
Implied long-run Granger-causality coefficients	1.304	-3.489	-0.280	-0.002	-0.646	-3.764
Wald test 3: χ^2 [7]];(probability value)	[0.918]	[0.435]	[0.010]	[0.001]	[0.784]	[0.443]
Null no serial correlation up to lag order one	[0.658]	[0.359]	[0.935]	[0.349]	[0.295]	[0.300]
Ljung-Box Q-statistics χ^2 [1];(probability value)						
Null no serial correlation up to lag order two						
Ljung-Box Q-statistics χ^2 [1];(probability value)	[0.903]	[0.522]	[0.993]	[0.619]	[0.554]	[0.470]
Sargan Test	[0.97]	[0.999]				

Notes: The sum of beta coefficients is the sum of the coefficients on the lagged explanatory (x) variable in the respective equations. The sum of the alpha coefficients is the sum of coefficients on the lagged dependent (y) variables in the equation concerned The probability value of the sum of beta and alpha coefficients are associated with a Chi-square statistics obtained from a Wald test of the null hypothesis that such additions of the estimated causality are equal to zero. The long-run Granger-causality coefficient is calculated as the sum of beta coefficients divided by one minus the sum of alpha coefficients. The probability value is for a Chi-square statistics following results of a Wald test of the hypothesis that all the beta coefficients are jointly equal to zero. The probability values of the Ljung-Box statistics are obtained by applying view-residual-test function in the EViews version 6.0 to the residual of each specification 6 and 7. The results show that the null hypothesis of no first and second-order serial correlation in the difference residuals cannot be rejected at the five percent confidence. The Sargan test for the GMM model in column 1 and 2 is not significant at the 5% confidence level and hence accepts the validity of our instruments. The table above shows the regression estimates of

equation. $DLLEV_{i,t} = \eta_0 + \sum_{j=1}^{m} \alpha_j^{DLLEV}(DLLEV_{i,t-j}) + \sum_{j=1}^{n} \beta_j^{STDEV}(STDEV_{i,t-j}) + \Delta\varepsilon_{i,t}^{DLLEV}$ *and equation* $STDEV_{i,t} = \eta_0 + \sum_{j=1}^{m} \alpha_j^{STDEV}(STDEV_{i,t-j}) + \sum_{j=1}^{n} \beta_j^{DLLEV}(DLLEV_{i,t-j}) + \Delta\varepsilon_{i,t}^{STDEV}$ *Column 1- 6 shows the results for the full sample of 94 listed Nigerian firms The figures in brackets [...] are the t-statistics. ***, **, *indicate significance at 1, 5 and 10 per cent levels respectively*

The probability values correspond to a Chi- squared statistic generated by Wald's coefficient restriction test of the null hypothesis that such additions are equal to zero. It is assumed that if there is a significant causal

effect running from the earnings volatility (*business risk*) variable to the total leverage ratio annual changes, in the short-run, then the hypothesis that the sum of lagged coefficients β_j^{STDEV} in Equation 1 (see also Column 1, 3 and 5 of Table 2) is equal to zero will be rejected at the five-per cent confidence level. Also, if the direction of causality runs from the total debt ratio to the measure of business risk in the short-run, then the null hypothesis that the sum of lagged coefficients β_j^{DLLEV} in Equation 2 (Column 2, 4 and 6 of Table 2) is equal to zero will also be rejected at the conventional five per cent level.

We also report in Table 2 the long-run effects associated with our estimated lagged beta β_j coefficients, together with the probability values ($\rho - values$) of the Wald test of the null hypothesis that all the lagged beta β_j coefficients in the equations under consideration are jointly equal to zero. Under this null hypothesis, the Wald test statistic has an asymptotic Chi-square distribution with degrees of freedom equal to the number of restrictions tested. For example, in our analysis of the significance of long-term effects of the estimated lagged beta coefficients in Table 2, the applied specification that $\beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$ implies four restrictions. The estimated long-run effects were computed as the sum of the lagged β_j (*beta*) coefficients in the relevant equation divided by one minus the sum of corresponding lagged α_j (*alpha*) coefficients.

The result obtained from the Wald test long-run multiplier effect in Column 3 suggests that the long run effect of the business risk measure is significant at the 1 per cent confidence level. This is unexpected, given that the individual estimates show that the estimated parameters on the earnings volatility (business risk) are all equal to zero. Possible explanations and a solution to this spurious causal long-run relationship from business risk to capital structure were offered by Berger (1995). They included the fact that the individual lag coefficients may be a reflection of (i) the non-uniform effect of earnings risk on capital structure, (ii) collinearity among the earnings risk lags or (iii) that correlations with lags more than four periods past if one assumes that volatility of projected earnings are highly serially correlated. However, as noted by Berger (1995), these problems are corrected in part by focusing our discussion on the sum of the lagged beta coefficients. Consequently, our discussion on causal relationship in this paper will be restricted to the short-term relationships of our measure of earnings volatility (business risk) and the leverage ratio of firms under the assumption that our group of listed companies are operating under a normal market outlook. Before proceeding to discuss the major findings of our analysis, we need to point out that the null hypothesis of the absence of first and second-order serial correlation in the residuals cannot be rejected at the five per cent confidence level. The probability values of the Ljung-Box Q statistics in Columns 1 and 6 are considerably more than 0.05. Thus, the major conclusions arising from the estimated sum of lag β_j coefficients and the resultant short-run effects in Columns 3 and 4 of Table 2 above may be summarized in the following section.

First, starting with the ratio of total debt to total asset annual changes in Column 3 of Table 2 for the SURE model, we found that there is no significant causal correlation running from the measure of earnings volatility (*business risk*) to the total leverage ratio for both the short and long term at the five per cent confidence level. The sum of the beta β_j coefficients on the individual lagged earnings volatility variables in Equation 1 i.e. [$\sum_{j=1}^{n=4} \beta_j^{STDEV}$] is -0.33 with a probability value of 0.48. However, the sum of the coefficients on the lagged measures of earnings volatility is negative and insignificantly different from zero. On the other hand, the coefficients of leverage lagged one, two and four periods in Column 3 for the SURE model, is statistically significant at the 5% confidence level. Consequently, the statically significant value for one and two year lagged periods suggests that the income variability (business risk) of the sampled

companies may lead to a decrease in the gearing ratio of firms. This is indeed the inference of the negative value of -0.33 resulting from the summation of the coefficients of the lagged variable of earnings volatility. The outcome of this relationship may not be too surprising, given that companies' borrowing decisions may be strongly determined by the projected level and regularity of their earnings, given that debt obligations include a fixed contractual payment (debt) which a company has to honour irrespective of its future income. Therefore, the more volatile a company's earnings are the greater are the chances of failing to meet the repayment of debt and interest. This will increase the probability of the firm becoming financially distressed and may in the end led to bankruptcy.

On the other hand, the estimated alpha α_j coefficients for the SURE model in Column 4 show statistically significant value. This seems to suggest that current borrowing decisions of Nigerian companies are determined more by the magnitude of the previous year's debt ratios than by earnings volatility. For example, the alpha coefficient of leverage lagged one year indicates that a percentage increase in last year's gearing ratio was related to an 11 per cent decrease in the current debt to total asset ratio. Similarly, a rise in total debt ratio two years earlier in 2004 caused our average listed firm to cut its borrowing requirements in 2006 by roughly 14 per cent of total assets. In fact the alpha coefficient of the two year lagged leverage variable is statistically significant at the five per cent confidence level. The trend continues in the third preceding year though the negative coefficient on the lagged total debt variable which is very small at circa 0.1 and is not statistically significant.

The negative correlation between past and current total leverage annual changes is probably because the anticipated increase in the total liabilities as a proportion of total assets raises the expected cost of financial distress including bankruptcy. The inverse relationship suggests that our group of listed companies may have "overshot" its optimal capital ratios in the early 2000s, partly because of (i) expansion in bank liquidity following a rise in oil prices, (ii) the changes in regulatory environment including federal bank laws and (iii) an improvement in local market profit opportunities in the wake of a boom in the Nigerian economy. It would seem that the cumulative effect of these country and firm-specific factors was to lower interest rates on loans by comparison with the costs of new equity issues. Thus, firms in need of finance between 2002 and 2006 sold bonds and/or borrowed from the banks, regardless of their target capital structure. To reduce the risk of financial distress and the associated deadweight liquidation costs, our listed firms reacted by cutting the total leverage ratio over the subsequent four years ending in 2006.

Consequently, the overall negative impact of past leverage ratio changes on current borrowing decisions of a typical Nigerian listed firm was shown to be insignificantly different from zero, as indicated by a probability value of the sum of the alpha coefficients of 0.50 per cent. This evidence is consistent with the standard trade-off hypothesis, which postulates a negative past debt to current debt relationship when the past leverage ratio is above its optimal level and a positive relationship when the previous total debt ratio is below its optimum. Under this hypothesis, the past debt-current debt ratio of our group of listed companies may be expected to vary over time with changes in company financial risk, regulatory environment and outlook for future profit opportunities in the Nigerian economy.

We note however that the estimated insignificant negative coefficient is due to the summing up of the positive alpha coefficient on the fourth year lag, which partly neutralized the negative sign on the third year lagged variable. All the same, the loss of statistical significance of the observed overall negative correlation between past and current debt ratios suggests that the coefficients of our simple two-variable regression model in Table 2 above are biased downward perhaps by the exclusion of other determinants of capital structure. These control variables would be considered in our future search for spurious associations between past and current debt ratio changes in a more complex multivariate regression model. *Secondly* the results of the reverse causal relationship from the total leverage ratio to business risk for the SURE model are reported in Column 4 of Table 2. The sum of the estimated beta coefficients of the four year

lagged variable $\sum_{j=1}^{n=4} \beta_j^{DLLEV}$ in Equation 2 is minus -0.001 and is statistically insignificantly different from zero. This suggests that a higher debt to assets ratio does not Granger cause or help predict future year-on-year changes in earnings volatility. An empirical implication of this insignificant causal relationship is that the business risk arising from the uncertainty in the forecasts of future cash flows is broadly similar for the firms in our sample of study, including those that raised their total debt ratio over the group sample mean. This correspondence in earnings risk would be manifested primarily in the form of comparable interest expenses on uninsured debt, as the rates on this debt would incorporate a similar premium for the expected bankruptcy costs. This means that the rates paid on uninsured debt by our sample of listed Nigerian firms over the period 2000 to 2006 were broadly similar, irrespective of their proportions of total liabilities in total assets. We should recognise, however, that the predictions of our simple bivariate relationship between capital and earnings volatility may have been held down by the "spurious" effects of the omitted control variables.

Another interesting finding from our results of the SURE model in Column 4 of Table 2 is that the estimated coefficient for earnings volatility lagged 1 and 2 years indicates a significant positive relationship with the current year income variability of circa 0.31 and 0.20 respectively. This implies that an increase of 1 unit in the last two years' earnings volatility would amplify the present income variability by 0.31 units, declining to 0.20 units in the subsequent year. This suggests that, other things being equal, it takes approximately two years for a typical Nigerian publicly-quoted firm to forecast with reasonable accuracy the size of its future after-tax operating profit with related investment requirements.

This outcome is probably a reflection of the time it takes an average Nigerian firm to work out the distortions arising from a number of factors influencing its expected cash flows, investment budget and the strategy for dealing with them. These factors may include changes in government policy, market demand conditions, foreign exchange risk exposure and/or the poor quality of infrastructure, such as the shortage of power supply. For instance, buying a generator set as an alternative source of energy supply will involve projections of the level and variability of the demand for the firm's products, costs of other production inputs, including petrol or diesel, ability to raise output prices to reflect higher input costs, installation costs and the general maintenance of the machine. These projections will have to be fed into the sales revenue and cost of goods sold before the calculations for the level of operating profits and its variability can be reported.

Thus the overall result of our Granger-causality analysis shows that the two variables are independent of each other in a statistical sense. However, this result does not necessarily prove that capital structure and earnings variability are autonomous in economic terms. It is also being recognised that the predictions of such a simple two-variable empirical analysis may be biased because of the effect of omitted firm-specific variables that may impact on the capital structure choices of companies. The result also suggests that analysis of capital structure and business risk in Nigeria could be estimated in a dynamic panel framework. This is given the statistical significance of the previous debt ratios lag 1, 2 and 4 in the SURE model in Column 2 and 3 of Table 2 above.

CONCLUDING COMMENTS

The aim of this paper is to use causality test as described by Granger (1969) to examine the directional relationship between business risk and capital structure of Nigerian listed firms. We limit our analysis of the direction of causality by assuming that the ratio of total liabilities to total assets (LEV) and earnings risk (STDEV). We form a simple two-variable model without the necessity of controlling for the effect of the other factors influencing the capital structure decisions of Nigerian companies. We use low frequency data of annual financial information of total liabilities, total assets, and earnings before interest and tax

between 2000 and 2006 of Nigerian listed companies obtained directly from the Nigerian Stock Exchange. This makes a total of 658 observations across 94 listed firms. We estimated our model using the three instrumental variables techniques of GMM-IV, SURE and 3SLS.We utilized the three techniques because of their efficiency in estimating panel data equations. For instance, Generalized-method-of-moment (GMM-IV) is employed to test for the presence of endogeneity because the method assumes that the independent variables involved are unrelated to the equation's residuals. On the other hand, we use the three stages least square (3SLS) estimator because it allows the error-term of each cross-section unit in our annual panel regression model to be freely correlated across and within regression equations. Similarly, the Seemingly Unrelated Regression Estimator (SURE) takes into account the fact that subtle interaction may be present between individual statistical relationships when each of these relationships is being used to model some aspect of behaviour. Consequently our discussions of granger causality analysis is built on the significance of the variables tested in particular, the SURE model

We found among others that; *First,* the long run effect of the business risk measure is significant at the 1 per cent confidence level. *Second* that an increase of 1 unit in the last two years' earnings volatility would amplify the present income variability by 0.31 units and may decline to 0.20 units in the subsequent year. This suggests that, other things being equal, it takes approximately two years for a typical Nigerian publicly-quoted firm to forecast with reasonable accuracy the size of its future after-tax operating profit with related investment requirements. Similarly, we show that the overall negative impact of past leverage ratio changes on current borrowing decisions of a typical Nigerian listed firm was shown to be insignificantly different from zero, as indicated by a probability value of the sum of the alpha coefficients of 0.50 per cent. This evidence is consistent with the standard trade-off hypothesis, which postulates a negative past debt to current debt relationship when the past leverage ratio is above its optimal level and a positive relationship when the previous total debt ratio is below its optimum

Thus the overall result of our Granger-causality analysis shows that increase in business risk or total liabilities as a proportion of total liabilities do not Granger cause higher values for both variables in the short-run i.e. the two variables are independent of each other in a statistical sense. However, this result does not necessarily prove that capital structure and earnings variability are autonomous in economic terms. It is also being recognised that the predictions of such a simple two-variable empirical analysis may be biased because of the effect of omitted firm-specific variables that may impact on the capital structure choices of companies. The result also suggests that an analysis of the relationship between capital structure and business risk in Nigeria could be estimated in a dynamic panel framework. Nonetheless, we recognised that the causal predictions of such a simple two-variable empirical analysis may be biased because of the effect of omitted firm-specific variables that may impact on the capital structure choices of companies. These control variables would be considered in our future search for spurious associations between past and current debt ratio changes in a more complex multivariate regression model.

Appendix 1: Sample of Nigeria Listed Companies

Item	Company Name	Sector
1	ellah lakes	agriculture
2	presco plc	agriculture
3	dunlop nigeria plc	automobile & tyre
4	incar nigeria plc	automobile & tyre
5	r.t briscoe motors	automobile & tyre
6	champion breweries plc	breweries
7	guiness breweries plc	breweries
8	jos int breweries	breweries
9	nigerian breweries	breweries
10	ashaka cement plc	building materials
11	benue cement company	building materials
12	cement company of nothern nig	building materials
13	west african portland cement	building materials
14	berger paint plc	chemical & paint
15	chemical and allied product plc	chemical & paint

16	d.n. meyer plc	chemical & paint
17	nigerian-german chemical plc	chemical & paint
18	trans- nationwide express plc	commcial services
19	triple gee company	computer service
20	a.g leventis (nigeria) plc	conglomerates
21	cfao (nigeria) plc	conglomerates
22	chellarams (nigeria) plc	conglomerates
23	john holt plc	conglomerates
24	pz industries plc	conglomerates
25	uacn plc	conglomerates
26	unilever nigeria plc	conglomerates
27	utc nigeria plc	conglomerates
28	cappa & d'alberto plc	construction
29	costain (west africa) plc	construction
30	julius berger nigeria plc	construction
31	roads nigeria plc	construction
32	interlinked technologies	engineering tech
33	nigerian wire and cable com	engineering tech
34	seven-up bottling company	food, beverages & tobacco
35	cadbury nigeria plc	food, beverages & tobacco
36	flour mill nigeria plc	food, beverages & tobacco
37	northern nigeria flour mills plc	food, beverages & tobacco
38	nestle nigeria plc	food, beverages & tobacco
39	nigeria bottling company plc	food, beverages & tobacco
40	ecorp plc	health care
41	evans medical plc	health care
42	glaxo smithkline consumer nig plc	health care
43	may and baker nigeria plc	health care
44	morrison industries plc	health care
45	nemeth international pharma plc	health care
46	pharmadeco plc	health care
47	aluminium extrusion ind plc	ind & domestic products
48	b.o.c gases nigeria plc	ind & domestic products
49	first aluminium nigeria plc	ind & domestic products
50	nigeria enamelware plc	ind & domestic products
51	vitafoam nigeria plc	ind & domestic products
52	vono product plc	ind & domestic products
53	b.h.n plc	machinary (marketing)
54	jaupaul oil & maritime sevices	maritime services
55	avon crowncaps & containers (nig)	packaging
56	beta glass plc	packaging
57	nampak nigeria plc	packaging
58	poly products nigeria plc	packaging
59	studio press (nigeria) plc	packaging
60	african petroleum plc	petroleum marketing
61	conoil nigeria plc	petroleum marketing
62	eternal oil & gas company plc	petroleum marketing
63	mobil oil nigeria plc	petroleum marketing
64	oando nigeria plc	petroleum marketing
65	texaco nigeria plc	petroleum marketing
66	total nigeria plc	petroleum marketing
67	academy press limited	printing and publishing
68	longman nigeria plc	printing and publishing
69	university press plc	printing and publishing
70	uacn property dev company	real estate
71	afprint nigeria plc	textiles
72	united nigeria textile plc	textiles
73	adswitch plc	second-tier securities co
74	cutix plc	second-tier securities co
75	juli plc	second-tier securities co
76	union ventures and petroleum	second-tier securities co
77	livestock feed	agriculture
78	okomu oil palm company	agriculture
79	dunlop nigeria	automobile & tyre
80	international breweries	breweries
81	nigerian rope	building materials
82	nigerian wire industries	building materials
83	african paint	chemical &paint
84	premier paints	chemical &paint
85	chellarams	commcial services
86	thomas wyatt	computer & office equip
87	scoa nigeria	conglomerates
88	g. cappa	construction
89	onwuka hi-tek industries	engineering technology
90	national salt company nigeria	food, beverages & tobacco
91	west african glass industry	packaging
92	afro oil nigeria	petroleum
93	capital oil	second-tier securities co
94	smart products nigeria	second-tier securities co

Appendix Table 2: the Definitions of Variables

LLEV	The total leverage ratio. this is calculated as the ratio of total liabilities to total assets
$DLLEV_{t-1}$	percentage change in the natural logarithm of the total leverage ratio lagged one year, t-1
$DLLEV_{t-2}$	percentage change in the natural logarithm of the total leverage ratio lagged two years, t-2
$DLLEV_{t-3}$	percentage change in the natural logarithm of the total leverage ratio lagged three years, t-3
$DLLEV_{t-4}$	percentage change in the natural logarithm of the total leverage ratio lagged four years, t-4
SDEV $SDEV_{t-1}$	The standard deviation of the ratio of earnings before depreciation, interest and tax to total assets. An increase in this variable denotes a worsening in earning volatility (i..e, business risk)
$SDEV_{t-2}$ $SDEV_{t-3}$	the standard deviation of the ratio of earnings before depreciation, interest and tax to total assets lagged one year, t-1
$SDEV_{t-4}$	the standard deviation of the ratio of earnings before depreciation, interest and tax to total assets lagged two years, t-2
	the standard deviation of the ratio of earnings before depreciation, interest and tax to total assets lagged three years, t-3
	the standard deviation of the ratio of earnings before depreciation, interest and tax to total assets lagged four years, t-4

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BIOGRAPHY

Dauda Mohammed teaches Finance and Statistics at the Department of Business Administration and Entrepreneurship Bayero University Kano Nigeria. He also coordinates the MBA programmed of the

University. He obtained a BSc in Business Administration and a MBA from Bayero University Kano Nigeria. He also had an MSc in Corporate Finance and a PhD in Finance from The University of Salford, Greater Manchester UK. Dauda is a Certified Financial Analyst and also a consultant in Financial Management, statistics and Econometric data handling. He has published articles in Accounting and Taxation journal of IBFR and African Business Journal. Dauda can be contacted at the following address: Department of Business Administration and Entrepreneurship, Bayero University, PMB 3011, Kano Nigeria. E-mail: *daudaknt@yahoo.co.uk*

THE INFLUENCE OF CORPORATION GOVERNANCE STRUCTURE ON INTERNAL CONTROL AUDIT REPORT LAG: EVIDENCE FROM CHINA

Yuedong Li, Southwestern University of Finance & Economics
Dong Zhang, Southwestern University of Finance & Economics
Xingyu Wang, Southwestern University of Finance & Economics

ABSTRACT

This paper examines whether corporation governance structure has influence on internal audit report lag (IARL). The study studies a sample of 1244 observations from Year 2008 to Year 2011, obtained from Shenzhen Stock Exchange in China. Regression analysis indicates that firms, with fewer directors but more supervisors and members in audit committees as well as less frequent supervisory board meeting, are more likely to reduce IARL. In contrast, this study also demonstrates factors such as the independence of board of supervisors and board of directors, the meeting frequency of board of directors and duality of CEO, hardly exert influence on the IARL. The contribution of this paper is mainly to empirically analyze the influence of corporation governance structure on IARL to improve the timeliness of internal control information disclosure.

JEL: M42

KEY WORDS: Internal Control Audit Report Lag (IARL), Corporation Governance Structure, Influence

INTRODUCTION

Internal control is a key part of corporation governance and the management is responsible for its design and implementation. Auditor issues internal control audit report, which provides judgments towards the effectiveness of internal control. The timely issuance of corporate internal control report is subjected to the completeness of the audit. Prior studies have provided empirical evidence, reporting that the timeliness of audit is the most influential factor in the timely report of financial statements (Owusu-Ansah, 2000, Leventis et al., 2005). Bamber et al. (1993) find that over 70 percent of companies will not announce earnings until the publication of annual audit report, which demonstrates the significance of a timely audit, earnings information and the role of the annual audit in determining the timing of information releasing. Besides, the audit report lag is an essential signal for newly emerging and developed capital market where the audit report disclosed in annual reports is the only reliable source of information available to investors. Internal control audit delay directly affects the timeliness of accounting information, which, in turn, frustrates investors' confidence in capital market. The disclosure of internal control audit makes it possible for the public investors to access the non-financial information. Thus, the timeliness of internal control audit report is of significant help for investors to make decisions based on financial and non-financial information, which, to some extent, strengthens investors' confidence in capital market. On the other hand, the timeliness of internal control audit report will reduce the rate of managers' performing adverse selection and moral hazard resulted from information asymmetry, thus protecting the benefits of investors. Hakansson (1977) explains that the timeliness of public disclosures (e.g. audit opinions and earnings information) is of importance because delays compromise the ideal of equal access to information among investors. Givoly & Palmon (1982) also find that the issuance of audit report is positively associated with the timely disclosure of earnings information. Moreover, Knechel & Payne (2001) reveal that the unexpected lag of audit report is possibly relevant to lower quality of information.

Ministry of Finance of the People's Republic of China and China Securities Regulatory Commission jointly issued Notification about 2012 Main Board Listed Companies Implementation of Internal Control Standards, and this notification requires that: (a) central and local state-owned listed companies should implement internal control standards and disclose internal control evaluation report as well as internal control audit report related to financial statements from the beginning of Year 2012; (b) non-state-owned listed companies, with total market value above 5 billion at the end of 31 December 2011 and average profit above 3 billion from Year 2009 to Year 2011, should disclose audited financial statements together with internal control evaluation report and internal control audit report related to financial statements at the same time from the beginning of Year 2013; and (c) other companies, not including the above-mentioned two kinds of companies, should disclose audited financial statements with internal control evaluation report and internal control audit report related to financial statements from the beginning of Year 2014. That is to say, all the listed companies are required to disclose audited financial statements with internal control evaluation report and internal control audit report related to financial statements at the same time from the beginning of Year 2014.   The management issues internal control evaluation report and financial statements together, and the external auditor issues the internal control audit report and financial statement audit report at the same time.

After the Enron and WorldCom accounting scandals, USA Congress passed the landmark Sarbanes-Oxley Act (SOX) in 2002, and Section 404 is one of the most significant provisions.   SOX Section 404 requires that the external auditor should assess the internal control over financial reporting and publicly disclose the internal control audit report in SEC 10-K filings.   SOX Section 409 authorizes the SEC to compel reporting firms rapidly to disclose to the public the information regarding to any material changes in their financial conditions or operations.   SEC has phased-in accelerated deadlines for filing Form 10-Ks (from 90 days to 75 days, and then to 60 days) over a three-year period starting from Year 2003 (SEC 2002).   In contrast, in China, Based on Provision 26 in Chinese Company Internal Control Evaluation Guide (2010), internal control audit report and internal control evaluation report are required to be issued within four months (about 120 days) after the fiscal year-end.   It is evident that required IARL in USA is much shorter than that in China.   Despite the inevitable gap between the financial year-end and the publication of the audited financial statements, minimizing that gap would, with no doubt, enhance market efficiency.   Thus, it is necessary for regulators in China to locate a reasonable IARL, and this paper might contribute.

Prior studies showed two views about relation between corporation governance or internal control and external auditor work.   One is complementary view, which means that the relationship between external auditing and corporate governance mechanisms is complementary.   Companies with good governance are willing to demand more auditing to keep better governance to protect themselves from damage to reputation or personal liability arising from financial report misstatements (e.g., Fama, 1980, Eichenseher & Shields, 1985, Carcello et al., 2002).   Therefore, the companies with better governance are expected to require more auditing work and the IARLs might be longer.   Mohamad-Nor et al. (2010) find that the size of audit committee and board of directors, the diligence of committee members, as well as the ratio of independent directors have a close relationship with IARLs.   The other view is substitution view, which means that the companies with good governance are expected to reduce the auditing work (e.g., Simunic, 1980, 1984, Wallace, 1984), so they will reduce the IARLs.   Our study also demonstrates whether these two views are suitable for the situation in China.

Our study gleans sample of 1244 observations from Shenzhen Stock Exchange from Year 2008 to Year 2011.   Consistent with prior literature (e.g. Ettredge et al., 2000, Knechel & Payne, 2001, Leventis et al., 2005, Ettredge et al., 2006), IARL is measured as the length of period from a company's fiscal year-end to the date the auditors sign the internal control audit report.   Based on Provision 2 and 10 in Chinese Company Internal Control Evaluation Guide (2010), the board of directors, the board of supervisors, and audit committees are responsible for designing and monitoring internal control.   Therefore, we use the characteristics of the board of directors, the board of supervisors, and the audit committees to show the situation of corporation governance.   Regression result illustrates that there is a positive relation between IARLs and the size of board of directors, indicating that companies with a bigger board of directors are

associated with a longer IARLs. The results also show that companies, with bigger size of audit committee and board of supervisors, have shorter audit delays, which implies that audit committee and board of supervisors play an active role in the timely disclosure of internal control audit report.

Contributions of this article cover four aspects. Firstly, we conduct an initial exploration of the factors leading to IARLs of companies listed in China Stock Exchange, an emerging market. Previous studies of audit report lags have been conducted mainly in developed capital markets (Givoly & Palmon, 1982, Chambers & Penman, 1984, Ashton et al., 1987, Atiase et al., 1988, Bamber et al., 1993, Kinney & McDaniel, 1993, Schwartz & Soo, 1996, Henderson & Kaplan, 2000, Knechel & Payne, 2001, Newton &Ashton, 1989, Ashton et al., 1989, Davies & Whittred, 1980, Courtis, 1976, Carslaw & Kaplan, 1991, Soltani,2002, Ettredge et al., 2006, Lee et al., 2008), and only a few studies are about audit report lag in exploring emerging or newly developed capital markets (Ng & Tai, 1994, Jaggi & Tsui, 1999, Owusu-Ansah, 2000, Leventis & Weetman, 2004, Leventis et al., 2005,

Owusu-Ansah & Leventis, 2006, Afify, 2009). Secondly, most of the current studies focus on financial statements audit report lag (ARL), with few studies on IARL. Ettredge et al. (2006) are the representative of minority analyzing the impact of internal control quality on audit delay following the implementation of the Sarbanes-Oxley Act (2002) (SOX). Therefore, this article will contribute to the research towards the timeliness of internal control audit report. Thirdly, Leventis et al. (2005) mention that regulators need to gain a good understanding of the determinants of audit delays so that they can implement rules to shorten audit report lag correspondingly. This paper investigates whether and how the characteristics of corporation would affect internal control audit delay in China, so as to provide evidence for regulator to better understand the determinants of audit delay and for decision-makers to learn about how to improve accounting information quality utilized. Lastly, since IARL is an observable proxy for internal control audit efficiency (Newton & Ashton, 1989), a better understanding of its determinants may provide insights into ways to enhance audit efficiency. The remainder of the paper is organized as follows. Section 2 summarizes the literature and sets forth our predictions about IARL and corporation governance. Section 3 provides information about the research design of the study, sample selection and data sourcing. Section 4 presents descriptive statistics, correlation matrix and regression results. Section 5 puts forward our empirical findings and concludes the article.

LITERATURE REVIEWS

Few studies have been conducted on IARL. Ettredge et al. (2006) examine the SOX Section 404 and research on assessing the internal control quality regarding internal control audit delay. On the contrary, studies on financial statements audit report lag (ARL) have already been performed over 30 years and some of the earliest studies are done by Courtis (1976) and Gilling (1977) in New Zealand, Davies & Whittred (1980) in Australia. We divide the literature of ARL into three groups. One group studies the relation between companies' characteristics and ARL. For example, Courtis (1976) and Carslaw & Kaplan (1991) find companies experiencing losses have a longer audit report lag. Ashton et al. (1989) study the reporting lag based on samples of Canadian firms and find ARL is significantly shorter among firms of service industry than that of other industries. Henderson & Kaplan (2000) examine the influence of features of banks on ARL by comparing cross-sectional analysis and panel data analysis. Knechel & Payne (2001) suggest that an unexpected reporting lag may be associated with lower information quality. Lee et al. (2008) compare the timeliness of earnings reports of multinational firms with that of domestic firms. Mohamad-Nor (2010) examines the characteristics of the board of directors and the audit committee and studies their influence on ARL, revealing that a more active and larger audit committees will shorten ARL.

Another group focuses on investigating whether auditor-related factors have impact on ARL. Ashton et al. (1987) investigate ARL based on engagement partners' responses to questions relevant to audit engagements, and find that ARL is significantly shorter when internal control quality is strong and more audit work is performed at interim. Bamber et al. (1993) test a comprehensive model of ARL, during which they examine three components of reporting lag: (a) the extent of audit work required; (2) the auditor's incentive to swiftly complete the audit; and (c) the audit firm's technology. Knechel & Payne

(2001) find that the provision of certain non-audit services increases ARLs for a small sample of mostly private firms.   Leventis et al. (2005) study the ARLs of companies listed on Athens Stock Exchange and suggest that the ARL has a positive relation with the type of auditors, audit fees, the presence of extraordinary items, the number of remarks and the expression of uncertainty in the audit report.   Lee et al. (2009) examine whether ARLs are affected by auditor tenure and the provision of non-audit services by the external auditor. The other group combines characteristics of companies and audit-related factors to examine their influence on audit report ARL.   For example, El-Banany (2006) researches the influence of determinants as international affiliation, size, audit complexity, profitability and extraordinary items on ARL.   Owusu-Ansah & Leventis (2006) study determinants of reporting lead-time, determinants consist of selected company-related factors (company size, gearing, insider equity share holding and industry type), and audit related factors (the number of remarks and auditor type).

Hypothesis

We use four variables to evaluate the performance of board of directors.   These variables are the size, the independences and the meeting frequency of board of directors as well as the duality of CEO.   The size of board of directors is normally in a range from five to nineteen.   Jensen (1993) finds that members tend to become "free-rider" in a larger size board.   Yermack (1996) reveals the value of companies with a smaller size of board of directors is higher than that of companies with a larger one.   Beasly (1996) discovers that the rate of fraud occurred increased in accord to the increase of size of board.   In addition, Xie et al. (2003) conclude that the possibility of bureaucracy is low in small board of directors, and the earnings management is, in contrast, especially popular in it.   Therefore, we assume that a bigger size of board of directors would lower its efficiency since it takes time for members in board to cooperate with each other. In China, the board of directors should consist of 1/3 independent directors.   The standard view in practice is that the degree of board independence is closely related to its composition.   The board is presumed to be more independent as the number of outside directors increases proportionately. Beasley (1996) finds that the existence of independent directors is helpful for board to implement financial supervision and to decrease the frequency of fraud.   Vafeas (2005) points out that the higher percentage of independent directors, the higher efficiency of financial supervision is.   Petra (2007) finds a positive association between the proportion of outside independent directors serving on firm's boards and earnings informativeness.   On the other hand, Ahmed et al. (2006) study the data of listed companies in New Zealand from 1991 to 1997 and suggest that the independent directors have no influence on earnings information.

Based on complementary view mentioned in introduction section, we assume that a higher frequency of meeting held by board of directors is accompanied with more problems occurred in firms.   The auditor might do more tests and the IARLs will increase accordingly.   On the other hand, based on the substitution view, it is supposed that if the directors solve the problems and the auditor might do fewer tests, the IARLs will decrease.

When the CEO serves the dual position of chairperson of the board in the meanwhile, it signifies the concentration of decision-making power, which will hamper board independence and reduce the ability of the board to execute its supervision roles.   Jensen (1993) advocates the separation of positions of the CEO and chairperson to avoid the conflicts of interests.   Abdelsalam & Street (2007), Sarkar &Sen (2008) find that the duality of CEO is unfavorable to increase the disclosure quality of accounting information.   However, Petra (2007) finds there is no association between non-CEO duality and earnings informativeness.

Hence, we posit the following hypotheses.

H1: There is a positive relationship between the size of board of directors and IARL.

H2: There is a negative relationship between the independence of board of directors and IARL.

H3：There is a relationship between the meeting frequency of board of directors and IARL.

H4: There is a relationship between the duality of CEO and IARL.

The expectation that audit committees exercise an active monitoring of the company financial reporting process is well established and this role has been repetitiously confirmed by many corporation governance codes and professional pronouncements over the last 10-15 years (Song & Windram, 2004). This paper adopts the size of audit committee to evaluate the internal control supervision of audit committee. Karamanou & Vafeas (2005) conclude that the audit committee is expected to provide assistance in resolving conflicts within management and to lead to some improvement in overall audit quality. Moreover, Mohamad-Nor et al. (2010) use the data from Malaysia, and detect that the size of audit committee has a negative relation with audit report lag.   Hence, the fifth hypothesis to be tested is:

H5: There is a negative association between the size of audit committee and IARL.

Companies in China have two-tire corporation governance.   One is board of directors and the other is board of supervisors.   They are parallel in position and subordinate to the shareholder's meeting.   The board of directors consists of directors and sometimes it also includes employee representatives, who are elected by employee union or meeting.   In the state-owned companies, the board of directors is required to involve employee representative members.   Besides, the directors may be the managers of the company at the same time.   The duties of board of directors in USA include: (a) the election, removal, and supervision of officers; (b) the adoption, amendment, and repeal of bylaws; (c) fixing management compensation; (d) initiating fundamental changes to the corporation's structure; and (e) the declaration of distributions.   Unlike the board of directors in USA, the board of directors in China has not only the above-mentioned duties but also duties of making business decision & investment plan and formulating annual financial budget and accounts plan.   In other word, the board of directors in China has the duties of supervision as well as management.

Audit committee usually implements the duty of supervisor of board of directors.   The duties of board of supervisors in China covers: (a) implementing financial supervision; (b) monitoring the behavior of directors and managers and giving suggestions about the removal of directors and managers if they illegally behave; (c) requiring the directors and managers to correct their behavior when their behaviors do harm to the interest of company; (d) advancing to hold and chair the temporary shareholders' meeting when the directors do not perform it in accordance with regulation; (e) submitting proposal to the shareholders' meeting;(f) suing managers and directors when they have illegal behaviors and perform damage to company; (g) attending the meeting held by board of directors, questioning the resolutions and giving suggestions; (h) accessing all the materials of the company, and questioning directors and managers when necessary. In sum, the board of supervisors in China just has the function of monitoring in companies and it is an independent monitoring organization. We use three variables to evaluate the internal control supervision by board of supervisors.   These variables are the size, the independence and the meeting frequency of board of supervisors.   We assume the following hypotheses.

H6: There is a relationship between the size of board of supervisors and IARL.

H7: There is a relationship between the independence of board of supervisors and IARL.

H8: There is a relationship between the meeting frequency and IARL.

DATA AND METHODOLOGY

Sample

We obtain the samples of listed Chinese companies in the study from Shenzhen Stock Exchange from Year 2008 to Year 2011.   The annual data about corporation governance structure come from CSMAR

and annual reports disclosed on website of individual companies. The internal control audit report is published on the website of Shenzhen Stock Exchange (http://disclosure.szse.cn/m/drgg.htm). In the study, IARL refers to the length of time from a company's fiscal year-end to the date the auditors sign their report. Out of 1742 observations, a sample of 1244 is selected, as described in Table 1. Finance-related observations are excluded due to their nature of business and the fact that they are governed under different rules and regulations (Mohamad-Nor et al., 2010, Leventis et al., 2005). We eliminate 370 observations owing to incomplete or ambiguous data and 3 observations because information on audit report date is not available. Meanwhile, we delete 58 observations with audit fee larger than RMB2, 000, 000 and 37 observations with size of board of directors larger than 12 because they are outside of normal distribution.

Table 1: Sample Selection

Total	Less:	Financial companies	Unavailable financial statement data	Unavailable audit report date	Outlier:	Cost>200(ten thousand)	BSIZE>12	Total observations
1742		20	370	3		58	37	1244

This table shows the results for the full observations from Year 2008 to Year 2011, and we delete observations from financial companies, observations with unavailable financial statement data, observations without available audit report date and observations in the outlier.

Model

This paper proposes a model of IARL based on prior studies to accommodate the corporate governance structure variables and Chinese environment (e.g., Mohamad-Nor et al., 2010, Lee et al., 2008, Krishnan & Yang, 2009, Leventis et al., 2005, Jaggi &Tsui, 1999).   The IARL model is as follows：

$$IARL = \beta_0 + \beta_1 BSIZE + \beta_2 BIND + \beta_3 DUALCEO + \beta_4 DM + \beta_5 ACSIZE + \beta_6 SUPSIZE$$
$$+ \beta_7 NSR + \beta_8 SM + \beta_9 BIG4 + \beta_{10} COST + \beta_{11} EI + \beta_{12} NET + \beta_{13} INDUSTRY + \varepsilon \tag{1}$$

Where,

IARL	=	number of days from fiscal year end to the date of internal control audit report;
BSIZE	=	number of director members;
BIND	=	proportion of independent directors in board of directors;
DUALCEO	=	1, if CEO and Chairman is the same person, 0 otherwise;
DM	=	the meeting frequency of board of directors;
ACSIZE	=	number of audit committee members;
SUPSIZE	=	number of supervisory board members;
NSR	=	proportion of supervisors with no salary from companies in board of supervisors;
SM	=	the meeting frequency of board of supervisors;
BIG4	=	1 if the auditor is PricewaterhouseCoopers, Ernst and Young, KPMG or Deloitte, 0 otherwise;
COST	=	Audit fee;
EI;	=	1 if company reports extraordinary items, 0 otherwise;
NET	=	1 if net income is positive, 0 otherwise; and
INDUSRY	=	1 if company is classified as industrials, 0 otherwise.

Control Variables

The IARL model incorporates control variables such as auditor type, audit fee, firm performance and industry. Companies audited by big CPA firms or international CPA firms are normally expected to have shorter audit lags because the internationally affiliated audit firms are probably more efficient for reasons of superior audit technology (Williams & Dirsmith, 1988). Gilling (1977) and Leventis et al. (2005) point out a positive relationship between the size of the auditing firms and audit delay. Moreover, the larger international firms might be enhanced in markets where the audit profession has only recently been liberalized (Caramanis, 1997) and provide a faster service to increase their market share (Leventis et al., 2005). Ward et al. (1994) discover audit fees are positively associated with the number of audit adjustments since a higher audit fee implied that the auditor has to do more testing and adjustments. Hence, if the audit fee is high, audit report lag will be longer. On the other hand, Leventis et al. (2005) find there is a significantly negative relation between audit report lags and audit fee. Prompt audit might be more expensive due to concentrated audit resources or higher audit opportunity cost.

In this article, two variables are utilized to evaluate the firm performance—profitability and extraordinary items. First, companies with loss (or net income) have incentive to delay (or accelerate) the disclosure of the "bad news" (or "good news") (Afify, 2009). Second, greater auditor business risk is to be perceived for companies reporting losses and the auditor will do more testing (Afify, 2009). Therefore, the audit report lags will be severe when the companies show loss in performance. Geiger and Rama (2003) show that financially distressed companies are supposed to require auditors to exercise a significant amount of professional judgments, which will postpone the issuing of the audit report. On the other hand, extraordinary items report material events that are not part of company's normal operations, and more time are expected to spend on auditing them (Owusu-Ansah, 2000). Ng and Tai (1994) find there is a significant association between extraordinary items and audit report lag. Leventis et al. (2005) also discover a significant positive relation between extraordinary items and audit report lag. Bamber et al.（1993）find that the financial companies have a shorter audit report lag than non-financial companies since non-financial companies have more inventory or fixed assets to be audited. Different industries with different features, some industries are constituted with complex internal control, which might result in a longer internal control audit lags when compared with other industries.

RESULTS AND DISCUSSION

Descriptive Statistics

Table 2 demonstrates the descriptive statistics results of all variables investigated in this study. The minimum audit report lag is 24 days and the maximum is 117 days. The average internal control audit report is about 84 days, within the required 120 days (about 4 months) in Chinese Company Internal Control Evaluation Guide. We analyze the descriptive statistics by partitioning samples according to the length of IARL. We categorize four groups in Table 3: (a) less than one month after fiscal year end; (b) one to two months after fiscal year end; (c) two to three months after fiscal year end; and (d) three to four months after fiscal year end. The IARLs of 28 observations (2.25%) are less than one month after fiscal year. The IARLs of 161 observations (12.94%) are within one to two months after fiscal year end. The IARLs of 603 observations (48.47%) are within two to three months after fiscal year end and IARLs of 452 observations (36.33%) are within three to four months after fiscal year end.

We further examine the change of number of companies by classifying samples according to the length of IARL in different years, with the results illustrated in Table 4. We find more companies are willing to disclose the internal control audit report within three to four months after fiscal year end from Year 2008 to Year 2011. The amount of companies in Year 2008 willing to disclose the internal control audit report within three to four months after fiscal year end is 22, representing 21.154%. However, the amount of companies in Year 2011 willing to disclose the internal control audit report within three to four months after fiscal year end is 214, representing 38.698%.

Table 2: Descriptive Statistics

Variable	Min	Max	Mean	SD
IARL	24	117	84.718	21.380
BSIZE	5	12	8.692	1.396
BIND	0.3000	0.5714	0.3664	0.0489
DUALCEO	0	1	0.3183	0.4660
DM	3	20	8.936	3.084
ACSIZE	0	7	2.304	1.848
SUPSIZE	3	7	3.535	0.9848
NSR	0	1	0.2715	0.2724
SM	2	11	5.461	1.787
BIG4	0	1	0.0121	0.1092
COST	18	200	54.796	28.854
EI	0	1	0.8754	0.3304
NET	0	1	0.9638	0.1868
INDUSTRY	0	1	0.6849	0.4647

This table shows the minimum, maximum, mean and standard deviation of every variable including control variables. IARL is number of days from fiscal year end to the date of internal control audit report. BSIZE is number of director members. BIND is proportion of independent directors in board of directors. DUALCEO is dummy equaling 1 if CEO and chair of board of directors is the same person. DM is the meeting frequency of board of directors. ACSIZE is number of audit committee members. SUPSIZE is number of supervisory board members. NSR is proportion of supervisors with no salary from companies in board of supervisors. SM is the meeting frequency of board of supervisors. BIG4 is dummy equaling 1 if the auditor is PricewaterhouseCoopers, Ernst and Young, KPMG or Deloitte. COST is Audit fee. EI is dummy equaling 1 if companies report extraordinary item. NET is dummy equaling 1 if companies have net income. INDUSRY is dummy equaling 1 if the companies belong to the classified industry.

Table 3: Descriptive Statistics Partitioned by Delay in Months

MONTH		IARL	BSIZE	BIND	DUALCEO	DM	ACSIZE	SUPSIZE	NSR	SM
1	n	28	28	28	28	28	28	28	28	28
	mean	25.750	8.464	0.3672	0.3214	8.857	2.071	3.714	0.2190	4.964
2	n	161	161	161	161	161	161	161	161	161
	mean	52.727	8.491	0.3717	0.3478	8.9193	2.590	3.578	0.2428	5.410
3	n	603	603	603	603	603	603	603	603	603
	mean	79.299	8.736	0.3646	0.3035	8.892	2.310	3.579	0.2868	5.494
4	n	452	452	4 52	452	452	452	452	452	452
	mean	107.00	8.719	0.3668	0.3274	9.004	2.208	3.449	0.2645	5.467
total	n	1244	1244	1244	1244	1244	1244	1244	1244	1244
	mean	84.718	8.692	0.3664	0.3183	8.936	2.304	3.535	0.2715	5.461
	median	85	9	0.3333	0	9	3	3	0.3333	5
	min	24	5	0.3000	0	3	0	3	0	2
	max	117	12	0.5714	1	20	7	7	1	11

This table shows the descriptive statistics results (number of companies; minimum and maximum of each variable) by partitioning samples according to the length of IARL. 1 refers to the length of IARL is less than one month, 2 refers to the length of IARL is about one to two months, 3 refers to the length of IARL is about two to three months, and 4 refers to the length of IARL is about three to four months. IARL is number of days from fiscal year end to the date of internal control audit report. BSIZE is number of director members. BIND is proportion of independent directors in board of directors. DUALCEO is dummy equaling 1 if CEO and chair of board of directors is the same person. DM is the meeting frequency of board of directors. ACSIZE is number of audit committee members. SUPSIZE is number of supervisory board members. NSR is proportion of supervisors with no salary from companies in board of supervisors. SM is the meeting frequency of board of supervisors.

Table 4: Number and Percentage of Companies Partitioned by Delay in Months from 2008 to 2011

Year	IARL	Number	Percentage (%)
2008	1	1	0.9615
	2	14	13.462
	3	67	64.423
	4	22	21.154
total		104	100.00
2009	1	11	3.846
	2	38	13.287
	3	135	47.203
	4	102	35.664
total		286	100.00
2010	1	9	2.990
	2	46	15.282
	3	132	43.854
	4	114	37.874
total		301	100.00
2011	1	7	1.266
	2	63	11.392
	3	269	48.644
	4	214	38.698
total		553	100.00

This table shows the number and percentage of companies by partitioning samples according to the length of IARLs from Year 2008 to Year 2011. 1 refers to the length of IARL is less than one month, 2 refers to the length of IARL is about one to two months, 3 refers to the length of IARL is about two to three months, and 4 refers to the length of IARL is about three to four months. IARL is number of days from fiscal year end to the date of internal control audit report.

We also investigate the descriptive statistics results in the light of industries in Table 5. We find that the total mean of IARLs in all industries is about 84.72 days. However, the mean of IARLs in six industries (Electricity, gas and water; Building; IT; Wholesale and retail trade; Real Estate; Communication and Culture) are larger than 84.72 days. IARL in Electricity, gas and water industry shows the largest mean (94.29 days).

Table 5: Descriptive Statistics Results by Industry

Industry	IARL					
	Agriculture	Excavation	Manufacturing	Electricity, Gas and Water	Building	Transportation and Warehousing
Observation	24	24	852	14	30	22
Mean	81.750	84.583	84.182	94.286	87.833	84.545
Min	24	56	24	24	40	47
Max	116	111	117	116	116	116
Industry	IT	Wholesale and Retail Trade	Real Estate	Social Service	Communication and Culture	Others	TOTAL
Observation	131	42	44	43	12	6	1244
Mean	88.076	86.238	85.341	80.047	86.750	76.833	84.718
Min	24	55	38	30	73	24	24
Max	117	116	117	116	115	110	117

This table shows amount of companies in different industries, as well as the descriptive statistics results such as mean, minimum and maximum of IARLs in different industries. IARL is number of days from fiscal year end to the date of internal control audit report.

Table 6: Pearson Correlation Matrix

	IARL	BSIZE	BIND	DUALCEO	DM	ACSIZE
IARL	1.000					
BSIZE	0.0524*	1.000				
BIND	-0.0105	-0.4597 ***	1.000			
DUALCEO	-0.0010	-0.1497***	0.1033***	1.000		
DM	0.0110	-0.0636 **	0.0544*	-0.0025	1.000	
ACSIZE	-0.0412	0.1052***	-0.0013	-0.0414	0.1247***	1.000
SUPSIZE	-0.0684**	0.2099***	-0.1376***	--0.1116 ***	-0.0141	0.0490*
NSR	0.0108	0.1699***	-0.1270***	-0.1972***	-0.0088	0.0010
SM	0.0319	-0.0346	0.0528*	0.0621**	0.4774***	0.1662***
BIG4	0.0052	0.0296	-0.0223	-0.0281	-0.0025	0.0337
COST	0.0681**	0.0897***	-0.0142	-0.0429	0.1412***	0.0583**
EI	-0.0147	0.0266	-0.0147	0.0802***	-0.0189	0.0304
NET	-0.0978***	-0.0181	0.0039	0.0307	0.0001	-0.0427
INDUSTRY	-0.0370	0.0115	0.0404	0.0363	-0.1556***	0.0048

Table 6: Pearson Correlation Matrix (Continued)

	SUPSIZE	NSR	SM	BIG4	COST	EI	NET	INDUSTRY
SUPSIZE	1.000							
NSR	0.2749***	1.000						
SM	-0.0155	-0.0631**	1.000					
BIG4	0.0597**	-0.0135	0.0415	1.000				
COST	0.0443	0.0196	0.0014	0.2306***	1.000			
EI	-0.0102	-0.0273	-0.0088	-0.0029	0.0553*	1.000		
NET	-0.0785***	-0.0171	0.0042	0.0214	0.0239	0.1224***	1.000	
INDUSTRY	0.0150	-0.0336	0.0001	0.0274	-0.0223	0.0323	-0.0387	1.000

*This table shows the correlation among the variables. IARL is number of days from fiscal year end to the date of internal control audit report. BSIZE is number of director members. BIND is proportion of independent directors in board of directors. DUALCEO is dummy equaling 1 if CEO and chair of board of directors is the same person. DM is the meeting frequency of board of directors. ACSIZE is number of audit committee members. SUPSIZE is number of supervisory board members. NSR is proportion of supervisors with no salary from companies in board of supervisors. SM is the meeting frequency of board of supervisors. BIG4 is dummy equaling 1 if the auditor is PricewaterhouseCoopers, Ernst and Young, KPMG or Deloitte. COST is Audit fee. El is dummy equaling 1 if companies report extraordinary item. NET is dummy equaling 1 if companies have net income. INDUSRY is dummy equaling 1 if the companies belong to the classified industry. *, **, *** indicate significance at the 10, 5 and 1 percent levels respectively.*

Correlation Analysis

Table 6 reports correlations among variables. The correlation coefficient between DM and SM is 0.477, which is the highest one. Emory (1982) suggested that multicollinearity might be a problem when the correlation between independent variable was more than 0.80. Therefore, Table 6 indicates that there is no severe autocorrelation among variables. From Table 6, all hypotheses we mentioned above are satisfied. We find there is a significant positive relation between IARL and size of board of directors (BSIZE) and a significant negative relation between IARL and size of board of supervisors (SUPSIZE). There is an insignificant negative relation between IARL and independence of board of directors (BIND), duality of CEO (DUALCEO) and size of audit committee (ACSIZE). There is an insignificant positive relation between IARL and meeting frequency of board of directors (DM), independence of board of supervisors (NSR) and meeting frequency of board of supervisors (SM)

Results of Regression Analyses

Table 7 shows the regression results of our model. Three corporation governance characteristics, namely size of board of directors (BSIZE), size of audit committee (ACSIZE), and size of board of supervisors (SUPSIZE), have a significant association at 5% with IARL. The meeting of board of supervisors (SM) has a positive association at 10% with IARLs. Therefore, based on complementary view, the more frequently companies held the meeting of board of supervisors, more problems the internal control might have and more tests for internal control the auditor will take. However, the independence of board of supervisors has no significant association with IARLs. Besides, Independence of board of directors (BIND) and duality of CEO (DUALCEO) have positive relationship with IARLs, and neither of the two variables is statistically significant. The frequency of meeting of board of directors (DM) has an insignificant negative relation with IARL, and independence of board of supervisors (NSR) has an insignificant positive relation with IARL. For control variables, audit fee (COST) and profitability (NET) are the only two found to have significant association with IARLs.

CONCLUDING COMMENTS

This study provides empirical evidence relating to the IARLs of companies listed on Shenzhen Stock Exchange from Year 2008 to Year 2011. The main objective of this study is to examine the relationships between corporation governance structure and the timeliness of internal control audit reporting. The characteristics of corporation governance structure examined in the article involve the size of board of directors, the independence of board of directors, duality of CEO, meeting frequency of board of directors, size of audit committees, size of board of supervisor, independence of board of supervisors, and meeting frequency of board of supervisors. The descriptive statistics results indicate that all companies submit their internal control audit report within the regulatory deadline, and most companies are willing to disclose the internal control audit report during two to four months after fiscal year end. Increasing numbers of companies prefer to disclose the internal control audit report within three to four months after fiscal year end. Regression analysis reveals that firms, with fewer directors but more supervisors and

members in audit committees as well as less frequent supervisory board meeting, are more likely to reduce IARL. In contrast, this study also demonstrates factors as the independence of board of supervisors and board of directors, the meeting frequency of board of directors together with duality of CEO, hardly exert influence on the IARL.

This study is subject to several limitations. First, the characteristics of audit committee should include other factors, such as independence, expertise and frequency of meeting. However, the data is not available in the database. Second, the explanatory power of the model might be enhanced by including other auditor-related control variables as changes in audit fees, the extent of non-audit fee and frequency of litigation involving the auditor. However, such data are not available at present. Finally, it is also illuminating to see the consequences of audit lag on the cost of capital, and whether audit-reporting lag is associated with earnings management.

Table 7: Regression Analysis

Variable	Coefficients	T-value
BSIZE	1.109	2.22**
BIND	4.419	0.32
DUALCEO	0.2568	0.19
DM	-0.1498	-0.65
ACSIZE	-0.6797	-2.04**
SUPSIZE	-2.092	-3.23***
NSR	2.023	0.86
SM	0.6491	1.66*
BIG4	-0.9086	-0.16
COST (ten thousand)	0.0557	2.55**
EI	-0.3103	-0.17
NET	-12.508	-3.84***
INDUSTRY	-1.869	-1.42
F value	3.11	
Adj. R-squared	0.0216	
P value	0.0001	

*This table shows regression results based on equation (1).   The period of data is from Year 2008 to Year 2011.   BSIZE is number of director members.   BIND is proportion of independent directors in board of directors.   DUALCEO is dummy equaling 1 if CEO and chair of board of directors is the same person.   DM is the meeting frequency of board of directors.   ACSIZE is number of audit committee members.   SUPSIZE is number of supervisory board members.   NSR is proportion of supervisors with no salary from companies in board of supervisors.   SM is the meeting frequency of board of supervisors.   BIG4 is dummy equaling 1 if the auditor is PricewaterhouseCoopers, Ernst and Young, KPMG or Deloitte.   COST is Audit fee.   EI is dummy equaling 1 if companies report extraordinary item.   NET is dummy equaling 1 if companies have net income.   INDUSRY is dummy equaling 1 if the companies belong to the classified industry.   *, **, *** indicate significance at the 10, 5 and 1 percent levels respectively.*

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ACKNOWLEDGMENTS

BIOGRAPHY

Dr. Yuedong Li is an Associate Professor of Accounting at Southwestern University of Finance & Economics.   She can be contacted at: The School of Accountancy, Southwestern University of Finance & Economics, No.555 of Liutai Road, Wenjing District, Chengdu, Sichuan Province, P.R.China 611130. Email: liyuedong@swufe.edu.cn

Dr. Dong Zhang is an Assistant Professor of Accounting at Southwestern University of Finance & Economics.   He can be contacted at: The School of Accountancy, Southwestern University of Finance & Economics, No.555 of Liutai Road, Wenjing District, Chengdu, Sichuan Province, P.R.China 611130. Email: zhangdong@swufe.edu.cn

Ms. Xingyu Wang is a graduate student at Southwestern University of Finance & Economics.   She can be contacted at The School of Accountancy, Southwestern University of Finance & Economics, No.555 of Liutai Road, Wenjing District, Chengdu, Sichuan Province, P.R.China 611130.   E-mail: wangxingyu_yy@126.com

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